

Perception and knowledge of knee osteoarthritis among medical students at a private medical college in Lahore, Pakistan using Knee Osteoarthritis Knowledge Scale (OAKS)

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Objective: To explore and analyze the perception of knee osteoarthritis (KOA) among medical students.

Methodology: This observational, cross-sectional study was conducted among medical students at Azra Naheed Medical College, Superior University, Lahore from June 2024 to August 2024. A total of 262 students aged 17 to 26 years from all MBBS classes were included. Knee Osteoarthritis Knowledge Scale (KOAKS), an 11-question Likert-scale questionnaire, was used to assess awareness levels. Data were analyzed using SPSS 26, with descriptive statistics and post-stratification Chi-Square tests used to evaluate associations.

Result: The mean age was 21 ± 1.7 years, with 63.7%

females. Seventy-six (29.0%) of students reported a family history of knee osteoarthritis. Mean KOAKS score was 35.2 ± 3.9 and 64.1% demonstrated good KOA awareness. The analysis showed no significant association of awareness levels with age ($p=0.606$), gender ($p=0.982$), family history ($p=0.438$) or the year of study ($p=0.380$).

Conclusion: Medical students exhibited a generally good awareness of KOA, with no significant demographic influences. These results highlight a strong foundation of knowledge that can be further enhanced through targeted educational interventions.

Keywords: Osteoarthritis, Knee, medical students, Knee Osteoarthritis Knowledge Scale.

INTRODUCTION

Knee osteoarthritis (KOA) is a degenerative joint condition causing pain, stiffness, and decreased mobility. While it is more common in older adults, KOA is increasingly affecting younger individuals, including students, due to factors like physical inactivity, obesity, and sports injuries.^{1,2} Research has primarily focused on older populations, but there is growing need to explore how students perceive KOA, as a lack of awareness could delay intervention and worsen outcomes later in life.^{3,4} KOA is a major contributor to disability and poor quality of life globally. Its prevalence is rising, especially in developing countries, due to longer life expectancy and lifestyle changes.⁵ With an aging population and increasing obesity rates, KOA is becoming a significant public health concern.⁶ Early diagnosis and management, along with greater patient awareness, are crucial to preventing long-term damage.⁴

Awareness and understanding of KOA among medical students are critical, as they will play a key role in diagnosing and managing the condition. While some studies show that students are familiar with basic KOA concepts, gaps remain in their knowledge of non-pharmacological treatments and lifestyle changes.⁷ For example, U.S. research highlights that students feel

unprepared to advise on weight reduction, exercise, and alternative treatments.⁷ Similarly, studies from UK stress the need for enhanced musculoskeletal education in medical curricula.⁸

Factors such as education level, personal experience, and exposure to health information shape people's views on health conditions.⁸ Students in health-related fields may have a better understanding of KOA than those in other disciplines. The present study aimed to assess students' perceptions of KOA, focusing on awareness, risk factors, and prevention attitudes, and identify knowledge gaps. The findings could guide the development of targeted educational programs to promote early prevention and healthy behaviors to reduce KOA risk.

METHODOLOGY

This cross-sectional study assessed KOA perception among medical students at Azra Naheed Medical College, Superior University using the Knee Osteoarthritis Knowledge Scale (KOAKS) scale. The study was approved by the Ethical Review Board (Ref No. IRB/ANMC/2024/14). All participants provided informed consent, and data confidentiality was ensured through anonymized questionnaires and password-protected files. The study ran from June to August 2024,

enrolling 262 participants via non-probability consecutive sampling.

A sample size of 255 was calculated with a 5% margin of error and 95% confidence interval, based on a student population of 750. Medical students aged 17–26 years were included, excluding those with a prior or current KOA diagnosis. The KOAKS, used to assess awareness of KOA in this study, was developed and validated by Darlow et al.⁹ The KOAKS is a self-administered questionnaire consisting of 11 questions graded on a 5-point Lickert scale comprising of false, possibly false, unsure, possibly true and true. Each item is scored on a scale from 1 to 5. To compute the score, reverse score items 1, 2, 3, 4, 7, and 11 and add these to items 5, 6, 8, 9, and 10.

Total scores for the scale range from 11 to 55, and higher scores indicate greater knowledge about osteoarthritis.⁹ For the

Table 1: Demographic variables of participants.

Demographic variables		Number	%
Age	17-21 years	159	60.7
	22-26 years	103	39.3
Gender	Female	167	63.7
	Male	95	36.3
MBBS Year	1 st Year	66	25.2
	2 nd Year	50	19.1
	3 rd Year	51	19.5
	4 th Year	21	8.0
	5 th Year	74	28.2
Family History	Absent	186	71.0
	Present	76	29.0
KOAKS Score	Poor Awareness (Score 11-33)	94	35.9
	Good Awareness (Score 34-55)	168	64.1

Table 2: Individual responses to KOAKS.

Knee Osteoarthritis Knowledge Scale	False	Possibly False	Unsure	Possibly True	True
Your knee joint wears out with everyday use	18 (6.9%)	44 (16.8%)	77 (29.4%)	21 (8.0%)	102 (38.9%)
Osteoarthritis will only get worse over time	77 (29.4%)	102 (38.9%)	56 (21.4%)	12 (4.6%)	15 (5.7%)
Increased Knee pain always means that you have damaged your knee	35 (13.4%)	87 (33.2%)	60 (22.9%)	34 (13.0%)	46 (17.6%)
You need an X-ray or scan to know if you have osteoarthritis	99 (37.8%)	87 (33.2%)	41 (15.6%)	13 (5.0%)	22 (8.4%)
Being active makes osteoarthritis feel better	22 (21.8%)	25 (30.2%)	79 (30.2%)	79 (9.5%)	57 (8.4%)
Keeping a healthy body weight is a key part of osteoarthritis care	09 (50.8%)	08 (29.4%)	35 (13.4%)	77 (3.1%)	133 (3.4%)
X-rays or scans show how much your osteoarthritis affects you	86 (32.8%)	81 (30.9%)	69 (26.3%)	16 (6.1%)	10 (3.8%)
Making your leg muscles stronger improves your ability to do daily tasks	04 (50.4%)	08 (29.0%)	42 (16.0%)	76 (3.1%)	132 (1.5%)
Pain from osteoarthritis can be managed without surgery	09 (33.6%)	10 (33.2%)	68 (26.0%)	87 (3.8%)	88 (3.4%)
Exercise can ease pain as much as most medications	05 (33.2%)	14 (37.8%)	57 (21.8%)	99 (5.3%)	87 (1.9%)
Most people with knee osteoarthritis will need a joint replacement at some point	49 (18.7%)	85 (32.4%)	91 (34.7%)	17 (6.5%)	20 (7.6%)

were labeled as good awareness while scores from 33 to 11 were labeled as poor awareness. The questionnaire, including demographic questions and the KOAKS scale, was distributed through Google Forms.

Statistical Analysis: Data were analyzed using SPSS 26, applying descriptive statistics and a post-stratification chi-square test ($p \leq 0.05$).

RESULTS

Mean age of the participants was 21.0 ± 1.7 years with majority students aged ≤ 21 years (159, 60.7%). The gender distribution was 167 (63.7%) females. Majority (74, 28.2%) students were in final year, followed by first year (66, 25.2%) first year (Table 1).

Family history of KOA was reported in 76 (29.0%) students. Mean KOAKS score was 35.2 ± 3.9 with 168 (64.1%) having good awareness. Responses of individual questions are shown in Table 2. Data stratification revealed no significant association of knee osteoarthritis awareness with age, gender, family history or the year of study as shown in Table 3.

DISCUSSION

KOA is a growing concern in Pakistan due to an aging population and rising risk factors like obesity and sedentary lifestyles.¹⁰ However, public awareness remains low, leading to delayed diagnoses, particularly in rural areas.¹¹ A study confirmed poor public knowledge, contributing to late interventions.¹² This highlights the need for targeted educational programs.

In the present study, no significant differences in KOA perception were found by age, gender, academic year, or family history. Participants were mostly aged 17–21 years (60.7%), with more females (63.7%) than males (36.3%). Final-year students made up 28.2%, but academic year and family history did not significantly affect perceptions ($p > 0.05$). The consistency across groups suggests a uniform approach to KOA education. A study from Lahore found that medical students had limited knowledge of KOA pathophysiology, risk factors, and management, despite studying musculoskeletal disorders, which could affect their clinical practice.¹³ Similarly, another study revealed that while students were aware of KOA, they lacked confidence in diagnosing and treating it, viewing it as just another topic in their curriculum.¹⁴ In Islamabad, students recognized some KOA risk factors but overlooked others, like physical inactivity and occupational hazards, common in

Table 3: Stratification of data with regards to KOA awareness.

Demographic variables	KOA Awareness		p-value
	Good (KOAKS Score 34-55)	Poor (KOAKS Score 11-33)	
Age:			0.606
17-21	100 (62.9%)	59 (37.1%)	
22-26	68 (66.0%)	35 (34.0%)	
Gender:			0.982
Male	61 (64.2%)	31 (35.8%)	
Female	107 (64.1%)	60 (35.9%)	
MBBS Year:			0.380
1 st Year	39 (59.1%)	27 (40.9%)	
2 nd Year	35 (70.0%)	15 (30.0%)	
3 rd Year	31 (60.8%)	20 (39.2%)	
4 th Year	11 (52.4%)	10 (47.6%)	
5 th Year	52 (70.3%)	22 (29.7%)	
Family History:			0.438
Absent	122 (65.6%)	64 (34.4%)	
Present	46 (60.5%)	30 (39.5%)	

Pakistan.¹⁵ This highlights the need for education tailored to local risk factors. A study on the KOOS for Urdu speakers also emphasized the importance of patient-centered communication skills, as students did not fully recognize the cultural challenges faced by KOA patients in rural areas.¹⁶

Improving patient outcomes requires addressing knowledge gaps in KOA among medical students. Studies show that comprehensive musculoskeletal education enhances clinical competency and improves KOA diagnosis.^{12,17} In Pakistan, it is crucial that future doctors are prepared for the growing burden of KOA and other chronic non-communicable diseases, including their diagnostic protocols.¹⁸ Better KOA education could improve patient care and reduce the disease burden in Pakistan.

With 262 participants, the study provides a broad view of student perceptions. However, its cross-sectional design and self-reported data may introduce bias, and findings may not apply to other institutions. Future research could examine how perceptions evolve and impact clinical practice.

CONCLUSION

Medical students had generally high awareness of KOA, with no significant differences based on gender, family history, year of study, or age group.

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