



# To Study the Effectiveness of Argemone Mexicana and Jacaranda Caroba 200 in patients with Osteoarthritis of Knee joint

HOMOEOPATHY AND OSTEOARTHRITIS OF KNEE JOINT

Sadaf R.A. Khan<sup>1\*</sup> & Anil V. Patil<sup>2</sup>

<sup>1\*</sup>PG Scholar, Department of Practice of Medicine, Bharati Vidyapeeth (Deemed to be university) Homeopathic Medical College Pune-43, Maharashtra, India.

Email:sadaf1694@gmail.com

<sup>2</sup>Asso Professor, Department of Practice of Medicine, Bharati Vidyapeeth (Deemed to be university) Homeopathic Medical College Pune-43, Maharashtra, India.

## Abstract:

The 2nd most common rheumatological problem and most frequent joint disease is osteoarthritis. The prevalence of osteoarthritis in India ranges from 22% to 39%. As per the literature, available osteoarthritis of the knee joint is widely seen in the population. The study was primarily aimed to study the effectiveness of Argemone Mexicana and Jacaranda Caroba 200 in patients with osteoarthritis of the knee joint. It was a phase 2, single-blind, non-randomized, interventional study. 30 patients were enrolled in the study. Left and Right knee Osteoarthritis patients were intervened with Argemone Mexicana Jacaranda Caroba 200 respectively. WOMAC Index was used as outcome assessment tool, before and after intervention; scores were statistically analyzed using paired 't' test to assess the pain, stiffness, and functional limitation. The difference between pain score before and after treatment was  $5.23 \pm 2.10$  which was highly significant (p-value 0.000). The stiffness score difference before and after Intervention was  $3.17 \pm 1.12$  which was highly significant (p-value 0.000). The difference between functionality limitation score Before and after intervention was  $24.63 \pm 5.68$  which was highly significant (p-value 0.000). The difference between WOMAC Index score before and after intervention was  $34.67 \pm 9.60$  which was highly significant (p-value 0.000). Overall, 16.67% patients showed mild improvement, 43.33% of patients showed moderate improvement whereas 40.00% showed marked improvement. It was concluded that Homoeopathic medicine Argemone Mexicana for left sided OA knee and Jacaranda Caroba for right sided knee joint in 200 potency were effective in management of Osteoarthritis of knee joint.

**Keywords:** osteoarthritis of knee joint, Argemone Mexicana, Jacaranda Caroba, WOMAC index, CAM, Homoeopathy

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## Introduction:

According to the Subcommittee on Osteoarthritis of the American College of Rheumatology Diagnostic and Therapeutic Criteria Committee osteoarthritis is defined as a heterogeneous group of conditions

leading to joint symptoms and signs which are associated with defective integrity of articular cartilage, along with changes in the underlying bone at the joint margins. Clinically, Osteoarthritis is characterized by



joint pain, tenderness, limitation of movement, crepitus, occasional effusion, and variable degrees of local inflammation.<sup>1</sup> Osteoarthritis is classified into Primary osteoarthritis which is mostly related to aging. As a person ages, the protein composition of cartilage deteriorates and its water content is elevated. In due course, cartilage starts degenerating by exfoliation to form minute crevasses. Total loss of cartilage cushion between joint is observed in advanced cases. Formation of new outgrowth or spurs around the joints which is stimulated by damage to the cartilage. The other type the secondary osteoarthritis is caused by another disease or condition such as obesity, repeated trauma or surgery to the joint structures, abnormal joints at birth (congenital abnormalities), gout, rheumatoid arthritis, diabetes, and other hormone disorders.<sup>2</sup> In the Global Burden of Disease 2010 study, hip and knee OA was ranked as 11th highest contributor to global disability.<sup>3</sup>

In India osteoarthritis impacts, nearly 80% of the population out of which approximately 20% reported incapability in daily activities and around 11% needed care. Approximately 40% of the population of more than 70 years shows OA, in which nearly 2% have severe knee pain and disability.

In Maharashtra, the prevalence of OA was estimated according to ACR clinical criteria as 10.2%, which was significantly higher among women (11%) than in men (7%) for the 60-79 years age group. Comparison on the basis of gender shows 65.7% vs. 34.3% (approximately 2:1) with female to male ratio.<sup>4</sup>

Pain around the knee joint is a frequent symptom of knee joint pain. Pain can be continuous or irregular (on / off) which can differ in its degree. problematic symptoms like locking, swelling or giving way of the knee are usually observed in OA. All the pain-related dysfunction are commonly

exhibited by struggling to perform household activities, trouble while walking or climbing stairs which ultimately leads to decline in quality of life. Knee pain can have sudden onset and can increase gradually or worsen over time. Most common symptoms include stiffness and pain after sitting, after prolonged rest, or in the morning. Gradually at night or during rest pain may occur more persistently. Often pain spreads up with vigorous activity. Joint pain and stiffness when sitting or prolonged rest generally lighten up within half-hour, called gelling.<sup>5</sup> The diagnosis of osteoarthritis knee joint can usually be made clinically and later confirmed by radiography. The main features that suggest the diagnosis include pain, stiffness, reduced movement, swelling, crepitus, and increased age (unusual before age 40) in the absence of systemic features (such as fever).<sup>6</sup> There are various classification systems for OA. The European League Against Rheumatism recommended the use of three symptoms i.e persistent pain, limited morning stiffness, and reduced function and the three signs that are crepitus, restricted range of motion, and bony enlargement for making the diagnosis of knee OA. The other clinical classification criteria most frequently used is the one developed by the American College of Rheumatology. These criteria start with the presence of knee pain plus specific characteristics for diagnosis. The ACR criteria are divided into three categories, mainly clinical, clinical plus radiographic and clinical plus laboratory.<sup>5</sup> Management of osteoarthritis includes educating the patient about the disease he is suffering from, improving the function and controlling the pain also to slow the process of degeneration and prevent complications. Non-Pharmacological treatment includes educating the patient, weight loss, exercise, physical therapy, and knee braces. The medical management includes analgesics, intra-articular steroids,

Intraarticular hyaluronan. In advanced cases surgery is the last mode of managing the patient.<sup>6</sup>

There is a need for medicines that have good efficacy without having side effects, which have low toxicity to the patients with OA. The homoeopathic system of medicine has remedies that are already proven on human beings having no side effects to the patients, yet are effective. This study focuses on the alternate path for managing osteoarthritis of the knee i.e with the system of homoeopathy. Various trials have been conducted to prove that homoeopathic medicines like Rhus tox, Bryonia alba, Calcarea carb, etc. have good control over the pain stiffness and functioning of patients with osteoarthritis of knee joint. Homoeopathic preparation of Jacaranda Caroba and Argemone Mexicana in 200 potency have been studied in patients with osteoarthritis of knee joint.

#### **Materials and method :**

The study was carried out at Bharati Vidyapeeth Medical Foundation Homoeopathic Hospital, OPD, various urban and rural camp series ,opd and lpd from 2021-2022

Total 30 patients (males and females) age group of 30yrs and above who were suffering from signs and symptoms of osteoarthritis knee were enrolled for the study. Since it was a time-bound study, subject attending, Bharati Vidyapeeth Medical Foundation Homoeopathic Hospital, peripheral O.P.D. and various rural and urban camps series were enrolled.

#### **Inclusion criteria**

- All the patients presenting with Primary Osteoarthritis of the knee joint were included on the basis of clinical findings and investigations.
- Patients of both sexes & of age group 30 years and above.
- Patients without any major systemic complications.

- The ability to give informed consent & comply with study procedures.

#### **Exclusion criteria -**

- Patients who require surgical intervention
- Patients with positive Ra factor
- Patients with complications of osteoarthritis

#### **Study design-**

It was a phase 2, single-blind, non-randomised, interventional study to see the effect of Argemone Mexicana and Jacaranda Caroba 200 in patients with OA knee. Minimum of 30 Cases were selected based on inclusion and exclusion criteria. Out of the 30 patients to 15 patients Argemone Mexicana 200 for left side knee complaints and to other 15 patients Jacaranda Caroba 200 for right side knee complaints were prescribed as indicated in homoeopathic literature, the medicine was given orally in Globule and powder form.

Diagnosis: The approach was clinical. The guidelines of senior Homoeopathic practitioners, teachers, guide, were taken. Detailed case taking as per the Homeopathic case Performa was done. Symptomatic picture was derived accordingly. Patient was identified in the correct group. All the patients were duly followed and details of the symptomatic, and clinical, changes were recorded.

#### **Investigations - Diagnostic procedures**

1. Local examination of the patient
2. X-Ray knee joint (Ap/Lat view)

#### **Outcome assessment –**

Western Ontario and Mc master university (WOMAC) OA index<sup>7</sup>.

The WOMAC INDEX was used before starting the treatment and at the end of the study.

Ethics: Ethical Committee approval was availed. Guidelines by ICMR (Indian Council of Medical Research), ICH (International Council for Harmonization) were followed. Data was collected by proper method and

was processed in standard format. Total Research Project was submitted to the Ethical committee and Patients were selected according to case definition. Patients were explained about the research project, patient's information sheet and informed consent form were formed and filled up. Standardized case record was prepared and was maintained of individual patient and also standardized follow-up sheet was prepared and maintained regularly.

#### **Result:**

Before treatment pain score was  $9.77 \pm 2.36$ , after treatment pain score reduced to  $4.53 \pm 1.85$ . To check the effectiveness of treatment paired t-test was used. Test statistic value is 13.68 and p-value is 0.000. Before treatment stiffness score was  $5.97 \pm 0.93$ , after treatment stiffness score reduced to

$2.80 \pm 0.99$ . To check the effectiveness of treatment paired t-test was used. Test statistic value is 15.53 and p-value is 0.000. Before treatment functionality score was  $49.37 \pm 7.77$ , after treatment functionality score reduced to  $24.73 \pm 7.22$ . To check the effectiveness of treatment paired t-test was used. Test statistic value is 23.79 and p-value is 0.000.

Before treatment WOMAX index score was  $65.00 \pm 9.63$ , after treatment WOMAX index score reduced to  $30.33 \pm 8.12$ . To check the effectiveness of treatment paired t-test was used. Test statistic value is 31.69 and p-value is 0.000.

Overall, 16.67% patients showed mild improvement, 43.33% of patients showed moderate Improvement whereas 40.00% showed marked improvement.

#### **Discussion:**

The 2<sup>nd</sup> most common rheumatological problem and most frequent joint disease is osteoarthritis. The prevalence of osteoarthritis in India ranges from 22%-39%. OA is more common in females than compared to males with prevalence

increasing with advanced age. As per the literature, available osteoarthritis of the knee joint is mostly seen in the population.<sup>8</sup> As it is a degenerative disease of the joint, complete cure seems not possible but the management of such cases should be the aim of the physician in today's world, various modes of treatment are being opted by the patients for getting relief from symptomatic treatment to surgical or disease-modifying treatment. Various complementary and alternative therapy is open to the patients to choose the best for themselves. There are side effects seen with NSAID's patients are moving towards modalities in CAM. Homoeopathy offers a great chance for patients suffering from the pain stiffness and limitation in daily activities without any side effects and is safe to administer homoeopathy to such patients The present study was primarily aimed to study the effectiveness of Argemone Mexicana 200 and Jacaranda Caroba 200 in patients with osteoarthritis of the knee joint in the age group of 30 and above with an objective to reduce pain, stiffness and also improve the activities of daily living. As the study was single arm only one group was involved, and there was no control group. A total of 30 patients completed the trial, out of which 15 patients with right-sided OA knee were subject to treatment with Jacaranda Caroba in 200 potency. 15 patients with left-sided OA knee were subject to treatment with Argemone Mexicana in 200 potency. The age group in which OA knee joint was seen were 50 years and above with 53.33% of females and 46.67 % males. WOMAC Index was used as the assessment tool, before and after intervention scores were statistically analysed and the result was highly significant. The pain, stiffness, and functional limitation subcategories were statistically assessed using the mean, standard deviation, and paired 't'-test before intervention and after the

intervention. It was concluded that homeopathic Medicines Argemone Mexicana 200 for Left knee and Jacaranda Caroba 200 for right knee are effective in patients with osteoarthritis of the knee joint, by accepting the alternative hypothesis.

However, Various potencies can be used, the sample size can be increased, study can be held for a long duration with randomised placebo controlled trial, also the two remedies can be compared so that the results can be generalized.

#### **Conclusion:**

The age group in which OA knee joint was seen were 50 years and above with female predominance. Overall, 16.67% patients showed mild improvement, 43.33% of patients showed moderate Improvement whereas 40.00% showed marked improvement. It was concluded that homeopathic Medicines Argemone Mexicana 200 for left knee and Jacaranda Caroba 200 for right knee are effective in patients with osteoarthritis of the knee joint.

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#### **Authors contribution:**

SRA and AVP planned the project. SRA carried out the project and wrote the manuscript in consultation with AVP. AVP supervised the project. This research received no specific grant from any funding agency.

#### **Conflict of Interest:**

There was no point of conflict of interest between the authors.

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**Table 1: Distribution of the patients according to demographic variables n=30**

Demographic variables		Frequency	%
Age	30 - 40 years	0	0.00%
	40 - 50 years	6	20.00%
	50 - 60 years	20	66.67%
	60 years and above	4	13.33%
Gender	Males	14	46.67%
	Female	16	53.33%
Occupation	Driver	2	6.67%
	Guard	4	13.33%
	Manual labour/ Farmer	6	20.00%
	Teacher/Nurse	3	10.00%
	Housewife	15	50.00%

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**Table 2: Distribution of patients according to pain, stiffness, functional limitation and knee osteoarthritis measured by WOMAC Scale before and after treatment**

Variable	Severity	Before treatment		After treatment	
		<i>f</i>	%	<i>f</i>	%
Pain	Mild	0	0.00%	17	56.67%
	Moderate	16	53.33%	13	43.33%
	Severe	12	40.00%	0	0.00%
	Extremely Severe	2	6.67%	0	0.00%
Stiffness	Mild	0	0.00%	1	3.33%
	Moderate	0	0.00%	24	80.00%
	Severe	9	30.00%	5	16.67%
	Extremely Severe	21	70.00%	0	0.00%
Functionality Limitation	Mild	0	0.00%	3	10.00%
	Moderate	1	3.33%	24	80.00%
	Severe	16	53.33%	3	10.00%
	Extremely Severe	13	43.33%	0	0.00%
Knee Osteoarthritis (WOMAC Index)	Mild	0	0.00%	5	16.67%
	Moderate	2	6.67%	25	83.33%
	Severe	18	60.00%	0	0.00%
	Extremely Severe	10	33.33%	0	0.00%





**Table 3: Descriptive statistics of pain score, stiffness score, functionality score and WOMAC index before and after intervention**

Variable	Score	Mean ± SD	T value	p-value	Decision
Pain	Before treatment	9.77 ± 2.36	13.68	0.000**	Reject H0
	After treatment	4.53 ± 1.85			
	Difference	5.23 ± 2.10	<b>Difference is Highly Significant</b>		
Stiffness	Before treatment	5.97 ± 0.93	15.53	0.000**	Reject H0
	After treatment	2.80 ± 0.99			
	Difference	3.17 ± 1.12	<b>Difference is highly significant</b>		
Functionality	Before treatment	49.37 ± 7.77	23.79	0.000**	Reject H0
	After treatment	24.73 ± 7.22			
	Difference	24.63 ± 5.68	<b>Difference is Highly Significant</b>		
Knee Osteoarthritis (WOMAC Index)	Before treatment	65.00 ± 9.63	31.69	0.000**	Reject H0
	After treatment	30.33 ± 8.12			
	Difference	34.67 ± 9.60	<b>Difference is Highly Significant</b>		

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Test used: Paired t-test, \*\*: Highly Significant Difference, T-value: Test Statistic value

**Table 4 : Distribution of patients according to the improvement in Knee Osteoarthritis after intervention**

Improvement	Change in WOMAC index after intervention	f	%
No Improvement	0 or Negative	0	0.00%
Mild Improvement	1 to 25	5	16.67%
Moderate Improvement	25 to 35	13	43.33%
Marked Improvement	35 and above	12	40.00%



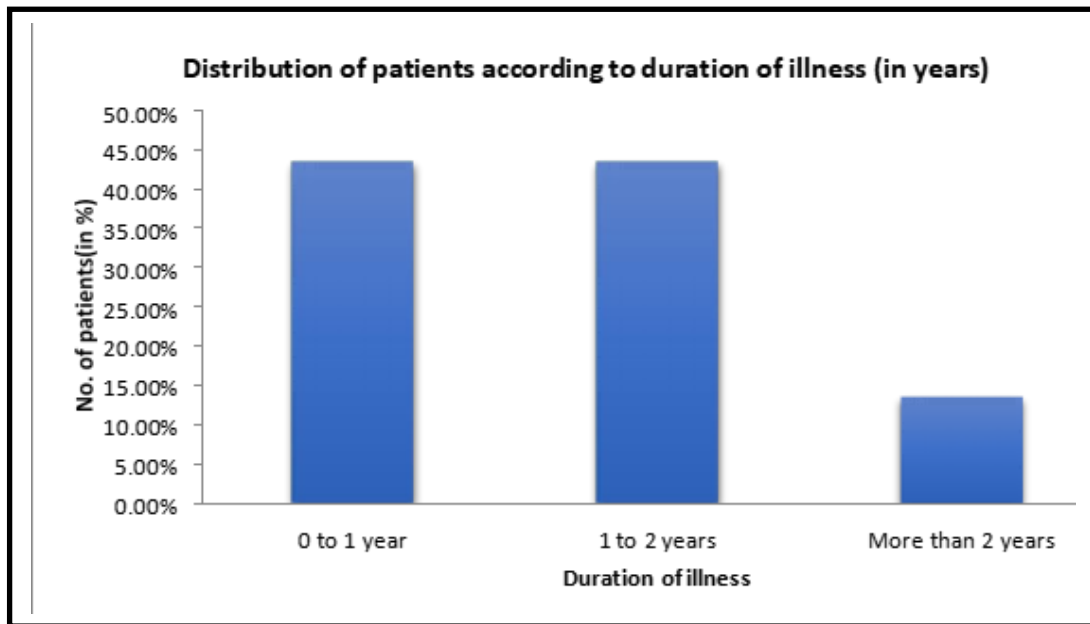


FIG:1

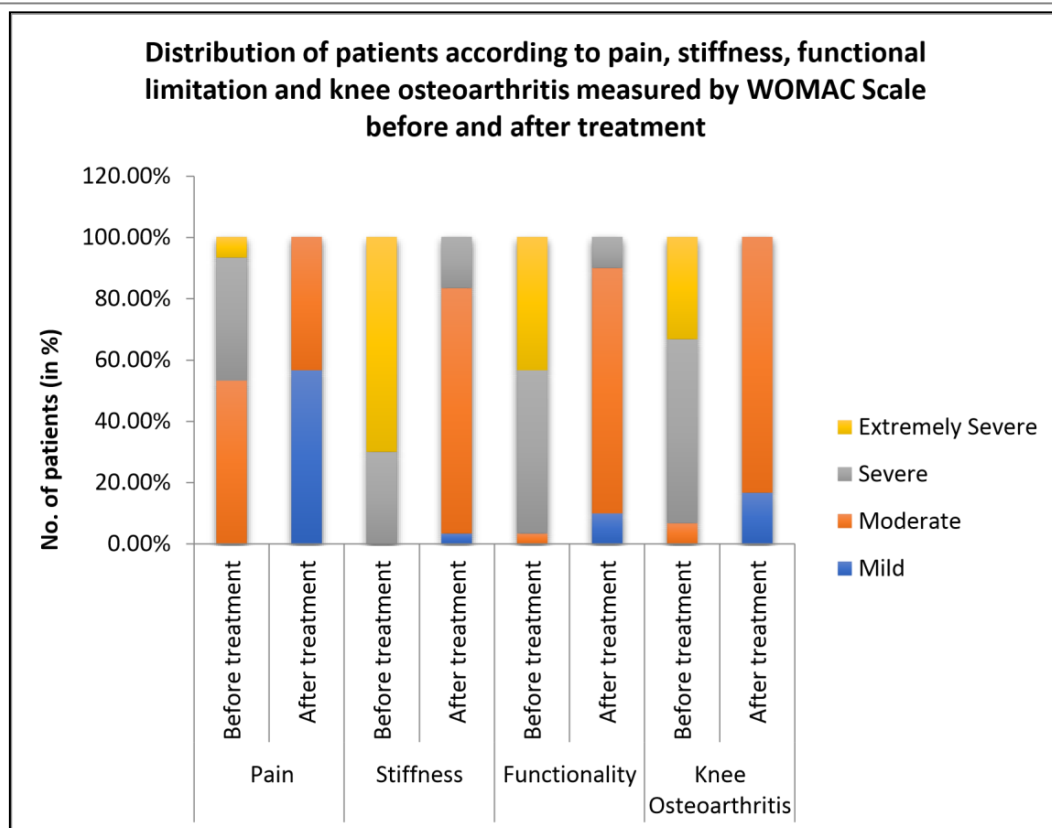


FIG:2





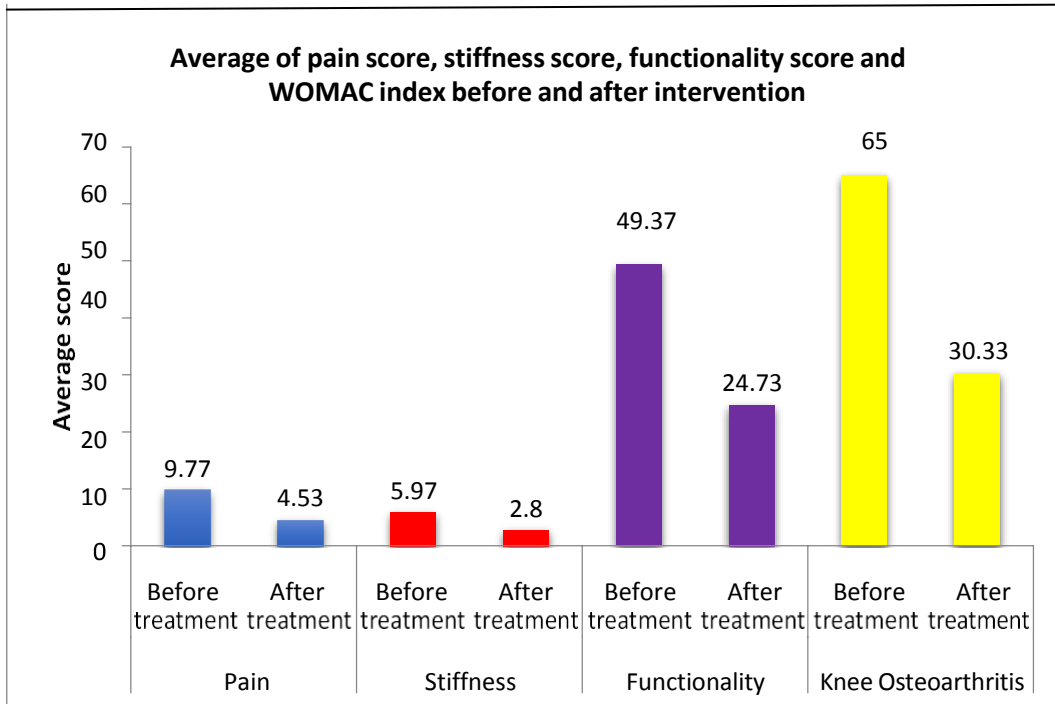


FIG:3

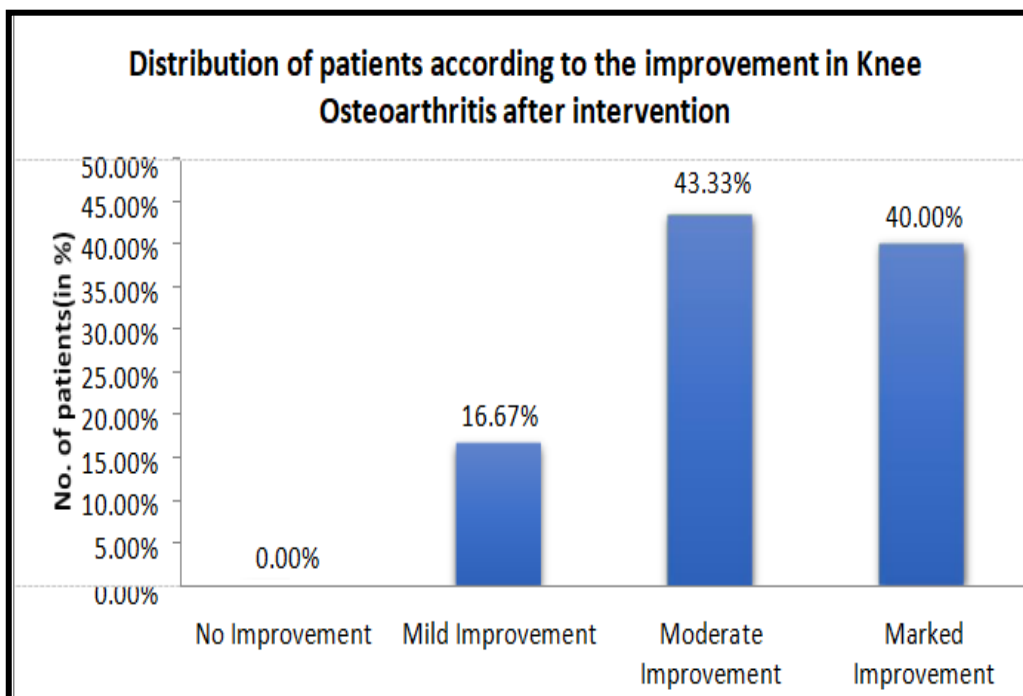


FIG:4

