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UNRAVELING THE IMPACT OF PIRIFORMIS SYNDROME AMONG COLLEGE STUDENTS: A CROSS-SECTIONAL PREVALENCE STUDY

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ABSTRACT

Background: Piriformis syndrome is a neuromuscular condition caused by compression or irritation of the sciatic nerve by the Piriformis muscle. Although commonly reported in adults, its prevalence among young sedentary populations such as college students remains underexplored. Objective of the study is to determine the prevalence of Piriformis syndrome among college students aged 18–25 years and to assess the associated functional disability. **Methods:** A cross-sectional prevalence study was conducted among 96 college students in South Bangalore using convenient sampling. Piriformis syndrome was screened using the Flexion–Adduction–Internal Rotation (FAIR) test. Functional disability was assessed using the Roland-Morris Disability Questionnaire (RMQ). Descriptive statistics, independent sample t-tests, chi-square tests, and Pearson correlation were applied using SPSS version 29.0. A p-value <0.05 was considered statistically significant. **Results:** A positive FAIR test indicative of Piriformis syndrome was observed in 29.2% of participants. The mean RMQ score was 8.85 ± 4.67, corresponding to a disability percentage of 36.72 ± 19.44. Male students demonstrated significantly higher RMQ scores and disability percentages compared to females ($p<0.05$). Participants with a positive FAIR test showed significantly greater disability than those who tested negative. **Conclusion:** Piriformis syndrome is relatively prevalent among college students and is associated with mild to moderate functional disability. Early screening and preventive physiotherapy strategies are recommended to reduce disability in this young sedentary population.

Keywords: College students; FAIR test; Piriformis syndrome; Prolonged sitting; Roland-Morris questionnaire

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INTRODUCTION

Piriformis syndrome is a condition in which the Piriformis muscle puts pressure on or irritates the sciatic nerve. The Piriformis muscle is a small muscle located deep in the buttock region. It helps in movements of the hip such as rotation, walking, and maintaining balance while standing[1]. The muscle becomes tight, swollen, or overactive, so, it can press on the sciatic nerve and cause pain.

People with Piriformis syndrome commonly experience pain in the buttock area. In some cases, the pain may spread down the back of the thigh and leg. Other symptoms may include numbness, tingling, or a burning sensation along the path of the sciatic nerve[1]. These symptoms are often similar to those seen in low back pain or sciatica, which makes Piriformis syndrome difficult to identify and frequently misdiagnosed.

Many factors can increase the risk of developing Piriformis syndrome. Prolonged sitting is one of the most common causes. Sitting for long hours can cause the hip muscles, especially the hip flexors, to become tight and weak.[1,2] This muscle imbalance can place extra stress on the Piriformis muscle, leading to irritation and pressure on the sciatic nerve. Poor posture, lack of physical activity, repetitive movements, and direct or indirect injury to the hip or buttock region can also contribute to the condition[2].

College students are particularly at risk due to their daily routines. Most students spend long hours sitting in classrooms, studying, or using mobile phones and computers. Physical activity is often limited, and proper posture is rarely maintained.[2] Over time, these habits can lead to muscle tightness and musculoskeletal problems, including Piriformis syndrome.

Despite these risk factors, Piriformis syndrome is often overlooked in young adults. The condition is usually mistaken for general low back pain, muscle strain, or sciatica. As a result, many students may not receive early treatment, which can lead to increased discomfort and difficulty in performing daily activities[3].

There is limited research available on the prevalence of Piriformis syndrome among college students in India. Knowing how common this condition is and how it affects daily function is important for early screening and prevention. Early identification can help in providing timely physiotherapy interventions, posture correction, and exercise programs[4]. Therefore, this study was conducted to assess the prevalence of Piriformis syndrome among college students and to evaluate its impact on their functional ability.

METHODS

This study was conducted as a cross-sectional prevalence study to determine the occurrence of Piriformis syndrome among college students. The study was carried out in various colleges located in South Bangalore, India. College students aged between 18 and 25 years were considered as the study population, as this age group is commonly exposed to prolonged sitting and sedentary habits.

The sample size was calculated using the standard formula for estimating prevalence. An anticipated prevalence of 83%, a significance level of 5%, and a precision of 7.5% were considered for calculation. Based on this, the final sample size was determined to be 96 participants. Convenient sampling was used to recruit participants from the selected colleges.

Students aged 18 to 25 years, both males and females, who reported prolonged sitting for 4 to 6 hours per day on at least 4 to 5 days per week, were included in the study. Only those who were willing to participate and provided informed consent were enrolled. Students with

a history of trauma to the lower back or lower limb, diagnosed musculoskeletal, neurological, or cardiopulmonary conditions, post-operative conditions involving the lower back, congenital spinal deformities, or spinal infections such as vertebral osteomyelitis were excluded from the study to avoid confounding factors[5].

Outcome Measures

FAIR Test

The Flexion–Adduction–Internal Rotation (FAIR) test was used as a clinical screening tool for piriformis syndrome. The participant was positioned appropriately, and the hip was moved into flexion, adduction, and internal rotation. The test was considered positive if the participant experienced pain in the buttock region or radiating pain along the sciatic nerve pathway.

Roland-Morris Disability Questionnaire (RMQ)

The RMQ was used to assess functional disability related to low back and buttock pain. It consists of 24 statements related to daily activities. Each checked item was scored as one point, with higher scores indicating greater disability.

Procedure

Ethical clearance was obtained from the institutional scientific committee before the start of the study. Participants who met the inclusion criteria were informed about the study and written consent was obtained. Each participant underwent screening using the FAIR test, followed by assessment using the RMQ. The collected data were used to calculate prevalence and functional disability levels.

Statistical Analysis

Data were analyzed using SPSS software version 29.0. Descriptive statistics such as mean, standard deviation, frequency, and percentage were used. Independent sample t-tests were used to compare variables between genders and FAIR test groups. Chi-square tests were applied to assess gender distribution. Pearson correlation was used to study the relationship between age and disability scores. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The results of the present study are presented using descriptive and inferential statistics to explain the prevalence of piriformis syndrome and its impact on functional ability among college students. The findings are organized into tables to show the distribution of demographic variables, FAIR test results, disability scores, and the relationships between these variables.

Table 1. Test of Normality of Study Variables

Variable	Kolmogorov–Smirnov statistic	p value
Age (years)	0.213	0.138
RMQ score	0.221	0.109
RMQ (%)	0.164	0.200

The Kolmogorov–Smirnov test was used to assess the normality of age, RMQ score, and RMQ percentage. All variables showed normal distribution, with p values greater than 0.05, indicating that parametric statistical tests were appropriate for further analysis.

Table 2. Descriptive Statistics of Age and Disability Scores (n = 96)

Variable	Range	Mean	Standard Deviation
Age (years)	19 – 25	22.38	1.52
RMQ score	2 – 19	8.85	4.67
RMQ (%)	8 – 75	36.72	19.44

The age of the participants ranged from 19 to 25 years, with a mean age of 22.38 ± 1.52 years. The RMQ score ranged from 2 to 19, with a mean score of 8.85 ± 4.67. The RMQ percentage ranged from 8% to 75%, with a mean disability percentage of 36.72 ± 19.44, indicating mild to moderate functional disability among the participants.

Table 3. Distribution of Gender and FAIR Test Results (n = 96)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	47	49.0
	Female	49	51.0
FAIR test	Positive	28	29.2
	Negative	68	70.8

Among the 96 participants, 47 (49%) were males and 49 (51%) were females. A positive FAIR test suggestive of Piriformis syndrome was observed in 28 participants (29.2%), while 68 participants (70.8%) tested negative.

Table 4. Comparison of Age and Disability Scores According to Gender

Variable	Gender	Mean	SD	t value	df	p value
Age (years)	Male	22.74	1.41	2.39	94	0.019*
	Female	22.02	1.56			
RMQ score	Male	10.23	4.46	2.95	94	0.004*
	Female	7.53	4.53			
RMQ (%)	Male	42.59	18.58	3.01	94	0.003*
	Female	31.10	18.74			

*Statistically significant ($p < 0.05$)

Male participants showed significantly higher RMQ scores and RMQ percentages compared to female participants. A statistically significant difference between males and females was also observed for age. These findings indicate greater functional disability among male students in the present study.

Table 5. Association Between Gender and FAIR Test Results

Test	Chi-square value	p value
Gender vs FAIR test	2.19	0.139

Gender	FAIR Positive n (%)	FAIR Negative n (%)
Male	17 (60.7)	30 (44.1)
Female	11 (39.3)	38 (55.9)

Although a higher proportion of males showed a positive FAIR test, the chi-square analysis revealed no statistically significant association between gender and FAIR test outcome ($p > 0.05$), as shown in Table 5.

Table 6. Comparison of Age and Disability Scores According to FAIR Test Result

Variable	FAIR test	Mean	SD	t value	df	p value
Age (years)	Positive	23.11	1.13	3.16	94	0.002*
	Negative	22.07	1.57			
RMQ score	Positive	14.14	2.94	10.36	94	<0.001*
	Negative	6.68	3.31			
RMQ (%)	Positive	58.62	12.49	10.25	94	<0.001*
	Negative	27.71	13.80			

*Statistically significant ($p < 0.05$)

Participants with a positive FAIR test had significantly higher RMQ scores and RMQ percentages compared to those with a negative FAIR test. A significant difference in age was also observed between FAIR test–positive and FAIR test–negative participants, indicating greater disability among those with Piriformis syndrome.

Table 7. Correlation of Age with Disability Scores According to FAIR Test Result

FAIR test	Variable	Pearson r	p value
Positive	RMQ score	0.184	0.348
	RMQ (%)	0.165	0.400
Negative	RMQ score	0.105	0.393
	RMQ (%)	0.107	0.387

When participants were analyzed separately based on FAIR test results, no significant correlation was found between age and RMQ score or RMQ percentage in either the FAIR test–positive or FAIR test–negative groups.

DISCUSSION

This study was conducted to understand how common piriformis syndrome is among college students and how much it affects their daily activities. The results of this study show that piriformis syndrome is not rare in this age group. Nearly one-third of the students had a positive FAIR test, indicating the presence of piriformis syndrome.

College students today spend long hours sitting for classes, studying, and using electronic

devices. Prolonged sitting can cause muscle tightness around the hip and pelvis, especially in the piriformis muscle. Over time, this tightness may irritate the sciatic nerve and lead to pain and discomfort[5]. The findings of this study support this explanation, as a considerable number of students showed signs of piriformis syndrome.

The average RMQ score and disability percentage indicate mild to moderate functional limitation among the participants. Although the disability level may not appear severe, even mild pain or discomfort can affect daily activities such as sitting, walking, climbing stairs, and concentrating on studies[6]. If left untreated, these symptoms may worsen over time.

A significant difference was observed between male and female students, with males showing higher disability scores. This difference may be due to factors such as posture habits, sitting duration, physical activity patterns, or muscle loading[6]. However, the exact reason for this difference cannot be confirmed from the present study and requires further investigation.

Students who tested positive on the FAIR test had much higher RMQ scores compared to those who tested negative. This clearly shows that Piriformis syndrome has a direct impact on functional ability. The FAIR test proved to be a useful and simple clinical screening tool for identifying students with Piriformis-related symptoms[7].

A mild positive relationship was observed between age and disability scores, suggesting that disability slightly increases with age even within the narrow age range studied. However, when students were analysed separately based on FAIR test results, age did not show a significant relationship with disability[8]. This indicates that the presence of Piriformis syndrome itself plays a greater role in disability than age alone.

One limitation of this study is that the diagnosis of Piriformis syndrome was based only on clinical testing and not confirmed using imaging techniques[9]. Another limitation is that the study was conducted in a limited geographic area, which may affect the generalization of the results. Despite these limitations, the study provides useful information about a commonly overlooked condition in young adults[10].

Early screening, posture education, regular movement breaks, and preventive physiotherapy exercises can help reduce the risk and impact of Piriformis syndrome among college students. Colleges and universities can play an important role by promoting physical activity and musculoskeletal health awareness[10,11].

Another important point from this study is the role of functional assessment tools in identifying the impact of Piriformis syndrome.[11] The use of the Roland–Morris Disability Questionnaire helped in understanding how pain and discomfort affected daily activities of students[12]. Even though the participants were young and otherwise healthy, the presence of disability scores shows that musculoskeletal problems can begin early in life. This highlights the need for routine screening of students, especially those with prolonged sitting habits, to prevent long-term complications.

The findings of this study also emphasize the importance of early physiotherapy intervention. Simple measures such as stretching exercises, strengthening of hip and

core muscles, posture correction, and education on proper sitting habits may help reduce symptoms and prevent progression of the condition.

CONCLUSION

The findings of this study show that Piriformis syndrome is fairly common among college students aged 18 to 25 years. Nearly one-third of the students tested positive for Piriformis syndrome using the FAIR test. Students with Piriformis syndrome showed higher levels of functional disability, especially in daily activities that involve sitting and movement.
Male students demonstrated higher disability scores compared to female students. Students who tested positive on the FAIR test had significantly greater disability than those who tested negative, showing a clear link between piriformis syndrome and reduced functional ability.

This study highlights the importance of early identification of piriformis syndrome in young adults. Simple clinical tests such as the FAIR test and questionnaires like the Roland-Morris Disability Questionnaire can be easily used for screening in college settings.

Improving awareness about correct posture, encouraging regular physical activity, and introducing basic physiotherapy-based preventive programs may help reduce the burden of this condition. Future studies with larger sample sizes, diverse populations, and advanced diagnostic methods are recommended to better understand piriformis syndrome and its long-term effects.

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Conflicts Of Interest: The authors declare that there are no conflicts of interest.

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REFERENCES

1. Shinde, S., & Khatri, S. (2017). Prevalence of piriformis tightness in healthy sedentary individuals: A cross-sectional study. International Journal of Science and Research, 6(6), 134–135.
2. Nazir, S., Asmat, G., Ashfaq, U., & Saeed, T. (2022). Prevalence of piriformis syndrome among female physiotherapy students of Gujranwala, Pakistan: A cross-sectional survey. Pakistan BioMedical Journal, 5(1).
3. Warner, S., Munawar, A., Ahmad, A., Fatima, M., & Waqas, M. (2018). Prevalence of piriformis syndrome among University of Lahore male students. Rawal Medical Journal, 43(2), 306–308.
4. Cardim, J. M., Santos, D. M., Quaresma, E. C., da Silva, L. F. S., & Silva, R. D. S. (2024). The differential diagnosis and physiotherapeutic treatment of piriformis syndrome: A systematic review. Archives of Current Research International, 24(6), 48–57.
5. Rodrigue, T., & Hardy, R. W. (2001). Diagnosis and treatment of piriformis syndrome. Neurosurgery Clinics of North America, 12(2), 311–319.
6. Jankovic, D., Peng, P., & van Zundert, A. (2013). Piriformis syndrome: Etiology,

diagnosis, and management. Canadian Journal of Anesthesia, 60(10), 1003–1012.

7. Mondal, M., Sarkar, B., Alam, S., Das, S., Malik, K., Kumar, P., & Sahay, P. (2017). Prevalence of piriformis tightness in healthy sedentary individuals: A cross-sectional study. International Journal of Health Sciences and Research, 7(7), 134–142.
8. Hopayian, K., Song, F., Riera, R., & Sambandan, S. (2010). The clinical features of piriformis syndrome: A systematic review. European Spine Journal, 19, 2095–2109.
9. Chen, C. K., & Nizar, A. J. (2012). Prevalence of piriformis syndrome in chronic low back pain patients: A clinical diagnosis with modified FAIR test. Pain Practice, 12(8), 600–605.
10. Stevens, M. L., Lin, C. C. W., & Maher, C. G. (2016). The Roland-Morris Disability Questionnaire. Journal of Physiotherapy, 62(2), 116.
11. Papadopoulos, E. C., & Khan, S. N. (2014). Piriformis syndrome and low back pain: A new classification and review. European Spine Journal, 23(7), 1558–1564.
12. Boyajian-O'Neill, L. A., McClain, R. L., Coleman, M. K., & Thomas, P. P. (2008). Diagnosis and management of piriformis syndrome: An osteopathic approach. Journal of the American Osteopathic Association, 108(11), 657–664.

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