



## EFFECTIVENESS OF LAVENDER OIL MASSAGE ON KNEE PAIN AND LEVEL OF PHYSICAL ACTIVITY AMONG ELDERLY AT OLD AGE HOME

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### ABSTRACT

**Aim of the study:** To assess the effectiveness of assess the effectiveness of lavender oil massage on knee pain and level of physical activity among elderly

**Background:** Pain is a complex, multidimensional experience that can cause suffering and decreased quality of life. Chronic diseases associated with pain and frailty will likely increase due to more number of individuals above 60 years continues to rise. Knee pain is common in older people. It is one of the most prevalent conditions resulting in disability particularly in elderly population. As age increases, their activity of daily living will be decreased and they are more dependent on others to perform their activities.

**Design:** Pre experimental one group pre-test – post-test design.

**Methods:** Non probability sampling technique - convenience sampling technique was used. A total of 50 elderly participated in the study. The level of knee pain and physical activity was assessed by using Numerical Rating Scale and Modified WOMAC Scale

**Result:** The pre-test mean score of knee pain was 4.16±1.47 and the post test mean score of knee pain was 2.16±1.53 after lavender oil massage and the mean score of physical activity was 35.70±9.64 and the post test mean score of physical activity was 25.78±5.50 after lavender oil massage The calculated paired 't' value of t = 18.708 and t =11.590 was found to be statistically significant at p<0.001 level.

**Conclusion:** There was a reduction in the level of knee pain and improved level of physical activity among elderly after the administration of lavender oil massage. The study revealed that the lavender oil massage was effective in the treatment of knee pain and improves the activity of the elderly people.

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### INTRODUCTION

Aging is a biological process experienced by mankind at all times. It is a sequence of changes across a life span of an individual. Though aging is a multidimensional process, it is the last stage of life for an individual. This is a period when people move away from their more desirable period or times of usefulness.

According to World Health Organization, currently about 10% of the world's population is filled with older adults with the age of 65 and above. This figure is set to rise as 30% in some societies. In 1950 the elderly population of the world was 200 million and this was estimated to rise to 1.2 billion by 2025, and that can be expected six fold increase in another 75 years. A study by Prashant.et.al (2016) revealed that 3.62 per hundred yearly prevalence of knee pain were found.

It increased from 3.31(2011) to 3.91(2014). Females were 63% whereas males were 37%. Compared to males, odd for females was found at high risk (1.393).

## Background

Knee pain is common in older people. It is one of the most prevalent condition resulting in disability particularly in elderly population. As we get older, the rubbery cartilage that serves as a shock absorber to our joints becomes stiff, loses its elasticity and becomes more susceptible to damage. As age increases, their activity of daily living will be decreased and they are more dependent on others to perform their activities. With the increasing age, most of the elderly experienced knee pain. The treatment includes pharmacological and non pharmacological treatment modalities. Pharmacological treatment may reduce the pain but it will cause many side effects as the enzymes responsible for drug metabolism are decreased as age increases. The drugs cannot be taken continuously as it will cause side effects and other health problems. Non pharmacological treatment modalities such as massage therapy may help relax tight muscles and decrease knee pain. Massage therapy with lavender oil can be implemented as lavender oil has an analgesic effect as it blocks the sodium currents in the pain transmitting nerve fibers and relax the nerve muscles. The topical application of lavender oil can increase topical blood circulation and its linalool content can decrease muscle tone and create sedative effects. It does not cause any side effects and can be practice in day to day life for relieving the knee pain. Massage therapy is good for knee pain as it stimulates the blood flow. It allows blood and oxygen to get into the joint.

Chandra Prakash Pal et al. (2016) conducted a community based cross sectional study to find out the prevalence of knee pain in India which has population of 1.252 billion. the results shows that the overall prevalence of knee pain was found to be 28.7%. the associated factors were found to be female gender ( prevalence of 31.6%,  $P = 0.007$ ), obesity ( $P = 0.004$ ), age ( $P = 0.001$ ) and sedentary work ( $P = 0.001$ ). Also Arvind Kumar Singh et al. (2014) conducted a community based cross sectional study among 496 elderly ( $\geq 60$  years) residing in urban slums of Delhi was selected for the study. The prevalence of knee pain was estimated to be 41% (95% CI, 36.74-45.6)

Afshin Shorofi et al. (2016) conducted a study randomized clinical trial conducted on 59 haemodialysis patients in two groups. The routine care group received the routine care, but the experimental group inhaled lavender essence 5% for 10 min, three times a week for 4 consecutive weeks. The results show that there was a significant reduction in pain. Also Zohre Nobakht et al. (2016) conducted a randomized controlled clinical trial" 90 patients with osteoarthritis of the knee through convenience sampling method and was randomly assigned to three groups: intervention (aromatherapy massage with lavender essential oil), placebo (massage with almond oil) and control (without massage). Pain severity of the patients was significantly different in 1 week after the intervention compared with their initial status ( $p < 0.001$ ) and that of the control group ( $p < 0.001$  and  $p = 0.009$  respectively).

**Aim of the study:** To assess the effectiveness of lavender oil massage on knee pain and level of physical activity among elderly

## MATERIALS AND METHODS

Total 50 elderly residing at old age home participated in the study. Pre experimental one group pre-test – post-test design was carried out and samples were selected with non probability sampling technique – convenience sampling technique. After selecting the sample, the procedure was explained to the elderly by the investigator and written consent was obtained from the elderly. The demographic data was collected by using questionnaire and the pre test level of knee pain and physical activity was assessed by using Numerical Rating Scale and Modified WOMAC Scale on the 1<sup>st</sup> day. The next day, the investigator had done a massage with 2 drops of lavender oil by applying pressure with both hands and fingers on the affected knee, by using 3 steps i.e gliding (heel of the hand), tapping (hands fist rhythmic) and friction (press four fingertips firmly). The massage was done for 10 minutes for 7 consecutive days. On the 8<sup>th</sup> day, the post test level of knee pain and physical activity was assessed by using Numerical Rating Scale and by Modified WOMAC Scale

**Ethical consideration:** The project has been approved by the ethics committee of the institution. Informed consent was obtained from the participants before initiating the study.

## RESULTS

**SECTION 1:** Frequency and percentage distribution of demographic variables of elderly showed that out of 50 samples, 18(36%) were in the age group of 60-65 yrs, 14( 28%) were in the age group 66-70 yrs, 13(26%) were in the age group of 71-75 yrs and 5(10%) were in the age group 76 yrs and above, 21( 42%) were males and 29(58%) were female, 27(54%) elderly were married, 12(24%) were unmarried and 11(22%) were widow, 10(20%) elderly likes reading, 16j(25%) likes watching television and 24(48%) likes gardening and 18(36%) elderly takes analgesics during pain and 32(64%) elderly does not take any treatment

### SECTION 2:

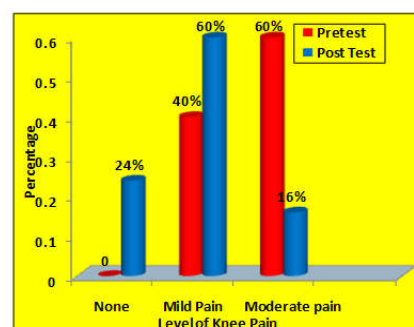


Figure 1. Percentage distribution of pretest and post test level of knee pain among elderly

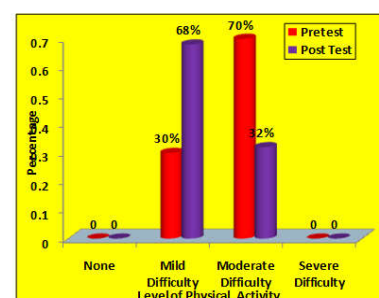


Figure 2: Percentage distribution of pretest and post test level of physical activity among elderly

**SECTION 3:** The results showed that in the pretest, the mean score of knee pain was  $4.16 \pm 1.47$  and the post test mean score of knee pain was  $2.16 \pm 1.53$ . The calculated paired 't' value of  $t = 18.708$  was found to be statistically highly significant at  $p < 0.001$  level. This clearly indicates that after the administration of lavender oil massage, knee pain was considerably reduced and it was found to be effective in reducing the level of knee pain among elderly

**SECTION 4:** The results showed that in the pretest, the mean score of physical activity was  $35.70 \pm 9.64$  and the post test mean score of knee pain was  $25.78 \pm 5.50$ . The calculated paired 't' value of  $t = 11.590$  was found to be statistically highly significant at  $p < 0.001$  level. This clearly indicates that after the administration of lavender oil massage, difficulty in physical activity was reduced and it was found to be effective in reducing the level of difficulty in physical activity among elderly.

## DISCUSSION

### *The first objective was to assess the level of knee pain and physical activity among elderly people.*

Knee pain is the most prevalent condition resulting in disability particularly in elderly population. Generally elderly women suffer more from knee pain than elderly men due to their involvement in the affairs of home at younger age. In this study, 80% of elderly were female. The activities of the daily living (ADL) of elderly will be decreased due to knee pain and they are keen to depend on others to perform their activities. The total of 50 elderly who met the inclusion criteria was selected for the study by using convenience sampling technique. After selecting the sample, the elderly were explained about the procedure of the study and written informed consent was obtained. The pre test level of knee pain in elderly was assessed by using numerical rating scale. It was revealed that in pre test majority 60% had moderate knee pain whereas in post test after lavender oil massage, majority 60% had mild knee pain and 24% had no pain among elderly. The pre test level of physical activity was assessed by using Modified WOMAC scale. It was revealed that in pre test majority 70% had moderate difficulty whereas after lavender oil massage, majority had mild difficulty. Nilsson et al. (2015) reported that, a random of 13000 samples with frequent knee pain were selected as assessed by Osteoarthritis criteria scale, out of which 62% were women and 36% were men. Thus it concluded that prevalence of knee pain was more in women than in men. Hence it is concluded that, majority of the elderly had knee pain and the level of physical activity is decreased. It is also observed that the level of physical activity can be assessed by using Modified WOMAC Scale and various alternative therapy can be implemented to manage knee pain and improve physical activity among elderly

### *The second objective was to analyze the effectiveness of lavender oil massage on knee pain among elderly people.*

Many elderly people with knee pain neglect to seek treatment as they believe that pain occurs due to their ageing process and so they fail to take treatment. The elderly gets less concern from the family members and care givers which aggravates their anxiety and increases the pain. The longer the treatment is off, the greater is the risk of elderly to lack their activity of daily living and may also affect their emotions. A long term

use of medications leads to many adverse effects to the elderly. In order to manage the knee pain of the elderly, alternative therapies such as massage therapy can be implemented. Different type of massage includes aromatherapy oil massage, trigger point massage, reiki therapy, Swedish massage and reflexology. Massage therapy has become one of the most commonly used complementary health approaches in United States. More than 15 million American adults received aromatherapy oil massage for knee pain, reported by National Institute of Health (2012). In India, a recent complementary and alternative therapy practice has been used along with other management as reported by Indian alternative annals report (2011). Many of the alternative therapies have been proved by the researcher and can be implemented in practice in hospital setting.

Massage therapy with lavender oil is good for knee pain as it stimulates the blood flow. The more blood flow in and around the knees, the more is able to make healing faster and easier. Massage therapy also helps the knee to relax and also relieves pain. As by massaging it will help relieve the throbbing feeling by putting the right amount of pressure on the knee. Lavender oil massage can be practiced by elderly at home to improve their sense of well-being, and reduce stress. The study findings revealed that in pre test, the mean score of knee pain was  $4.16 \pm 1.47$  and the post test mean score of knee pain was  $2.16 \pm 1.53$  after lavender oil massage, which indicates that there was significant difference in the reduction of knee pain ( $p < 0.001$ ). This findings was similar with Karick K Sighn (2015) conducted a randomized control of 80 (40 each control and experimental) to assess the effectiveness of lavender oil massage. Study revealed that there was a significant ( $P < 0.001$ ) reduction on knee pain among women. Zohre Nobakht et al (2016), 90 patients with osteoarthritis of the knee were selected and were randomly assigned to three groups: intervention (aromatherapy massage with lavender essential oil), placebo (massage with almond oil) and control (without massage). The patients were evaluated 1 week, and 4 weeks after the intervention. Pain severity of the patients was significantly different in 1 week than in 4 week after the intervention compared with their initial status ( $p < 0.001$ ) and that of the control group ( $p < 0.001$  and  $p = 0.009$  respectively). Aromatherapy massage with lavender essential oil was found effective in relieving pain in patients with knee osteoarthritis. Finally based on the study findings, it was concluded that lavender oil massage is an effective intervention in decreasing knee pain among elderly. It can be implemented and practiced by elderly in day to day live in order to reduce knee pain and decrease their anxiety level and promote comfort.

### *The third objective was to find out the effectiveness of lavender oil massage on level of physical activity among elderly people.*

Many elderly people with knee pain lack to do activities of daily living and are dependent on others to perform their activities. Massage therapy helps the knee to relax and also relieves pain which will improve the activity of the elderly. The study findings revealed that in the pretest, the mean score of physical activity was  $35.70 \pm 9.64$  and the post test mean score of physical activity was  $25.78 \pm 5.50$  after lavender oil massage, which indicates that there was significant improvement in the physical activity among elderly ( $p < 0.001$ ). Kuriyama et al (2013) reported that out 90 patients, 45 patients received 60 minutes of massage a week which shows

significant increase in range of motion and activity level as compared to control group. Hence it concluded that massage therapy was effective in improving quality of life. Hence based on the study findings, it is concluded that lavender oil massage was effective in improving the physical activity among elderly. Thus it can be practice by elderly to improve the physical activity and improves the quality of life in elderly people.

### Conclusion

There was a reduction in the level of knee pain and improved level of physical activity among elderly after the administration of lavender oil massage. It was statistically significant ( $p < 0.001$ ). Hence the study revealed that the lavender oil massage was effective in the treatment of knee pain and improves the activity of the elderly people.

### Recommendation

Similar study can be done using a larger sample with knee pain. A true experimental study can be done with the presence of a control group and similar intervention can be administered for low back pain.

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