

Effect Of Swing Exercises On Knee Joint Pain Among Elderly People In Selected Old Age Home Of Ernakulam District

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Abstract

Knee joint pain is a common musculoskeletal problem among elderly people and significantly affects mobility, independence, and quality of life. Non-pharmacological interventions such as therapeutic exercises are widely recommended for the management of knee joint pain. The present study was conducted to assess the effect of swing exercises on knee joint pain among elderly people residing in a selected old age home in Ernakulam district. A quantitative research approach with a pre-experimental one group pretest-posttest design was adopted for the study. A total of 40 elderly individuals aged between 60 and 80 years were selected using purposive sampling technique. Data were collected using a structured questionnaire for demographic variables and a numerical pain intensity scale to measure the severity of knee joint pain. After the pretest assessment, participants were taught swing exercises which included standing knee swing, dynamic knee swing, and lying knee swing. The intervention was administered for 15 minutes daily for a period of seven days. Posttest assessment was conducted using the same pain scale after completion of the exercise program. The findings revealed that in the pretest, 94% of participants experienced severe pain and 6% had moderate pain, whereas in the posttest 55% had severe pain and 45% had moderate pain. The mean pretest score was 7.15 and the mean posttest score was 6. The calculated paired 't' value (7.89) was greater than the table value (2.04) at the 0.05 level of significance, indicating that swing exercises were effective in reducing knee joint pain among elderly people. The study concludes that swing exercise is a simple, safe, and cost-effective intervention that can help to improve joint mobility and reduce pain among elderly individuals.

Keywords: Knee joint pain, Swing exercise, Elderly, Exercise therapy, Pain reduction

Date of Submission: 04-04-2026

Date of Acceptance: 14-04-2026

I. Introduction

Aging is associated with various physiological changes that predispose elderly individuals to musculoskeletal disorders, particularly knee joint pain. Knee pain is one of the most common complaints among older adults and often results from conditions such as osteoarthritis, muscle weakness, and joint degeneration. These conditions significantly affect mobility and daily functioning. Exercise plays an important role in maintaining joint mobility, muscle strength, and overall health. Therapeutic exercises are recommended as a primary intervention for the management of knee pain. Swing exercise is a low-impact movement that involves rhythmic swinging of the legs to strengthen surrounding muscles and improve flexibility.

Need and significance of study

Musculoskeletal disorders have become increasingly common worldwide during past decades and are major cause of disability among middle-aged people. Knee joint pain is a widespread disease of high prevalence with age, with greater weight, and postmenopausal women. Knee joint pain is a common condition which represents a major contribution to the burden of physical disability. According to WHO Report on Global Burden of Diseases, knee joint pain is the 8th most important cause of disability in men and 4th most important cause of disability in women. Exercise is an effective and enjoyable way for sufferers of knee joint pain to feel better and to regain a functional lifestyle. The American academy of orthopedic surgeons suggest exercise based therapy and knee strengthening exercise as the foundation for treating knee joint pain. Swing exercise addresses a critical need in the management of knee joint pain by providing a safe, effective, and low-impact alternative to conventional workout. With proper techniques and regular practice, swing exercise can lead to lasting improvements in joint health and everyday functioning.

Statement of the problem

A study to assess the effect of swing exercise on knee joint pain among elderly people in selected old age home of Ernakulam district.

Objectives

- To assess the level of knee joint pain among elderly people.
- To determine the effect of swing exercise on knee joint pain among elderly people.

Operational Definitions

- Effect:** It refers to the influence of swing exercise on knee joint pain as measured by pain scale score.
- Swing Exercise:** The swing exercise is a type of movement that involves dynamic motion, often targeting specific muscle groups. Exercises include Standing knee swing, lying knee swing and dynamic knee swing
- Elderly:** It refers to people belongs to age group between 60 to 80 years.
- Old age home:** It refers to place which old age people live together

Hypothesis

H₁: There is a significant difference between pre and post interventional level of knee joint pain.

Conceptual frame work

The conceptual framework of the present study was developed based on Theory of Goal Attainment by Imogen King.

II. Review Of Literature

A study was conducted at Osaka General Medical Center, Japan, to investigate the benefits of Patterned Neuromuscular Electrical Stimulation (PENS) for osteoarthritis treatment. The study included 20 patients aged 18 years and above. Patients were assigned either to the PENS treatment group or to the control group. Variables were measured using the Western Ontario and McMaster Universities Osteoarthritis Index version 3.1 (WOMAC 3.1) and the Visual Analog Scale (VAS). The results showed alleviation of osteoarthritis symptoms in the treatment group.

A randomized controlled trial was conducted at Texas Tech University Health Sciences Center, USA, to compare the effects of manual therapy and therapeutic exercise on individuals with knee osteoarthritis. Adults and older adults aged 18 to 89 years were selected for the study; however, the sample size was not specified. Participants were randomly divided into three groups: Group 1 received no treatment, Group 2 received therapeutic exercise only, and Group 3 received manual therapy only. The results indicated that combining manual therapy with exercise significantly improved function and reduced pain in individuals with knee osteoarthritis.

III. Materials And Methods

Research Design: Pre-experimental one group pretest–posttest design.

Setting: Bethlehem Abhayabhavan Old Age Home, Koovappady, Ernakulam district.

Sample: 40 elderly participants aged 60–80 years selected using purposive sampling.

Tool: Structured questionnaire for demographic data and Numerical Pain Intensity Scale.

Section A

Tool 1: Structured questionnaire to collect demographic data

This section consist of six items related to demographic variables which include age, sex, education, knee joint pain, aggravating factors, relieving factors.

Tool 2: Numerical pain intensity scale

A numerical pain scale is a standardized tool in which the elderly person rate scale

0 – 10

Interpretation

0- no pain

1-3 mild pain

4-6 moderate pain

7-10 severe pain

Section B

Swing exercise

Swing exercises including standing knee swing, dynamic knee swing, and lying knee swing performed for 15 minutes daily for seven days.

Data Analysis: Descriptive and inferential statistics including frequency, percentage, mean, standard deviation and paired t-test.

IV. Results

Description of demographic data based on frequency and percentage

65% of the sample belongs to age group of 60-65 and 15% belongs to age group of 66-70, 80% belongs to age group of 71-75,3% belongs to age group of 76-80. 50% of the sample represents to male and 50% of the sample represents female. 55% of samples are illiterate and 40% of the samples have basic level educational qualification and 5% of samples have graduate level educational qualification. 22.50% of sample has knee joint pain on left side, 27.50% of sample has knee joint pain on right side, 50% of sample has knee joint pain on both sides. 50% of sample have knee joint pain while doing strenuous activities, 2.50% of sample have knee joint pain while resting,7.50% sample have knee joint pain after prolonged standing,40% have knee joint pain while stair climbing. 82.50% of sample get relief from pain after resting,10% of sample get relief from pain after taking medications,2.50% of sample get relief from pain by using compression bandages,2.50% of sample get relief from pain by elevation,2.50% of sample get relief from pain by massage.

Description of sample scores on pretest and posttest levels of knee joint pain

Table 1: percentage distribution of pretest and posttest level of pain

N = 40

Level of pain	No pain	Mild	Moderate	Severe
Pretest	0 %	0 %	6 %	94 %
Posttest	0%	0%	45%	55%

Table 1 depicts that 94% of the samples had severe pain and 6% had moderate pain in pretest whereas in post test 45% had moderate pain and 55% had severe pain.

Table 2: Mean, standard deviation and ‘t’ value of pretest and posttest score of pain

N=40

Experimental group	Mean	SD	t value
pretest	7.15	0.7632	7.89
post test	6	0.8944	

*Significant at 0.05 level

Table 1 depicts that in experimental group the mean score in pretest and posttest is 7.15 and 6 respectively. The calculated ‘t’ value 7.89 which is higher than the table value 2.04 which is significant at 0.05 level. Hence H₁ is accepted. It indicates that the swing exercise is effective in reducing the level of knee joint pain among elderly people.

V. Discussion

The present study was aimed at assessing the effect of swing exercise on knee joint pain among elderly. The findings of the study show that swing exercise is effective in reducing the level of knee joint pain among elderly.

This is consistent with the findings of an experimental study conducted by Lee et al (2018) , swing exercise performed for 30 min per session, three times a week for eight weeks led to a statistically reduction in pain scores (measured by the visual analog scale) among elderly participants with knee osteoarthritis²¹

VI. Summary

Knee joint pain, is an unpleasant subjective feeling of suffering experienced by person on the knee joint. Swing exercise helps to improve muscle strength and joint stability, leg swings can help reduce the amount of force and stress placed on the knee joint

VII. Conclusion

Knee joint pain is discomfort or ache felt in or around the knee joint. The study was conducted with the aim to assess the effect of swing exercise on knee joint pain among elderly people in selected old age home of Ernakulam district. The result showed that swing exercise is effective technique for reducing the knee joint pain. Various studies indicate that swing exercise is the best method to reduce knee joint among elderly and the need to educate the older people about swing exercise for reduction of knee joint pain.

Nursing implication

The findings of the present study have its implications to nursing education to elderly, nursing practice, nursing administration, nursing research.

Nursing administration

Nursing administration should organize health promoting programme and in-service education programme for nurses and encourage them to participate in health activity. They should explore their potentials and encourage innovative ideas in preparation of appropriate health prompting strategies and if needed must train the personnel in preparing the teaching material. The nurse administrators should make arrangements of all resources available to organize old age health programme on health problems. So that nurse can make as mediators to spread health message to young generation.

Nursing education

Nursing education must be based on local measures and need. Swing exercise is one of the most important interventions to reduce knee joint pain among elderly in old age home. So the role of nurse is broadened and it is advisable to educational authority to incorporate swing exercise to elderly by involving nurse. The nursing curriculum should include content area of various methods by which health information about swing exercise which can help to build up a good relationship with elderly people. The nurse can organize and actively involved in this exercise which can help in achieving the aim of reduction of knee joint pain.

Limitations

- Sample size was only 40 the scope of generalization is limited
- The period of data collection was limited
- Purposive sampling technique was used for sample selection which limits the generalization of study.
- The study was only on the elderly people.

Recommendation

- A study can be conducted with large sample and elderly with other conditions like knee osteoarthritis.
- A longitudinal study can be conducted to determine the long term effect of swing exercise on knee joint pain.
- A descriptive study can be conducted in the quality of life of the elderly and knee joint pain.

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