

# Incidence of Sacroiliac Joint Dysfunction as a Cause of Low Backache: An Under-Appreciated Pain Generator

Incidence of Sacroiliac Joint Dysfunction as a Cause of Low Backache

Yasmeen Azeem<sup>1</sup>, Uzma Naeem<sup>2</sup>, Ayesha Saleem<sup>3</sup>, Muhammad Nazir Awan<sup>4</sup>, Fareeha Farooq<sup>2</sup> and Soban Sarwar Gondal<sup>5</sup>

## ABSTRACT

**Objective:** To determine the prevalence of low back pain in a pain clinic of a tertiary care Hospital and to assess its association with sacroiliac joint dysfunction.

**Study Design:** Descriptive cross-sectional study

**Place and Duration of Study:** This study was conducted at the Holy Family Hospital Rawalpindi from October 2021 to May 2023.

**Materials and Methods:** This study included 2116 individuals of both genders who visited Holy Family Hospital's specialized pain clinic complaining of pain. The presenting complaints, diagnosis, age, and gender were noted to characterize the pattern of diseases among patients attending the specialized pain clinic.

**Results:** Patients selected for this study were 37.7% male and 62.3% female, averaging  $44.25 \pm 7.04$  years. Lower back pain (30.1%) was the most common presenting complaint while paraspinal muscle spasms & trigger points (54%), and sacroiliac joint dysfunction (26.6%) were the most common diagnoses made for the patients presented with lower back pain. Disease-related pain was significantly correlated with gender.

**Conclusion:** The findings of our study will be helpful in directing clinicians' attention away from the intervertebral disc and toward the sacroiliac joint to prevent needless and invasive therapies.

**Key Words:** Lower back pain, sacroiliac joint, dysfunction.

**Citation of article:** Azeem Y, Naeem U, Saleem A, Awan MN, Farooq F, Gondal SS. Incidence of Sacroiliac Joint Dysfunction as a Cause of Low Backache: An Under-Appreciated Pain Generator. Med Forum 2023;34(7):10-13. doi:10.60110/medforum.340703.

## INTRODUCTION

The most common and disabling disorder thought to benefit from rehabilitation is low back pain, which is commonly defined as "pain below the costal border and above the inferior gluteal folds, with or without leg pain".<sup>1</sup> According to a comprehensive analysis that included 165 research from 54 countries, the average point prevalence of low back pain in the general adult population was around 42.44% in 2019.<sup>2</sup>

<sup>1</sup>. Department of Anesthesia, Holy Family Hospital, Rawalpindi.

<sup>2</sup>. Department of Pharmacology, IIMC, Riphah University, Rawalpindi.

<sup>3</sup>. Benazir Bhutto Hospital, Rawalpindi

<sup>4</sup>. Department of Anesthesia, Muhammad Nazir Awan, Pakistan Railway Hospital, Rawalpindi.

<sup>5</sup>. Department of Neurosurgery, DHQ Hospital, Rawalpindi.

Correspondence: Dr. Uzma Naeem, Associate Professor of Pharmacology, IIMC, Riphah University, Rawalpindi.

Contact No: 0334-9157316

Email: uzma.naeem@ripha.edu.pk

Received: June, 2023

Accepted: June, 2023

Printed: July, 2023

All age groups, from young to the elderly, experience it in high-income, middle-income, and low-income nations. Between 1990 and 2015, there was a 54% rise worldwide in the number of years that low back pain caused a disability.<sup>3</sup> Low back pain (LBP) is not a disease itself but can be a symptom of multiple underline diseases.<sup>4</sup> The cause of LBP can be nociceptive, neuropathic, neoplastic, or non-specific, which frequently overlap.<sup>5</sup> Axial lumbosacral, radicular, and referred pain are three different types of pain that are associated with LBP.<sup>6</sup>

Low back, sacroiliac joint (SIJ), and leg pains are frequently brought on by sacroiliac joint dysfunction and sacroiliitis. Sacroiliitis is a direct outcome of the inflammatory processes occurring in the SI joint, it can co-occur with sciatica, a slipped disc, or spondylolisthesis.<sup>7</sup> While Sacroiliac joint dysfunction (SJD), is a disorder brought on by ligamentous weakness that results in excessive mobility and mild misalignment of the SI joint. Contrary to sacroiliitis, SI joint dysfunction can cause pain without any inflammation. Several risk factors for developing SJD include prior lumbar fixation surgery due to ensuing degenerative SIJ alterations. SJD is a common but under-recognized source of LBP because its accurate diagnosis is very challenging.<sup>8</sup>

Any one or a combination of SIJ components, including the joint capsule and encircling ligaments, might cause pain because they all are innervated.<sup>9</sup> Although SJD is an important contributing factor in the incidence of chronic low back pain (up to 30%), it is frequently misdiagnosed and as a result remains undertreated/mistreated.<sup>10</sup> Even though SJD is well documented in manual medicine literature, there isn't much information on SIJ issues in medical texts on backache. Because of this, SJD is often disregarded as a cause of low back pain and is often not taught to medical trainees.<sup>11</sup>

Numerous studies have been done in our setup on the prevalence, distribution, treatment, and impact of low back pain on patients, but very few of them have specifically focused on SIJ dysfunction. There aren't many specialized pain clinics in our country, and this is the main reason that most of the pain conditions remained undiagnosed or misdiagnosed. Considering the expanding population of undiagnosed and undertreated patients, this study set out to determine the prevalence of LBP and its correlation with SJD.

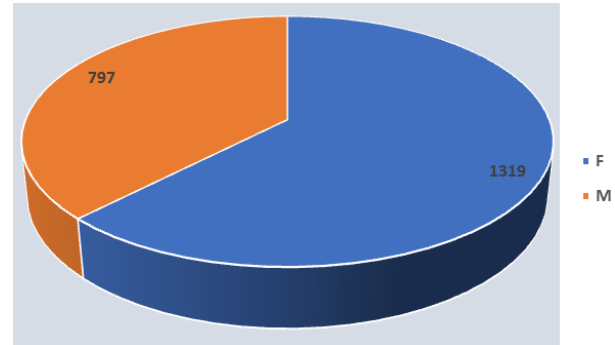
**MATERIALS AND METHODS**

This cross-sectional descriptive study was conducted at the Holy Family Hospital in Rawalpindi from October 2021 to May 2023 with approval from the head of the anesthesia department and Rawalpindi Medical University (Ref number 30/Su/1/HFH). The study included 2116 people of both genders presented in our pain clinic during the study duration. People with concurrent brain injuries and compromised cognitive & communication issues were excluded from the study. The patients' identity and privacy were upheld. The patient's clinical histories of pain were acquired during interviews, and the information was subsequently entered into forms. The data collected included age, gender, presenting complaint, and the primary diagnosis. A thorough evaluation was done to diagnose SIJ dysfunction, the practitioner initially concentrate on the history, paid attention to the gait pattern, and carried out the essential components of the physical examination, including provocative maneuvers.<sup>12</sup> The diagnosis was confirmed using SJD diagnostic intra-articular anesthetic injection under radiographic guidance when at least three provocation tests (Yeoman's test, Gaenslen's sign, FABER test (Patrick's sign), the compression test, resisted hip abduction, or a positive posterior pelvic pain provocation) were positive.<sup>13</sup> The injection's ability to reduce pain suggested that the sacroiliac joint is the source of the discomfort. The imaging was also carefully examined. Version 26.0 of SPSS was used to analyze the data. Frequencies and percentages were employed to characterize the qualitative factors, while descriptive statistics were used for the quantitative variables. Chi-square tests were conducted to determine a connection

between the presenting complaints and the gender of the patients and a p-value of 0.05 or below was considered significant.

**RESULTS**

The 2116 individuals who took part in the study had an average age of 44.25 ± 7.04 years. There were 1319 (62.3%) female patients and 797 (37.7%) male patients, depicted in figure No. 1.



**Figure No. 1: Male and female ratio of patients under study.**

Most of the patients (30.1%) presented with lower back pain, followed by knee pain (24.8%), and generalized musculoskeletal pains (23.2%). All presented complaints of the patients under study are listed in Table No. 2, all complaints are more prevalent in females.

**Table No. 1: Major presenting complaints of the patients under study.**

Presenting Complaint	Male (%)	Female (%)	Total (%)
Neck pain	79 (47.0)	89 (53.0)	168 (7.9)
Shoulder pain	67 (42.7)	90 (57.3)	157 (7.4)
Upper limb pain	17 (30.4)	39 (69.6)	56 (2.6)
Chest pain	04 (19.1)	17 (80.9)	21 (0.9)
Abdominal pain	14 (26.9)	38 (73.1)	52 (2.4)
Lower back pain	239 (37.5)	398 (62.5)	637 (30.1)
Knee pain	224 (42.6)	302 (57.4)	526 (24.8)
Generalized musculoskeletal pains	150 (30.6)	341 (69.4)	491 (23.2)
Ankle pain	3 (37.5)	5 (62.5)	8 (0.4)
Total	797 (37.7)	1319 (62.3)	2116 (100)
Pearson Chi-Square (p-value)	<b>&lt;0.001</b>		

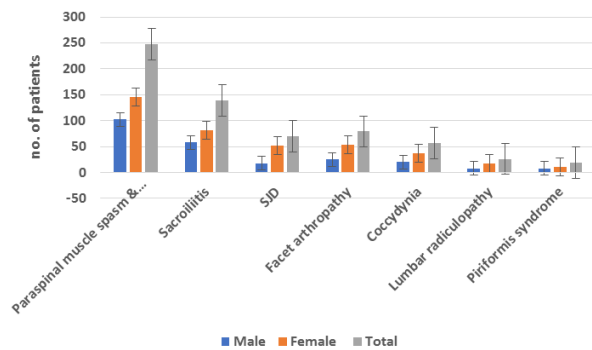
The focus of this study was on the causes of low back pain so, we separately figure out the causes of back pain in table 2.

According to this data, the most common cause of back pain was paraspinal muscle spasms and trigger points. Sacroiliitis and sacroiliac joint dysfunction (SJD) was

the 2<sup>nd</sup> leading causes of this bothering issue. Other less common causes are also depicted in table 2 & figure 2.

**Table No. 2: Major causes of lower back pain.**

Causes of low back pain	Male (%)	Female (%)	Total (%)
Paraspinal muscle spasm & trigger points	102 (41.3)	145 (58.7)	247 (38.8)
Sacroiliitis	58 (41.7)	81 (58.3)	139 (21.8)
SJD	18 (25.7)	52 (74.3)	70 (10.99)
Facet arthropathy	25 (31.6)	54 (68.4)	79 (12.4)
Coccydynia	20 (35.1)	37 (64.9)	57 (8.9)
Lumbar radiculopathy	8 (30.8)	18 (69.2)	26 (4.1)
Piriformis syndrome	8 (42.1)	11 (57.9)	19 (3.0)
Total	239 (37.5)	398 (62.5)	637 (100)
Pearson Chi-Square (p-value)	<b>&lt;0.001</b>		



**Figure No.2: causes of back pain ratio**

**DISCUSSION**

This study sought to ascertain the prevalence of SJD in patients who presented with low back pain to the pain clinic at Holy Family Hospital during the study period. The musculoskeletal ailment known as low back pain (LBP) is incredibly common and continues to have negative social effects. Since at least 30 years ago, low back pain has been the main contributor to disability worldwide, resulting in significant direct medical expenses as well as lost productivity.<sup>14</sup> According to the data of our pain clinic patients, about 637 (30.1%) patients presented with LBP. Our findings are inconsistent with the results of Siddiqui et al, who did the analysis of software bank data and concluded that 40.65% of the Pakistani population suffers from LBP.<sup>15</sup> The outcomes of our study are consistent with those of Arsalan et al., who discovered a 29.20 point prevalence of LBP in the population of Pakistan.<sup>16</sup> Like other pain conditions, LBP was more prevalent in females, our study's findings are consistent with Wu et al.'s results. They find the global LBP prevalence from 1997 to

2017 and concluded that LBP is more prevailing in females.<sup>17</sup> In this study, SJD prevalence was greater in females. According to Telli et al, the impact of fertility, lifestyle, or insufficient exercise on the SIJ may explain why female patients have a higher incidence of SJD.<sup>18</sup> The maximum number of patients in our study having low back pain were diagnosed with paraspinal muscle spasms and trigger points (38.8%), followed by sacroiliitis (21.8%), SJD (10.99%), facet arthropathy (12.4%), coccydynia (8.9%), radiculopathy (4.1%), and Piriformis syndrome (3%). The results of Gibbs and colleagues, who investigated the differential diagnosis and treatment of back pain, are consistent with our findings.<sup>19</sup> According to previous studies, the prevalence of SJD is between 13 to 30%,<sup>10</sup> which is in accordance with our findings.

Due to the range of clinical manifestations of sacroiliac syndrome, the diagnosis cannot be made only based on the patient's reported symptoms. CT scanning and radionuclide imaging play a limited role in the diagnosis of SIJ dysfunction due to their low sensitivity and specificity.<sup>20</sup> The value of pain provocation tests in the diagnosis of SJD is up for dispute. High sensitivity and specificity were shown by Newman and Soto for the FABER, posterior shear, and resisted abduction pain provocation tests.<sup>21</sup> The current gold standard for diagnosing SJD is fluoroscopically guided infiltration of local anesthesia that leads to at least an 80% drop in pain scores; nonetheless, it is crucial to rule out other associated illnesses.<sup>10</sup> Sacroiliitis can be diagnosed through an X-ray pelvis with a caudad tilt of 15-20 degrees; however, further radiological confirmation requires an MRI pelvis and a lumbar spine CT picture.<sup>22</sup>

**CONCLUSION**

A thorough evaluation is necessary for the complicated process of diagnosing SJD. The practitioner must initially concentrate on the history, pay attention to the gait pattern, and carry out the essential components of the physical examination, especially provocative maneuvers. The imaging data should also be carefully examined. The diagnosis should be verified by SIJ diagnostic blocks. It's crucial to rule out any concurrent diseases like sacroiliitis. Once the diagnosis has been made, long-term remedies, such as posterior or lateral SIJ fusion or SIJ ablation, may be available. Additionally, long-term spinal comorbidities commonly go together with SIJ dysfunction and should be regularly evaluated in people with chronic pain disorders.

**Author's Contribution:**

Concept & Design of Study: Yasmeen Azeem  
 Drafting: Uzma Naeem, Ayesha Saleem  
 Data Analysis: Muhammad Nazir Awan,

Revisiting Critically: Fareeha Farooq, Soban Sarwar Gondal  
 Yasmeeen Azeem, Uzma Naeem

Final Approval of version: Yasmeeen Azeem

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

- Chiarotto A, Koes BW. Nonspecific Low Back Pain. *N Engl J Med* 2022;386(18):1732-1740.
- Liu S, Wang B, Fan S, Wang Y, Zhan Y, Ye D. Global burden of musculoskeletal disorders and attributable factors in 204 countries and territories: a secondary analysis of the Global Burden of Disease 2019 study. *BMJ Open* 2022;12(6):e062183.
- Hartvigsen J, Hancock MJ, Kongsted A, Loue Q, Ferriera M, Genevay S, et al. What low back pain is and why we need to pay attention. *Lancet* 2018;391(10137):2356-2367.
- Rooh Ul Muazzam M, Abbas S, Abbas S, Rafi MA. Frequency of low back pain in young adults and its relationship with different mattresses. *J Pak Med Assoc* 2021;71(9):2177-2180.
- Knezevic NN, Candido KD, Vlaeyen JWS, Van Zundert J, Cohen SP. Low back pain. *Lancet* 2021;398(10294):78-92.
- Urits I, Burshtein A, Sharma M, Testa L, Gold PA, Orhurhu V, et al. Low Back Pain, a Comprehensive Review: Pathophysiology, Diagnosis, and Treatment. *Curr Pain Headache Rep* 2019;23(3):23.
- Baronio M, Sadia H, Paolacci S, Prestamburgo D, Miotti D, Guardamagna VA, et al. Etiopathogenesis of sacroiliitis: implications for assessment and management. *Korean J Pain* 2020;33(4):294-304.
- Gartenberg A, Nessim A, Cho W. Sacroiliac joint dysfunction: pathophysiology, diagnosis, and treatment. *Eur Spine J* 2021;30(10):2936-2943.
- Roberts SL. Sacroiliac Joint Anatomy. *Phys Med Rehabil Clin N Am* 2021;32(4):703-724.
- Buchanan P, Vodapally S, Lee DW, Hagedorn JM, Bovinet C, Strand N, et al. Successful Diagnosis of Sacroiliac Joint Dysfunction. *J Pain Res* 2021;14:3135-3143.
- Newman DP, Soto AT. Sacroiliac Joint Dysfunction: Diagnosis and Treatment. *Am Fam Physician* 2022;105(3):239-245.
- Telli H, Telli S, Topal M. The Validity and Reliability of Provocation Tests in the Diagnosis of Sacroiliac Joint Dysfunction. *Pain Physician* 2018;21(4):E367-E376.
- George SZ, Fritz JM, Silfies SP, Schneider MJ, Beneciuk, JM, Lentz, TA, et al. Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021. *J Orthop Sports Phys Ther* 2021;51(11):CPG1-CPG60.
- Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW. Exercise therapy for chronic low back pain. *Cochrane Database Syst Rev* 2021;9(9):CD009790.
- Siddiqui AS, Javed S, Abbasi S, Baig T, Afshan G. Association Between Low Back Pain and Body Mass Index in Pakistani Population: Analysis of the Software Bank Data. *Cureus* 2022;14(3):e23645.
- Arslan SA, Hadian MR, Olyaei G, Bagheri H, Yekaninejad MS, Ijaz S, et al. Prevalence and risk factors of low back pain among the office workers of King Edward Medical University Lahore, Pakistan. *PTJ* 2016;6(3):161-8.
- Wu A, March L, Zheng X, Huang J, Wang X, Zhao J, et al. Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the Global Burden of Disease Study 2017. *Ann Transl Med* 2020;8(6):299.
- Telli H, Hüner B, Kuru Ö. Determination of the prevalence from clinical diagnosis of sacroiliac joint dysfunction in patients with lumbar disc hernia and an evaluation of the effect of this combination on pain and quality of life. *Spine* 2020;45(8):549-554.
- Gibbs D, McGahan BG, Ropper AE, Xu DS. Back Pain: Differential Diagnosis and Management. *Neurol Clin* 2023;41(1):61-76.
- Weksler N, Velan GJ, Semionov M, Gurevitch B, Klein M, Rozentsveig V, et al. The role of sacroiliac joint dysfunction in the genesis of low back pain: the obvious is not always right. *Archives Orthopaedic Trauma Surg* 2007;127: 885-8.
- Newman DP, Soto AT. Sacroiliac Joint Dysfunction: Diagnosis and Treatment. *Am Fam Physician* 2022;105(3):239-245.
- Kim JK, Jung JH, Lee HS, Kim DK. Prevalence and neglected rate of sacroiliitis on lumbar spine CT in patients with low back pain. *Skeletal Radiol* 2023;52(2):199-204.