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Original Article

Frequency of Grade III Knee Osteoarthritis Among Women in Lahore Pakistan

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ABSTRACT

Objective: To determine Grade(III)Knee Osteoarthritis(OA)among Women in Lahore Pakistan **Me thods:** It was a cross sectional study, conducted at Kannan physiotherapy and spine clinic.6 months(November 2020-April 2021) **Methods:** Sample size of this study was100. Inclusion Criteria is Females with Grade (III) knee osteoarthritis age from 55-70 years were included. And Exclusion criteria is females with the history of malignancy and the females who did not give us the consent were excluded. Convenient Sampling technique was used.The data was collected by using The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Data was analyzed by using SPSS version 21. **Results:** According to the results of this study the mean age of participants were 53.8+6.024. Out of 100 participants(11)11%marked that they feel no pain while walking. (13)13%marked slight pain(25)25%marked moderate pain(24)24%marked very pain(27)27%marked extreme pain while walking. Out of 100 participants (12)12%marked that they feel no pain while stair climbing.(13)13%marked slight pain(24)24%marked moderate pain(25)25%marked very pain(26)26%marked extreme pain while stair climbing **Conclusion:** This research concluded that the frequency of knee pain among women was very high. Due to this knee pain many daily life activities including rising from the bed, lying in the bed, using toilet or bending on the floor. Many light and heavy domestic duties of women were also affected due to knee pain.

INTRODUCTION

Osteoarthritis is a disorder represented 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. Knee Joint is the biggest and complex joint in the body. It contains bones which are femur, tibia and fibula. Cartilage is a semi-solid structure that is present at the ends of bones. Bones allow the knee joint to move easily.-(1) Knee joint also lubricated with synovial fluid. Synovial fluid lubricates the cartilage within the joint cavity. Cartilage is a structure that acts like a cushion within the joint cavity. In osteoarthritis amount of synovial fluid decreases. Joints and its surrounding structures become hard or stiff. There are four grades of knee OA (Grade I, II, III, and IV)(2). Pain in the joint, tenderness of the soft tissues, stiffness, locking, and effusion may be the signs and symptoms of osteoarthritis. Causes of knee OA may be hereditary, developmental, metabolic, and mechanical.(3) Due to degeneration of cartilage joint surfaces of joint are less protected by hyaline cartilage. They are exposed and eroded. This process leads to decreased movement due to pain. Muscles around the knee joint atrophied. The ligaments become more lax (4). In the United States of America osteoarthritis(OA) cases are large in numbers. It is a major cause of disability in humans. OA is defined in different studies radiographically and with its symptoms. OA incidence and prevalence are increasing. OA is related to increase in age and obesity in humans. Risk factors of OA are, age, sex, diet working posture, obesity, and genetics. Joint

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factors are due to abnormal loading forces on the joint structures (5) Numbers of evidences suggest that obesity might be considered as syndrome which results in abnormal pattern of food intake and metabolic changes. Obesity results in the activation of adipose tissue which leads to synthesis of pro-inflammatory enzymes but decrease the regulatory enzymes. This observational theory mainly link obesity with osteoarthritis.(6) Moreover genes found in obesity resulted in the production of leptin, which also plays vital role in causing and worsening of osteoarthritis (7). Chondrocytes and osteoblasts may also generate leptin. In osteoarthritis raised amount of leptin is seen in osteophytes and degenerated cartilage of joints. In normal healthy individuals joints the cartilage produces negligible amount of leptin.(8) Synovial fluid of degenerated joints contains leptin. Inflammation of synovial membrane occurs due to cytokines, continuous stress on joints and proteolytic enzyme–(9). In osteoarthritis (OA) a series of changes in structure of cartilage of joints takes place. OA changes occur in subchondral bone, bone marrow, menisci and cartilage.(10) These changes result in expansion of subchondral bone, lesion of bone marrow, tears in menisci, degeneration in cartilage and loss of cartilage (11). These changes are well defined on X- rays. These changes also occur in ligaments, capsules and muscles around the affected joints. In osteoarthritis there is anterior knee pain which is due to the presence of inflammatory cells in infrapatellar fat pad(12).

METHODS

This cross sectional study was conducted in period of 6 months from (November 2020-April 2021). Sample size was 100 which was selected by using Epitool Epi-tool with formula size=n=[z1-∞/2P(1-P)]/d^2 in which level of significance= z1-∞/2,margin error=d and expected population of variable =P. Convenient Sampling Technique was used. This study was conducted in Kanaan Physiotherapy and Spine Clinic Lahore, Pakistan .Ethical letter was taken from same institute with reference number(Ref. No. PT/2020/REC/IRB/132).Females with Grade (III) knee osteoarthritis age from 55-70 years were included because osteoarthritis mostly occurs in these age group peoples. Those females with the history of malignancy and the females who did not give us the consent were excluded. Patients who met inclusion criteria and were willing to participate in the study were selected. Each questionnaire was filled after taking informed consent stating that all the information regarding study will be confidential and used for description of results only.The data was collected by using The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)Data was analyzed using SPSS version 21; mean and standard deviation were calculated for quantitative data while qualitative data were presented it the form of frequencies and percentages

RESULTS

Out of 100 participants (11)11%marked that they feel no pain while walking. (13)13%marked slight pain(25)25%marked moderate pain(24)24%marked very pain(27)27%marked extreme pain while walkingOut of 100 participants (12)12%marked that they feel no pain while stair climbing.(13)13%marked slight pain(24)24%marked moderate pain(25)25%marked very pain(26)26%marked extreme pain while stair climbing.Out of 100 participants (11)12%marked that they feel no pain while taking rest(13)13%marked slight pain(24)24%marked moderate pain(24)24%marked very pain(27)27%marked extreme pain.Out of 100 participants (11)11%marked that they feel no nocturnal pain.(13)13%marked slight pain(24)24%marked moderate pain(24)24%marked very pain(28)28%marked extreme pain.Out of 100 participants (11)11%marked that they feel no pain while weight bearing.(14)14%marked slight pain(26)26%marked moderate pain(23)23%marked very pain(26)26%marked extreme pain.(Table 1)

	Frequency (%)				
Characteristics (Pain)	0=None	1=Slight	2=Moderate	3=Very	4=Extremely
Walking	11(11)	13(13)	25(25)	24(24)	27(27)
Stair Climbing	12(12)	13(13)	24(24)	25(25)	26(26)
Nocturnal	11(11)	13(13)	24(24)	24(24)	28(28)
Rest	11(11)	13(13)	24(24)	24(24)	27(27)
Weight Bearing	11(11)	14(14)	26(26)	23(23)	26(26)

Table 1: Demographic Characteristics of Pain n=100

Out of 100 participants (10)10%marked that they feel no morning stiffness.(13)13%marked slight pain(26)26%marked moderate pain(25)25%marked very pain(26)26%marked extreme pain.Out of 100 participants(11)11%marked that they feel no stiffness in later day.(13)13%marked slight pain(25)25%marked moderate pain(26)26%marked very pain(25)25%marked extreme pain.(Table 2)

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	Frequency (%)				
Characteristic (Stiffness)	0=None	1=Slight	2=Moderat	3=Very	4=Extremel
Morning Stiffness	10(10)	13(13	26(26)	25(25)	26(26)
Stiffness occurring lat in the day	11(11)	13(13)	25(25)	26(26)	25(25)

Table 2: Demographic Characteristics of Stiffness n=100

Out of 100 participants (11)11%marked that they feel no pain while descending stairs.(13)13%marked slight pain(25)25%marked moderate pain(25)25%marked very pain(26)26%marked extreme pain.Out of 100 participants (11)11%marked that they feel no pain while ascending stairs.(13)13%marked slight pain(24)24%marked moderate pain(25)25%marked very pain(27)27%marked extreme painOut of 100 participants (11)11%marked that they feel no pain while rising from sitting position.(13)13%marked slight pain(24)24%marked moderate pain(25)25%marked very pain(27)27%marked extreme painOut of 100 participants (8)8%marked that they feel no pain while standing.(21)21%marked slight pain(28)28%marked moderate pain(19)19%marked very pain(24)24%marked extreme pain.Out of 100 participants(11)11%marked that they feel no pain while bending to floor.(16)16%marked slight pain(23)23%marked moderate pain(23)23%marked very pain(27)27%marked extreme pain.Out of 100 participants (8)8%marked that they feel no pain while walking on flat surface(22)22%marked slight pain(26)26%marked moderate pain(21)21%marked very pain(23)23%marked extreme pain.Out of 100 participants (12)12%marked that they feel no pain while getting in the car.(13)13%marked slight pain(26)26%marked moderate pain(23)23%marked very pain(26)26%marked extreme pain.Out of 100 participants (8)8%marked that they feel no pain while going shoping.(24)24%marked slight pain(27)27%marked moderate pain(18)18%marked very pain(23)23%marked extreme pain Out of 100 participants (12)12%marked that they feel no pain while putting on socks.(14)14%marked slight pain(24)24%marked moderate pain(27)27%marked very pain(23)23%marked extreme pain.Out of 100 participants(9)9%marked that they feel no pain while lying in bed.(19)19%marked slight pain(30)30%marked moderate pain(20)20%marked very pain(22)22%marked extreme pain.Out of 100 participants (11)11%marked that they feel no pain while taking off socks.(22)22%marked slight pain(24)24%marked moderate pain(20)20%marked very pain(23)23%marked extreme pain.Out of 100 participants (12)12%marked that they feel no pain while rising from bed.(13)13%marked slight pain(25)24%marked moderate pain(24)24%marked very pain(27)27%marked extreme pain.Out of 100 participants (12)12%marked that they feel no pain while sitting.(12)12%marked slight pain(26)26%marked moderate pain(25)25%marked very pain(25)25%marked extreme pain.Out of 100 participants (12)12%marked that they feel no pain while getting off/on toilet. (13)13%marked slight pain(25)25%marked moderate pain(25)25%marked very pain(25)25%marked extreme pain.Out of 100 participants (9)9%marked that they feel no pain while doing heavy domestic duties. (20)20%marked slight pain(29)29%marked moderate pain(20)20%marked very pain(22)22%marked extreme painOut of 100 participants (9)9%marked that they feel no pain while getting in/out of bath.(20)20%marked slight pain(28)28%marked moderate pain(22)22%marked very pain(21)21%marked extreme pain whileOut of 100 participants (9)9%marked that they feel no pain while doing light domestic duties.(20)20%marked slight pain, (28)28%marked moderate pain and (20)20%marked very pain and (23)23%marked extreme pain while.(Table 3)

	Frequency (%)				
Characteristics (Physical Function)	0=None	1=Slight	2=Moderate	3=Very	4=Extremely
Descending Stairs	11(11)	13(13)	25(25)	25(25)	26(26)
Ascending Stairs	11(11)	13(13)	24(24)	25(25)	27(27)
Rising from sitting	11(11)	13(13)	24(24)	25(25)	27(270
Standing	8(8)	21(21)	28(28)	19(19)	24(24)
Bending to floor	11(11)	16(16)	23(23)	23(23)	27(27)
Walking on flat surface	8(8)	22(22)	26(26)	21(21)	23(23)
Going in/out of the car	12(12)	13(13)	26(26)	23(23)	26(26)
Going Shopping	8(8)	24(24)	27(27)	18(18)	23(23)
Putting on socks	12(12)	14(14)	24(24)	27(27)	23(23)
Lying in bed	9(9)	19(19)	30(30)	20(20)	22(22)
Taking of the socks	11(11)	22(22)	24(24)	20(20)	23(23)
Rising from Bed	12(12)	13(13)	24(24)	24(24)	27(27)
Getting in/out of bath	9(9)	20(20)	28(28)	22(22)	21(21)
Sitting	12(12)	12(12)	26(26)	25(25)	25(25)
Getting on/off the toilet	12(12)	13(13)	25(25)	25(25)	25(25)
Heavy Domestic Duties	9(9)	20(20)	29(29)	20(20)	22(22)
Light Domestic Duties	9(9)	20(20)	28(28)	20(20)	23(23)

Table 3: Demographic Characteristics of Stiffness n=100

DISCUSSION

According to the results of this study the mean age of participants were 53.8+ 6.024.Results concluded that women were facing a lot of knee pain Due to this knee pain

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many daily life activities such as sitting, Standing putting on the socks and getting into the car were disturbed. This research also concluded that light and heavy domestic duties of women were disturbed due to knee pain. Another research was conducted in 2017 by Sunggun Lee Et. Al to find the prevalence of knee osteoarthritis in South Korea. This research also found the risk factors of knee OA and how quality of life is effected by knee OA.According to results of this research knee osteoarthritis was very prevalent in South Korea. (14) Current research was also done to find prevalence of grade 3 knee osteoarthritis in Lahore Pakistan. Results of current study were in favor of previous research. According to the results knee osteoarthritis was very prevalent among participants of Lahore, Pakistan. A case control study was conducted in England to find out the relation of obesity and knee osteoarthritis. Results of this study stated that there is high correlation between obesity and knee OA.Obese people are at high risk to be effected by knee osteoarthritis and they should take early preventive measures. This research was conducted on male and female both.(15) Current study results were in contrast to this research as it was not conducted to find relation of obesity and knee osteoarthritis. Current study was only conducted to check prevalence in female gender. Another research was conducted by Xu tang Et.Al 2016 which stated that symptomatic OA was very much prevalent in China. This research also stated that sociodemographic, economic, and geographic factors were also responsible for knee osteoarthritis.(16) Whereas results of current study were in contrast with this research. Current Study doesn't find any socio or demographic factors that were responsible for knee osteoarthritis. In 2016 Ivan Luis Araujo conducted a research to find out how knee osteoarthritis effects daily life activities and quality of life. This research concluded that participants with knee osteoarthritis have functional independence on others. This research stated that there is strong relation between knee osteoarthritis and daily life activities and quality of life(17)Results of current study were in favor to this study which also stated that knee osteoarthritis effects daily life activities such as coming out of car, bending to floor and walking on flat surface. Another research was conducted in 2017 by Akalanka Prashansanie Hettihewa which concluded that there is a high rate of knee osteoarthritis among elderly women(18)Results of current study were in favor of this which also stated that knee osteoarthritis is very prevalent in elderly household women. According to a research conducted by .There are many risk factors that are associated with knee osteoarthritis.These factors include working in kneeling position or in squatting position. These factors also include lifting heavy objects. According to results of this research there is a lot need to do some preventive measures to avoid such factors that can effect knee osteoarthritis.(19) This research was in favor of current study which also stated that there are many factors that contribute in knee osteoarthritis. Results of current study stated that these factors are walking, standing, ascending stairs as well as descending stairs. A research was conducted in 2018 by Malik Sliepen Et.Al. The purpose of this study was to determine how knee osteoarthritis effects physical activity of patients. This research also mentioned sedentary lifestyle as factor causing knee pain. According to results of tjis stidy participant effected by knee osteoarthritis cant walk, stand, do cycling or perform stair climbing activities. Results of this study were in favor of current study as it stated that knee osteoarthritis effects activities of daily life.(20)

DISCUSSION

This research concluded that the frequency of knee pain among women was very high. Due to this knee pain many daily life activities including rising from the bed, lying in the bed, using toilet or bending on the floor. Many light and heavy domestic duties of women were also affected due to knee pain.

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