EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME, COIMBATORE

REG. NO. 30101435

A Dissertation Submitted to
The Tamilnadu Dr. M. G. R. Medical University,
Chennai-32.

In Partial Fulfillment of the Requirement for the

Award of the Degree of

MASTER OF SCIENCE IN NURSING

2012

EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN

AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME, COIMBATORE

Approved by Dissertation Committee on _____

_____

1. **Mrs. S. Girijakumari, M. Sc. (N).,**
Professor & Head,
Department of Community Health Nursing,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore - 641 044.

_____

2. **Dr. G. K. Sellakumar, M. A., M. Phil., P. G. D. P. M., Ph. D.,**
Professor & Head,
Department of Psychology & Research Methodology,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore - 641 044.

_____

3. **Dr. S. L. Ravi Shankar, M. B .B. S., M. D.,**
Professor of Community Medicine,
P. S. G. Institute of Medical Sciences and Research,
Coimbatore - 641 004.

Certified that this is the bonafide work of

SHOBA GRACIAH. A

COLLEGE OF NURSING
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044.

Submitted in Partial Fulfillment of the Requirement for the Award of the Degree of

MASTER OF SCIENCE IN NURSING

to The Tamilnadu Dr. M. G .R. Medical University, Chennai –32.

College Seal

Prof. (Mrs.) SEETHALAKSHMI,
B. Sc., R. N., R. M., M. N., M. Phil., (Ph. D).,
Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore - 641 044,
Tamilnadu, India.

COLLEGE OF NURSING
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 44

2012

ACKNOWLEDGEMENT

I express my heartfelt thanks to honourable **Shri. C. Soundar Raj Avl.,** Managing Trustee, SNR & Sons Charitable Trust for giving me an opportunity to utilize all the facilities in this esteemed institution.

I am immensely grateful to **Prof. Seethalakshmi**, B. Sc (N)., R. N., R. M., M. N., M. Phil., Ph. D., Principal, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore for her expert guidance and valuable suggestions throughout the study.

I extend my heartfelt sincerity to **Prof. R. Ramathilagam**, M. Sc (N)., Vice Principal, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore for her keen interest, enduring moral support and valuable suggestions in completing this study.

I express my deep sense of gratitude to **Prof. S. GirijaKumari,** M. Sc (N)., for her expert guidance, valuable suggestions, encouragement and keen interest in conception, planning and execution of the study.

I express my profound gratitude to **Dr. S. L. Ravi Shankar,** M. B. B. S., M. D., Professor, Department of Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore for his valuable suggestions and expert guidance throughout my study.

I express my special and sincere thanks to **Dr. G. K. Sellakumar**, M. A., M. Phil., P. G. D. P. M., Ph. D., Professor in Psychology, Department of Research Methodology and **Mrs. R. Ramya**, M. Sc., M. Phil., Associate Professor, Department of Biostatistics for their intelligent guidance and constant encouragement which contributed a great deal to give meaning and enrichment of the study.

I express my special thanks to **Prof. W. Chitra,** M. Sc (N)., **Prof. Suganthi**, M. Sc (N)., and **Mrs. V. Brindha**, M. Sc (N)., **Mrs. Renuka**, M.Sc (N)., **Mrs.Nuziba**, M. Sc (N)., **Mrs. V. Anushuya Devi**, M. Sc (N)., for their moral support and valuable suggestions in completing the study.

I am grateful to **Dr. W. D. Sam Solomon**, M. Pharm, Ph. D., Professor and Head, Department of Pharm and Chemistry, RVS College of Pharm. Sciences, Sulur, Coimbatore for their great help for checking the purity of oil.

I extend my sincere thanks to **Sr Alphonsa,** Sister superior of St Joseph Old Age Home for immense help throughout the study.

I owe much too **all Faculties, Staff Members** who have instructed and enlightened me in the field of education and rendered and all possible help with their heart and soul co-operation to achieve my target.

I am grateful to the **Librarians** of Sri Ramakrishna Institute of Paramedical Sciences for their retrieving patience and timely helping many ways to prepare the manuscript. I express my gratitude to staff of **Bubbles Net Café**, Coimbatore for their compute and technical assistance. There cannot be anything possible by me without the affection, support and love of **my parents, family members** and **my dear spartans** for their prayerful support and guidance throughout the course of my studies.

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Abstract

A study was conducted to examine the effect of massage with aromatic ginger and orange essential oil on knee pain of elderly people, in selected old age home, Coimbatore. Quasi experimental one group pre test post test design was found to be appropriate to meet the objective of the study. Purposive samples of 40 elderly people were selected for the study. Western Ontario McMaster Scale (WOMAC) was administered to assess the level of knee pain. Aromatic ginger and orange essential oil massage was given for duration of 20 minutes per day for six sessions in scheduled timing over a period of three weeks. Post test was conducted to assess the level of knee pain after the intervention using the same scale. Appropriate statistical technique was employed to test the hypothesis. The result shows that there is significant reduction in knee pain among elderly people after the intervention. Thus, aromatic ginger and orange essential oil massage was found to be effective in reducing knee pain.

Effect of Massage with Aromatic Ginger and Orange Essential Oil on Knee Pain among Elderly People at Selected Old Age Home, Coimbatore

The best wealth of man is health. It is the source of all happiness. A healthy man is always cheerful, he finds interest in doing things, got strength of mind, always sees the brighter of things, always hopeful and would not lose heart easily. Ageing is the natural process that occurs in human life cycle with the change in body, mind, thought, process and living patterns that decline the functional capacity of the old age and life span. The dream of people all over the world is to live long, achieved by the advancement of socio, economic and science especially the medical science in the developed as well as developing countries.

Nearly 680 million people representing 11.7 % of the world population are above the age of 60. In India the population of the elderly people is about 11.6 % and the life expectancy is bound to improve because of the advancement of the life style and medical facilities that has lead to the label of " an ageing nation" (Ingle & Nath , 2008).

Problems of elderly people includes visual impairment, 88 %, locomotive disorder 44 %, neurological complaints 18.7 %, cardiovascular disease 17.4 %, respiratory disease 16.1 %, skin conditions 13.3 %, gastro intestinal/ abdominal disorder 9.0 %, psychiatric problems 8.5 %, hearing loss 8.2 % and genitourinary disorder 3.5 % (Park, 2011).

The knees are the most easily injured part of the body. The largest and most complicated joints the knee is used for everything like standing, sitting, walking and running. It is a weight bearing joint that straightens, bends, twisted and rotates. All this motions increases the risk of knee pain. Joint over use, knee osteoarthritis, athletic knees are the other cause of knee pain, in that knee osteoarthritis is the common cause of knee pain. The risk increases with the age, osteoarthritis is a form of arthritis involving degeneration of cartilage (Altman, 2010).

The World Health Organization (WHO) report identified knee pain, as the 8th leading cause of non-fatal burden in the world in 2000, accounting for 2.6 % of total year lost due to disability.

Most of the elderly people are suffering from knee pain. As knee ages, it will hinder the daily activities like walking, climbing, stairs up and down, sitting on the floor, chair and squatting position in Indian toilet. A study was conducted at Pudhuchery to assess the level of function of knee among elderly. It revealed that 43.4 % of elders had pain in the knee and knee stiffness (Rajan, 2006).

Many methods are used to relieve knee pain of which exercise, acupressure, acupuncture, massage therapy are few examples of management. Massage with aroma oil is a wonderful pain reducer and an antidote for pain as elicited by Patrick, (2010).

Ginger and orange essential oil has a property of anti-inflammatory, analgesic and anti-spasmodic effect. Cyclooxygenase (COX) is an enzyme responsible for the formation of important substance called prostaglandins. The ginger and orange essential oil inhibit cyclooxygenase there by inhibit the production of prostaglandin and help to get relief from the symptoms of inflammation and pain (Ray & Sahelian, 2010).

The ginger oil has an effect on human muscle pain. A study demonstrated that daily application of ginger oil will reduce the muscle pain and on the basis of this, it was further demonstrated ginger's effectiveness as a pain reliever in osteoarthritis patients. An experimental study was conducted at Hong Kong states that massage with aromatic ginger and orange essential oil reduce the knee pain, stiffness and improve function, daily living (Yip & Tam, 2008).

Thus,elderly people affected with knee pain need an intervention that is scientific, affordable and accessible to all sectors of people. Massage with aromatic ginger and orange essential oil is such an intervention that reduces the knee pain of elderly people there by improving the functional ability.

1.1. NEED FOR THE STUDY

Old age occurs in every human being life. Older people are the back bone of the family and society. Society exists with the characteristic feature of continuity. Among humans 'Elderly' is the group of people who transmit values and culture of the community to

the upcoming generations. Thus, they play the pivoted role in the existence of society. Hence, these people deserve to be cared and nurture.

The population of the elder people has been increasing over the years. As per United National Educational, Scientific and Cultural Organization (UNESCO) estimate, the number aged 60 was likely to be 590 million in 2005 and the figure would double by 2010. In India, the elderly population constituted 5.5 % in 2011. India is the developing country in which the population pyramid is inverted which constitute the increasing number of dependent age group especially above 60 years of age (Sinha, 2011).

Globally, a significant increase in the life expectancy has been observed. The proportion of the elder persons in the world population is expected to increase rapidly from 10.0 % in 2000, 15.0 % in 2025 and 21.1 % in 2050. It has been estimated that 70 % of the world's old age population is in developing countries (Johnson, 2009).

Tamilnadu ranks second in the highest proportion of elderly people, with 10 %, next to Kerala which has 11 %. Of the four lakhs old age living alone in Tamilnadu, three lakhs are women, the country's highest. India's grey population (elderly above 60 years) will reach up to 177 million within 25 years. Women will make up 51 % of this number, in which 9.16 % of elderly people are there in Coimbatore (Prasad, 2007).

A spurt in life expectancy increases the population of elderly people. Health problems experienced by the elders are enormous. A study conducted on the health conditions of the elderly person reports that 48.8 % suffered from knee pain, 33.0 % hypertension, 17.1 % diabetes mellitus and 1.1 % suffer from minor ailments. A greater emphasis has to be given to identify and solve the problem of elderly (Samuel, 2000).

In India about 8.42 % of males and 17.3 % of females, totally 25.72 % of elderly peoples are affected by knee pain (Indhumathi, 2009).

Many methods are there to relieve knee pain like exercise, acupressure, and pharmacological management. But this massage with aromatic ginger and orange essential oil is used as a home remedy to reduce the pain in shorter duration.The aromatic ginger and orange essential oil has the properties of antispasmodic, analgesics, antiseptic and anti-inflammatory. It is cheaply available and is also affordable by all type of people Red ginger (Zingiber officinale) has been prescribed as an analgesic for arthritis pain in Indonesian traditional medicine. The extract of red ginger having anti-inflammatory activity reduces the acute and chronic inflammation. (Shamoda, 2010).

Literature shows that the benefit of massage with aromatic ginger and orange essential oil will reduce knee pain intensity, stiffness level and enhance function, daily living (Yip & Tam, 2008).

Prevention is better than cure. Community health nurse plays an important role in primary, secondary and tertiary prevention. Here the researcher focuses on secondary prevention thereby identifies knee pain and prevents further consequences of knee pain. Focusing on preventive strategies and the importance of aroma oil the researcher tends to implement massage with aromatic ginger and orange essential oil for elderly with knee pain.

1.2. STATEMENT OF THE PROBLEM

EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME, COIMBATORE

1.3. OBJECTIVES

1.3.1. To assess the level of knee pain among elderly people.

1.3.2. To implement massage with aromatic ginger and orange essential oil among elderly people.

1.3.3. To assess the level of pain after massage with aromatic ginger and orange essential oil among elderly people.

1.4.OPERATIONAL DEFINITION

1.4.1. Effect

Effect refers to the reduction of knee pain by massaging with aromatic ginger and orange essential oil.

1.4.2. Massage

Massage is the application of ginger and orange essential oil over the knee area in a rotating, kneading and tapping movements for 20 minutes for each leg.

1.4.3. Aromatic Ginger Oil and Orange Essential Oil

The ginger and orange essential oil is extracted from ginger and orange and it was readily available in market. This ginger and orange essential oil and the carrier oil (coconut oil) were mixed in the ratio of 1:1:4 and massaged over the knee.

1.4.4. Knee Pain

Elderly who complained of pain over the knee was assessed with Western Ontario Mc Master Scale which includes pain, stiffness and function, daily living and classified as mild, moderate, severe and extreme knee pain.

1.4.5. Elderly People

Persons aged above 60 years with knee pain residing in St. Joseph Old Age Home, Coimbatore.

1.5. CONCEPTUAL FRAMEWORK

Conceptualization refers to the process of developing and refining abstract ideas (Polit & Beck, 2008). Conceptual model provide a conceptual perspective regarding inter selected phenomenon. A conceptual model broadly presents an understanding of the phenomenon of interest and reflects the assumption and philosophical views.

The conceptual framework adopted for the present study is based on Lydia Hall's Core, Care, Cure model which has three major tenets. Nursing functions are presented in three different interlocking circles constituting different aspects of the patient. These three circles represent the patient's body, the disease affecting the body and the nursing care provided. Nursing operates in all three circles in appropriate role. The core circle denotesthe patient care which involves the therapeutic use of self and shared with other members of the health team. The motivation and energy necessary for healing exists with the patient rather than the health care team. The care circle represents the nurturing component of nursing and is exclusive to nursing. When functioning in the care circle, the nurse applies knowledge of natural and biological sciences to provide strong theoretical base for nursing actions. The cure part represents the outcome of the care being rendered.

In this present study, the researcher conceptualized core part of the system as the factors which influence the knee pain of elderly people who were residing at St.Joseph Old Age Home. The elderly people with knee pain were assessed by base line data which

includes personal profile, health status, previous history and anthropometric measurement. Level of knee pain was assessed with Western Ontario Mc Master Scale which includes pain, stiffness and function, daily living. The care part of the system is the application of aromatic ginger and orange essential oil massage for 20 minutes per day for six sessions in schedule timing over a period of three weeks. The cure part of the system explains the reassessment of knee pain using the same scale which shows a reduction in the level of knee pain.

FIG. 1.1.
CONCEPTUAL FRAME WORK BASED ON LYDIA. E. HALL'S CORE, CARE, CURE MODEL (1964)

Source: Kim (2007)

1.6. PROJECTED OUTCOME

Massage with aromatic ginger and orange essential oil will reduce the knee pain and promote comfort to the elderly people with knee pain.

REVIEW OF LITERATURE

Literature review is an essential component for the researcher for a great understanding of the research problem and its major aspects. It provides the investigator with an opportunity to evaluate different approach to obtain the most current facts and selection or development of the theoretical (or) methodological approaches to the problem.

The literature review arranged in the following sections

2.1. Literature related to massage therapy on pain.

2.2. Literature related to aromatic compounds and pain management.

2.3. Literature related to the effects of massage with aromatic ginger and orange essential oil for knee pain management.

2.1. LITERATURE RELATED TO MASSAGE THERAPY ON PAIN

Massage reduced pain and improved functioning in patient with knee pain. Massage was more likely to work when combined with exercise like stretching. For patient with chronic low back pain, the beneficial effect lasted at least a year after treatment. Massage reduces pain more than chiropractic technique, relaxation, physiotherapy, self care education, and acupuncture (Furlan, 2003).

The double blinded randomized control trial on the effects of massage on arthralgia with samples of 150 was conducted. The result revealed that the deep massage reduce 68.5 % of arthralgia pain (Laura Fery & Steven, 2001).

An experimental study on effect of massage was conducted among 357 samples. The result reveals that 207 participants had reduction in anxiety level after four trials of massage, 120 participants had reduction in depression after three trials of massage, 117 participants had reduction in pain after three trials of massage and 71 participants had reduction in nausea after two trials of massage therapy (Fellowes, 1997).

The randomized control study was conducted to assess the effect of massage with ice pack on joint pain with the sample of 450. The experimental group received massage with ice pack on joints where as the control group received only massage. Compared to control group there was a significant reduction in joint pain among experimental group (James, 2003).

An experimental study was conducted at U.S to assess the effect the massage therapy on knee pain. The sample size was 80. The study was conducted for a period of one month. WOMAC scale was used to assess the level of pain. The result reveals that the massage therapy was effective in reducing the knee pain (Thomas, 2000).

An interventional study was conducted to assess the effect of massage on joint pain among elderly person above 60 years. The samples of 150 subjects were selected randomly. The intervention was conducted for a period of three weeks. The result reveals that there was a significant reduction in joint pain (Menehan, 2001).

2.2. LITERATURE RELATED TO AROMATIC COMPOUNDS AND PAIN MANAGEMENT

An interventional study was conducted to assess the effect of lavender oil on knee osteoarthritis pain among older women. Samples of 10 were selected randomly. Visual analogue scale was used to assess the level of knee osteoarthritis pain. The intervention was applied for a period of two weeks. The result found that there is a significant reduction in knee osteoarthritis pain (Batterham, 2001).

A study was conducted to assess the effect of cedarwood oil on rheumatoid arthritis pain with a random sample of 84. Five point scales was used to assess the level of rheumatoid arthritis pain. The result reveals that there is dramatic reduction in the rheumatoid arthritis pain (Casimiro, 2004).

A research was conducted to find the effect of olive oil combined with cedarwood oil for knee osteoarthritis. (N = 63) knee osteoarthritis (KOA) patients were selected randomly and WAMOC scale was used to measure KOA. The result reveals that olive oil combined with cedarwood oil can effectively improve KOA in early stage (Wang, 1999).

A research was conducted to find the effect of olive oil on neck pain. The samples were collected randomly the course of duration is 8 sessions for a period of three weeks. Visual Analogue Scale was used to measure neck pain and the result shows that eight sessions of olive oil has an effect to reduce neck pain (Yip, 2004).

A research conducted on basil oil to reduce rheumatic pain and the 34 samples were selected randomly. It was given for a period of 6 week along with physical therapy. The result shows that there was reduction in the rheumatic pain (Weiner, 2001).

A comparative study on olive oil and knee strengthening exercise among older people with knee osteoarthritis. The investigator randomly assigned 10 older man and 12 older women to olive oil and knee strengthening exercise. The intervention was given for 15 minutes session twice a week for four weeks. The result revealed that the level of knee pain was reduced in both the groups, but significantly more in the olive oil application group (Mustaffa, 1999).

A study published in the journals looked at whether a Nutmeg oil or knee strengthening exercise or both could reduce knee pain and improve knee function in over weight adults. The studies involved 389 subjects with a body mass index of 28 or above with self reported knee pain. They were randomly assigned to application of Nutmeg oil plus quadriceps strengthening exercise. At the end of the trial there was a significant reduction in the knee pain with nutmeg oil application when compared to knee strengthening exercise (Karupilla, 2005).

There are several other oils to reduce knee pain like eucalyptus oil, peppermint oil, lavender oil, sage oil, clove bud oil. It should not be applied directly over the skin but it should be mix with carrier oil and then apply over the knee and this combination was applied for 2 weeks it will reduce knee pain (Muataffa, 2011).

An interventional study was conducted to find out the effect of lavender oil to neck pain. The samples were selected randomly and Visual Analogue Scale was used to measure neck pain. The study was conducted for a period of 3 weeks with 8 sessions. The result shows that there is a significant reduction in neck pain (TseSh, 2001).

2.3. LITERATURE RELATED TO EFFECT OF MASSAGE WITH

AROMATIC GINGER OIL AND ORANGE ESSENTIAL OIL FOR KNEE

PAIN MANAGEMENT

Literature shows that red ginger (Zingiber officinale) has been prescribed as an analgesic for arthritis pain in Indonesian traditional medicine. The extract of red ginger having anti-inflammatory activity using acute and chronic inflammatory model (Black, 2009).

An experimental study was conducted at Hong Kong to find out the effect of massage with aromatic ginger and orange essential oil knee pain among elderly person.Samples of 48 was selected randomly. WOMAC scale was used to assess the level of pain. The study was conducted for a period of six sessions for three weeks. The results reveals that there is a significant reduction of knee pain with knee pain intensity ($p = 0.02$), knee stiffness ($p = 0.03$) and enhancing physical function ($p = 0.04$) (Yip, 2004).

An interventional study was conducted to find the massage with olive oil, ginger essential oil 1 % and orange oil 0.5 % among over weight population. The samples of 30 were selected randomly. Cincinnati Knee Rating Scale was used to assess the level of knee function. The study period was three weeks. The result shows that there is a reduction in knee pain level and improve the knee function (Mustafa, 1999).

A comparative study was conducted on ginger extract and Ibuprofen among patients with osteoarthritis of hip and knee. The samples were allocated randomly. The duration of the study was one month period. The results reveals that both the group had reduction in osteoarthritis pain but more significant in ginger extract application (Jension, 2009).

A study was conducted that ginger reduced the muscle pain with the sample of 40 for 11 weeks. This study demonstrates that daily application of raw and heat-treated ginger resulted in moderate-to-large reductions in muscle pain following exercise-induced muscle injury. The findings agree with those showing hypoalgesic effects of ginger in osteoarthritis patients and further demonstrate ginger's effectiveness as a pain reliever (Christopher, 2004).

A comparative study conducted on ginger oil and Indomethacin among rheumatoid arthritis patients. Samples of 5 were selected randomly. The result shows that the ginger oil has the effect to reduce the knee pain then the Indomethacin (Mohammed, 2001).

METHODOLOGY

This chapter describes the research methodology adopted to assess the effect of massage with aromatic ginger and orange essential oil on knee pain among elderly people. The methodology of the present study includes research approach, research design, setting, population, criteria for sample selection, sampling technique, variables of the study, development and description of tools and technique of data analysis and interpretation.

3.1. RESEARCH APPROACH

The present study aimed at determining the effect of massage with aromatic ginger and orange essential oil on knee pain among elderly people. Hence, a quantitative approach was found to be appropriate for the study.

3.2. RESEARCH DESIGN

The research design adopted to carry out the present study was quasi experimental one group pre test post test design. This design was found to be appropriate to identify the effect of massage with aromatic ginger and orange essential oil on knee pain among elderly people.

3.3. SETTING

The study was conducted in St. Joseph Old Age Home, Coimbatore. This is an authorized service oriented home situated in podanur. The home was managed by Samaritan sisters congregation. It consists of 120 old age people, among that 64 of them are females and 56 of them are males. There were 15 nun sisters and a staff nurse to take care of the old age people. The recreational activities in the home are gardening, television, prayer and kitchen works. The visitors are allowed on every Sunday from 11 am to 2 pm.

3.4. POPULATION

The population of the present study was elderly people (above 60 years) with knee pain.

3.5. CRITERIA FOR SAMPLE SELECTION

The sample of subjects was taken based on following inclusion and exclusion criteria.

Inclusion Criteria

1. Those who are in the age group of above 60 years with knee pain.
2. Both genders (Males and females)

Exclusion Criteria

1. Fracture
2. Knee dislocation

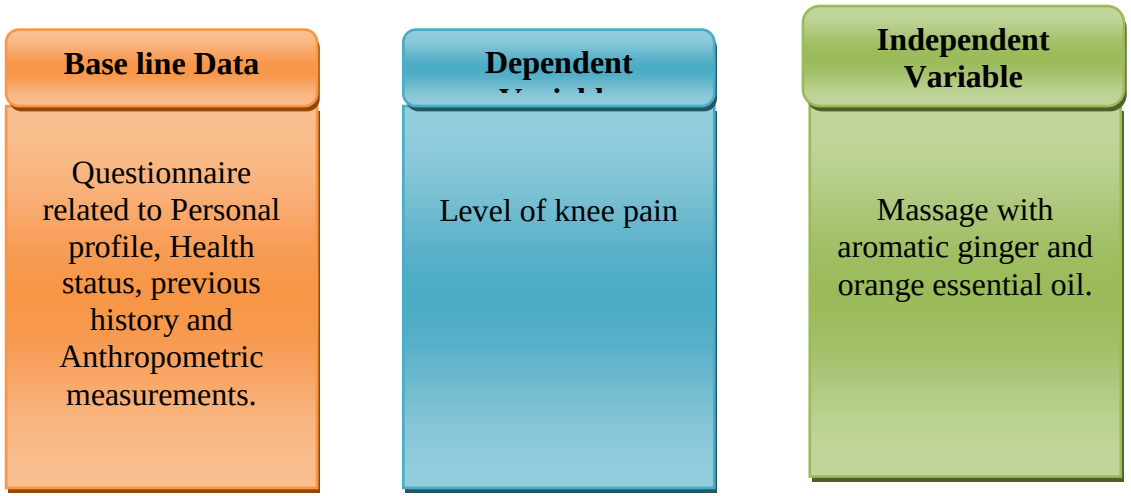
3. Skin infection
4. Open wound near the knee
5. Rheumatoid arthritis

3.6. SAMPLING

The population of the research setting was found to be 80 elderly people with knee pain. A purposive sample of 40 participants selected for the study.

3.7. VARIABLES OF THE STUDY

The independent variable in the present study was massage with aromatic ginger and orange essential oil and the dependent variable was knee pain.



3.8. MATERIALS

The following materials were used in the study.

3.8.1. Baseline data

3.8.2. The Western Ontario McMaster Scale (Developed by Bellamy 1980)

3.8.3. Massage with aromatic ginger and orange essential oil.

3.8.1. Baseline Data : It includes personal profile, health status, previous history and anthropometric measurement. In that personal profile for elderly people which include age, gender, marital status and parity. In health status which includes food habits, obesity, hereditary, lack of physical exercise, joint over use, joint injury, tendinitis, osteoarthritis and rheumatoid arthritis. In previous history which includes previous sports man, previous injury, previous fracture, previous patellar accidents and previous meniscus injury and in anthropometric measurement which includes height, weight, and body mass index.

3.8.2. *Western Ontario McMaster Scale for Assessment for Knee Pain* : The western Ontario McMaster (WOMAC) was developed in the early 1980s by Bellamy. It was designed to provide a standardized assessment of self reported health status while incorporating activities relevant to patient. The WOMAC scale can be self administrated one. It consists of 24 items divided into 3 subscales, pain 5 items, stiffness 2 items and function, daily living 17 items.

The score of each response is for none is scored as '0', Mild as '1', Moderate as '2', Severe as '3'and Extreme as '4'. The interpretations are mild knee pain: 1 -24, moderate knee pain: 25 – 48, severe knee pain: 49 – 72 and extreme knee pain: 73 – 96.The reliability co-efficient obtained for this tool is ranging from 0.86 – 0.95 and yield high validity (Arthritis Research Centre, USA).

3.8.3. *Massage with Aromatic Ginger and Orange Essential Oil* : The procedure is scheduled in one time per day with the duration of 20 minutes. This intervention was scheduled for six sessions for three weeks.

Procedure

Articles needed

A tray containing,

i. One small Mackintosh

ii. A small bowl

iii. One dropper

iv. Ginger oil

v. Orange oil

vi. Coconut oil

Pre preparation

1. Explain the procedure to the sample.
2. Provide privacy.
3. Arrange the articles near to the sample
4. Make them to sit in comfortable position
5. Wash hands

Application

1. Mix ginger oil one drop, orange oil one drop and coconut oil four drops in a small bowl.
2. Expose the knee joint.
3. Apply this mixture of oil over the knee area.
4. Massage the knee in a rotating, kneading and tapping movement for 10 minutes for each leg.

5. Perform the procedure for 20 minutes for each sample once in a day.
6. This intervention is planned for six sessions for three weeks.
7. Make the sample to walk for two minutes after the procedure.

3.9. HYPOTHESES

H_1: There is a significant difference between the pain before and after massage with aromatic ginger and orange essential oil.

H_2: There is a significant difference between the knee stiffness before and after massage with aromatic ginger and orange essential oil.

H_3: There is a significant difference between the function, daily living before and after massage with aromatic ginger and orange essential oil.

H_4: There is a significant difference in reduction of knee pain before and after massage with aromatic ginger and orange essential oil.

3.10. PILOT STUDY

The pilot study was conducted to check the feasibility, practicability, validity and reliability of the tool. The study was conducted in St. Joseph Old Age Home, Podanur, Coimbatore. Data collection period was for 10 days. Purposive sample of 10 subjects were selected for the study. A pre assessment was done with Western Ontario Mc Master Scale to assess the level of knee pain range from

mild, moderate, severe and extreme. Massage with aromatic ginger and orange essential oil was applied for 20 minutes daily for each sample for a period of eight days. The post test was done with the same scale. Data collected were tabulated and analyzed using descriptive and inferential methods and the result shows that there is a reduction in knee pain among elderly. Hence, the study is feasible and practical.

3.11. MAIN STUDY

The main study was conducted to meet the objectives of the present study. The data was collected for the period of 30 days in St. Joseph Old Age Home, podanur, Coimbatore. The first two days assessment of 80 elderly people was done with Western Ontario Mc Master Scale and 40 samples with knee pain were selected for the study. Massage with aromatic ginger and orange essential oil was applied for duration of 20 minutes per day for six sessions in scheduled timing over a period of three weeks. After the intervention knee pain level were assessed with same scale.

3.12. TECHNIQUES OF DATA ANALYSIS AND INTERPRETATION

A frequency table was formulated for all significant information. Descriptive and inferential statistical methods were used for data analysis. Descriptive statistics applied for demographic variable analysis. In inferential statistics, Paired‘t’ test used to find the

significance of intervention. Karl Pearson’s coefficient of correlation was used to determine the degree of relationship between selected base line data and level of knee pain among elderly people.

DATA ANALYSIS AND INTERPETATION

The study aim is to assess the effect of massage with aromatic ginger and orange essential oil to reduce knee pain among elderly people. Data was collected from 40 samples. The findings were tabulated and interpreted in this chapter. The data was analysed using descriptive and inferential statistics.

SECTION – I

4.1. DISTRIBUTION OF BASELINE DATA

The data about the respondents were collected based on the tool which deals with the personal profile of the elderly people such as age, gender, marital status and parity. The data collected are presented in the form of tables and graphs.

TABLE 4.1.
DISTRIBUTION OF PERSONAL PROFILE

(N = 40)

Personal Profile	No of Respondents	Percentage (%)
Age in years		
61- 70	17	43
71-80	11	27
81-90	11	27
91-100	1	3
Gender		
Male	17	43
Female	23	57
Marital status		
Married	30	75
Unmarried	10	25
Parity		
Nullipara women	12	30
Parous women	28	70

From the above table it shows that, the age distribution of elderly people ranges from 60 years to 100 years, in which, the majority of respondents that is 43 % were between 61-70 years of age, 27 % were between 71-80 and 81-90 years of age respectively and 3 % were between 91 -100 years of age. In case of sex distribution, 43 % of them were male and 57 % were female. Marital status reveals that 75 % were married and 25 % were unmarried. In case of parity distribution 30 % were nullipara women and 70 % were parous women.

FIG. 4.1.
AGE DISTRIBUTION

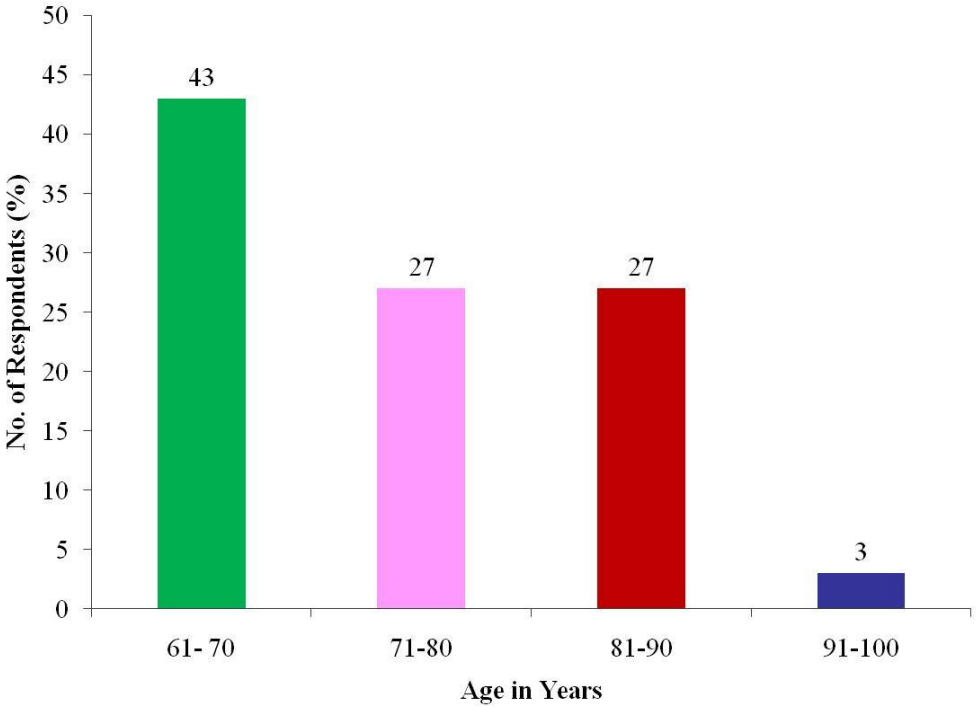


FIG. 4.2.
DISTRIBUTION OF GENDER

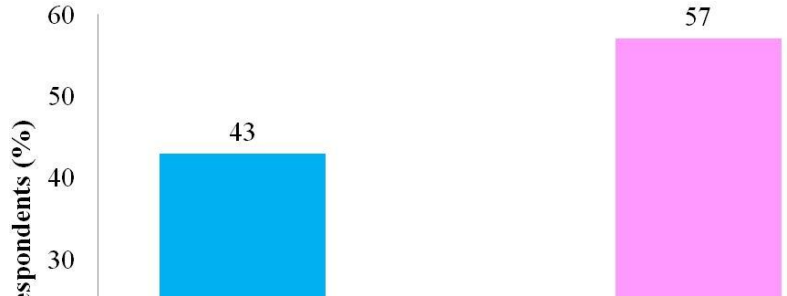


FIG. 4.3.
DISTRIBUTION OF MARITAL STATUS

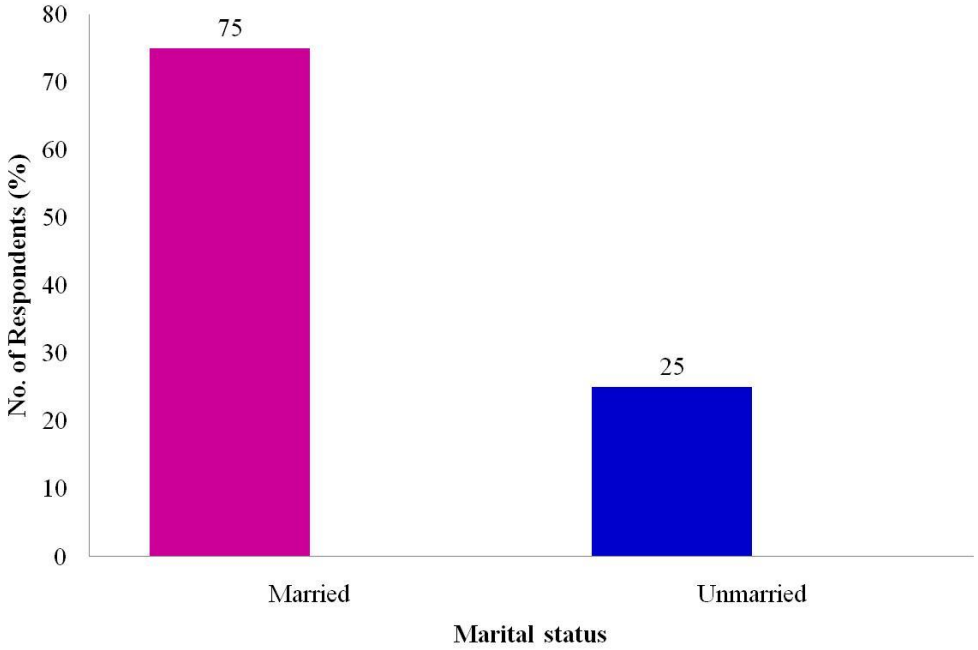


FIG. 4.4.
DISTRIBUTION OF PARITY

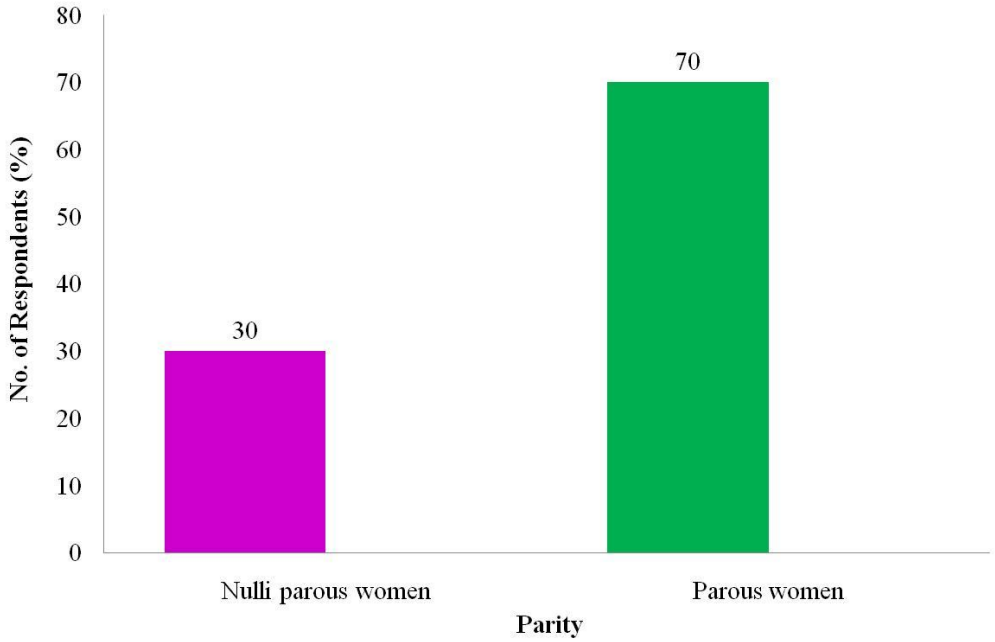


TABLE 4.2.
DISTRIBUTION ON HEALTH STATUS

(N = 40)

Health status	No of Respondents	Percentage (%)
Food habits		

Vegetarian	2	5
Non vegetarian	38	95
Joint over use		
Yes	24	60
No	16	40

The above table describes the health status of elderly people. The food habits of the elderly are classified as vegetarians 5 % and non – vegetarians 95 %, which reveals that non – vegetarians were in the higher end. The frequency on joint over use describes that 60 % had over use of their joints, while 40 % were not using their joints considerably.

FIG. 4.5.
DISTRIBUTION OF FOOD HABITS

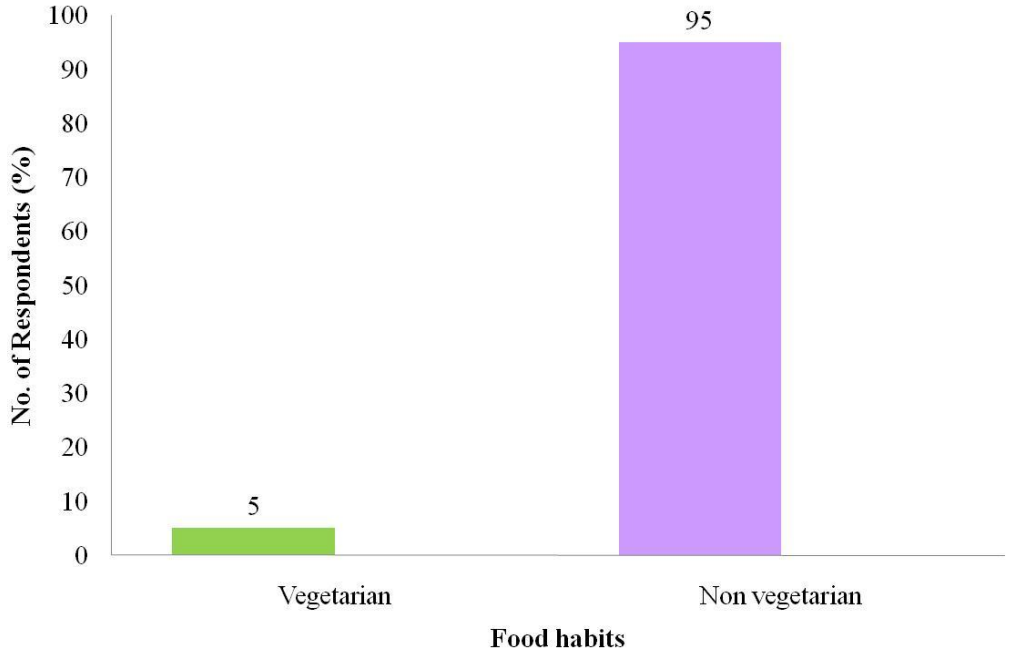


FIG. 4.6.
DISTRIBUTION OF JOINT OVER USE

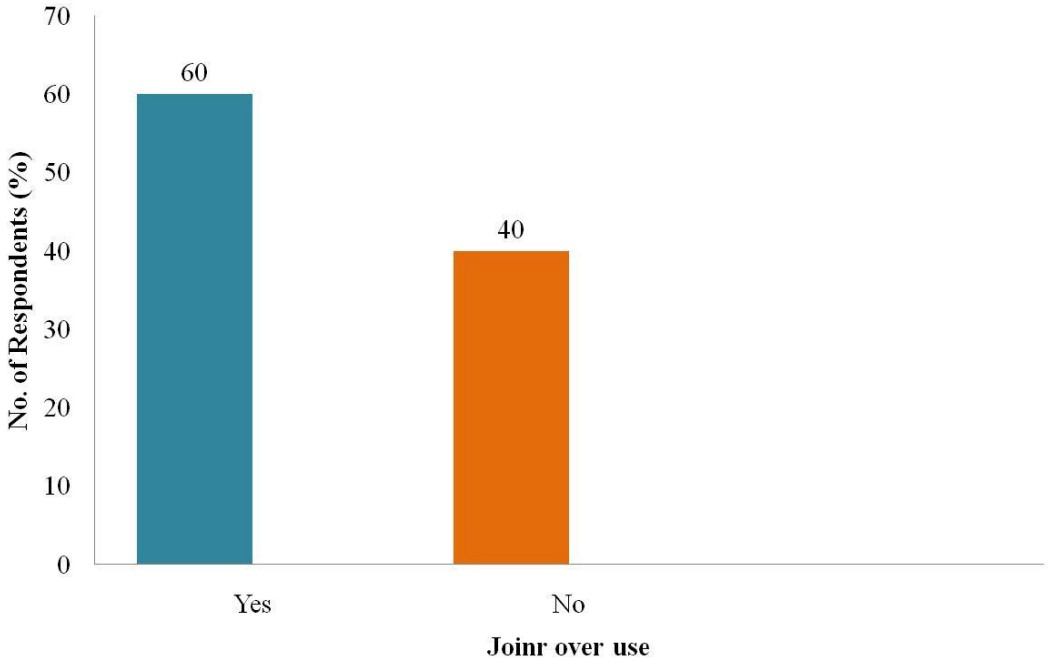


TABLE 4.3.
DISTRIBUTION OF DATA BY ANTHROPOMETRIC MEASUREMENTS

(N = 40)

Anthropometric Measurements	No of Respondents	Percentage (%)
Height (in cm)		
131 – 140	3	8
141 -150	12	30
151 – 160	13	33
161 – 170	9	23
171 – 180	3	8
Weight (in kg)		
21 – 30	1	3
31 – 40	1	3
41 – 50	19	48
51 – 60	12	30
61 – 70	4	10
71 – 80	3	8
Body mass index		
11- 20 BMI	17	42
21 – 30 BMI	22	55
31 – 40 BMI	1	3

The above table shows, the distribution of various anthropometric measurements in elderly people. The height distribution reveals that, 33 % were between 151 -160 centimetre, 30 % were between 141-150 centimetre, 23 % were between 161 -170 centimetre, 8 % were between 131-140 centimetre and 171 -180 centimetre of height. In case of Weight 48 % were 41 -50 kg, 30 % were 51-60 kg, 10 % were 61-70 kg, 8 % were 71-80 kg and 3 % of each were between 21-30 and 31-40 kg respectively. While in case of body mass index 55 % were 21-30 BMI, 42 % were between 11-20 BMI and 3 % were between 31- 40 BMI.

FIG. 4.7.
DISTRIBUTION OF HEIGHT

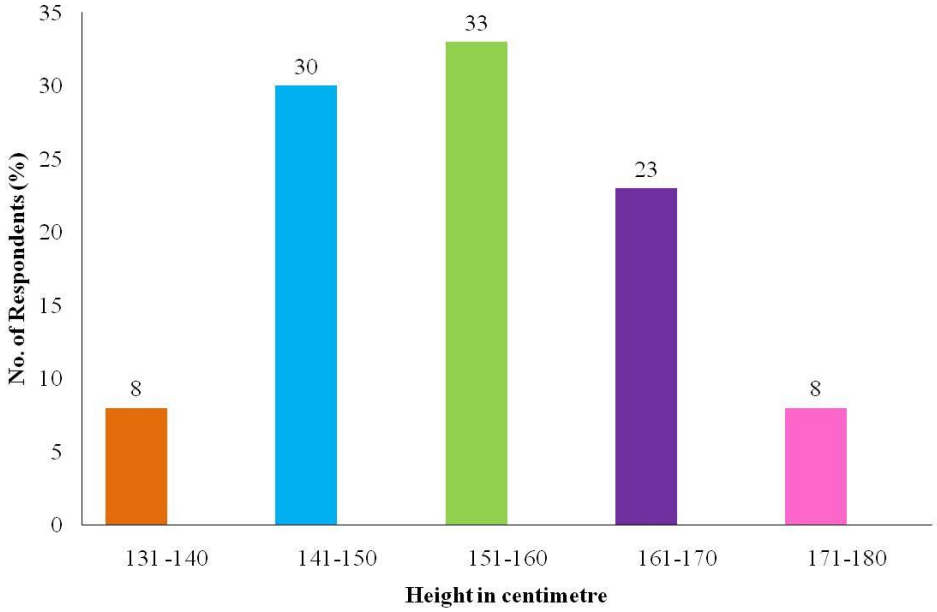


FIG. 4.8.

DISTRIBUTION OF WEIGHT

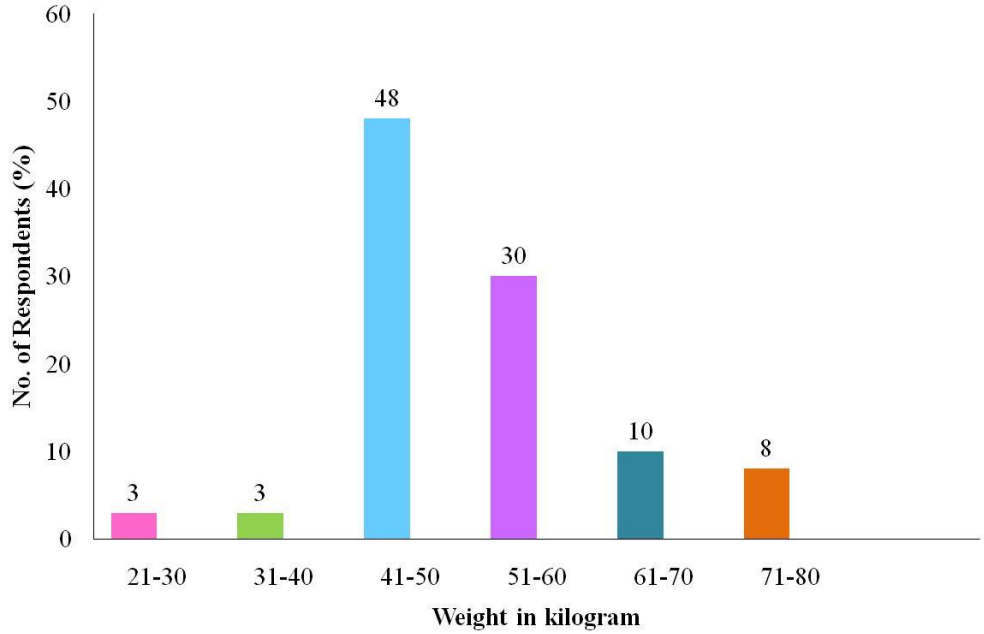
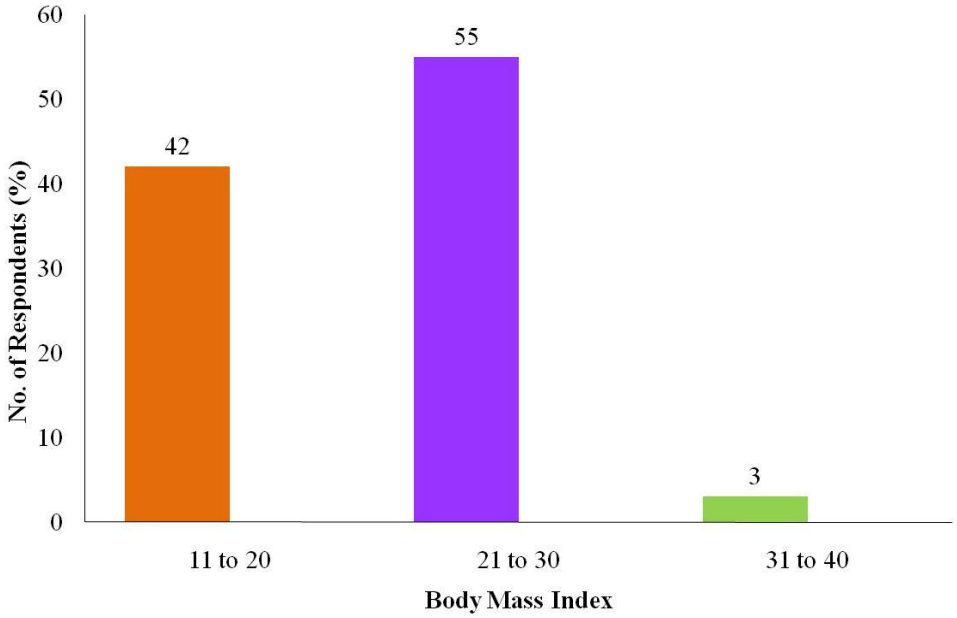


FIG. 4.9.

DISTRIBUTION OF BODY MASS INDEX



SECTION – II

4.2. ASSESSMENT ON LEVEL OF KNEE PAIN AMONG ELDERLY

PEOPLE

The knee pain level was measured with the help of Western Ontario Mc Master Scale and it had categorization as mild, moderate, severe and extreme.

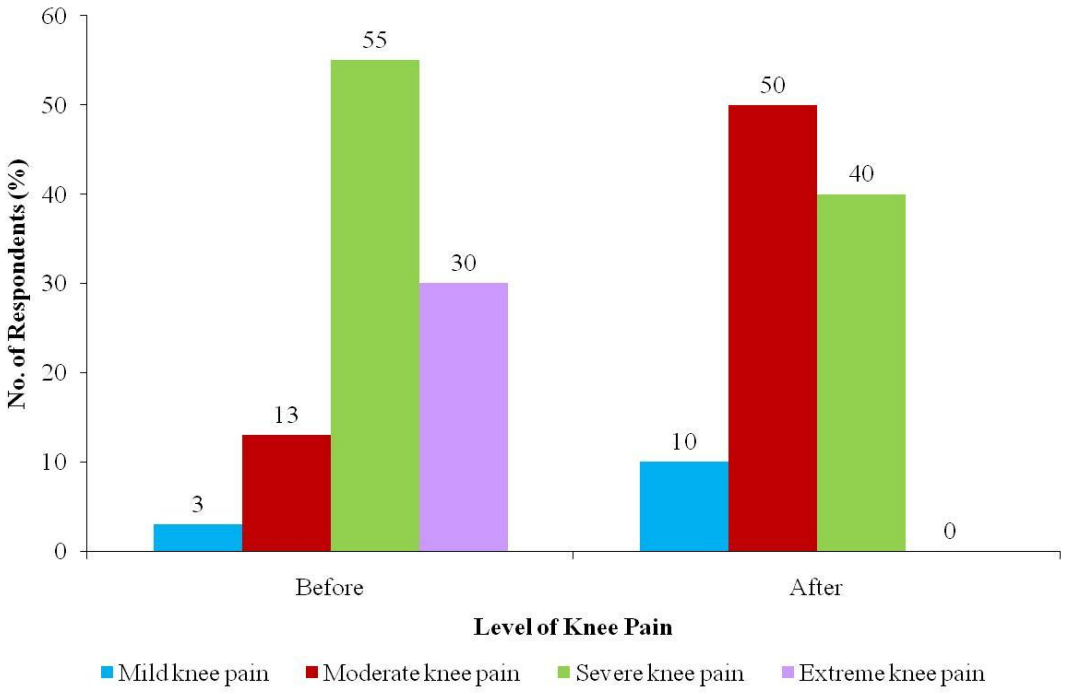
TABLE 4.4.
COMPARISION OF LEVEL ON KNEE PAIN
BEFORE AND AFTER INTERVENTION

(N=40)

Level of knee pain	Before		After	
	No. ofRespondents	Percentage (%)	No. ofRespondents	Percentage (%)
Mild knee pain	1	3	4	10
Moderate knee pain	5	13	20	50
Severe knee pain	22	55	16	40
Extreme knee pain	12	30	-	-

The above table shows the comparisons on level of knee pain before and after massage with aromatic ginger and orange essential oil. Before intervention, 3 % of elderly people had mild knee pain and 55 % had severe knee pain. Before intervention, 30 % of elderly people who complained on extreme knee pain were distributed in the mild, moderate and severe categories after intervention. Thus after intervention none of them responded on extreme category, while 10 % had mild knee pain, 50 % had moderate knee pain and 40 % had severe knee pain. This shows that the intervention has reduced the knee pain among the elderly people.

FIG. 4.10.
COMPARISION ON LEVEL OF KNEE PAIN
BEFORE AND AFTER INTERVENTION


60
50
40
30
20
10
0
No. of Respondents (%)
55
50
40
30
13
10
3
0
Before
After
Level of Knee Pain
Mild knee pain
Moderate knee pain
Severe knee pain
Extreme knee pain

SECTION – III

4.3. ANALYSIS ON EFFECTIVENESS OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN

Paired 't' test was used to analyse the effectiveness of massage with aromatic ginger and orange essential oil on knee pain.

TABLE 4.5.
SIGNIFICANT DIFFERENCE BETWEEN BEFORE AND AFTER INTERVENTION OF KNEE PAIN DOMAINS

(N = 40)

Domains	Before			After			Mean Difference	't'
	Mean	Mean%	SD	Mean	Mean%	SD		
Pain	14.32	71.6	3.29	9.8	49	2.84	4.52	22.9**
Stiffness	5.9	73.75	1.25	3.8	47.5	1.12	2.1	16.7**
Function, daily living	44.4	65.2	14.7	29.7	43.6	7.94	14.7	20.6**

**** Significant at 0.01 level**

The above table compares the score of pain, stiffness and function and daily living before and after massage with aromatic ginger and orange essential oil. The mean score in three domains decreased after intervention that is from 14.32 to 9.8 in pain, from 5.9 to 3.8 in stiffness and from 44.4 to 29.7 in function and daily living.

Significant difference between before and after intervention the three subscales of WOMAC scale shows that there is a significant difference obtained in the three subscales namely pain, stiffness and function, daily living. Hence, the hypotheses H_1, H_2 and H_3 are accepted. Therefore, the intervention has influenced in reducing pain, stiffness and function, daily living among elderly people.

TABLE 4.6.
SIGNIFICANT DIFFERENCE BETWEEN BEFORE AND AFTER INTERVENTION ON KNEE PAIN

(N=40)

Group	Mean	SD	Mean %	Mean difference	't'
Before	62.87	13.55	65.48	20.27	22.05**
After	42.6	10.2	44.37		

**Significant at 0.01 level

This table shows the computed mean and standard deviation of knee pain score obtained before and after massage with aromatic ginger and orange essential oil among elderly people. The data shows that from a mean knee pain score of 62.87 it decreased to 42.6 with a mean difference of 2.27 and the standard deviation before and after intervention are 13.55 and 10.2 respectively.

The calculated 't' value 22.05 was greater than the table value at 39 degree of freedom at 0.01 level of significance. This shows that a significant difference exist between the mean score before and after the intervention. Thus, the alternative hypothesis **H_4 "There is a significant difference in reduction of knee pain before and after massage with aromatic ginger and orange essential oil**" is accepted. The total pain score is the summative of all subscales present in the WOMAC Scale. Table 4.5. depict that there is a significant difference obtained in all the subscales of WOMAC Scale, ultimately there is a significant difference obtained in the total scale of WOMAC scale. Hence, it can be interpreted that the total pain score is reduced after intervention.

SECTION - IV

4.4. RELATIONSHIP BETWEEN SELECTED BASE LINE DATA AND KNEE PAIN SCORE

Karl Pearson's co-efficient of correlation was used to find out the influence of selected baseline data on level knee pain before massage with aromatic ginger and orange essential oil.

TABLE 4.7.
INFLUENCE OF BASELINE DATA ON KNEE PAIN

(N = 40)

Demographic Variables	'r' value
Obesity	-0.52763

The above table indicate the relationship of obesity on knee pain score of elderly people. It is found that obesity is negatively correlated with knee pain score of elderly people.

RESULTS AND DISCUSSION

The present chapter reveals the results and discussion in detail. The analyzed data is being discussed under various sections. 5.1 deals with findings related to the base line data, 5.2 deals with the comparison on level of knee pain before and after intervention, 5.3 deals with significant difference between before and after intervention of knee pain domains, 5.4 deals with the effect of massage with aromatic ginger and orange essential oil scores in terms of knee pain level, 5.5 deals with the relationship of base line data on knee pain.

5.1. FINDINGS RELATED TO BASELINE DATA

In the present study 40 samples were included. The table (4.1) reveals the age distribution of elderly people ranges from 60 years to 100 years, among them, the majority of respondents that is 43 % were between 61-70 years of age, 27 % were between 71-80 and 81-90 years of age respectively and 3 % were between 91 -100 years of age. In case of sex distribution, 43 % of them were male and 57 % were female. Marital status reveals that 75 % were married and 25 % were unmarried. In case of parity, 30 % were nulli parous women and 70 % were parous women.

The table (4.2) reveals the food habits of the elderly are classified as vegetarians 5 % and non – vegetarians 95 %, which reveals that non – vegetarians were in the higher end. The frequency on joint over use describes that 60 % had over use of their joints, while 40 % were not using their joints considerably.

The table (4.3) reveals that, the distribution of various anthropometric measurements in elderly people. The height distribution reveals that, 33 % were between 151 -160 centimetre, 30 % were between 141-150 centimetre, 23 % were between 161 -170 centimetre, 8 % were between 131-140 centimetre and 171 -180 centimetre of height. In case of Weight 48 % were 41 -50 kg, 30 % were 51-60 kg, 10 % were 61-70 kg, 8 % were 71-80 kg and 3 % of each were between 21-30 and 31-40 kg respectively. While in case of body mass index 55 % were between 21-30 BMI, 42 % were between 11-20 BMI and 3 % were between 31- 40 BMI.

5.2. COMPARISION ON LEVEL OF KNEE PAIN BEFORE AND AFTER INTERVENTION

The table (4.4) reveals that the comparisons on level of knee pain before and after massage with aromatic ginger and orange essential oil. Before intervention, 3 % of elderly people had mild knee pain and 55 % had severe knee pain. Before intervention, 30 % of elderly people who complained on extreme knee pain were distributed in the mild, moderate and severe categories after intervention. Thus after intervention none of them respondent on extreme category, while 10 % had mild knee pain, 50 % had moderate knee pain and 40 % had severe knee pain. This shows that the intervention has reduced the knee pain among the elderly people.

5.3. SIGNIFICANT DIFFERENCE BETWEEN BEFORE AND AFTER

INTERVENTION OF KNEE PAIN DOMAINS

The table (4.5) reveals the comparison of the score of pain, stiffness and function, daily living before and after massage with aromatic ginger and orange essential oil. The mean score in three domains decreased after intervention that is from 14.32 to 9.8 in pain, from 5.9 to 3.8 in stiffness and from 44.4 to 29.7 in function, daily living.

The calculated 't' value in all the three domains are much higher than the table value at 0.01 level with 39 degree of freedom. Thus, the alternative hypothesis **H_1 "There is a significant difference between the pain before and after massage with aromatic ginger and orange essential oil", H_2 "There is a significant difference between the knee stiffness before and after massage with aromatic ginger and orange essential oil" andH_3 "There is a significant difference between the function, daily living before and after massage with aromatic ginger and orange essential oil"** are accepted. Thus, the difference is statistically significant and it confirms that massage with aromatic ginger and orange essential oil was effective in reducing pain, knee stiffness and function, daily living among elderly people.

5.4. EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL SCORES IN TERMS OF KNEE PAIN LEVEL

The table (4.6) reveals the computed mean and standard deviation of knee pain score obtained before and after massage with aromatic ginger and orange essential oil among elderly people. The data shows that from a mean knee pain score of 62.87 it decreased to 42.6 with a mean difference of 2.27 and the standard deviation before and after intervention are 13.55 and 10.2 respectively.

The calculated 't' value 22.05 was greater than the table value at 39 degree of freedom at 0.01 level of significance. This shows that a significant difference exist between the mean score before and after the intervention. Thus, the alternative hypothesis **H_4 "There is a significant difference in reduction of knee pain before and after massage with aromatic ginger and orange essential oil**" was accepted. The total pain score is the summative of all subscales present in the WOMAC Scale. Table 4.5. depict that there is a significant difference obtained in all the subscales of WOMAC Scale ultimately there is a significant obtained in the total scale of WOMAC scale. Hence, it can be interpreted that the total pain score is reduced after intervention.

The present study is in line with the study conducted by Yib & Tam at Hong Kong (2004) says that massage with aromatic ginger and orange essential oil for 6 sessions reduce the knee pain, knee stiffness and improve function daily living.

Similarly, another study conducted by Mustaffa (1999) evidenced that massage with olive oil, ginger oil and orange essential oil for a period of 3 weeks reduce the knee pain and improve the knee function.

5.5. RELATIONSHIP BETWEEN SELECTED BASELINE DATA AND KNEE PAIN

Karl Pearson's co-efficient of correlation was calculated to find out the influence of selected baseline data on knee pain before massage with aromatic ginger and orange essential oil.

The table (4.7) reveals that, obesity was negatively correlated with knee pain score of elderly people (r = -0.5276).

SUMMARY AND CONCLUSION

This chapter summarizes the major findings, limitations, recommendations and implications in the field of nursing education, nursing practice,nursing administration and nursing research.

This study was conducted with the objective of identifying the effect of massage with aromatic ginger and orange essential oil on knee pain among elderly people. Knee pain is the 8^{th} leading cause of non – fatal disease in world. Knee pain occurs because of the

calcification of knee joint. It will hinder the daily activities like walking, climbing stairs up and down, sitting on the floor and chair. Application of aromatic oil will reduce the knee pain and improve the knee function.

The conceptual frame work of this study was based on Lydia Hall (1964). A quantitative research approach has been used for the study. Review of literature brought at many facts about massage and aroma therapy on knee pain. And it also highlighted the effect of massage with aromatic ginger and orange essential oil on knee pain.

The study was conducted in St. Joseph Old Age Home, Coimbatore. This is an authorized service oriented home situated in podanur. A quasi-experimental one group pre-test and post test design was adopted for the study. Purposive samples of 40 were included in the study. Western Ontario Mc Master Scale was used to assess the level of knee pain. Massage with aromatic ginger and orange essential oil was applied as an intervention for 20 minutes per day for six sessions in schedule timing over a period of three weeks. Paired 't' test was used to find out the relation before and after the intervention. This study indicates that the application of massage with aromatic ginger and orange essential oil reduced the level of knee pain among elderly people. Karl Pearson's co-efficient of correlation was calculated to find out the influence of selected base line data on knee pain of elderly people. This study shows that there is a negative correlation between obesity and knee pain.

6.1. MAJOR FINDINGS OF THE STUDY

1. The health status reveals that 60 % of elderly with knee pain had the history of joint over use.
2. Majority of the respondents who had severe knee pain are in the age of 81 – 90 years.
3. The study shows that massage with aromatic ginger and orange essential oil was found to be effective in reducing knee pain among elderly people.
4. The study shows that application of massage with aromatic ginger and orange essential oil was found to be effective on knee stiffness and knee function.

6.2. LIMITATIONS

1. The study was limited to one setting only.
2. Size of the sample is small and the study is for shorter period which limits generalization.
3. The study was carried out with elderly people only.

6.3. RECOMMENDATIONS

1. The study can be replicated with a larger size for wider generalization of findings.
2. A similar study can be conducted among adults also.
3. A similar long term study can be conducted to determine the association of demographic variables with knee pain.

4. This study can be applied for person with rheumatoid arthritis.
5. A follow-up study can be conducted to determine the level of knee pain.
6. A comparative study can be conducted with other aroma oil.

6.4. NURSING IMPLICATIONS

6.4.1. Nursing Education

Alternative and Complementary Medicine were included in the nursing curriculum. It has to be updated to include newer techniques of aroma oil to help the clients which helps to provide up-to-date service to clients by stressing the importance of holistic nursing.

6.4.2. Nursing Practice

This Alternative and Complementary method facilitates the elderly persons to cope with the discomfort and knee pain reduction in shorter duration. These research based evidenced can be applied in the clinical set up for those who experienced knee pain.

6.4.3. Nursing Administration

The administration can draw written policies regarding this method of intervention to reduce the knee pain. Thereby the staff nurses are kept in pace with the evidence based practice.

6.4.3. Nursing Research

The study has tested the effect of massage with aromatic ginger and orange essential oil in the reduction of knee pain. Importance of research in this field is beneficial to prevent the further complication of knee pain.

6.5. CONCLUSION

Health is the fundamental right of every citizen. To maintain the healthy life, the people have a variety of medical facilities like allopathy, homeopathy, complementary and alternative therapy. The complementary and alternative therapy is provided through various kinds of therapies like acupressure, aromatherapy, and acupuncture. One of such therapies which are found to be effective by the researcher which can be recommended for elder people is massage with aromatic ginger and orange essential oil. It has a significant role in reducing the knee pain of elderly people.

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APPENDIX - I
PERMISSION LETTER FOR CONDUCTING THE STUDY

From
A. Shoba Graciah
M.Sc Nursing II year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To

The Administrative officer,
St.Joseph Old Age Home,
Podanur,
Coimbatore.

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Letter requesting permission for conduct the research study.

Respected Sir,

I A. Shoba Graciah doing my M.Sc (N) II Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum requirement under The Tamil Nadu Dr. M.G.R. Medical University has to conduct Research, I have selected study on **"EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME,COINBATORE".**

I kindly request you grant me permission. I assure that I will abide the rules of the institution and information collected from the study participants will not be disclosed.

Thanking you,

Yours faithfully,

Coimbatore

Date: 16/6/11

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044.

(A. SHOBA GRACIAH)

Sister Superior
St.Joseph's Home For Aged & Destitute
PODANUR P.O.
Coimbatore-641 023. India.

APPENDIX - II
LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

From
A. Shoba Graciah,
M.Sc Nursing I year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To
MRS. JAENY KEMP M.Sc(N) Ph.D,
PRINCIPAL,
G.K.A.M INSTITUTE OF NURSING,
COIMBATORE.

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Requisition for content validity

Respected Madam,

I Ms.A. Shoba Graciah doing my M.Sc (N) I Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum requirement under The Tamil Nadu Dr. M.G.R. Medical University has to conduct Research. I have selected study on **"EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME,COIMBATORE".**

, I sincerely request to extend your guidance for my content validity.

Thanking you,

Yours faithfully,

Coimbatore

Date:

for THE PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore-641 004.

(A. SHOBA GRACIAH)

From
A. Shoba Graciah,
M.Sc Nursing I year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To

THE PRINCIPAL,
R.V.S COLLEGE OF NURSING,
SULUR,
COIMBATORE

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Requisition for content validity

Respected Madam,

I Ms.A. Shoba Graciah doing my M.Sc (N) I Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum

FORMAT FOR CONTENT VALIDITY

Name of the expert: DR. S. L. RAVISHANKAR, M.B.B.S, M.D.,

Address: PROFESSOR, DEPARTMENT OF COMMUNITY MEDICINE,
PSG INSTITUTE OF MEDICAL SCIENCES AND RESEARCH,
COIMBATORE

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1 .	SECTION A		✓		
2	SECTION B		✓		
3	SECTION C		✓		

Total content for the tool : Adequate ✓ /Inadequate

Date:

S L Ravishankar
Signature of the expert

PROFESSOR OF COMMUNITY MEDICINE
P.S.G. Institute of Medical Science
COIMBATORE-641 004

FORMAT FOR CONTENT VALIDITY

Name of the expert:

Address: MRS. JAENY KEMP M.Sc(N) Ph.D,
PRINCIPAL,
G.K.N.M INSTITUTE OF NURSING,
COIMBATORE

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1	SECTION A	✓			
2	SECTION B	✓			
3	SECTION C	✓			

Total content for the tool : Adequate /Inadequate

Date:

Signature of the expert

JAENY KEMP
PRINCIPAL
INST. OF NURSING
HOSPITAL
COIMBATORE- 641 037.

APPENDIX - V
OIL PURITY CERTIFICATE

CERTIFICATE ON THE PURITY OF OIL PRODUCT

Issued to : **A.SHOBA GRACIAH**
M.Sc (N) II year

Name of the lab:
Pharmaceutical Analysis

Ref. No. :

Sample Description : Aromatic ginger and orange essential oil

Customer reference : 9944105984

Report dated on : 17.3.2011

Received on : 28.3.2011

S. No.	Parameter	Result
1.	**GINGER OIL** Acid value	16.83
2.	Saponification value	263.67
3.	Ester value	246.84
4.	**ORANGE OIL** Acid value	5.6
5.	Saponification value	343
6.	Ester value	333.52

This is to certify that the aromatic ginger and orange essential oil used by **A.Shoba graciah, II Year M.Sc (N)** for the purpose of her research study is confirmed as 99.99% pure.

Verified by

Signature of the Analyst

Dr. W.D. Sam Solomon, M.Pharm.,Ph.D.,
Professor & Head
Department of Pharm. Chemistry
RVS College of Pharm. Sciences
Sulur, Coimbatore - 641 402.

APPENDIX - VII
CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation, **"Effect of Massage with Aromatic Ginger and Orange Essential Oil on Knee Pain Among Elderly People at Selected Old Age Home,Coimbatore."** done by **A. Shoba graciah** II year M.Sc Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, has been edited for English language appropriateness.

Name	:	K.RAJASEKAR
Designation	:	ASSOCIATE PROFESSOR, PHYSICS
Name of the Institution	:	KONGUNADU ARTS & SCIENCE COLLEGE, COIMBATORE -29
Signature		

APPENDIX - VIII

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation, **"Effect of Massage with Aromatic Ginger and Orange Essential Oil on Knee Pain Among Elderly People at Selected Old Age Home,Coimbatore."** done by **A. Shoba graciah** II year M.Sc Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, has been edited for Tamil language appropriateness.

Name : S.SHANKESWARI M.A, B.Ed,

Designation : TAMIL PANDIT

Name of the Institution : S.S. Govt. Hr.Sec. School, RAJAPALAYAM

Signature : [illegible]

FORMAT FOR CONTENT VALIDITY

Name of the expert: DR. S. L. RAVISHANKAR, M.B.B.S, M.D.,

Address: PROFESSOR, DEPARTMENT OF COMMUNITY MEDICINE,
PSG INSTITUTE OF MEDICAL SCIENCES AND RESEARCH,
COIMBATORE

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1 .	SECTION A		✓		
2	SECTION B		✓		
3	SECTION C		✓		

Total content for the tool : Adequate /Inadequate

Date:

S L Ravi Shankar
Signature of the expert

PROFESSOR OF COMMUNITY MEDICINE
P.S.G. Institute of Medical Science
COIMBATORE-641 004

CERTIFICATE ON THE PURITY OF OIL PRODUCT

Issued to : **A.SHOBA GRACIAH**
M.Sc (N) II year

Name of the lab:
PHARMACEUTICAL ANALYSIS

Ref. No. :

Sample Description : Aromatic ginger and orange essential oil

Customer reference : 9944105984

Report dated on : 17.3.2011

Received on : 28.3.2011

S. No.	Parameter	Result
1.	**GINGER OIL** Acid value	16.83
2.	Saponification value	263.67
3.	Ester value	246.84
4.	**ORANGE OIL** Acid value	5.6

From
A. Shoba Graciah,
M.Sc Nursing I year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To
MRS. JAENY KEMP M.Sc(N) Ph D,
PRINCIPAL,
G.K.N.M INSTITUTE OF NURSING,
COIMBATORE.

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Requisition for content validity

Respected Madam,

I Ms.A. Shoba Graciah doing my M.Sc (N) I Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum

FORMAT FOR CONTENT VALIDITY

Name of the expert:

Address: MRS. JAENA KEMP M.Sc(N) Ph.D,
PRINCIPAL,
G.K.N.M INSTITUTE OF NURSING,
COIMBATORE

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1 :	SECTION A	✓			
2	SECTION B	✓			
3	SECTION C	✓			

Total content for the tool : Adequate /Inadequate

FORMAT FOR CONTENT VALIDITY

Name of the expert: Prof. SIVAGAMI

Address: VICE-PRINCIPAL / HOD – Comm. H. NSG,
KMCH COLLEGE OF NURSING,
COIMBATORE-14.

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1	SECTION A	✓	–	–	–
2	SECTION B	–	✓	–	–
3	SECTION C	✓	–	–	–
4	SECTION D	Not – there.			

Total content for the tool : Adequate /Inadequate

From
A. Shoba Graciah,
M.Sc Nursing I year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To

THE PRINCIPAL,
R.V.S COLLEGE OF NURSING,
SULUR,
COIMBATORE

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Requisition for content validity

Respected Madam,

I Ms.A. Shoba Graciah doing my M.Sc (N) I Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum

FORMAT FOR CONTENT VALIDITY

Name of the expert:

Address:

Kindly validate each tool and tick wherever applicable

S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1 .	SECTION A				
2	SECTION B				
3	SECTION C				

FORMAT FOR CONTENT VALIDITY

Name of the expert: DR. S. L. RAVISHANKAR, M.B.B.S, M.D.,

Address: PROFESSOR, DEPARTMENT OF COMMUNITY MEDICINE,
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COIMBATORE

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S.No	Sections of the tool	Strongly agree	Agree	Needs modification	Remarks
1 .	SECTION A		✓		
2	SECTION B		✓		
3	SECTION C		✓		

Total content for the tool : Adequate /Inadequate

From
A. Shoba Graciah
M.Sc Nursing II year,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

To

The Administrative officer,
St.Joseph Old Age Home,
Podanur,
Coimbatore.

Through
The Principal,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore -44.

Sub: Letter requesting permission for conduct the research study.

Respected Sir,

I A. Shoba Graciah doing my M.Sc (N) II Year in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, as a part of my curriculum requirement under The Tamil Nadu Dr. M.G.R. Medical University has to conduct Research, I have selected study on **"EFFECT OF MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL ON KNEE PAIN AMONG ELDERLY PEOPLE AT SELECTED OLD AGE HOME,COINBATORE".**

I kindly request you grant me permission. I assure that I will abide the rules of the institution and information collected from the study participants will not be disclosed.

Thanking you,

Yours faithfully,

APPENDIX – III

PART – A

BASELINE DATA

I. PERSONAL PROFILE

a) Sample number

b) Age

c) Gender

d) Marital status

e) Parity

II. HEALTH STATUS

a) Food habits

b) Hereditary

c) Obesity

d) Lack of physical activity

e) Joint over use

f) Joint injury

g) Tendinitis

h) Osteoarthritis

i) Rheumatoid arthritis

III. PREVIOUS HISTORY

a) Previous sportsman

b) Previous injury

c) Previous fracture

d) Previous patellar accident

e) Previous meniscus injury

IV. ANTHROPOMETRIC MEASUREMENT

a) Height

b) Weight

c) Body mass index

PART - B

THE WESTERN ONTARIO MACMASTER SCALE (WOMAC)

INTRODUCTION

The Western Ontario Mcmaster (WOMAC) was developed in the early 1980s by Bellamy. It was designed to provide a standardised assessment of self reported health status while incorporating activities relevant to patient. The instrument has since been used extensively in lower limbs.

The reliability co-efficient obtained for this tool is ranging from 0.86 – 0.95 and yield high validity (Arthritis Research centre, USA).

WOMAC SCALE:

PAIN:

1. Twisting / pivoting on your knee

a) None b) Mild c) Moderate d) Severe e) Extreme

2. Straightening knee fully

a) None b) Mild c) Moderate d) Severe e) Extreme

3. Bending knee fully

a) None b) Mild c) Moderate d) Severe e) Extreme

4. Walking on the flat surface

a) None b) Mild c) Moderate d) Severe e) Extreme

5. Going up or down stairs

a) None b) Mild c) Moderate d) Severe e) Extreme

STIFFNESS

6. How severe is your knee joint stiffness after first wakening in the morning?

a) None b) Mild c) Moderate d) Severe e) Extreme

7. How severe is your knee stiffness, lying or resting later in the day ?

a) None b) Mild c) Moderate d) Severe e) Extreme

FUNCTION, DAILY LIVING

8. Descending stairs

a) None b) Mild c) Moderate d) Severe e) Extreme

9. Ascending stairs

a) None b) Mild c) Moderate d) Severe e) Extreme

10. Rising from sitting

a) None b) Mild c) Moderate d) Severe e) Extreme

11. Standing

a) None b) Mild c) Moderate d) Severe e) Extreme

12. Bending to floor/ pick up an object

a) None b) Mild c) Moderate d) Severe e) Extreme

13. Walking on the flat surface

a) None b) Mild c) Moderate d) Severe e) Extreme

14. Getting in / out of car

a) None b) Mild c) Moderate d) Severe e) Extreme

15. Going shopping

a) None b) Mild c) Moderate d) Severe e) Extreme

16. Putting on socks / stockings

a) None b) Mild c) Moderate d) Severe e) Extreme

17. Rising from bed

a) None b) Mild c) Moderate d) Severe e) Extreme

18. Taking off socks / stockings

a) None b) Mild c) Moderate d) Severe e) Extreme

19. Lying in the bed (turning over, maintaining knee position)

a) None b) Mild c) Moderate d) Severe e) Extreme

20. Getting in/out of bath

a) None b) Mild c) Moderate d) Severe e) Extreme

21Sitting

a) None b) Mild c) Moderate d) Severe e) Extreme

22. Getting on/off toilet

a) None b) Mild c) Moderate d) Severe e) Extreme

23. Heavy domestic duties (moving heavy boxes, scrubbing floors, etc)

a) Never b) Rarely c) Some times d) Often e) Always

24. Light domestic duties (cooking, dusting, etc)

a) Never b) Rarely c) Some times d) Often e) Always

SCORING

Maximum score – 4

Minimum score – 0

The responses are for None ‘0’.Mild ‘1’.Moderate ‘2’, Severe ‘3’, Extreme ‘4’..

INTERPRETATION

High score of the WOMAC indicate worse pain, stiffness, functional limitation.

The grading are,

Mild knee pain : 1 - 24

Moderate knee pain	:	25 – 48
Severe knee pain	:	49 - 72
Extreme knee pain	:	73 - 96

APPENDIX – IV

gFjp – m

Ra tptuk;

khjphp vz; :

taJ :

ghypdk; :

jpUkz jFjp :

FHe;ijfs; vz;zpf;if :

cly; jFjp

czt[gHf;fk; :

kug[neha; :

cly; gUkd; :

cly; bray;ghLfs; Fiwjy; :

\l;il mjpfkhf cgnahfg;gLj;Jjy; :

\l;L fhak; :

blz;oido!; :

\l;Lj; nja;khdk; :

+khl;of; \l;L typ :

Ke;ija jfty;

Ke;ija tpisahl;L tPuh; :

Ke;ija fhak; :

Ke;ija \l;L vYk;g[Kwpt[:

Ke;ija tpgj;J :

Ke;ija \l;L rt;tpy; fhak; :

cly; mst[

cauk; :

vil :

rhptpfpj cly; mst[:

gFjp – M

Xnkf; mst[nfhy;

typ

1. KH';fhy; \l;oid jpUFk; nghJ

   m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

   <. fLikahd c. kpff;fLikahd

2. KH';fhy; \l;oid KGtJkhf ePl;Lk; nghJ

   m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

   <. fLikahd c. kpff;fLikahd

3. KH';fhy; \l;oid KGtJkhf klf;Fk; nghJ

   m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

   <. fLikahd c. kpff;fLikahd

4. rkjs gug;gpy; elf;Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

5. gofspy; VWk; nghJ (m) ,w';Fk; nghJ\

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

tpiug;g[j; jd;ik

6. c';fs; \l;od; tpiug;ghdJ mjpfhiy vGk; nghJ vt;tst[fLik>

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

7. \l;od; tpiug;ghdJ ehspd; Kotpnyh (m) cl;fhUk; nghnjh vt;tst[fLikahdjh>

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

bray;ghLfs;

8. gofspy; ,w';Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

9. gofspy; VWk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

10. cl;fhh;e;j gpd; vGk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

11. epw;Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

12. jiuf;F Fdpa[k; nghJ (m) bghUis vLf;Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

13. rkjs gug;gpy; elf;Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

14. fhhpid tpl;L ,w';Fk; nghJ (m) VWk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

15. filf;F bry;Yk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

16. fhYiw mzpa[k; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

17. gLf;ifapypUe;J vGk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

18. fhYiwia fHw;Wk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

19. gLf;Fk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

20. Fspf;fr; bry;Yk; nghJ (m) tUk; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

21. cl;fhUjy;

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

22. fHptiwf;F bry;Yk; nghJ (m) jpUk;g[k; nghJ

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

23. gSthd bghUl;fis ifahStjpy; (fdkhd bghUl;fis js;Sjy;)

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

24. vspikahd bghUl;fs;

m. vJt[k; ,y;iy M. fLikaw;w ,. kpjkhd

<. fLikahd c. kpff;fLikahd

kjpg;gPL

fLikaw;w \l;Ltyp	-	1 – 24
kpjkhd \l;Ltyp	-	25 – 48
fLikahd \l;Ltyp	-	49 – 72
kpff;fLikahd \l;Ltyp	-	73 - 96

APPENDIX - VI
LESSON PLAN ON MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL

Name of the student teacher	:	**A.SHOBA GRACIAH**
Name of the college	:	College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences.
Name of the subject	:	Community Health Nursing.
Topic	:	Massage with aromatic ginger and orange essential oil.
Method of Teaching	:	Teaching cum demonstration.
Time	:	30 minutes.
Group	:	Elderly people with knee pain.
Venue	:	St. Joseph Old Age Home, Coimbatore

CENTRAL OBJECTIVE

The elderly people gains adequate knowledge about application of aromatic ginger and orange essential oil massage and develop positive attitude and skills in practicing the procedure in day to day life.

SPECIFIC OBJECTIVES

On completion of class the elderly people will be able to

i. define massage.
ii. list out the benefits of ginger and orange essential oil.
iii. list out the benefits of massage.
iv. describe the procedure of application of aromatic ginger and orange essential oil massage.

Time	Specific Objective	Content	Teachers Activity	Learners Activity	Evaluation
1 mts		**INTRODUCTION** Knee pain is the major locomotive problem among elderly people age more than 60 years. According to World Health Organization (WHO) knee pain is the 8th leading cause of non – fatal burden of disease in the world. Many modalities are there to relieve knee pain. But massage with aromatic ginger and orange essential oil is the alternative method to relieve knee pain in shorter duration.			
2 mts	The elderly people can able to define massage.	**DEFINITION** **Massage** The Massage is the application of ginger and orange essential oil over the knee area in a rotating, kneading and tapping movements for 20 minutes for each leg.	The researcher defines massage	The elderly people are listening	Define massage

Time	Specific Objective	Content	Teachers Activity	Learners Activity	Evaluation
5 mts	The elderly people can able to list out the benefits of ginger and orange oil and massage	**Benefits of Ginger and Orange essential oil** i. Ginger oil reduce muscle pain hence it has an analgesic effect ii. Ginger oil reduce the arthritis pain iii. Ginger oil increase blood circulation iv. Orange oil has an anti-inflammatory effect hence it relieve the pain **Benefits of Massage** i. Massage relieve muscle tension , stiffness ii. Massage reduce muscle spasm iii. Massage improve circulation of blood and movement of lymph fluid iv. Massage strengthen the immune system v. Massage treats musculoskeletal problem vi. Massage increases joint flexibility	The researcher list down the benefits of ginger, orange oil and massage	The elderly people are listening	List down the benefits of ginger and orange oil.

Time	Specific Objective	Content	Teachers Activity	Learners Activity	Evaluation
20 mts	The learner can able to practice the procedure (application of massage with aromatic ginger and orange essential oil)	**PROCEDURE:** **Articles needed** A tray containing, vii. 1 small Mackintosh viii. A small bowl ix. 1 dropper x. Ginger oil xi. Orange oil xii. Coconut oil **Pre preparation** 6. Explain the procedure to the sample. 7. Provide privacy. 8. Wash hands. 9. Arrange the articles near to the sample. 10. Make them to sit in comfortable position.	The researcher demonstrate the procedure	The elderly people are listening	Describe the procedure application of aromatic ginger and orange essential oil massage.

Time	Specific Objective	Content	Teachers Activity	Learners Activity	Evaluation
		Application 8. Mix ginger oil 1 drop, orange oil 1 drop and coconut oil 8 drops in a small bowl. 9. Expose the knee joint. 10. Apply this mixture of oil over the knee area. 11. Massage the knee in a rotating, kneading and tapping movement for 10 minutes for each leg. 12. Perform the procedure for 20 minutes for each sample once in a day. 13. Make the sample to walk for 2 minutes after the procedure. **14.** After the procedure instruct then to avoid strenuous activities like lifting weight, climbing stairs up and down, prolong standing.			

Time	Specific Objective	Content	Teachers Activity	Learner Activity
		SUMMARY Till now we have seen massage with aromatic ginger and orange essential oil about the definition, benefits and procedure. **CONCLUSION** Knee pain is the curable one, if it is identified in early stage. Aromatic ginger and orange essential oil massage is one of the alternatives and complementary therapy to relieve knee pain. This has been scientifically proved.		

APPENDIX – VII

PROCEDURE SCHEDULE

MASSAGE WITH AROMATIC GINGER AND ORANGE ESSENTIAL OIL

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
p I																									
p II																									
p III																									
p IV																									

Key:

Pre test	
Post test	

Group I – 1 to 10 Samples

Group II – 11 to 20 Samples

Group III – 21 to 30 Samples

Group IV – 31 to 40 Samples

ANNEXURE - I

Paired 't' test

To test the hypothesis, 't' test was applied to findout the significant difference in before and after the massage with aromatic ginger and orange essential oil on knee pain.

$$t = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

$$SD = \sqrt{\frac{\sum\left(d - \bar{d}\right)^2}{n}}$$

$\bar{d}$ = Mean of difference between pretest and post test score

SD = Standard deviation of the pre-test and post test score

n = Number of samples

ANNEXURE – II

KARL PEARSON'S COEFFICIENT OF CORRELATION

This was calculated to find out the influence of independent variable on dependent variable. Influence of obesity as assessed through Karl Pearson's Co-efficient of correlation in order to find the significance of relationship between the two variables.

$$r = \frac{\frac{\sum xy}{n} - \bar{x}\bar{y}}{SD_x . SD_y}$$

$\bar{x}$ = Mean of independent variable

$\bar{y}$ = Mean of dependent variable

$\frac{\sum xy}{n}$ = Average of pretest and post test score

SD_x = Standard deviation of independent variable score

SD_y = Standard deviation of dependent variable score