

DOI: 10.53555/ks.v12i4.3078

Frequency of Grade III Knee Osteoarthritis among Women in Gujranwala Pakistan

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Abstract

Objective: To ascertain the prevalence of Grade (III) osteoarthritis (OA) in the knees among women in Gujranwala, Pakistan.

Method: The cross-sectional study was carried out over the course of six months (January 2023–July 2023) at the orthopedic outpatient program at Gujranwala Teaching Hospital. This study used a 100-person sample size. The Inclusion Criteria is Women between the ages of 55 and 70 who had Grade (III) knee osteoarthritis were included. Additionally, women with a history of cancer are eliminated, as are women who did not provide us with their consent. The method of convenient sampling was applied. Data was gathered through the use of McMaster and Western Ontario Universities. Index of Osteoarthritis (WOMAC). Data analysis was done with SPSS version 21.

Results: The study's findings indicate that the participants' mean age was 53.8 + 6.024. 10% (10) of the 100 individuals indicated that they had no pain when walking. 17% indicated slight PAIN, 33% indicated mild pain while walking, 27% reported moderate pain and 24% reported severe pain. Twelve percent of the 100 individuals indicated that they have no pain when climbing stairs. (13) 13% reported slight pain (24) 24% reported moderate pain, and so on. When climbing stairs, 26% reported severe pain.

Conclusion: The study's conclusion was that women experienced knee pain quite frequently. Many tasks of daily living, such as getting out of bed, lying down, using the restroom, or bending down, are made difficult by chronic knee pain.

INTRODUCTION

The biggest and most complex joint in the body, the knee joint is made up of the femur, tibia, and fibula bones. Cartilage, a semi-solid structure found at the ends of bones, allows the knee joint to move freely. (1) The knee joint is also lubricated with synovial fluid. Osteoarthritis (OA) is a disorder characterized by cartilage degeneration and the bone beneath it. There is bony overgrowth due to any reason with the passage of time. OA can lead to joint deformity. The amount of synovial drops in osteoarthritis. Structures surrounding joints can become rigid or hard. Knee OA is classified into four grades: I, II, III, and IV (2). Osteoarthritis may manifest as joint pain, soft tissue discomfort, stiffness, locking, and/or effusion. Knee osteoarthritis (OA) can have developmental, metabolic, genetic, or mechanical causes.(3) Hyaline cartilage provides reduced protection for joint surfaces as a result of cartilage degradation. They are worn down and exposed. Pain from this process causes a reduction in mobility. Atrophied muscles surround the knee joint. The ligaments loosen up more (4).The number of cases of osteoarthritis (OA) in the United States of America is high. It is a primary contributor to human impairment. OA is diagnosed radiographically and in relation to its symptoms in several investigations. Obesity and aging in humans are linked to OA. Age, sex, food, working posture, obesity, and heredity are risk factors for osteoarthritis. Unusual loading forces on the joint structures are the cause of joint factors. (5) Several pieces of evidence point to obesity as a syndrome that causes aberrant eating patterns and metabolic alterations. When adipose tissue is activated due to obesity, pro-inflammatory enzymes are synthesized whereas regulating enzymes are decreased. Osteoarthritis and obesity are primarily linked by this observational theory. Additionally, genes associated with obesity produced leptin, which is crucial in the development and aggravation of osteoarthritis (7). Leptin can also be produced by osteoblasts and chondrocytes. Increased levels of leptin are observed in osteophytes and deteriorated joint cartilage in osteoarthritis. The cartilage in the joints of normally healthy people produces

very little leptin.(8) Leptin is present in the synovial fluid of degenerating joints. Chronic joint stress, proteolytic enzymes, and cytokines all contribute to synovial membrane inflammation (9). A number of structural alterations to the joint cartilage occur in osteoarthritis (OA). OA alters the meniscus, cartilage, bone marrow, and subchondral bone.(10) These modifications lead to the enlargement of subchondral bone, bone marrow lesion, meniscal tears, cartilage degradation, and cartilage loss (11). These alterations are clearly seen on X-rays. Ligaments, capsules, and muscles surrounding the afflicted joints also undergo these alterations. Anterior knee discomfort in osteoarthritis is caused by inflammatory cells found in the infrapatellar fat pad (12).

Method

This six-month cross-sectional survey was carried out between January 2023–July 2023 at. The formula size= $n = \frac{z^2 P(1-P)}{d^2}$, where the level of significance= $z_{1-\alpha/2}$, the margin error= d , and the estimated population of the variable = P , was used to choose the sample size of 100. The method of convenient sampling was applied. This study was carried out at the Gujranwala Teaching Hospital in Pakistan after ethical approval. Since osteoarthritis primarily affects persons in this age range, females with Grade (III) knee osteoarthritis who are between the ages of 55 and 70 were included. Women who had a history of cancer as well as those who declined our request for permission were not included. Patients who were willing to participate in the trial and met the inclusion criteria were chosen. Every questionnaire was distributed following informed consent, which stated that all study-related data would be kept private and used solely to describe the findings. Patients who complied with inclusion requirements and agreed to participate in the study were chosen, and the data was gathered utilizing Western Ontario. SPSS version 21 was used to analyze the data; for quantitative data, mean and standard deviation were computed, and for qualitative data, frequencies and percentages were displayed.

Results

Eleven percent (11) of the 100 individuals said they have no pain when walking.(17) 17% indicated Mild pain, (49), 49% indicated moderate pain, 23% indicated severe pain While walking.

| Characteristics (Pain) | FREQUENCY % | | | |
|------------------------|-------------|------|----------|--------|
| | none | Mild | Moderate | Severe |
| Walking | 11 | 17 | 49 | 23 |
| Stair climbing | 4 | 29 | 33 | 34 |
| Nocturnal | 21 | 49 | 17 | 13 |
| Weight bearing | 8 | 22 | 26 | 44 |

Table 1: Demographic Characteristics of Pain n=100

Of the 100 individuals, 4 percent reported feeling painless when climbing stairs.(29) 29% indicated mild pain(33) 33% indicated moderate pain ,(34)34% of people reported severe pain. Of the 100 individuals, 21% indicated that they experienced no pain when they rested at night.(29)29% marked as mild pain, 17% as moderate discomfort, and so on.13% of respondents said they were in severe pain. Of the 100 individuals, 8% reported feeling painless while weight bearing .22% indicated mild discomfort, 26% identified moderate pain, 44% marked really painful.(Table 1)

| Characteristics(Stiffness) | Frequency | | | |
|----------------------------|-----------|--------|----------|--------|
| | None | Slight | Moderate | Severe |
| Morning stiffness | 13 | 45 | 27 | 15 |
| Evening stiffness | 17 | 23 | 28 | 32 |

Table 2: Demographic Characteristics of Stiffness n=100

While awaking in morning 13 percent of the 100 individuals said they have no stiffness. (45)45% marked slight, (27)257% marked moderate while (15)15% marked severe morning stiffness. On the other hand 17 percent of the 100 participants said they felt no evening stiffness.(23) 23% had mild discomfort (28), 28% indicated moderate while (32) 32% indicated severe evening stiffness.

Discussion

The study's results showed that the mean participant age was 53.8+6.024, indicating that women were more likely than men to experience knee pain. Numerous everyday tasks, like sitting, standing, putting on socks, and getting into the car, were hampered by this knee pain. This study also found that women's mild and heavy household responsibilities were interfered with by knee discomfort. Sunggun Lee et al. carried performed another research in 2017 to determine the prevalence of osteoarthritis in the knee in South Korea. The risk factors for knee OA and how it affects quality of life were also discovered by this study. The study's findings indicate that osteoarthritis in the knee was highly common in South Korea. (14) The prevalence of grade 3 knee osteoarthritis in Gujranwala, Pakistan, was also determined by current research. The present study's findings supported earlier investigations. The individuals from Gujranwala, Pakistan, showed a high prevalence of knee osteoarthritis, according to the data. In order to determine the relationship between obesity and knee osteoarthritis, a case control research was carried out in England. The study's findings indicated a strong link between obesity and knee OA. Individuals who are obese have an increased chance of developing osteoarthritis in their knees and should take early preventive action. This study included both male and female participants.(15)The current study's findings were different

from this one because it looked for a connection between fat and osteoarthritis in the knees. The purpose of the current study was to determine prevalence only in the female gender. Another study by Xutang et al. (2016) found that OA symptoms were quite common in China. Additionally, this study found that socio demographic, economic, and geographic factors were the causes of osteoarthritis in the knee. (16) The new study's findings, however, disagreed with this investigation. The current study finds no evidence of sociodemographic or other risk variables for osteoarthritis in the knee. Ivan Luis Araujo carried out research in 2016 to determine the impact of osteoarthritis in the knee on everyday activities and quality of life. According to the study's findings, people with osteoarthritis in their knees are functionally independent of others. According to this study, there is a direct correlation between daily activities and quality of life and knee osteoarthritis (17). The new study's findings supported a previous study that found knee osteoarthritis affects activities of daily living like getting out of a car, bending over, and walking on a surface. Akalanka Prashansanie Hettihewa conducted more research in 2017 and found that older women have a significant incidence of knee osteoarthritis (18) The results of the current study supported this and also indicated that older household women have a high prevalence of knee osteoarthritis. Numerous risk factors are connected to osteoarthritis in the knee, per studies by. One of these positions is kneeling or squatting while working. One of these issues is carrying big stuff. Based on the findings of this study, it is imperative to take preventative actions in order to minimize the risk factors associated with knee osteoarthritis. (19) This study supported a recent investigation that found numerous contributing factors to osteoarthritis in the knee. According to the current study's results, these characteristics include standing, walking, and climbing and descending stairs. Malik Sliepen et al. did a study in 2018. The aim of this study was to ascertain how patients' physical activity was affected by osteoarthritis in the knee. Sedentary lifestyle was also identified in this study as a contributing factor to knee discomfort. As per the findings, the individual with osteoarthritis in their knee is unable to walk, stand, cycle, or climb stairs. The findings of this investigation supported the findings of the current study, which indicated that knee osteoarthritis affects daily activities. (20)

CONCLUSION

This study found that women experienced knee discomfort quite frequently. Many tasks of daily living, such as getting out of bed, lying down, using the restroom, or bending down, are made difficult by chronic knee pain. Knee pain also hampered women's ability to do a variety of mild and heavy domestic tasks.

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