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ISSN 2348-0416
USA CODEN: JASRHB

Journal of Applied Science And Research, 2025, 13 (1):84-90

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A STUDY TO EVALUATE THE EFFECTIVENESS OF ISOMETRIC EXERCISE ON LEVEL OF KNEE JOINT PAIN AMONG ELDERLY IN SELECTED OLD AGE HOME AT BANGALORE

Mrs S.Divya*[1] , M.Sc (N) , Mrs. Prof. Mrs.KOKILAVANI.[2], M.Sc(N)

Assistant professor T John college of nursing Bangalore[1]

Professor department of Medical Surgical Nursing[2]

ABSTRACT

Background*: Keeping oneself healthy and active with ageing is one of the most significant aspects of life. Aging comes with diseases, mostly related to musculoskeletal, knee joint pain is more common is old age. Isometric exercise is those exercise which help in strengthens the muscles.* ***Objectives:*** *To assess was to assess the pre-test and post-test level of knee joint among elderly in experimental and control group To assess the effectiveness of isometric exercise on level of knee joint pain among elderly in experimental group. To associate the level of pain with demographic variables elderly with knee joint pain in experimental group and control group.* ***Materials and Methods:*** *Quantitative research approach was used in this study. A Quasi experimental pre-test post-test design with control group was adopted and non-randomized purposive sampling technique was used to select the study subjects. The sample size was 60 and divided into two groups, among them 30 were in experimental group and 30 were in control group. Pain was assessed by using Numerical pain Scale for both experimental and control group.* ***Results:*** *The collected data were analysed by using descriptive and inferential statistical methods. Paired 't' test was used to evaluate the effectiveness of isometric exercise on level of knee joint pain among elderly. The obtained 't' value 16.4 was statistically significant at p< 0.05 level. The mean post-test knee joint pain score was lower than mean pre-test knee joint pain score which proved that there was a significant reduction in the level of pain among elderly due to isometric exercise.* ***Conclusion:*** *knee joint pain being one of the symptoms of a variety of diseases and disorders in the world today, especially in elderly population. The study results concluded that the isometric exercise was effective in reducing the level of knee joint pain among elderly.*

Keywords: Assess, Effectiveness, isometric exercise, knee joint pain Elderly, Old Age Home.

INTRODUCTION

Aging process depends on both genetic and environmental factor. But genetic factor is more powerful. Every individual has unique genetic makeup so aging occur at different rates in a different people. Both male and female are affected at different rate. In men body weight increase till fifty and then decreases. In women body weight increases till sixty and then decreases. According to WHO, by 2050, the world's population aged 60 years and older is expected to total 2 billion, up from 900 million in 2015. Today, 125 million people are aged 80 years

Among the various disease affect the geriatric musculoskeletal pain is the major problem. Pain has been referred to as the fifth vital signs, but pain perception is highly subjective. The incidence of pain

increases more than 2-fold after the age of 60 years. Muscle loses size and strength as we get older, in joint, bones do not directly contact each other. They are cushioned by cartilage, synovial membranes around the joint and a lubricating synovial fluid inside the joints.

During old Age, joint movement becomes stiffer and less flexible because the amount of lubricating fluid inside your joints decreases and the cartilage becomes thinner. Ligaments also tend to shorten and lose some flexibility and become stiff. Many of these age-related changes to joints are caused by lack of exercise. Movement of the joint, and the associated 'pain' lack of movement, helps keep the fluid moving. Being inactive causes the cartilage to shrink and stiffen, reducing joint mobility. This causes joint pain in elderly Exercises are one of the most popular non pharmacologic management for knee joint pain. Exercises may be isotonic, isometric or isokinetic, isotonic and isokinetic are tedious and an elderly person will not be able to practice it, the main reason for joint pain in old age is due the weakness of the muscles attached to knees, these muscles include quadriceps and hamstrings muscles, isometric exercise help to strength these muscles.

Isometric exercises are done without varying the length of the muscles. These exercises work on the muscles in a static position and require muscle tension without any actual movement, some of the isometric exercises are Quadriceps short arcs, Quadriceps SLR (Straight Leg Rise), Front knee strengthening, Back knee strengthening. Isometric exercise causes less intra-articular inflammation, bone destruction and pressure. The old age is more susceptible to pain, and isometric exercise are simple and effective of therapy to reduce pain so researcher selected this study.

MATERIALS AND METHODS.

Research approach used for this study was quantitative approach to evaluate the effectiveness of isometric knee exercise on knee joint pain among old age people.

A quasi-experimental nonrandomized control group design was chosen for the study.

Numerical pain scale was used to assess the level of pain among old people with knee joint pain target population is the elderly people with knee joint pain.

Numerical pain scale is an un dimensional measure of pan intensity in adult. It is version of visual analogue scale in which a respondent selects a whole number (0-10) that best reflect the intensity of his/ her pain

Demographic variable, it includes age, sex, religion, education, marital status, previous occupation, dietary pattern, affected knee joint, years of having pain, activity that induce pain. The total sample size was 60 and which means 30 samples as experimental group and 30 samples as control group who are elderly with knee joint pain. The samples of the study were selected by adopting non probability purposive sampling technique. The total sample size was 60 and which means 30 samples as experimental group and 30 samples as control group who are elderly with knee joint pain

The data was collected from the 60 samples of old age home, 30 was taken as control group and 30 was taken as experimental group.

Level of pain was assessed in both group and isometric exercise, like quadriceps straight leg rise 10 times for both knee, Quadriceps short arch for both leg 10 times, Front knee strengthening for 10 times both knee, Back knee strengthening for 10 each knee was given for experimental group for 20 days and post-test level of pain was assessed. In pre-test demographic variables and level of pain was assessed, no intervention was given, post-test was done on 20th day, using the same tool as same as pre–test. Collected data was then tabulated and analyzed.

RESULTS AND DISCUSSION

Data on demographic variables of elderly.

Data on assessment of level of pain among elderly

Data on effectiveness of isometric exercise on level of pain among elderly.

Data on association between the post-test level of pain among elderly and their selected demographic variables.

Data on demographic variables of elderly in experimental group

Reveals that regarding age, among 30 elderly 15(50%) were in the age group of 60-65 years, 11(37%) were in the age group of 66-70years and 4(13%) were in the age group of 71-75 years

Regarding gender, among 30 elderly 21(70%) were male, 9(30%) were male.

Regarding religion, among 30 elderly 24(30%) were Hindus, 5(17%) were Christiansand1 (3%) were Muslims

Regarding educational status, among 30 elderly 10(33%) had had no formal education, 12(40%) have primary education, 5(17%) have higher secondary education, 2(6%) are graduate, 1(4%) are post graduate.

Regarding marital status, among 30 elderly 5(17%) were married, 7(23%) were unmarried, 4(13%) were divorced and 14(47%) were widows.

Regarding previous occupation, among 30 elderly 10(33%) were sedentary worker, 15(50%) were moderate worker, 5(17%) were heavy worker.

Regarding dietary pattern among 30 elderly 10(33%) are vegetarian, 20(67%) are non-vegetarian.

Regarding affected knee joint among 30 elderly 8(27%) are having right leg pain, 10(33%) were left leg pain, 12(40%) were having pain in both legs

Regarding duration of pain among 30 elderly 15(20%) were having pain from 0-1 years, 10(33%) were having pain from 1-2 years,5(17%) was having pain from above 2 years.

Regarding activity that induce pain 10(33%) were having pain during standing/sitting, 12(40%) were having pain during walking, 8(27%) were having pain every timing.

Data on demographic variables of elderly in control group

Reveals that regarding age, among 30 elderly 10(34%) were in the age group of 60-65 years, 16(53%) were in the age group of 66-70years and 4(13%) were in the age group of 71-75 years.

Regarding gender, among 30 elderly 3(10%) were male, 27(90%) were male.

Regarding religion, among 30 elderly 4(13%) were Hindus, 26(87%) were Christians and 0 Muslims

Regarding educational status, among 30 elderly 14(47%) had had no formal education, 16(53%) have primary education, nil are higher secondary education graduate, post graduate

Regarding marital status, among 30 elderly 4(13%) were married, 14(47%) were unmarried, 7(23%) were divorced and 5(17%) were widows

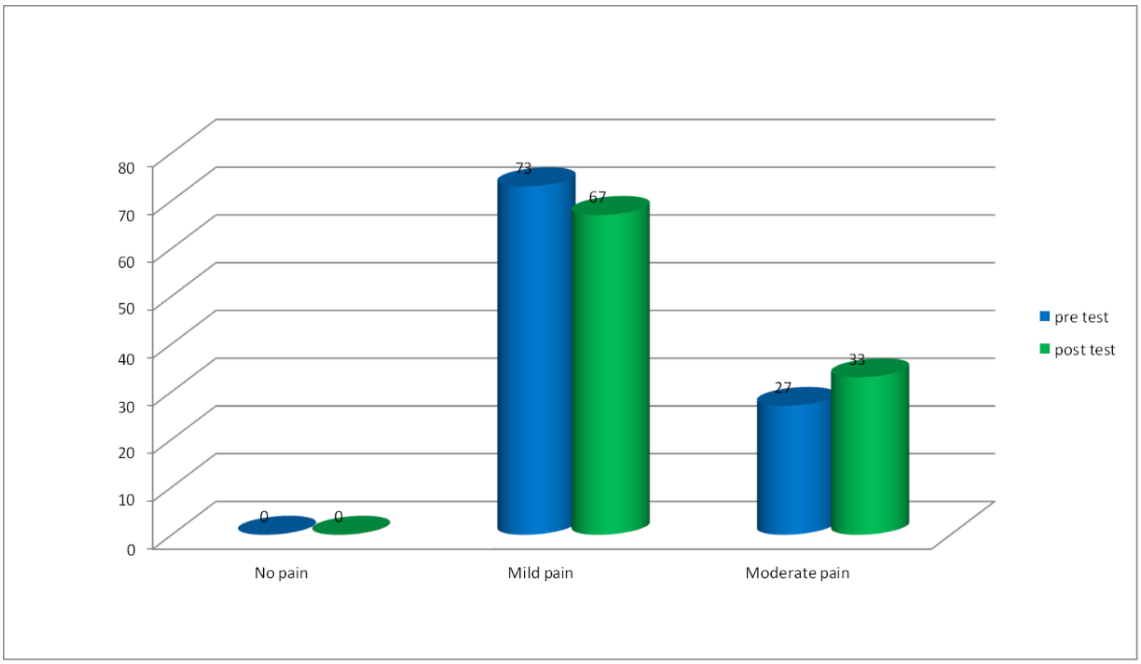
Regarding previous occupation, among 30 elderly 17(57%) were sedentary worker, 9(30%) were moderate worker, 4(13%) were heavy worker

Regarding dietary pattern among 30 elderly 4(13%) are vegetarian, 26(87%) are non-vegetarian.

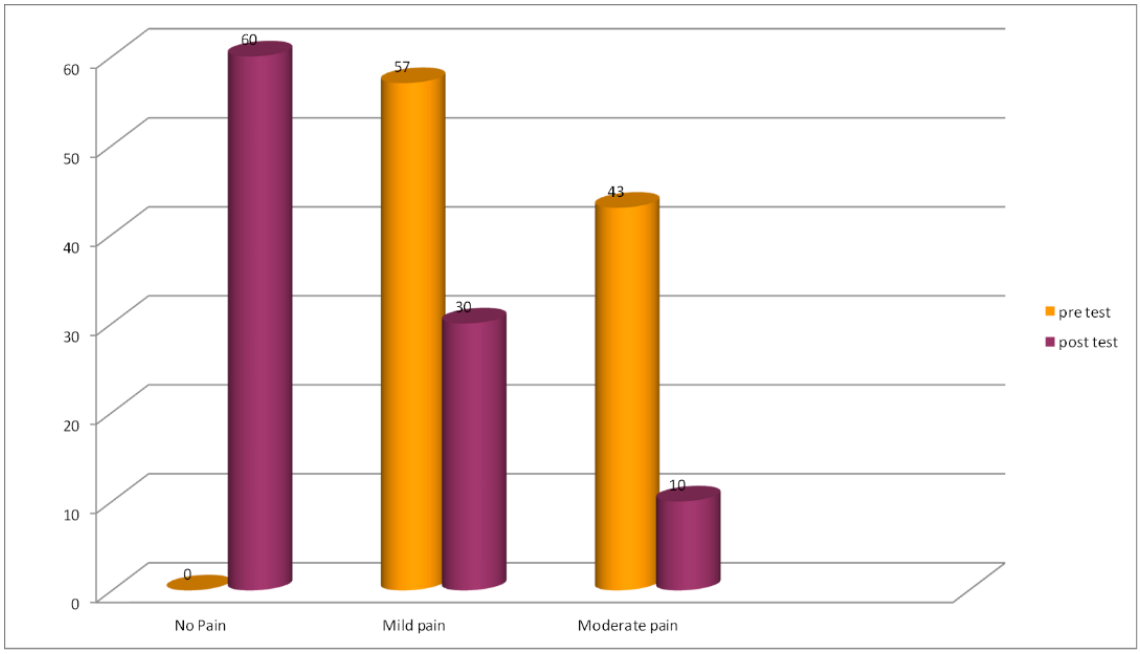
Regarding affected knee joint among 30 elderly 10(33%) were having right leg pain, 14(47%) were left leg pain, 6(20%) were having pain in both leg

Regarding years of knee joint pain among 30 elderly 15(50%) were having pain from 0-1 years, 9(30%) were having pain from 1-2 years,6(20%) was having pain from above 2 years

Regarding activity that induce pain 14(47%) were having pain during standing/sitting, 10(33%) were having pain during walking, 6 (20%) were having pain every timing.



Level of Knee Joint Pain among Elderly in Control Group



Level of Knee Joint Pain among Elderly in Experimental Group

S.	Experimental Group	Mean	Standard	Mean	't' Value

No.			Deviation	Difference	
1	Pre-test	3.3	1.3	2.4	16.4*
2	Post-test	0.9	1.41		

The study findings revealed that in the experimental group, the mean pre-test pain score was 4.9 with the standard deviation 2, the mean post-test pain score was

2.4with the standard deviation 1.8and the mean difference was 1.9The obtained 't' value 16.4 was statistically significant at $p<0.05$ level. There is a significant difference between the mean pre and post-test level of knee joint pain among elderly in experimental group. It is inferred that the post-test level of knee joint pain was less than the pre-test due to isometric exercise. Thus, isometric exercise was proven effective in reducing the level of knee joint pain among elderly in experimental group

S. No.	Control Group	Mean	Std Devitaion	Mean Differences	't' value
1	Pre Test	3	1.14	0.1	*2.39
2	Post Test	2.9	1.13		

The study findings revealed that in the control group, the mean pre-test pain score was 2.4 with the standard deviation 1.8 mean post-test score was 2.9 with the standard deviation 1.13 and the mean difference was 1.27 There was no significant difference between the mean pre and post-test level of knee joint pain among elderly in control group. It is inferred that the posttest level of knee joint pain was same as the pretest level of knee joint pain.

It is inferred that there was a significant association between the level of knee joint pain among elderly with their selected demographic variables such as age, gender, religion previous occupation, dietary pattern, affecter knee and duration of pain.

The main conclusion drawn from this present study that isometric exercise is effective in reducing the level of level of pain that denoted by significant difference between the post-test level of pain among elderly in experimental group and control group. Subjects became aware and found themselves comfortable and also expressed their satisfaction.

The findings of the study encourage the medical surgical nurse to practice this intervention as a part of their nursing action in clinical settings. Isometric exercise will reduce the level of knee joint pain effectively and also it will help to improve the functional mobility rate of elderly and make them to live healthy.

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statistically significant at p<0.05 level. It was inferred that the post-test level of pain was less than the pre-test due to isometric exercise. Thus, isometric exercise was proven effective on reducing the level of pain among elderly in experimental group.

CONCLUSION

IMPLICATIONS OF THE STUDY

Nursing Practice

Clinical nurse can learn accurate assessment of pain by using numerical pain scale

Clinical nurse can impart isometric exercise to the elderly in hospitals.

Findings of the study will help the medical surgical nurse to understand the importance of isometric exercise in reducing the level of knee joint pain and motivate the elderly with pain to follow such therapy

Nursing Education

The nursing students will learn to perform isometric exercise as intervention for pain in elderly.

The student nurses will update their knowledge regarding the method of reducing of knee joint pain among elderly

Nursing Administration

The public health nurse will take part in developing protocols, health policymaking, standing orders related to health education programme and strategies on isometric exercise as a complementary therapy for knee joint pain

Nursing Research

Research can be conducted on complementary treatment for pain for the effective quality of care to reduce morbidity and mortality rate of knee joint pain among elderly

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