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**Assessment Of Pain In Patients Of Chronic Osteoarthritis Of Knee Joint By Visual Analogue Scale Before & After Homoeopathic Treatment**

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**Abstract:**

**Objectives:** To measure the baseline pain status among knee OA cases. To study in change in pain score after the treatment.

**Materials And Methods:** We prospectively enrolled 30 patients with medial knee osteoarthritis. Orthopaedic physician diagnosed the disease based on clinical examination of the patients. A visual analogue pain scale, were applied at baseline and at month of 2, 4 and 6. The physicians prescribed individualized homoeopathic similimum on totality of symptoms.

**Result:** Homoeopathic medicines prescribed on bases of totality of symptoms, improved the mean pain score on Vas scale improved from 7.36 to 3.63 ( $p < 0.0001$ ).

**Conclusion:** Indicating that the VAS scale can be used irrespective of the literacy status of the patients. Our use of VAS and Homoeopathic treatment together indicate that by reducing pain and stiffness and limiting progress of the disease without any adverse.

**Key words:** Vas scale, Homoeopathy, Homoeopathic medicines, Osteoarthritis, obesity.

**Introduction:**

Osteoarthritis is the most common form of arthritis, affecting millions of people around the world. Often called wear-and-tear arthritis, osteoarthritis occurs when the protective cartilage on the ends of your bones wears down over time. Its high prevalence especially in elder patients and high rate of disability make it a leading cause of disability.<sup>15,18</sup>

Osteoarthritis (OA) is widely known as the most frequent musculoskeletal disorder, mainly occurring in the elderly with a radiographic prevalence of nearly 70% in persons over age 65 Disease burden is related to pain occurrence, frequently leading to functional disability ranging from slight limitation of movements to severe impairment of normal daily living activities Therefore, pain relief plays an important role in the treatment of OA.1

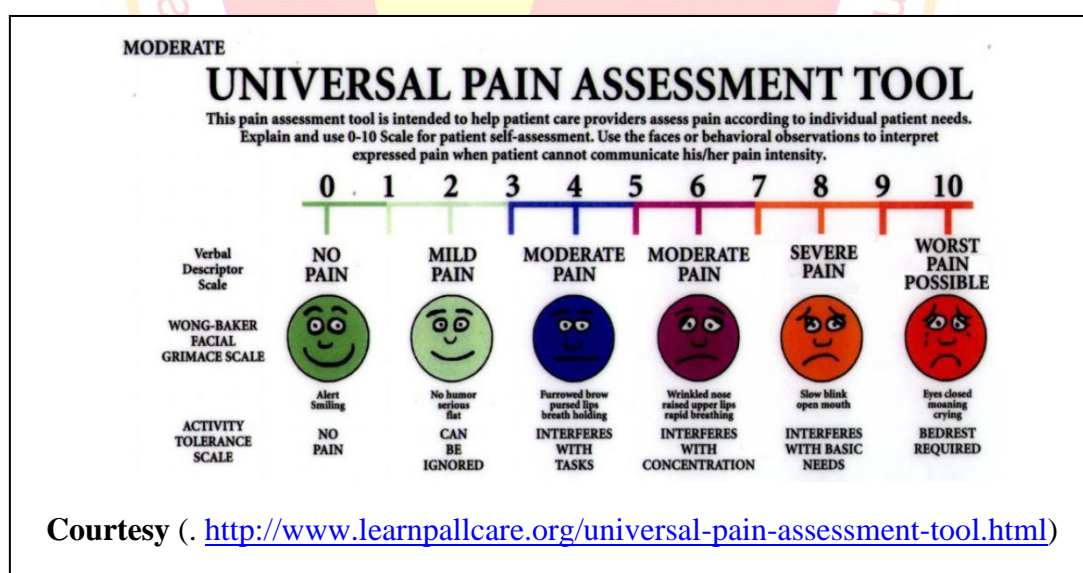
Although knee osteoarthritis is no longer considered as to be normal part of aging process, growing older continues to be the most consistently identified risk factor for disease development. Cartilage destruction can actually begin between ages 20 and 30 years and more than 90% of adults are affected by age 40, Few patients experience until after age 60 but as many as 60% of those over 65 years of age have symptomatic disease. However the incidence of knee osteoarthritis after age 50 is thrice as greater in woman as in men. There is no known cause but “Wear and Tear Process” is believed to be the actual cause.

Osteoarthritis is the most common form of arthritis. Among U.S. adults 30 years of age or older, symptomatic disease in the knee occurs in approximately 6% and symptomatic hip osteoarthritis in roughly 3%. Since osteoarthritis is a disease whose prevalence increases with age, it will become even more prevalent in the future as the bulging cohort of baby boomers grows older. Because of its prevalence and the frequent disability that accompanies disease in the knee and hip, osteoarthritis accounts for more trouble with climbing stairs and walking than any other disease. Osteoarthritis is the most common reason for total hip and total knee replacement.<sup>6</sup>

**The visual analogue scale or visual analog scale (VAS)**

Is a psychometric response scale which can be used in questionnaires. It is a measurement instrument for subjective characteristics or attitudes that cannot be directly measured. When responding to a VAS item, respondents specify their level of agreement to a statement by indicating a position along a continuous line between two end-points.

The main reasons for assessing pain in rehabilitative management of symptomatic osteoarthritis of the knee are to assist in establishing a baseline, to select appropriate interventions and to evaluate the patients’ response to treatment and rehabilitative management. Since pain is localized to the individual, assessment may be difficult as it is subjective to patient’s understanding, cooperation, functional status and response. Behavioural and subjective approaches adopted by some recent authors have therefore offered reliable tools for clinical assessment of pain (Borg, 1982, Briggs,1999, Finch and Melzack, 1987, Olaogun et. al, 2001, Varni et. al, 1987). Such approaches include the Verbal Rating Scale (VRS) and the Visual Analogue Scale (VAS) (Readyard and Edwards, 1992). This present study aims at determining the inter and intra –tester reliability and concurrent validity of VAS and modified VRS (MVRS) in an indigenous environment without bias for gender and literacy level. VRS was modified by translating the English descriptions of subjective pain experience into Yoruba, the dominant indigenous language in the locality of the study. Reference was made to similar translations by Akinpelu and Olowe (2000) for rating physical function and physical performance.<sup>13</sup>



**Materials And Methods:**

The prospective, observational study was carried out between January 2016 and December 2016 in the outpatient department of Dr D. Y. Patil Homoeopathic Medical College and Research Centre, Pune, Maharashtra, India. Ethical clearance was obtained from the Ethical

Committee of Dr D. Y. Patil Homoeopathic Medical College and Research Centre. Orthopedic physician diagnosed the disease based on signs and symptoms and clinical examination.

### Criteria For Sample Collection

**Inclusive Criteria:** Both males and females suffering from knee osteoarthritis. b) Patients between the age group 50 to 80. Patients diagnosed with OA clinically based on the symptoms of pain, stiffness, etc. **Exclusive Criteria:** Patients who are critically ill and unable to respond.

### Participants

A total of 30 patients (50 years or above) from the outpatient department of Dr D. Y. Patil Homoeopathic Medical College and Hospital with complaints of pain, swelling of knee joint, and/or associated with the other complaint like HTN, APD, Constipation and etc. These cases are diagnosed as OA of the knee on clinical examination along with plain radiograph of joints (if present) such patients were included in our study. Informed consent was taken from the patients.

A uniform pattern of case taking was used to collect the data of these patients and after that totality of symptoms was raised and on the bases of symptoms similarity of the totality was used for the prescription of the case individuality. Symptoms such as persistent pain that is worse with use, morning stiffness lasting not more than half an hour, and gelling, i.e., inactivity pain were considered for clinical diagnosis. Examination of the joints for the presence of crepitus or osteophytes, restricted ROM, joint line tenderness, deformity (varus/valgus/fixed flexion deformity) was carried out. Complete blood count, erythrocyte sedimentation rate, RA, CRP, and serum uric acid were also performed to rule out inflammatory arthropathies such as RA, other connective tissue disorder, or Gout. Psoriatic arthritis (PsA) was excluded with clinical evidence of It causes joint swelling, stiffness, and pain. PsA also causes symptoms of psoriasis, such as a scaly red skin rash and nail pitting.

### Assessment of the Progress

Each individual patient was assessed for pain, morning stiffness, swelling and its impact on VAS scale was used for the assessment of pain and progress of the treatment. The universal pain assessment pain (VAS scale) survey form measures pain (0–10), activity tolerance scale from no pain to bed rest required, and wong-baker facial grimace scale (0–10) based on questionnaires for each variable as mild, moderate, severe, and extreme.

### Statistical Analysis

Student's *t*-test was employed for the statistical analysis of the data.

### Duration of Therapy

The consultations were made at 15 days of interval where the medicine selected as per the totality of symptoms was prescribed. During acute condition of pain, the medicine was selected considering the acute totality and having no inimical relation with the previously prescribed medicine. In case of acute condition, the consultations are made at 3–5 days of interval or early if required. A visual analogue pain scale, were applied at baseline and at month of 2, 4 and 6.

## Results

A total of 30 patients (22 females and 8 males) completed the study. 16.7 % of patients were found between the age of 71 - 80 years, 40 % of patients found between 61 and 70 years, and maximum, i.e., 43.3% of patients found between 50 and 60 years whereas 73.3 % females were found to have the disease compared to males (26.6%). Knee joint was observed to be commonly affected as 66 % had bilateral knee OA and 33.33 % had OA of any one side.

Bryonia Alb and Rhus Tox were prescribed in 6 patients on totality of symptoms similimum; Pulsatilla Nig, were indicated in 5 patients; Nux Vomica was prescribed in four patients; Ruta was prescribed at 3 occasions; Causticum, Merc sol, Ledium Pal and Sulphur were indicated in one patient each on totality of symptoms similimum. Ars Alb was prescribed in two patients. All the medicines were prescribed in 200C of the individual patient.

## Study terms

**Illiterate** : Patients lacking the ability both to read and write in any language were considered to be illiterate as per the census of India definition.<sup>5</sup>

All places which were not a municipality, corporation or cantonment or notified town area were considered to be rural areas and patients living and working in those areas were considered to be rural patients as per the census of India criteria.<sup>5</sup> After enrollment, demographic and procedural characteristics were recorded by the principal investigator during a face to face interview in the case taking period. Patients were briefed regarding the evaluation of pain using the VAS. To evaluate pain on the visual analog scale, patients were given universal pain assessment tool i.e., a ruler marked from 0 to 10, where 0 indicated no pain and 10 indicated the worst pain ever. Patients were asked to rate their current pain intensity on this scale. And also patients were instructed in their local language about the VAS scale.

During and Post Treatment, patients meeting the inclusion criteria were asked to rate pain on VAS. The pain rating was taken exactly 1<sup>st</sup> prescription, 3<sup>rd</sup> months and 6<sup>th</sup> month. This is three time assessment and rating was taken. Readings on VAS scales were taken during and at the end of study, at the gap of two months. Mean patient age was 62.96 years. 17 (56.66%) of the respondents were illiterate.

## Procedure

Pain rating was taken in a OPD. Patient was asked to stand on the more painful knee and flex the knee slightly. The Principal investigator / Co-Principal investigator administered the rating scales separately for individual patients and every follow up. The principal investigator was in the testing room to monitor and record the measurement.

## Discussion

The effective clinical management of osteoarthritis of Knee ultimately depends upon its accurate assessment with similimum totality. This entails a comprehensive evaluation of patient's pain and such assessments rely in part on the use of accurate evaluation tools. Many scales have been devised to provide quantifiable measure of pain. Measures of pain are primarily classified into behavioral and subjective. Other measure includes biological and non subjective measures. The accuracy of the assessment depends upon the efforts of the health care provider and of the

person experiencing pain. [16] Visual analog scale is the most common simple scale used in pain research. [17] It represents intensity of pain on a 10 cm plain line with two anchor points of “no pain “and “worst pain I ever felt “. The patient is requested to draw a line at the point that best describes his or her pain level. It is the most widely used scale for assessment of pain in clinical setting and has been reported to be sensitive and reliable.

The strength of the study lies in the fact that it is done in PCMC population that assesses the impact of Homoeopathic medicine in management of OA pain by evaluating / rating by VAS scale. Education thus must not be hindrance in assessment and management of pain. Limitation of the study includes the perception of pain among patients evaluated may have subjective as well as interpersonal variation which could influence the ability to rate the pain.

The mean, range and standard deviations (SD) of the patients’ physical characteristics are shown in Table 1. The mean BMI of 25.28 and SD of 8.30 indicated that the patients sample was fairly homogenous with tendency to overweight.

**Table 1: Ranges, Means and Standard Deviations of Anthropometric Characteristics (N=30)**

	N=30	Range	Range	Mean	SD (±)	Standard Error of the Mean (SE <sub><math>\bar{x}</math></sub> ):
		Minimum	Maximum			
Weight (kg)	30	50.2	94.7	61.99	10.04	1.83
Height (cms)	30	125	171	151.46	13.02	2.37
BMI	30	20.69	47.34	27.526	6.38	1.16

**P value and statistical significance:**

The two-tailed P value is less than 0.0001

By conventional criteria, this difference is considered to be extremely statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals 3.73

95% confidence interval of this difference: From 2.98 to 4.49

**Intermediate values used in calculations:**

t = 9.8915

df = 58

standard error of difference = 0.377

The strength of the study lies in the fact that the assesses the impact of literacy on pain rating by VAS. Education thus must not be hindrance in assessment and management of pain. Limitation of the study includes the perception of pain among patients evaluated may have subjective as well as interpersonal variation which could influence the ability to rate the pain.

**Conclusion**

Overall our study concludes that the Visual analog scale is the simple to perform tools for assessment of pain in Indian rural / urban population, even illiterate patients can easily rate their pain on these scales. Indicating that the scale can be used irrespective of the literacy status of the patients. Our use of VAS and Homoeopathic treatment together indicate that by reducing pain and stiffness and limiting progress of the disease without any adverse, therefore, suggested for wider clinical trials in

assessing the outcome measure of pain modulation in the management of symptomatic osteoarthritis of the knee.

### **Financial Support**

Nil.

### **Conflicts of Interest**

There are no conflicts of interest.

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