(RESEARCH ARTICLE)

A study to assess the effectiveness of tele rehabilitation on knee pain for patient with osteoarthritis at selected community

Tamilarasi B, Saranya P *, Babitha S, Rohitharaj R, Padmavathi U, Santhosh Kumar C and Jolin Prathip P. M

Madha College of Nursing, Chennai, Tamilnadu, Affiliated to the Tamilnadu Dr. MGR Medical University, Chennai, India.

Abstract

The aim of the study was to evaluate the effectiveness of tele rehabilitation on knee pain among patient with osteo arthritis. A pre-experimental one group pretest post test design is used to conduct the study. The study was done on 30 samples selected by purposive sampling technique from a selected community. The data was collected through questionnaire (Demographic variables) and WOMAC scale questionnaire. After obtaining the permission from the concerned authorities, the data was collected by conducting pretest by using western Ontario and MC Master university Arthritis index (WOMAC) scale and delivering rehabilitation services to the patient through video assisted demonstration on exercise and booklet on dos and don'ts issued to patients at outpatient department following which phone calls were made to every patients with OA in morning and evening to ensure patient participation in rehabilitative activities at home for 15 days and post test was done by using WOMAC scale. The study findings revealed that there was significant difference in the pain score before and after telerehabilitation. Hence the H1 is accepted which shows the difference in the pretest and post-test level of knee pain among patient with Osteoarthritis after Telerehabilitation.

Keywords: Telerehabilitation; Knee pain; Osteoarthritis; Patient with osteoarthritis

1. Introduction

According to WHO chronological old age is classified as follow., Young old age (65 – 75) year, Advanced old age (75 – 85) year, Very advanced old age (85 – above) year. In this age period many physiological changes occur, the illness, diseases & medications may affect older people differently than younger adults. The most common problems are undergoing geriatrics is a dementia, delirium, falls, polypharmacy, confusion & agitation, coronary heart diseases, osteoporosis, osteoarthritis, malnutrition, frality, Alzheimer's, disease.

Osteoarthritis is most common degenerate joint disease with inflammatory component that starts from the matrix of the articular cartilage, progress with disruption of chondrocyte response and result in tissue National institute of arthritis and muscle skeletal and Skin diseases, states that osteoarthritis occurs when cartilage and other tissue with in the joint breakdown or have change in their structure. Certain factor may make it more likely to develop disease include, aging, being overweight or obese, history of injury or surgery to a joint, over use of repetitive movement of joint and family history of osteoarthritis.

Objectives

- To assess the pretest and post-test level of knee pain for patient with osteoarthritis.
- To evaluate the effectiveness of telerehabilitation on knee pain for patient with osteoarthritis.

* Corresponding author: Saranya P

- To find out the association of post-test level of knee pain for patient with osteoarthritis with the selected demographical variables.

1.1. Hypotheses

- H1 : There will be a significant difference in the pretest and post-test level of knee pain among patient with osteoarthritis after telerehabilitation
- H2 : There will be a significant association between post-test level of knee pain among patient with osteoarthritis with their related demographical variables.

2. Material and method

Quantitative research approach was adopted for the study. Pre experimental one group pretest post-test design was selected. The study was conducted in Primary Health Centre Nanganallur in Chennai. A sample of 30 patients with osteoarthritis with in the age group 45-60 and who fulfil the inclusion criteria were chosen using purposive sampling technique. Pretest was conducted using WOMAC scale (Bellamy et al. 1988) that consists of 24 questionnaires divided into 3 subscales: pain (5 items), stiffness (2 items), physical function (17 items) and a booklet on dos and don'ts were issued to patients at outpatient department. A Whatsapp group was also created for 30 samples on the same day. Rehabilitation services through video assisted demonstration on exercise were posted in the Whatsapp group on day 2 following which phone calls were made to every patients with OA at home in morning and evening to ensure patient participation in rehabilitative activities for 15 days and post test was done on 15th day using WOMAC scale

3. Results and discussion

Table 1 Frequency and percentage distribution of level of knee pain among patient with osteoarthritis in pre-test and post test N=30

Level of Knee Pain	Pre-test		Post test	
	F	%	F	%
Mild	13	43.3	25	83.3
Moderate	17	56.7	5	16.7
Severe	0	0.0	0	0.0
Extremely severe	0	0.0	0	0.0

Table 1 presents the frequency and percentage distribution of level of knee pain among patient with osteoarthritis in pre-test and post-test.

3.1. The first objective was to assess the pretest and post-test level of knee pain for patient with osteoarthritis

The data was categorized into four levels such as mild, moderate, severe and extremely severe pain. In the pre-test, more than half of the patients 17(56.7%) reported that they experienced moderate level of knee pain and remaining 13(43.3%) reported mild level of knee pain due to osteoarthritis, while no participants indicated severe or extremely severe knee pain. Whereas, in post-test, after telerehabilitation, majority of the patients 25(83.3%) experienced mild level of knee pain and rest of a small proportion 5(16.7%) reported moderate level of knee pain. It concludes that the transformation in pain levels indicated the effectiveness of the telerehabilitation, as the majority of patients with osteoarthritis significantly reduced their knee pain to mild level from moderate level.
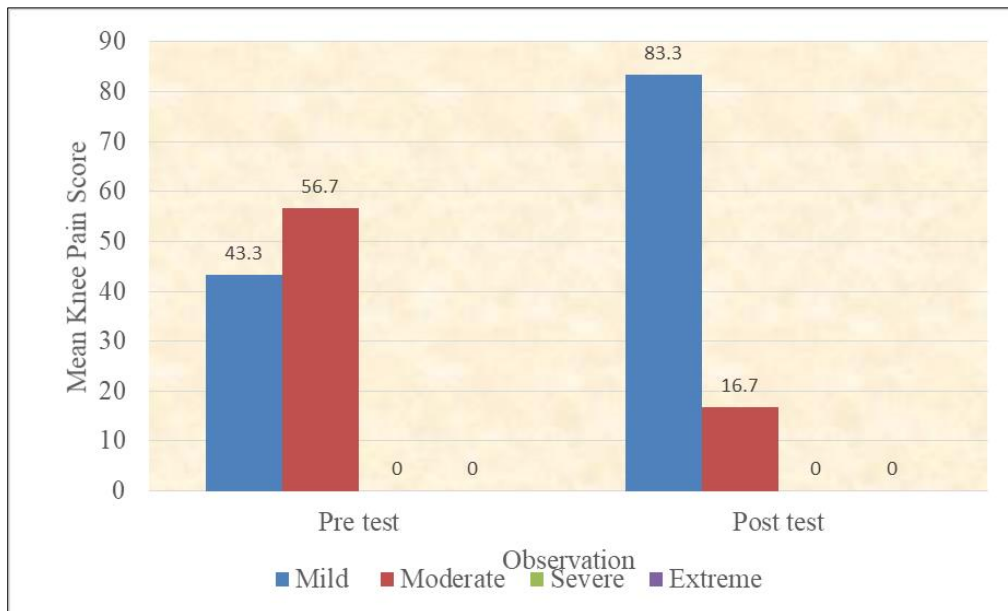
Figure 1 Percentage distribution of level of knee pain among in pre-test and post test

Table 2 Mean knee pain score and standard deviation among patient with osteoarthritis in pre-test and post- test and its level of significance N=30

Observation	Mean	Standard Deviation	Paired t value df=29	Sig value
Pre-test	27.47	7.10	8.798 *	0.000
Post test	18.87	4.88		

* Significant at P<0.05

Table 2: presents the mean knee pain score and standard deviation among patient with osteoarthritis in pre-test and post test and its level of significance.

3.2. The second objective was to evaluate the effectiveness of telerehabilitation on knee pain for patient with osteoarthritis

In the pre-test, patient with osteoarthritis had a mean knee pain score of 27.47, with a standard deviation of 7.10. Whereas in the post-test, after the implementation of the telerehabilitation, there was a significant and remarkable improvement in patient with osteoarthritis, with a mean knee pain of 18.87 and standard deviation of 4.88. The paired t-value was 8.798 with 29 degrees of freedom (df) and the corresponding significance value was as less than 0.05 (p < 0.05), indicating an extremely high level of statistical significance. Statistically, there was a significant difference in the mean knee pain score among patient with osteoarthritis in pre-test and post-test. Hence, the hypothesis H_1 was accepted.

The table concludes that the telerehabilitation program had statistically significant positive impact on reducing knee pain among patients with osteoarthritis in the selected community. The decrease in the mean knee pain score in the post-test revealed that the intervention was effective in improving the participants knee pain levels. These findings provide strong quantitative evidence supporting the efficacy of telerehabilitation as a valuable approach for managing knee pain in osteoarthritis paties.
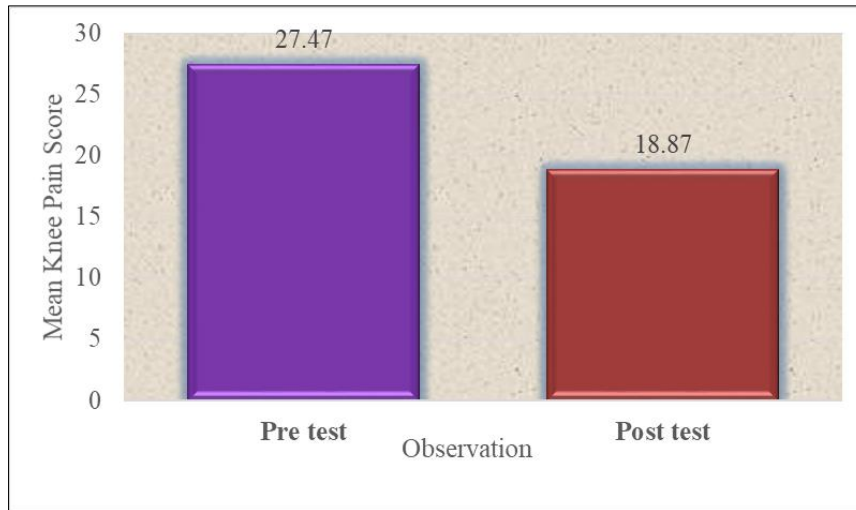
Figure 2 The mean knee pain score among patient with osteoarthritis in pre-test and post test

Table 3 Association between the demographic chacteristics and the level of knee pain among patient with osteoarthritis in post test N=30

Sl No.	Demographic Characteristics	Level of Knee Pain		χ² value	df	Significant value
		Mild	Moderate			
1	Age in Years					
	≤ 60 Years	17	1	4.000 *	1	0.046
	> 60 Years	8	4			
2	Gender					
	Male	4	1	0.048 NS	1	0.827
	Female	21	4			
3	Family Income					
	≤ Rs 10,000/-	7	2	1.200 NS	2	0.549
	Rs 10,001 –30,000/-	16	2			
	> Rs 30,000/-	2	1			
4	Duration of illness					
	< 2 Year	10	1	2.575 NS	2	0.276
	2-3 Year	9	1			
	> 3 year	6	3			

NS – Not significant at $P<0.05$ * - Significant at $P<0.05$

Table 3, presents the association between demographic variables with level of knee pain among patient with osteoarthritis in the post test

3.3. The third objective was to find out the association of post-test level of knee pain for patient with osteoarthritis with the selected demographical variables

The finding from the table reveals that there was a significant association between age and level of knee pain and no significant association between the other selected demographic characteristics such as gender, family income and

duration of illness with the level of knee pain among patient with osteoarthritis in the post test. Hence, H2 was accepted that there was significance association between post-test level of knee pain with age of patient with osteoarthritis.

4. Conclusion

The present study was conducted to evaluate the effectiveness of tele rehabilitation on knee pain among patient with Osteoarthritis. The study findings show that there was significant difference in the pain before and after tele rehabilitation.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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