Original Research Article

To Compare the Knowledge and Adherence to Exercise Between Knee Osteoarthritis Patients Who Are Obese and Non-Obese

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ABSTRACT

Aim: To study and compare the knowledge and adherence to exercise in knee osteoarthritis patients who are obese versus those who are non-obese.
Objective:
(A) To assess the knowledge and adherence to exercise in knee OA patients who are obese and non-obese using the Knee Osteoarthritis Knowledge Scale (K-OAKS) and Exercise Adherence Rating Scale (EARS).
(B) To compare the knowledge and adherence to exercise in knee OA patients who are obese and non-obese using the Knee Osteoarthritis Knowledge Scale (K-OAKS) and the Exercise Adherence Rating Scale (EARS).
Methodology: The purpose of the study was to compare the non-obese and obese groups. With a total sample size of 315 individuals and total duration of 6 months, we used 2 questionnaires: the Exercise Adherence Rating Scale and the Knee OA Knowledge Scale for Obese and Non-Obese. Data was collected from Pune based hospitals.
Results and conclusion: In this study we found that patients in both groups have average knowledge and adherence to exercises to be performed in knee osteoarthritis, and there are no significant differences in the level of knowledge of knee osteoarthritis between the two populations. There were no significant differences seen in the exercise adherence in knee osteoarthritis patients who were obese and non-obese in our population.
Clinical implication: This study shows that the required daily physical activity goals for management of knee osteoarthritis can be met by patients regardless of whether they are in the obese or non-obese category. So, protocols can be prescribed to the population accordingly.

Keywords: Knee, Osteoarthritis, Obesity, BMI, Knowledge, Adherence.

INTRODUCTION

Long-term degradation and cartilage loss are the hallmarks of osteoarthritis (OA) - a condition that causes stiffness, discomfort, and movement limits. Weight-bearing joints such the knee, hip, spine, and hand are frequently impacted by this. Ageing is a contributing factor to OA. On the other hand, a number of factors that impact bone health, like being overweight, inactive, or exercising, can be linked to it. The goals of treatment are to reduce pain and enhance

functional status [1]. Knee malalignment, age, obesity, occupational factors, physical activity, and inheritance are all linked to the development of knee OA.

Body mass index (BMI) > 30 kg/m2 is considered obese. It has long been known that obesity plays a significant role in the development of osteoarthritis (OA) in general and knee OA patients in particular. Elevated body mass index consistently corresponds with increased pain thresholds and decreased physical exercise. This means that abnormally high loads cause articular cartilage to be disrupted, which causes and hastens the development of osteoarthritis in the knee [5].

The two most prevalent chronic diseases, obesity and knee osteoarthritis, are frequently co-occurring. Obesity increases the risk of osteoarthritis through a number of mechanisms, including increased joint loading and changes in body composition brought on by behavioural factors like decreased physical activity and the ensuing loss of protective muscle strength [18].

Understanding is essential for the prompt diagnosis and efficient treatment of osteoarthritis and knee pain. Timely healthcare seeking and proper treatment modalities are critical for the effective management of knee pain and early osteoarthritis [17]. Regular exercise awareness has been shown to lead to a range of lifestyle changes, including the promotion of physical activity, that have been helpful in the management of osteoarthritis and knee pain in both obese and non-obese patients.

Attendance at treatment sessions is the definition of adherence. Studies have shown that regular fitness programme participation leads to improved results. It is anticipated that the efficacy of exercise therapy will also be influenced by how closely a patient complies with the advice given by their physical therapist, which may include increasing physical activity levels (e.g., by walking) and performing therapeutic at-home exercises (e.g., muscle strengthening exercises) [20].

NEED OF STUDY: Individuals with both obesity and knee OA may have different awareness and adherence to the exercise protocol as compared to those who are non-obese, but to the best of our knowledge, no previous studies have focused specifically on understanding this area in the Indian context.

Knowledge about these differences, if they exist, will help us address these factors while tailoring protocols for those who are obese and those who are non-obese differently so as to make the protocol most appropriate to their condition and most effective as well.

Therefore, this study aims to determine if such a difference occurs in the awareness and adherence of obese and non-obese subjects suffering from knee osteoarthritis to guide further action in clinical practice.

AIM AND OBJECTIVES
AIM: To study and compare the knowledge and adherence to exercise in knee osteoarthritis patients who are obese versus those who are non-obese.

OBJECTIVES:
(A) To assess the knowledge and adherence to exercise in knee OA patients who are obese and non-obese using the Knee Osteoarthritis Knowledge Scale (K-OAKS) and Exercise Adherence Rating Scale (EARS).

(B) To compare the knowledge and adherence to exercise in knee OA patients who are obese and non-obese using the Knee Osteoarthritis Knowledge Scale (K-OAKS) and the Exercise Adherence Rating Scale (EARS).

MATERIALS & METHODS
The investigation was a comparative one. The purpose of the study was to compare the knowledge and exercise adherence of patients with knee osteoarthritis in the Pune region, divided into two groups: those who were obese and those who were not. The

Institutional Ethics Committee granted ethical approval. Convenient sampling was done to gather a sample size of 315. Samples were gathered over a six-month period in the Pune region. This formula was used to get the sample size.

$(n=[t^2*p(100-p)]/m^2)$

$= [95^2 *28.7(100-28.7)]/5^2]$

$n = 315$

In determining sample size, the predicted prevalence "p" is taken into account in the formula. $n = [t^2*p(100-p)]/m^2$, where t = 95% confidence level, p = estimated prevalence (%) = 28.7%, m = margin of error = 5%, and n = needed sample size. After replacing each of these values, we arrive at n = 315 as the sample size. The household served as the main sampling unit for the quantitative survey in this evaluation research. Over 40-year-old respondents were included in the study. BMI < 25 kg/m2 was computed for the non-obese group and > 25 kg/m2 for the obese group. Patients with unilateral or bilateral knee osteoarthritis who have been diagnosed with the condition also include those who have been advised to exercise, have exercised in the past, or are currently exercising.

The exclusion criteria was - Participants with RA, inflammatory arthritis, or any other surgical or medical condition that significantly restricted their functional abilities met the study's established criteria. An X-ray investigation and a structured questionnaire were used to gather quantitative data. The following elements made up the structured questionnaire: informed consent; demographic profile (gender, age). Physical factors include height, weight, and BMI calculations; symptoms are present; therapy is being received if a diagnosis has been made; if not, symptoms have been present since then. An X-ray examination of both knee joints was then performed, looking at them from the anterior-posterior and lateral perspectives while standing. The Kellgren and Lawrence scale for OA was used to rate the condition (1 = no osteophytes, normal joint space, 2 = questionable narrowing, potential osteophytes, and 3 = minor but definite osteophytes, joint space).

Before administering the questionnaire, all participants were given a clear explanation of the study's objective through one-on-one interviews, following the acquisition of consent. Each participant has outlined the significance of studying. The study employed the Knee Osteoarthritis Knowledge Scale (KOAKS) and the Exercise Adherence Rating Scale (EARS) for both the obese and non-obese groups as its end measures.

We used the Knee Osteoarthritis Knowledge Scale (KOAKS) to assess the level of knowledge about knee osteoarthritis in both the obese and non-obese groups. The grading guidelines for the Osteoarthritis Knowledge Scale The score is derived from eleven items. Every item uses a five-point Like scale to present a statement. Every item receives a score between 1 and 5. Reverse score things 1, 2, 3, 4, 7, and 11 and add them to items 5, 6, 8, 9, and 10 to determine the score. Higher total scores on the scale reflect a stronger understanding of osteoarthritis; the scale runs from 11 to 55.

We employed the Exercise Adherence Rating Scale (EARS) to assess /exercise adherence for osteoarthritis in both obese and non-obese groups. The 17-items were created; 6 of them evaluated adherence behaviour directly, and the remaining 11 dealt with the causes behind adherence or non-adherence. Extract additional information regarding the kind, length, and intensity of the recommended activity, as well as details about adherence behaviour, in addition to the 17 basic items. The inclusion of a free-text response question with the format "In your own words, please, can you explain why you have, or have not, done your exercises" allowed respondents to offer qualitative data regarding their adherence practices. A statistical analysis was conducted on the information gathered from the questionnaires.

Data analysis was done using the Statistical Package for Sciences (IBM, SPSS) version 20. Intra-group analysis was done using the

'mean' values and SD value, 'paired-t' test and p value statistical significance was set at ≤0.05 and confidence interval at 95%.

RESULT

The descriptive statistics of mean, standard deviation, and p-value were used to summarise the data regarding exercise knowledge and adherence in patients with osteoarthritis of the knee who are obese and those who are not.

Table 1: Participants (male and female) in groups A and B.

	Non-obese	Obese	Total
Female	84	100	184
Male	58	74	132
Total	142	174	316

Interpretation: The above table shows that according to both the groups the total no. of males is 132 in which obese is 74 and non-obese is 58 & total no. of females is 184 in which obese is 100 and non-obese is 84. The total obese is 174 and non-obese is 142. Which indicates that females are more obese than males.

Table 2: To compare the knowledge of knee osteoarthritis in knee osteoarthritis patients who are obese and non-obese (Group A and Group B)

	Obese	Non-Obese
Mean knowledge of exercise in knee osteoarthritis patients	34.76	34.42
Variance	16.05	15.83
Observations	174	142
Hypothesized Mean Difference	0.00	
t Stat	0.76	
P (T<=t) two-tail	0.45	

Interpretation: The comparison of knowledge in knee osteoarthritis patients who are obese and non-obese. We get a p-value of 0.45 (>0.05). There is no significant difference in the knowledge of obese and non-obese patients of knee osteoarthritis in our sample.

Table 3: To compare the adherence to exercise in knee osteoarthritis patients who are obese and non-obese (Group A and Group B) able 3: To compare the adherence to exercise in knee osteoarthritis patients who are obese and non-obese (Group A and Group B)

	Obese	Non-Obese
Mean exercise adherence	10.75	10.32
Variance	8.11	7.54
Observations	174	142
Hypothesized Mean Difference	0.00	
t Stat	1.34	
P (T<=t) two-tail	0.18	

Interpretation: The comparison of exercise adherence in obese and non-obese groups of knee osteoarthritis patients. We get a p-value of 0.18 (>0.05). There is no significant difference in the exercise adherence of obese and non-obese patients with knee osteoarthritis in our sample.

DISCUSSION

An analysis of patients' (Group A) knowledge regarding knee osteoarthritis. The majority of respondents in our study were aware of knee osteoarthritis, as we found. Education is a key factor in Individuals with more education backgrounds comprehend the condition better. Understanding ergonomics and exercise is crucial when it comes to arthritic problems. Examination of exercise compliance in obese people with osteoarthritis in the knees (Group A).

In our study, we found that most participants in the obese group (Group A) with knee osteoarthritis did follow an exercise regimen. Our research shows a correlation between gains in physical performance and exercise adherence. It was discovered that improved physical activity performance is correlated with increased exercise adherence. The three most significant variables influencing an overweight person's commitment to exercise are pain, mental health, and BMI. This helps to explain why there is a correlation between physical performance and exercise adherence in the overweight population. One significant mediating factor in the

relationship between exercise adherence and physical performance was a drop in BMI. Pain is significantly reduced by a lower BMI, which influences physical activity.

An examination of non-obese patients' knowledge of knee osteoarthritis (Group B). It has been noted in this study that most of the participants are aware of knee osteoarthritis. There have been reports of inadequate understanding of knee OA and inadequate communication between patients and medical staff, which has resulted in people responding inappropriately to workouts and developing degenerative diseases. Knee OA severely restricts participation in and amount of physical exercise. The participants were patients with knee OA who struggled to cope with excruciating pain and were unaware of acceptable self-management options or behavioural modification approaches to control their symptoms. In contrast to other studies, taking medicine was the first course of action.

However, new research indicates that physiotherapy, when combined with exercise, frequently aids in symptom relief, pain reduction, and function improvement. However, participants are misled to use drugs to manage their pain due to inadequate education about the benefits of exercise and limited and unsuitable exercise prescriptions. The majority of the female participants were housewives, while the male participants were retired; Jordan has a different culture.

The nation's numerous hills and valleys further restrict long-distance walking. Families are used to going to a lot of social gatherings from a social standpoint. Participants described being unable to socialise on their own and needing assistance from family members. Analysis of non-obese people with osteoarthritis in their knees who adhered to an exercise regimen (group B).

We found that most of the participants in our study follow an exercise regimen to manage their osteoarthritis in the knees. Exercise treatment may be less successful if you don't follow through on your regimen and lead a more physically active lifestyle. According to the study, adherence is a significant indicator of long-term efficacy. Following through on workout regimens extends beyond the duration of treatment. Significantly improved results in terms of pain and physical functions were linked to adherence.

There is no discernible difference in the knowledge of knee osteoarthritis patients who are obese and non-obese, according to an analysis of the knowledge between the two groups of patients in our study (Group A and Group B). A change in behaviour was supported by factors such as improved quality of life perception, professional assistance from health providers, and educational methodology, however the most effective educational approaches are not well-established. advantages of both individual and group instruction over studying alone.

Patients only visited one hospital, but because older adults face similar health issues and the societal problem of obesity, we think the findings may be applicable in many settings.

Analysis of Exercise Adherence in Patients with Knee Osteoarthritis in the Obese and Non-Obese Groups (Group A and Group B)
The findings of our study indicated that there is no discernible difference between obese and non-obese patients with knee osteoarthritis in terms of their exercise adherence. Due to increased discomfort and difficulties completing labor-intensive daily duties, the obese population with osteoarthritis in their knees has a diminished functional capacity. Their bodies alter as a result of their increased body bulk and joint stress.

As the joint stress increases, it becomes more difficult to do daily actions like getting out of bed, bending over, and climbing stairs. Reduced joint mobility and functional activity are some signs of elevated BMI. In a similar fashion, the non-obesity group demonstrated that mobility, brisk walking, and conditioning allowed the

patients to obtain greater results than the obese group. They appear to be better able to perform daily tasks; they move quickly and need less time to complete them; the strain on their knee joints is lessened; and they don't appear to be under as much stress as those who are not obese.

CONCLUSION
According to the study's findings, there is no discernible difference between obese and non-obese people with knee osteoarthritis in terms of knowledge or exercise adherence.

Declaration by Authors
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