Prevalence And Risk Factors of Knee Osteoarthritis Among Middle-Aged Adults in Kota, Rajasthan

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ABSTRACT

Knee osteoarthritis (OA) is a common progressive multifactorial joint disease and is characterized by chronic pain and functional disability. Knee OA accounts for almost four fifths of the burden of OA worldwide and increases with obesity and age.

The aim and objective- The purpose of the study on the "Prevalence and Risk Factors of Knee Osteoarthritis Among Middle-Aged Adults in Kota, Rajasthan" is to determine the extent of knee osteoarthritis in this demographic and to identify the key factors contributing to its occurrence. **Need of study** – Understanding local prevalence and risk factors will help in developing targeted prevention and management strategies, filling the gap in region-specific data, and addressing the socioeconomic burden of the disease.

Methodology- The study aims to investigate the prevalence of knee osteoarthritis (OA) in middle-aged adults (40-60 years) in Kota, focusing on various demographic, lifestyle, and occupational risk factors. **Outcome measures** - Numeric Pain Rating Scale, Knee Injury and Osteoarthritis Outcome Score

Results- We used this scale on 60 subjects out of whom 54 subjects met in inclusion criteria and then out of 54 subjects, 20 subjects (37.03%) have no knee pain, 15 subjects (27.77%) have mild knee pain, 11 subjects (20.37%) have moderate knee pain and last 8 subjects (14.81%) have severe knee pain. So, according to this, there are low significant changes in the knees of the middle-aged adults due to factors like age, gender and weight.

Conclusion- In conclusion, the present study on the "Prevalence and Risk Factors of Knee Osteoarthritis Among Middle-Aged Adults in Kota, Rajasthan" has successfully met its objectives.

Keywords: Osteoarthritis, BMI, KOOS, NPRS, K-L Scale

INTRODUCTION

Knee osteoarthritis (OA) is a common progressive multifactorial joint disease and is characterized by chronic pain and functional disability. Knee OA accounts for almost four fifths of the burden of OA worldwide and increases with obesity and age. Up to now, knee OA is incurable except knee arthroplasty which is considered as an effective treatment at an advanced stage of the disease, however, which is responsible for substantial health costs. Many researchers have shifted their focus to the prevention and treatment in the early stage of the disease.[1]

Osteoarthritis (OA) is a degenerative disease characterized by loss and degradation of articular cartilage in addition to synovial inflammation, leading to joint stiffness, swelling, pain, and loss of mobility.[1] It is influenced by genetic and epigenetic factors,[2,3] sex,[4] ethnicities,[5] age,[1] obesity,[4,6] sedentary lifestyles, and joint injuries.[1] For example, obesity increases joint loading[1,4,6] and inflammatory mediators,[1] which helps to explain its relationship with OA.[3]

This study's objectives were to investigate the prevalence of self-reported knee and hip osteoarthritis (OA) stratified by age and sex and to examine the association of modifiable factors with knee and

hip OA prevalence.[5]

METHODOLOGY

A total of 54 subject was included with the age group of 40 – 60 in the present study according to inclusion and exclusion criteria. All the subject taken from college staff and workers, local residents in Kota, and hospitals in Kota city. It is a cross-sectional observational study.

Inclusion criteria:

- Adults aged 40-60 years (middle-aged group) residing in Kota, Rajasthan.
- Symptoms of knee pain or stiffness and diagnosed with knee OA according to (ACR) criteria.
- Individuals residing in Kota, Rajasthan for at least 1 year to account for environmental and occupational exposure.

Exclusion criteria:

- Individuals younger than 40 or older than 60 years will be excluded
- History of Knee Trauma or Surgery:
- Knee injury (e.g., fractures, ligament tears) or knee surgery (e.g., joint replacement, arthroscopy) will be excluded
- Individuals diagnosed with other forms of arthritis (e.g., rheumatoid arthritis, gout) or any other inflammatory joint diseases will be excluded to avoid confounding factors.
- Serious comorbidities like advanced heart disease, chronic kidney disease, or terminal illnesses that may affect their participation or skew results related to lifestyle and mobility will be excluded.

Data Analysis

- The data was coded and entered into Microsoft Excel Spreadsheet. Analysis was done using Microsoft Excel. Descriptive statistics included Mean, Mean difference, Percentage and Standard Deviation.
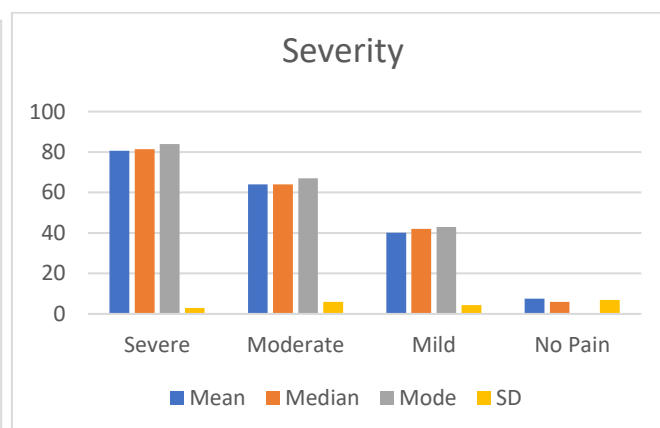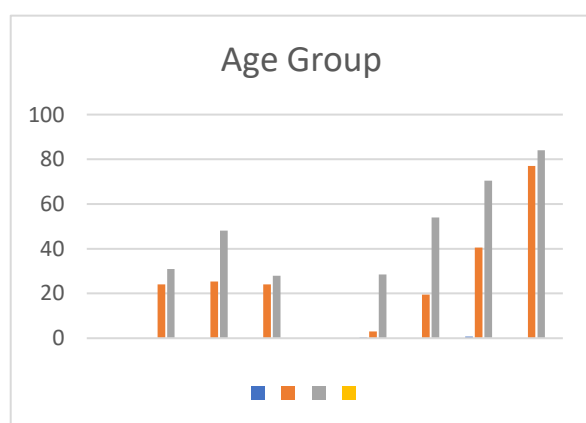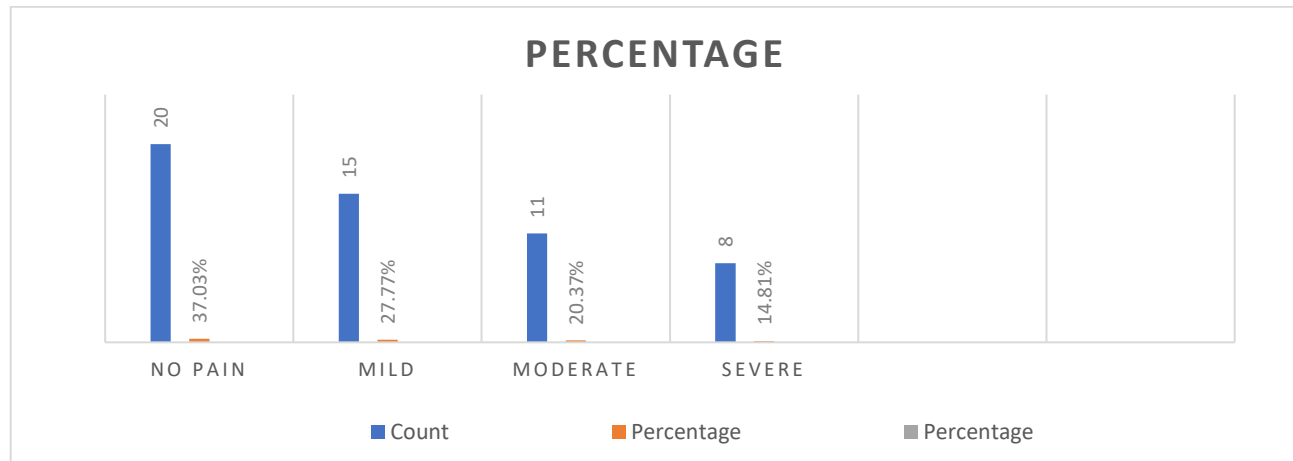
RESULT

Figure No. 4.1: Age Group

Figure No. 4.2: Severity Graph

Severity	Mean	Median	Mode	SD
Severe	80.625	81.5	84	2.997
Moderate	64	64	67	5.908
Mild	40.133	64	43	4.365
No Pain	7.5	6	0	6.881

Figure No. 4.3: Basis of Percentage

	Count	Percentage
No Pain	20	37.03%
Mild	15	27.77%
Moderate	11	20.37%
Severe	8	14.81%

In this study, we used Knee Osteoarthritis questionnaire, Knee-injury and Osteoarthritis Outcome Score. We used this scale on 60 subjects out of whom 54 subjects met in inclusion criteria and then out of 54 subjects, 20 subjects have no knee pain, 15 subjects have mild knee pain, 11 subjects have moderate knee pain and last 8 subjects have severe knee pain. So according to this, there are low significant changes in the knees of the middle-aged adults due to factors like age, gender and weight; until and unless there is a knee injury is present.

DISCUSSION

Knee osteoarthritis is a globally recognized public health concern that substantially contributes to chronic pain, disability, and reduced quality of life. Multiple studies have demonstrated that the prevalence of OA is increasing worldwide, largely driven by factors such as increased life expectancy, sedentary lifestyle, and rising rates of obesity. The current study's results align with global trends while also highlighting local risk factors that are particularly relevant to the population of Kota.

Based on the data collected from 54 eligible participants, this study found that:

- 37.03% of the participants reported no knee pain.

- 27.77% reported mild knee pain.

- 20.37% reported moderate knee pain.

- 14.81% reported severe knee pain.

This indicates that nearly 63% of the middle-aged population sampled experiences some degree of knee pain, reinforcing the significant burden of this condition.

One of the key observations from the study is the correlation between age and OA symptoms. The findings suggest a positive relationship between advancing age and the severity of OA symptoms. This is consistent with numerous previous studies, such as those by Wallace et al. (2017) and Kumar et al. (2020), which emphasize

that aging is one of the strongest non-modifiable risk factors for knee OA. As articular cartilage undergoes degeneration with age, the risk of joint pain and reduced mobility inevitably increases.

CONCLUSION

In conclusion, the present study on the "Prevalence and Risk Factors of Knee Osteoarthritis Among Middle-Aged Adults in Kota, Rajasthan" has successfully met its objectives. It has highlighted that knee osteoarthritis is a significantly prevalent condition within this age group, affecting both genders and particularly those with sedentary lifestyle habits, occupational strain, or obesity.

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