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HEALTH AND REHABILITATION

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FREQUENCY OF LATERAL HIP PAIN AND ITS ASSOCIATION WITH FUNCTIONAL DISABILITY

Original Research

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Acknowledgement: The authors sincerely thank all participants and institutions involved in this research for their valuable contributions.

Conflict of Interest: None
Grant Support & Financial Support: None

ABSTRACT

Background: Lateral hip pain, also known as greater trochanteric pain syndrome (GTPS), is a prevalent musculoskeletal condition marked by pain and tenderness along the outer aspect of the hip. It often results from dysfunction in the gluteal muscles or inflammation of the surrounding soft tissues. This condition can lead to significant limitations in daily activities, particularly in populations with increased physical stress on the hip joints. Understanding its frequency and association with functional disability is essential for effective management.

Objective: The aim of this study was to determine the frequency of lateral hip pain and its association with functional disability in individuals aged 30 to 50 years.

Methods: A descriptive cross-sectional study was conducted involving 380 participants diagnosed with lateral hip pain, selected using a non-probability convenient sampling technique. Data were collected over a period of one year from June 2023 to June 2024. Participants ranged in age from 30 to 50 years. Functional disability was assessed using the Harris Hip Score (HHS). Data were analyzed using SPSS version 26, and descriptive statistics, including means, standard deviations, frequencies, and percentages, were reported.

Results: The mean age of participants was 39.12 ± 5.65 years. Among the 380 participants, 94 (24.7%) were male and 286 (75.3%) were female. The frequency of lateral hip pain was higher in females, particularly among housewives, whereas office workers showed higher prevalence among males. Intermittent pain was observed in 84.5% of participants, while 15.5% experienced persistent pain. Functional disability was common, with 94.47% of participants exhibiting poor outcomes according to the Harris Hip Score.

Conclusion: The study concludes that lateral hip pain is strongly associated with functional disability, primarily due to dysfunction in the tensor fascia latae and gluteus minimus muscles. The findings highlight the need for targeted interventions to improve functional outcomes in affected individuals.

Keywords: Disability Evaluation, Gluteal Muscles, Greater Trochanteric Pain Syndrome, Hip Joint, Musculoskeletal Pain, Pain Measurement, Tensor Fasciae Latae.

INTRODUCTION

Lateral hip pain, commonly referred to as greater trochanteric pain syndrome (GTPS), is a prevalent musculoskeletal condition marked by pain and tenderness along the outer aspect of the hip. This condition affects individuals across various age groups, often impairing functional ability and diminishing quality of life. Despite its high prevalence, particularly among middle-aged women and older adults, lateral hip pain remains under-recognized and frequently misdiagnosed, leading to prolonged discomfort and disability (1). The condition is primarily associated with trochanteric bursitis, where inflammation of the bursa—a fluid-filled sac that cushions the hip joint—results from repetitive strain, trauma, or underlying conditions such as osteoarthritis (2). In addition to bursitis, other causes like friction between the iliotibial (IT) band and the lateral thigh bone, or structural injuries like hip labral tears, contribute significantly to the development of lateral hip pain (3,4). Epidemiological data suggest that lateral hip pain accounts for 10% to 20% of all hip pain complaints in primary care settings, with an incidence rate of 1.8 cases per 1000 individuals annually (5). The condition is more frequently observed in females aged between 40 and 60 years and in individuals over the age of 50 (5). Biomechanical studies highlight abnormal kinematic patterns, particularly in those suffering from gluteal tendinopathy, where altered gait mechanics increase the load on the hip abductor muscles, intensifying the stress on surrounding soft tissues (6). Common symptoms include localized tenderness, swelling, and worsening pain during weight-bearing activities such as walking, climbing stairs, or lying on the affected side. Some patients may also experience clicking, locking, or catching sensations in the hip joint (7). Risk factors contributing to lateral hip pain include female gender, obesity, repetitive stress activities, and aging (8).

Clinical evaluation often incorporates physical assessment tools, such as the Trendelenburg sign, which indicates weakness in the gluteus medius and minimus muscles when positive (9). Further diagnostic measures may involve specialized tests like the Ober's test for iliotibial band tightness or imaging techniques to rule out other underlying pathologies such as fractures or osteoarthritis (10,11). Although plain radiographs are typically unremarkable, ultrasonography remains a valuable diagnostic tool, particularly in the early detection of soft tissue abnormalities (12). The management of lateral hip pain varies depending on the underlying cause. Physical therapy serves as a cornerstone of treatment, focusing on muscle strengthening, stretching, and biomechanical corrections (13). Dry needling, targeting trigger points in the gluteal and thigh muscles, has emerged as an effective intervention for relieving muscle tension and improving hip mobility (14,15). Manual therapy techniques, including mobilizations and soft tissue manipulations, are also employed to enhance joint flexibility and alleviate pain, often recommended for periods ranging from six to twelve weeks, depending on symptom severity (16). Despite the variety of therapeutic interventions available, gaps remain in understanding the precise relationship between lateral hip pain and functional disability. This study aims to investigate the frequency of lateral hip pain and its association with functional impairment. By exploring this relationship, the research seeks to offer insights into more effective diagnosis, management, and rehabilitation strategies for individuals affected by this condition.

METHODS

This study employed a cross-sectional design, conducted over a period of one year following the approval of the research synopsis by the Institutional Review Board (IRB). Data were collected from various hospitals and clinics located in the twin cities. A total of 384 participants were selected using random sampling, ensuring that the sample size was sufficient to maintain the study's validity and statistical power. The inclusion criteria comprised participants aged between 30 and 50 years, of both genders, who presented with hip pain and voluntarily provided informed consent. Individuals with a history of hip surgery or trauma, neurological disorders, pregnancy, urinary issues, or lower limb deformities were excluded from the study to eliminate confounding factors that could influence the association between lateral hip pain and functional disability. The participants were briefed thoroughly about the study's objectives, and written informed consent was obtained before data collection, adhering to the ethical guidelines set forth by the overseeing institution.

Data collection was carried out using structured questionnaires and clinical assessments designed to evaluate both the presence of lateral hip pain and the extent of functional disability. The assessments adhered to standardized protocols to ensure consistency across different clinical settings. All personal information was handled with strict confidentiality, in compliance with ethical research standards. Statistical analysis was performed using SPSS version 26. Descriptive statistics, including frequencies and percentages, were used to analyze qualitative variables such as gender distribution, the prevalence of pain, and associated risk factors. Inferential statistics,

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including chi-square tests and correlation analysis, were employed to determine the association between lateral hip pain and functional disability. A significance level was set at $p<0.05$ to identify statistically meaningful associations. Graphical representations, including bar charts and pie charts, were used to visually present the findings and highlight key trends. The primary objective of this study was to determine the prevalence of lateral hip pain and evaluate its association with functional disability. All procedures followed were consistent with established ethical standards, ensuring the integrity and reliability of the study results.

RESULTS

A total of 600 participants were initially enrolled in the study, out of which 384 individuals were confirmed to have lateral hip pain and subsequently included in the final analysis. The mean age of participants was 39.12 years with a standard deviation of 5.65. The age distribution revealed that 30.2% of participants were between 30 and 35 years, 27.1% between 36 and 40 years, 26.8% between 41 and 45 years, and 15.8% between 46 and 50 years. The onset of pain was predominantly intermittent in 84.5% of participants, while 15.5% reported persistent pain. Regarding the nature of pain, a higher proportion of participants (49.2%) experienced dull pain, followed by radiating pain (28.2%), stabbing pain (14.2%), and cramping pain (8.4%).

Analysis of the pain type revealed that chronic pain was more prevalent, affecting 74.7% of the participants, whereas 23.5% reported acute pain. The intensity of pain, measured on a numeric rating scale, showed that 90.8% of participants experienced moderate pain, 5% reported mild pain, and 4.3% suffered from severe pain. Observation of the affected side revealed that the right leg was predominantly involved, with 77.4% of participants reporting right-sided pain, compared to 22.6% who experienced left-sided pain. Special tests were conducted to identify structural involvement, and the FADER test showed the highest frequency at 28.9%, followed by the Ober's test (21.3%), FABER test (16.1%), Thomas test (16.1%), Gaenslen's test (8.7%), FADIR test (5.3%), and Jump Sign test (3.7%).

Functional disability was assessed using the Harris Hip Score (HHS). The majority of participants (94.47%) demonstrated poor functional outcomes with scores below 70, while 5.10% had good outcomes (scores between 80-89), and only 0.26% each achieved fair (70-79) and excellent (90-98) scores. Pearson correlation analysis revealed a significant negative correlation between pain intensity and overall hip function, with a coefficient of -0.95 ($p<0.01$). Significant negative correlations were also observed between pain intensity and various functional parameters, including pain (-0.879), limp (-0.865), need for support (-0.863), distance walked (-0.869), ability to sit (-0.514), use of public transport (-0.510), and stair navigation (-0.704) ($p<0.01$). These results suggest that increased pain intensity is associated with worsening functional disability.

Title 1: Frequency and Percentage Distribution of Demographic, Clinical, and Functional Characteristics in Participants with Lateral Hip Pain

Variable	Categories	Frequency (n)	Percentage (%)
Age Group (years)	30–35	115	30.2
	36–40	103	27.1
	41–45	102	26.8
	46–50	60	15.8
Nature of Pain	Dull	187	49.2
	Stabbing	54	14.2
	Radiating	107	28.2
	Cramping	32	8.4
Pain Intensity (Numeric Scale)	Mild (1–3)	19	5.0
	Moderate (4–6)	345	90.8
	Severe (7–10)	16	4.3

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Variable	Categories	Frequency (n)	Percentage (%)
Special Tests	FABER Test	61	16.1
	FADIR	20	5.3
	Jump Sign	14	3.7
	FADER Test	110	28.9
	Ober's Test	81	21.3
	Thomas Test	61	16.1
	Gaenslen's Test	33	8.7
Functional Disability (HHS)	Poor (<70)	359	94.47
	Fair (70–79)	1	0.26
	Good (80–89)	19	5.10
	Excellent (90–98)	1	0.26

Note: n = Frequency (Number of participants), % = Percentage of total sample (N=380)

Table 2: Correlation between Intensity of Pain and Total Harris Hip Score (HHS)

		Total HHS
Intensity of Pain	Pearson Correlation	-0.95**
	Sig.(2-tailed)	0.000

** Correlation is significant at the 0.01 level (2-tailed)

Table 3: Pearson Correlation between Pain Intensity, Functional Parameters, and Total Harris Hip Score (HHS)

Correlations													
		Intensity of Pain	**Pain**	**Limp**	**Support**	**Distance Walked**	**Sitting**	**Public Transport**	**Stairs**	**Absence of Deformity**	**Put Shoes and Socks**	**ROM HHS**	**Total HHS**
Intensity of Pain	Pearson Correlation	1	-.879**	-.865**	-.863**	-.869**	-.514**	-.510**	-.704**	.b	-.623**	.040	-.957**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.	.000	.438	.000
Pain	Pearson Correlation	-.879**	1	.901**	.688**	.625**	.343**	.331**	.413**	.b	.584**	-.021	.961**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.	.000	.688	.000

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		Intensity of Pain	Pain	Limp	Support	Distance Walked	Sitting	Public Transport	Stairs	Absence of Deformity	Put Shoes and Socks	ROM HHS	Total HHS
Limp	Pearson Correlation	-.865**	.901**	1	.691**	.601**	.334**	.249**	.341**	.b	.683**	-.002	.916**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.	.000	.973	.000
Support	Pearson Correlation	-.863**	.688**	.691**	1	.943**	.412**	.424**	.695**	.b	.785**	.012	.842**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.	.000	.820	.000
Distance Walked	Pearson Correlation	-.869**	.625**	.601**	.943**	1	.522**	.531**	.883**	.b	.611**	-.020	.796**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.	.000	.704	.000
Sitting	Pearson Correlation	-.514**	.343**	.334**	.412**	.522**	1	.662**	.554**	.b	.298**	-.065	.466**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.	.000	.205	.000
Public Transport	Pearson Correlation	-.510**	.331**	.249**	.424**	.531**	.662**	1	.584**	.b	.180**	-.094	.432**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.	.000	.068	.000
Stairs	Pearson Correlation	-.704**	.413**	.341**	.695**	.883**	.554**	.584**	1	.b	.207**	-.049	.572**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.	.000	.342	.000
Absence of Deformity	Pearson Correlation	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)	.	.	.	.	.	.	.	.		.	.	.
Put Shoes and Socks	Pearson Correlation	-.623**	.584**	.683**	.785**	.611**	.298**	.180**	.207**	.b	1	.016	.697**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.		.749	.000

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		Intensity of Pain	Pain	Limp	Support	Distance Walked	Sitting	Public Transport	Stairs	Absence of Deformity	Put Shoes and Socks	ROM HHS	Total HHS
ROMHHS	Pearson Correlation	.040	-.021	-.002	.012	-.020	-.065	-.094	-.049	.b	.016	1	.011
	Sig. (2-tailed)	.438	.688	.973	.820	.704	.205	.068	.342	.	.749		.823
Total HHS	Pearson Correlation	-.957**	.961**	.916**	.842**	.796**	.466**	.432**	.572**	.b	.697**	.011	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.823	

**. Correlation is significant at the 0.01 level (2-tailed).

b. Cannot be computed because at least one of the variables is constant.

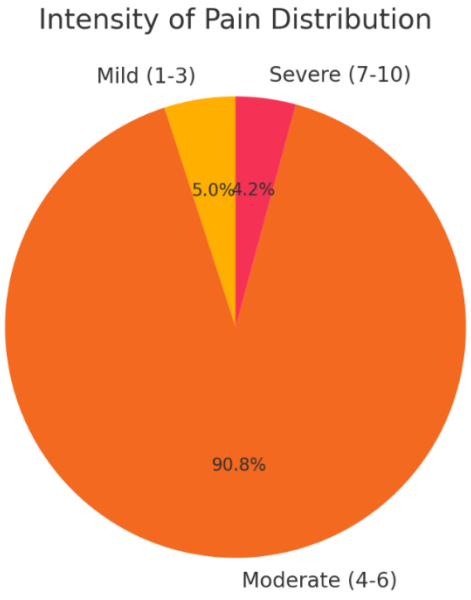

Figure 1 Intensity of Pain Distribution

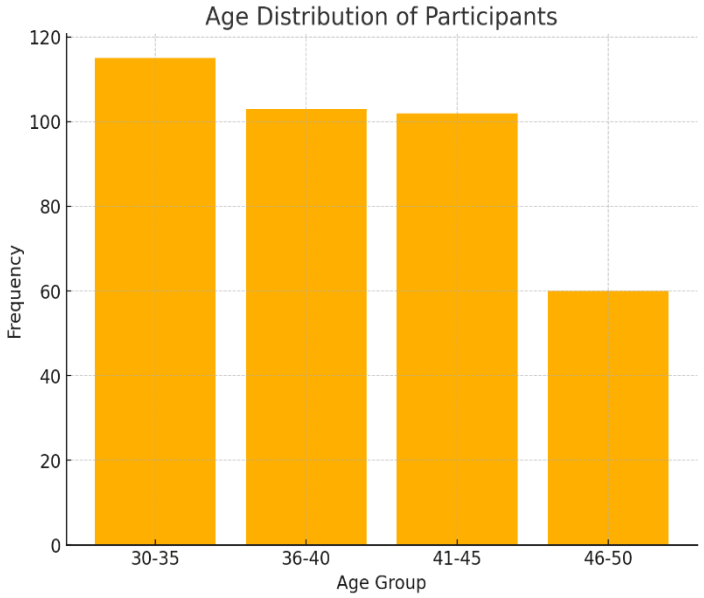

Figure 2 Age Distribution of Participants

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DISCUSSION

The findings of this study reveal a significant association between lateral hip pain and functional disability, particularly highlighting the muscular origin of the condition. These results align with previous research that demonstrated a strong relationship between hip abductor muscle weakness and lateral hip pain in patients with hip osteoarthritis. Earlier studies primarily focused on older adults with osteoarthritis, while the present study offers a broader perspective by including younger adults from the general population, thereby expanding the understanding of lateral hip pain beyond degenerative conditions (17). The higher prevalence of lateral hip pain in females observed in this study is consistent with earlier research that found female athletes to be more susceptible to hip injuries, including lateral hip pain (18). However, the current findings extend these observations by encompassing both genders from a community-based sample, rather than focusing solely on athletic populations. This broader scope allows for a more comprehensive understanding of the gender-based predispositions in lateral hip pain across different activity levels and age groups.

Further similarities can be drawn with studies on iliotibial band syndrome in female runners, where muscular imbalances and overuse injuries were identified as common causes of lateral hip pain (19). The present study corroborates these findings, suggesting that iliotibial band friction may be a contributing factor to the onset of pain in the general population. Unlike prior research, which was limited to athletes, this study provides valuable insights into how these musculoskeletal factors affect both active and non-athletic individuals. The impact of lateral hip pain on functional capacity, particularly walking ability and daily activities, was consistent with earlier research conducted on patients with end-stage osteoarthritis (20). Although previous investigations focused on individuals with advanced degenerative joint conditions, the present study highlights similar functional impairments in those experiencing lateral hip pain without osteoarthritis. This underscores the broader relevance of addressing functional limitations in early-stage or non-degenerative conditions.

Special tests, including the FADER and Ober's tests, showed a high rate of positivity among participants, corroborating earlier studies that identified these tests as effective diagnostic tools for detecting lateral hip dysfunctions (21). The current findings, however, extend the generalizability of these tests by validating their use across both genders and diverse occupational backgrounds, rather than restricting the assessment to athletes. The strengths of this study include its relatively large sample size, which enhances the reliability of the findings, and the inclusion of a broad population that captures both genders and a range of age groups. The comprehensive evaluation of pain characteristics, functional disability, and special tests provides a holistic view of the condition's clinical presentation.

Nonetheless, certain limitations must be acknowledged. The use of purposive sampling may introduce selection bias, limiting the generalizability of the findings to a wider population. Additionally, the study did not account for potential confounding factors such as body mass index, occupation, or physical activity levels, which could influence the severity and functional impact of lateral hip pain. Future research should consider employing randomized sampling techniques and incorporating a more diverse participant profile to enhance the external validity of the findings. Further investigations could also focus on longitudinal outcomes to assess the progression of lateral hip pain and its long-term impact on functional ability. Exploring intervention strategies, such as targeted rehabilitation programs or preventive measures, could offer additional insights into effective management and reduction of functional disability associated with lateral hip pain.

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CONCLUSION

This study concludes that lateral hip pain is predominantly associated with dysfunction in the tensor fascia latae and gluteus minimus muscles, leading to a significant impact on functional ability. The findings highlight a strong relationship between the presence of lateral hip pain and functional disability, emphasizing the need for early diagnosis and targeted interventions to prevent further deterioration. These results underscore the importance of addressing underlying muscular imbalances to improve patient outcomes. Future research should focus on exploring the causes and risk factors of lateral hip pain, with particular attention to gender-based differences, to develop more effective prevention and management strategies.

AUTHOR CONTRIBUTIONS

Author	Contribution
Anum Farooq*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Maryam Imtiaz	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Sabahat Ayyaz	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Ateeb Arooj	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Kashaf Saleem	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Shamsa Tariq	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

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