



## International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 7 | Issue 3 | Jul - Sep - 2019  
www.ijamscr.com

Research article

Medical research

### Assess the effectiveness of natural clay therapy on osteoarthritis index and swelling among patients with knee osteoarthritis at selected hospital in Chennai

<sup>1</sup>Mr. P. Ruban David\*, <sup>2</sup>Ms. Veeriayan Santhosi Kumari

<sup>1</sup>Assistant Professor, Saveetha College of Nursing, SIMATS, Thandalam, Chennai

<sup>2</sup>B. Sc Nursing IV year, Saveetha College of Nursing, SIMATS, Thandalam, Chennai

Corresponding Author: Mr. P. Ruban David

Email: rubandavid03@gmail.com

#### ABSTRACT

##### Title

Assess the effectiveness of natural clay therapy on osteoarthritis index and swelling among patients with knee osteoarthritis at selected hospital in Chennai.

##### Objectives

To assess the level of index and swelling among women with knee, osteoarthritis before and after intervention among control group and experimental group. To evaluate the impact of natural clay therapy on osteoarthritis index and swelling among patients with knee osteoarthritis in experimental group. To associate the level of osteoarthritis index and swelling among women with knee osteoarthritis.

##### Hypotheses

Clay therapy reduces the level of osteoarthritis index and swelling among both men and women.

##### Methodology

Quasi experimental research design was adopted to conduct this study, 60 samples of osteoarthritis patients were selected with non probability purposive sampling technique. The inclusive criteria are osteoarthritis patients with manifested are mild, moderate and severe pain, who can speak Tamil and English patients and who are willing to participate in the study, the data was collected using the tools consists of demographic variables and WOMAC scale.

##### Findings

A quasi experiment method is used to 30 samples in experimental group are affected from knee osteoarthritis, out of 30, 20 clients have reduced osteoarthritis index and swelling this method is done for 4 weeks selected hospital and other 30 samples for control group are affected from knee osteoarthritis, out of 30, 15 clients reduced osteoarthritis index and swelling. In experimental group, pre assessment values are mean (71.9), SD (5.4). Post assessment values are mean (8.4), SD (1.5) and 't'(16.555). In control group pre assessment values are mean (82.4), SD (15.0). Post assessment values are mean (6.0), SD (1.1) and 't'(9.6171).

**Keywords:** Assess, effectiveness, Natural clay therapy, Knee osteoarthritis patients, WOMAC scoring scale.

## INTRODUCTION

Osteoarthritis (OA) is a long term chronic disease characterized by the deterioration of cartilage in joints which result in bones rubbing together and creating stiffness, pain, and impaired movements [7]. The diseases most commonly affect the joints in the knees, hands, feet, and spine and is relatively common in shoulder and hip joints [6]. Osteoarthritis related to ageing, it also associated with a variety of both modified and non modified risk factors, including obesity, lack of exercise, gender predisposition, bone density, occupation injury, trauma, and gender [1].

Osteoarthritis is the most prevalent joint disease and leading source of chronic pain and disability. This is estimated is 54.4 million in 2018. Globally, about among approximately 40% are affected from knee osteoarthritis with etiology factor age, obesity [5] and genetics (**World Health Organization**). Each year in United states the health care system has been transition which has also brought new opportunities to advance causes peoples living with osteoarthritis [4]. It has been more important than now to plan for new innovation, health care and find to cure for chronic diseases [3]. Hence 9.6% men and 18% of women aged over 60 years have symptomatic osteoarthritis worldwide. 80% of those with osteoarthritis have limitation in movement, and 25% cannot perform their major daily activities of life [9]. (**Arthritis Foundation**). In 2018 Tamil Nadu 10% had affected from osteoarthritis, In gender 5% of men are affected from osteoarthritis and 10% of women more common caused in their menopause period, aged group, and life styles modification [10]. (**National Journal of Medical**).

The Natural Clay Therapy is natural remedies to cure the osteoarthritis is natural remedies to cure the osteoarthritis, a natural clay used as a external application on joints<sup>2</sup>. The properties magnesium(Mg), calcium( Ca), potassium(K), Zinc(Zn), phosphorous(P), iron(Fe), aluminium(Al), silicon(Si), copper(Cu), cobalt, molybdenum this are elements is heath vital maintain the heath good and reduces pain swelling and stiffness. This elements properties allowed the clay to hold a great scabbing properly and their help to regenerating the tissues of the joints [8]. It is a analgesic properties that's effectively relive the joints and the muscle pain [9].

## MATERIAL AND METHODS

Quasi experimental method is used. The data collected from the subjects who were willing to participate in the study and who have met the selection criteria among 60 patients with knee osteoarthritis. Pre test was conducted by using semi structure interview schedule for Demographic and clinical variables and Observation check list (WOMAC Scoring scale) for assessing the level of swelling and index among Osteoarthritis. By using purposive sampling method, The samples were equally assigned to both groups, 30 samples for control group and other 30 samples for experimental group. In experimental group were applied Natural clay therapy for 1 week for each clients, and after that WOMAC scoring scale were used in post test.

- **STEP 1:** Assess the swelling and pain of patients with knee osteoarthritis mild, moderate and severe.
- **STEP 2:** For mild pain (BMI is 100 gram clay used with water 20mL) ,For moderate pain ( 150 grams clays used with water 30mL) and For severe pain ( 200 gram of clay is used with water 40mL). The clay should be mixed well until it become smooth.
- **STEP 3:** Place the layer gauze over the knee and apply layer of clay in affected joints
- **STEPS 4:** After some 30 minutes it felt cooling affect sensation.
- **STEPS 5:** Once there feel the clay is become dry it is ready remove from the skin.
- **STEPS 6:** This procedure continue once in a day for week
- **STEPS 7:** After intervention used WOMAC scoring scale to assess the osteoarthritis index and swelling.

The investigator obtained formal permission to conduct study from respective authorities. The study is aimed at assessing the effectiveness of Natural clay therapy osteoarthritis index and swelling among patients with knee osteoarthritis. The objectives of this study was to systematically review all the literature that analyses the therapeutic effect of natural clay therapy achieve the functioning, quality of the life and perceived swelling .pain and index for osteoarthritis .However the evidenced based on treatment protocols. On the need to carry out randomized

controlled the effectiveness of natural clay therapy. In particular OA is well recognized as typically from intermittent weight bearing pain to a more persistent, pain and stiffness.

In the study two groups, quasi experimental study was adopted in both experimental and control

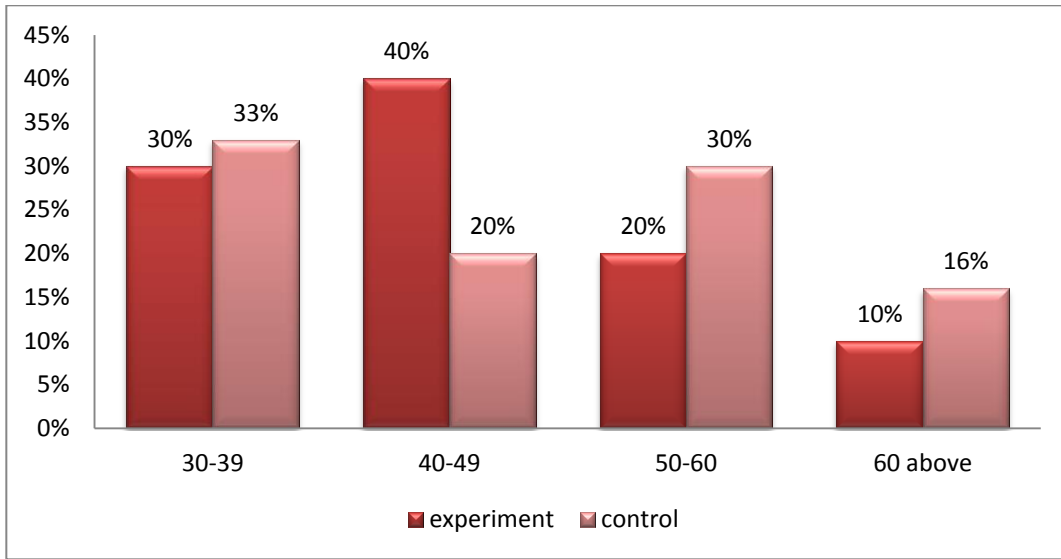
group. The result of major study was discussed to the objectives.

This study was carried upon 60 patients with knee osteoarthritis in selected hospital at Chennai. Their pain and index assessed with WOMAC scoring scale before and after application of natural clay therapy.

## RESULT

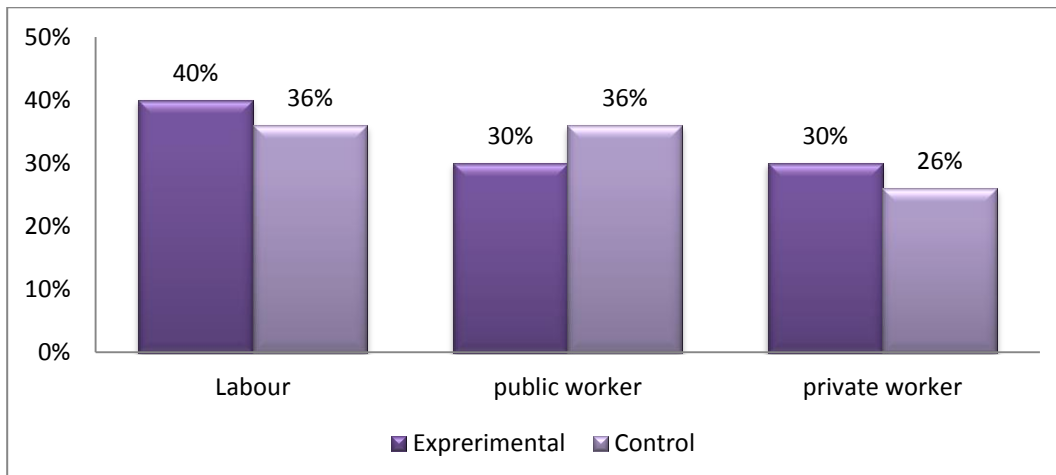
The data was tabulated, analyzed and interpreted using distribution of according to age.

### Age



The above figures 1(a) reveals that in experimental group (natural clay therapy) shows that 8(26%) comes under the age group of 30-39years, 11(36%) belongs to the age group 40-49years, 6(20%) belongs to the age group 50-60years, 5(16%) belongs to more than 60 years and in control group 10(33%) belongs to age group 30-39years, 6(20%) belongs to the age group 40-49years, 9(30%) belongs to the age group 50-60years, 5(16%) belongs to more than 60years

### OCCUPATION



**Above figures 1(b) reveals that in shows that**  
 In labour work the experimental group is greater than control group 40% and 36%, In public worker

experimental group has 30% and control group has 36% and in private workers the experimental groups has 30% and control group has 26%.

**Table 2: Mean, SD and ‘t’ value of patients with knee osteoarthritis index and swelling in experimental and control group. n=(30+30)=60**

	No of Patients	PRE ASSESSMENT		POST ASSESSMENT		Student paired t-test
		MEAN	SD	MEAN	SD	
<b>Experimental</b>	30	71.9	5.4	8.4	1.5	t=16.655
<b>Control</b>	30	82.4	15.0	6.0	1.1	t=9.6171

Above table reveals that calculated mean, standard deviation and paired t test of both experimental and control group. In experimental group, pre assessment values are mean (71.9), SD (5.4). Post assessment values are mean (8.4), SD (1.5) and ‘t’(16.555). In control group pre assessment values are mean (82.4), SD (15.0). Post assessment values are mean (6.0), SD (1.1) and ‘t’(9.6171).

**DISCUSSION**

Out of 30 samples in pre test experiment group reveals that out of 30 samples in experimental group 23(76.6%) were mild swelling, 7(23.6%) were moderate swelling. In control group 1(3.3%) were mild, 26(86.6%) were moderate, 3(10%) were severe.

Out of 30 samples in post test experiment group It reveals that out 30 samples in pre test experiment group reveals that out of 30 samples in experimental group 23(76.6%) were mild swelling, 7(23.6%) were moderate swelling. In control group 1(3.3%) were mild, 26(86.6%) were moderate, 3(10%) were severe

The calculated ‘t’ value for Knee osteoarthritis index and swelling experiment group was t=16.346 which is to be significant at p< 0.03 level. Then the calculated ‘t’ value for Knee osteoarthritis index and swelling in control group was t= 9.56 Which is found to be statistically significant at p< 0.05 level . So the natural clay therapy on osteoarthritis index and swelling was in effective experiment group.

**Mario Fontana (2018)** conducted study on effectiveness of Natural clay therapy. A quasi experiment method is used to 20 sample of affected from knee osteoarthritis ,out of 20 ,15

clients have reduced swelling and stiffness this procedure had done for 4 weeks in selected hospitals this clay is cost effective most of them is women are affected. Compared to Researcher on natural clay therapy have 30 samples in experimental group 20% were have pain decrease and In control group has 30 samples 25% were pain decreased.

**Dr. Renuka (2017)** A prospective observation study was conducted at Impact of Natural Clay Therapy on osteoarthritis index and swelling among women with knee osteoarthritis. Natural clay therapy was assessed 2 weeks by using tools questionnaire and WOMAC scale .The sample size is 60 there used quasi experimental method .The result of Natural clay therapy improved impact of pain and stiffness physical functioning and swelling among knee osteoarthritis.

**Farideh Golhasani Keshtan, (2014)** the study conducted on The Western Ontario and McMaster Universities Osteoarthritis Index patient with knee osteoarthritis. The sample is 169 performed there used quantitative design. The tools are questionnaire and WOMAC scales. For this the data collection is done for 20 weeks. The result for this study is reliability testing and significant improvement.

**Antonio Fraioli, (2018)** the study conducted on Efficacy of spa therapy, mud pack therapy, Balneotherapy and mud bath therapy in the management of knee osteoarthritis. The sample is 60 performed there used quantitative analyzing .The tools are questionnaires and visual analogue scale and WOMAC scale. For this the data collection is used for 14 week .The result for this study is the most relevant index used to measure effectiveness of 20% were cured.

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**How to cite this article:** Mr. P. Ruban David, Ms. Veeriyayan Santhosi Kumari. Assess the effectiveness of natural clay therapy on osteoarthritis index and swelling among patients with knee osteoarthritis at selected hospital in Chennai. *Int J of Allied Med Sci and Clin Res* 2019; 7(3): 1028-1032.

**Source of Support:** Nil. **Conflict of Interest:** None declared.