



A STUDY TO ASSESS THE EFFECTIVENESS OF ISOMETRIC EXERCISE ON KNEE JOINT PAIN AND FUNCTIONAL MOBILITY AMONG WOMEN WITH OSTEOARTHRITIS, KOLLAM

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ABSTRACT

Osteoarthritis (OA) is a progressive disorder of the joints caused by gradual loss of cartilage and resulting in the development of bony spurs and cysts at the margins of the joints. The present study was to assess the effectiveness of isometric exercise on knee joint pain and functional mobility among women with osteoarthritis, Kollam. The objectives of the study were to assess the knee joint pain among women with osteoarthritis, assess the functional mobility among women with osteoarthritis, evaluate the effectiveness of isometric exercise on knee joint pain among women with osteoarthritis, evaluate the effectiveness of isometric exercise on functional mobility among women with osteoarthritis, find out the association between pretest score of knee joint pain and functional mobility with selected demographic variables. Quantitative research approach with one group pretest post test research design was used for the study. Purposive sampling technique was used to select 30 samples from the women with osteoarthritis group. Main study was conducted in Gandhi Bhavan Snehalayam, Abhaya Kendram, St. Vincent Convent Keralapuram from 23-4-2021 to 17-5-2021. Pretest was conducted among the osteoarthritis women by using WOMAC scale and Numerical pain scale and isometric exercise was given on the same day. Isometric exercise of 20 to 30 minutes duration was given to selected samples for 21 days. Post test was conducted on 21 day after the intervention. The data was analyzed by using descriptive and inferential statistics. The result revealed that the mean post test score was significantly lower than mean pre test score of knee joint pain and functional mobility. Therefore it is interpreted that isometric exercise was effective for reducing knee joint pain and improving functional mobility among women with osteoarthritis.

KEYWORDS

Effectiveness, Isometric exercise, Knee joint pain, Functional mobility

INTRODUCTION

Ageing is a natural process that occurs in human life cycle with the changes in their body, mind, thought process and living patterns that declines the functional capacity of the senior citizens and which reduces the life span. India is likely to notice an endemic of osteoarthritis with about 80% of the 55 years and above population in the country suffering with wear and tear of joints. 40% of these people are likely to suffer from severe osteoarthritis, which will disable them from daily activities, say the experts quoting the world Health Organization (WHO).

Need for the study

OA is rising due to ageing population, obesity, sedentary life style and uneven distribution of load stress across the articulating surface in the joint. It is more prevalent among those engaged in agriculture, manual labor (men) and house hold work (women). 80% of those with OA have limitation in movement and 25% cannot perform their major daily activities of life. The leading reason for disability in general population is OA.

Objectives

1. To assess the knee joint pain among women with osteoarthritis
2. To assess the functional mobility among women with osteoarthritis
3. To evaluate the effectiveness of isometric exercise on knee joint pain among women with osteoarthritis
4. To evaluate the effectiveness of isometric exercise on functional mobility among women with osteoarthritis
5. To find out the association between pretest score of knee joint pain and functional mobility with selected demographic variable.

Hypotheses

H1 : There is a significant difference between pre test and post test score of knee joint pain among women with osteoarthritis

H2 : There is a significant difference between pre test and post test score of functional mobility among women with osteoarthritis

H3 : There is a significant association between the pre test scores of knee joint pain and functional mobility with selected demographic variables of women with osteoarthritis

Operational definition

Effectiveness:

In this study, effectiveness refers to the result of isometric exercises on the level of pain and functional mobility among women with osteoarthritis and it measured by Numerical Pain Rating Scale and WOMAC index scale.

Isometric exercise:

In this study, the isometric exercise refers to the static quadriceps exercise, straight leg raising (SLR) exercise, vastus medialis oblique, abductor straight exercise which are involving the static contraction of quadriceps muscles without any visible movement in the angle of joint.

Pain:

In this study, pain refers to discomfort, unpleasant sensation and irritation of knee joint perceived by the women who has osteoarthritis and it measured by Numerical Pain Rating Scale.

Functional mobility

In this study, functional mobility refers to the physiological ability that a person maintain which is potential for movement and ambulation measured using WOMAC index scale.

Osteoarthritis (OA)

In this study, osteoarthritis refers to knee joint disorder which characterized by joint pain, joint stiffness, swelling and feeling of warmth over painful area.

Women:

In this study, women refers to female between the age group of 55 to 70 years with knee joint pain and diagnosed as osteoarthritis.

METHODOLOGY

Research approach

Research approach used in this study is evaluative in nature

Research design

The research design used for this study is Pre-experimental one group pre- test post-test design

Setting of the study

The present study was conducted in the selected old age homes, Kollam

Variables under study

Independent variable

In the study independent variable is isometric exercise

Dependent variable

In this study the dependent variable is knee joint pain and functional mobility among women with osteoarthritis.

Extraneous variables

Extraneous variables in the present study is the demographic variables such as age, religion, marital status, education, previous occupation, body mass index, type of family, dietary habits, duration of illness, taking treatment for osteoarthritis

Population

In this study, population comprises of all women with osteoarthritis
Sample and sample size

In this study, sample consists of 30 osteoarthritis women having moderate to severe knee joint and functional mobility from selected old age homes, Kollam.

Sampling technique
Purposive sampling techniques

Inclusion Criteria

Women:-

- between the age group of 55 to 70 years diagnosed with osteoarthritis
- who is having bilateral or unilateral knee joint pain
- those who are willing to participate in the study
- those who are having moderate to severe knee joint pain and functional mobility

Exclusion criteria

Women

- who are bed ridden
- who had undergone orthopaedics surgery(e.g.: amputation, knee replacement)
- who are taking pain reliving medication
- who are critically ill
- who are medically contraindicated

Content validity

Content validity of the research tool was done by subject experts from Medical surgical nursing and clinical physiotherapist. Necessary modifications were made in the tool according to their suggestions in the final form.

Reliability

Numerical pain scale is a standardized tool developed by Mc caffery Beebe etal. The reliability of the tool was found by correlation range from 0.86 to 0.95. So the tool was found to be highly reliable WOMAC scale is a standardized tool developed by Bellamy and coworkers. The reliability of the tool was found by Cronbah's coefficient alpha 0.86, 0.68, and 0.89. So the tool was found to be highly reliable.

Data collection tool

In the present study, data collection instruments were demographic variables, Numeric pain Scale, Western Ontario and McMaster Universities Arthritis Index (WOMAC) scale

Scoring and interpretation

- 0 - No pain
1-3 - Mild pain
4-6 - Moderate pain
7-10 - Severe pain
Part 3: WOMAC scale
Scoring and interpretation
0 - No difficulty
1 - 24 - Slight level
25-48 - Moderate
49-72 - Severe
73-96 - Very severe

Data collection process

Data collection was conducted in Gandhi Bhavan Snehalayam, Abhaya Kendram, St.Vincent Convent Keralapuram from 23-4-2021 to 17-5-2021. Formal permission and ethical clearance was obtained from the concerned authority. Researcher was collected six samples from Gandhi Bhavan Snehalayam, thirteen samples from Abhaya Kendram and eleven samples from St.Vincent Convent Keralapuram. A written informed consent was taken from each samples after explaining the details of the study. Numerical pain scale and WOMAC scale was administered to the women before beginning the session. Samples were selected based on inclusion and exclusion criteria. The data was collected by using demographic variables questionnaire, Numerical pain rating scale and WOMAC scale. Isometric exercise of 20 to 30 minutes duration was given to selected samples for 21 days. Post test was conducted on the 21st day after the intervention. The data were analyzed by using descriptive and inferential statistics.

OVERALL FINDINGS

Table 1: Mean, standard deviation and paired't' value of according to pre test and post test level pain among women with osteoarthritis (n=30)

Pain score	Mean	Standard deviation	't' value
Pre-test	6.2	1.37	26.4
Post-test	3.83	1.46	

Significant at 0.05 level*

The data presented in the above table shows that the mean and standard deviation of knee joint pain among women with osteoarthritis was 6.2 and 1.37 and after the isometric exercise it was changed to 3.83 and 1.46. The paired 't' test computed between pre test and post test level of knee joint pain was statistically significant at 0.05 level. The calculated 't' value (26.4) was greater than the table value (2.05). It indicated that isometric exercise was effective for reducing knee joint pain among women with osteoarthritis. Hence the null hypothesis (H01) was rejected and research hypothesis (H1) was accepted

Table 2: Mean, Standard deviation and paired't' value of according to pre-test and post-test scores of the functional mobility among women with osteoarthritis. (n= 30)

Functional mobility score	Mean	Standard deviation	't'
Pre-test	38.63	11.8	25.6
Post-test	35.3	12.07	

Significant at 0.05 level*

The data presented in the above table shows that the mean and standard deviation of functional mobility among women with osteoarthritis was 38.63 and 11.8 and after the isometric exercise it was changed to 35.3 and 12.07. The paired 't' test computed between pre test and post test level of functional mobility was statistically significant at 0.05 level. The calculated 't' value (25.6) was greater than the table value (2.05). It indicated that isometric exercise was effective for improving functional mobility among women with osteoarthritis. Hence the null hypothesis (H02) was rejected and research hypothesis (H2) was accepted

There is no significant association between pre test score of knee joint pain and functional mobility with selected demographic variables such as age, religion, educational status, marital status, previous occupation, body mass index, types of family, dietary habits and duration of illness. Here the calculated chi square (χ^2) value was less than the table value. Hence the null hypothesis accepted and rejected the research hypothesis.

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