



EVALUATION AND COMPARISON OF THE EFFECT OF OSTEOARTHRITIS KNEE JOINT ON PAIN AND ACTIVITY OF DAILY LIVING IN FEMALES AND MALES: A PILOT STUDY

Physiotherapy

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ABSTRACT

Arthritis is a disease that causes inflammation in one or more of your joints. Pain, swelling, and stiffness are the most frequent symptoms of arthritis. The disease can affect any joint in the body, but it is especially common in the knee. Osteoarthritis progresses over time, and the pain it causes worsens. Nearly 6% of all adults suffer from osteoarthritis. Women are impacted more than males. The purpose of this study is to evaluate whether female patient compared to male patients suffer more pain and reduced activity of daily living due to osteoarthritis knee joint. A pilot testing was performed at Jyotirao Phule Subharti College of Physiotherapy, SVSU Meerut, Uttar Pradesh. Thirty patients were considered in the study. Thirty patients (15 male and 15 female) suffering from osteoarthritis knee joint in the age group of 40 to 70 years were selected as per the inclusion and exclusion criteria. The patients were made to fill the Function, daily living subscale of KOOS and NPRS for pain. A two sample t-test was done to evaluate the score of NPRS pain and function, daily living subscale of KOOS. For KOOS, function daily living $p=2.491e-10$ that is $p<0.001$. For NPRS pain $p=0.0000145$. There is a significant difference in pain and activity of daily living in females and males with osteoarthritic knee joint. It was concluded that osteoarthritis knee joint causes females suffer more pain and decreased activity of daily living than males.

KEYWORDS

Arthritis, knee, knee osteoarthritis, pain.

INTRODUCTION:

The human knee is made up of osseous bones (distal femur, proximal tibia, and patella), cartilage (meniscus and hyaline cartilage), ligaments, and a synovial membrane. The human knee is made up of osseous bones, cartilage, ligaments, and a synovial membrane. Due to the extensive use and stress placed on this joint, it is a common site for painful disorders such as osteoarthritis (Richebe P, 2018). The cartilage in the knee joint eventually wears away in osteoarthritis. The cartilage gets ragged and harsh as it wears away, and the protecting area between the bones shrinks. Due to bone pressing against bone, this might result in painful bone spurs. Bone is a living tissue that is constantly changing, and a number of radiographic and biochemical studies have shown that bone and cartilage degeneration go hand in hand. Not only does bone play a role in the distribution of biomechanical forces across the joint, but it may also play a role in the progression of OA in ways that are only now becoming apparent.

The growing evidence suggesting bone plays a crucial role in the aetiology of OA will be highlighted in this review (Karsdal MA, 2008), (Felson DT, 2004), (Lajeunesse D, 2003), (Mansell JP, 2007), (PG, 2004;12), (Baker-LePain JC, 2010;22). Possible causes of Secondary knee osteoarthritis are Obesity, Joint hypermobility or instability, malpositioning of the joint e.g. valgus/varus posture, previous injury to the joint e.g. along the articular surface, there is a fracture (tibial plateau fracture) congenital defects, immobilisation and loss of mobility, family history, metabolic causes e.g. rickets. Nearly 6% of all adults suffer from osteoarthritis. Women are impacted more than males (Michael JW, 2010). OA can lead to pain and loss of function, but not everyone with radiographic findings of knee OA will be symptomatic: in one study only 15% of patients with radiographic findings of knee OA were symptomatic (Hsu H, 2018 (last accessed 2020)). Symptomatic knee OA affects about 10% of males and 13% of women over the age of 60. (Burden of Musculoskeletal Diseases Bone and Joint Decade) Women are not only more likely than males to have OA, but they also have more severe OA (Srikanth VK, 2005;2013). The clear increase in OA in women around menopause has led researchers to speculate that hormonal variables may play a role in OA development. Pain can produce a sense of weakness or buckling in the knee. Changes in the weather cause increased joint discomfort in many people with arthritis. Loss of Range of Motion is a common problem faced by patients due to pain or stiffness. Joint Enlargement can also be seen due to inflammation (RK Arya, 2013).

OBJECTIVES:

To evaluate and compare female and male patients with osteoarthritic knee joint for pain and activity of daily living.

METHODOLOGY:

Sample Size: 30 (15 Male and 15 Female)

Study Design: Pilot Testing

Inclusion Criteria:

1. Male and female
2. 40 to 70 years of age
3. Unilateral knee osteoarthritis
4. Tibiofemoral and Patellofemoral joint

Exclusion Criteria:

1. Acute exacerbation in or around knee joint
2. Traumatic injury to knee joint within 6 months of study
3. Any surgical intervention to knee joint
4. Intra-articular steroid injury in knee joint within 3 months
5. Peripheral vascular disease
6. Tumors/malignancies/infection associated with knee joint
7. Lower limb metallic implants

Study Place:

Jyotirao Phule Subharti College of Physiotherapy, SVSU, Meerut U.P.

Procedure:

30 patients (15 male and 15 female) in the age group of 40 to 70 years with unilateral osteoarthritis knee joint were considered in the pilot testing study. The patients were selected as per the inclusion and exclusion criteria. The patients were asked questions from the function, daily living subscale of KOOS and NPRS to evaluate whether the females suffer more pain and reduced activity of daily living than male. Informed consent was received from each patient.

RESULT:

Baseline data such as function, daily living subscale of KOOS and NPRS for pain was obtained using R-software to find out the A two-sample t-test was done to evaluate the scores of male and female for pain and activity of daily living with knee osteoarthritis.

DISCUSSION:

The most frequent type of arthritis in the knee is osteoarthritis. It is a degenerative, "wear-and-tear" type of arthritis that most commonly affects persons 50 and older, however it can sometimes affect younger people. Degeneration happens as a result of a disruption in the normal repair process for a joint. When the synchronisation of the process is disrupted, the articular cartilage slowly deteriorates. As a result of the absence of the typical joint line of gravity, the biomechanical forces on

the joints are also altered. Generalized constitutional elements such as a person's age, sex, weight, and lifestyle, genetics and inheritance, reproductive variables, and realities of status or economic origins are among the many factors that play various roles (Banks K, 2009), (Ledingham J, 1993).

There is no known way to stop knee OA from progressing; it can only be controlled by alleviating its symptoms. The goal of OA treatment is to improve function and quality of life by lowering pain and disability (Roddy E, 2015), (Lange AK, 2018), (Chaipinyo K, 2019), (Bezalel T, 2016).

Knee arthritis can make it difficult to conduct simple tasks like walking or climbing stairs. It is a major source of lost work time and serious disability for many people. Women are not only more likely than males to have OA, but they also have more severe OA (Srikanth VK, 2005;2013). The clear increase in OA in women around menopause has led researchers to speculate that hormonal variables may play a role in OA development.

Women have a higher prevalence of knee and some forms of hand OA than males, especially beyond 50 years of age, according to the research. (D. T. Felson, 1998), (Sowers, 2001), (F. M. Cicuttini, 1995).

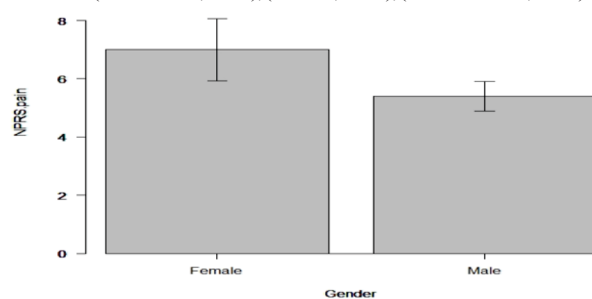


Figure 2: Shows the difference in NPRS.pain for male and female with knee osteoarthritis. The Y-axis shows NPRS.pain score 0 to 10. The X-axis shows the gender female and male.

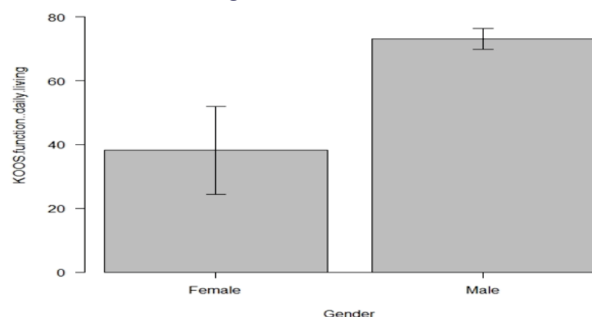


Figure 3: Y-axis shows function, daily living subscale of KOOS 0 to 100. 0 indicates extreme problems and 100 indicates no problems. X-axis shows the gender female and male.

CONCLUSION:

Osteoarthritis can lead to pain and loss of function. It is known that osteoarthritis is more common in females than males. It is now clear that osteoarthritis knee joint causes females suffer more pain and reduced activity of daily living than males. The popular belief that if you have osteoarthritis, you should take it easy on your knees is incorrect: strong muscles stabilise and protect joints. Exercise ensures that the cartilage in the joints receives nutrition. If your knee osteoarthritis has developed, it is interfering with your regular activities and lowering your quality of life.

Abbreviation used:

KOOS-the knee injury and osteoarthritis outcome score, NPRS-the numeric pain rating scale, OA-osteoarthritis.

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