Natural Resourcesfor Human Health

eISSN: 2583-1194

Original Research

Received 28 july 2026
Revised 30 August 2026
Accepted 14 september 2026

Natural Resources for Human Health 2026, Vol. 6 (13s): 798–813

KEYWORDS:
Sacroiliac Joint Dysfunction, Low back pain, Sacroiliac joint, Prevalence, Athletes

Prevalence of Sacroiliac Joint Dysfunction Across Different Populations: A Systematic Review

Arpit Bansal[1]*, Pooja Dogra[2], Nalina Gupta[3], Monika Rani[4]

[1]*Research Scholar, Department of Physiotherapy, Chitkara School of Health Sciences Chitkara University, Punjab
[2]Associate Professor, Chitkara School of Health Sciences, Chitkara University, Punjab.
[3]Professor & Principal, MM College of Physiotherapy & Rehabilitation Maharishi Markandeshwar University, Sadopur, Ambala, Haryana.
[4]Associate Professor, Department of Physiotherapy, Chitkara School of Health Sciences, Chitkara University, Punjab

ABSTRACT:

Background and aim of the study:

Sacroiliac joint dysfunction is the common cause of low back pain. Therefore; there is a need for study that discusses its increasing incidence or prevalence rate so that early identification can be made to improve treatment planning and patient outcomes.

Methodology:

This systematic review encompasses studies on the prevalence of sacroiliac joint dysfunction among patients with low back pain, athletes, and asymptomatic populations. The PubMed, Cochrane, and PEDro databases were searched using the Boolean operators “AND” and “OR”. Hoy's risk of bias tool used for assessing risk of bias.

Result:

A total of 20 studies were included: 11 on lower back pain, 5 on athletes, and 4 on the asymptomatic population. The overall prevalence rate of sacroiliac joint dysfunction was 2% to 72.3% (low back pain:14.5%-72.3%, athletes:2.5%-54.3%, asymptomatic:20%-65.1%). The most common diagnostic method used to assess the prevalence rate among all types of studies was the sacroiliac joint pain provocation test.

Conclusion:

The SIJ is a significant cause of pain in all populations with different age groups. The prevalence rate of SIJD is significantly high, especially in the low back pain population, indicating that SIJD may be a significant contributing factor for LBP.

1. INTRODUCTION

In today’s era, everyone is living a sedentary lifestyle, directly or indirectly. Currently, most jobs or studies are also based on gadgets (e.g. personal computers, laptops, iPads, etc.). According to previous literature, 31% of the global population's health is affected by a sedentary lifestyle. Globally, physical inactivity is considered the 4th leading cause of mortality[1]. This sedentary lifestyle leads to prolonged sitting, which affects our body and mind. Many musculoskeletal changes/problems occur in the human body due to a sedentary lifestyle. A recent study conducted in 2022 identified that in adults, back and neck pain are common conditions causing musculoskeletal pain due to a sedentary lifestyle[2]. A study on the global burden of disease stated

that lower back pain (LBP) is the most prevalent musculoskeletal disorder causing disability[3,4]. According to a current systematic review on the global burden of pain in the lower back, it was estimated that 619 million people were affected in 2020, and by the end of 2050, this number will be > 800 million, which indicates that pain in the lower back is a condition that affects people's lives[5].

Many factors lead to LBP, such as facet arthropathy, muscle spasm, degenerative disc disease, hip arthropathy, and sacroiliac joint (SIJ) dysfunction[6]. Among all these causes, SIJ dysfunction is the most neglected by therapists due to its difficult diagnosis. According to a study, SIJ dysfunction is the major cause of idiopathic pain in the lower back which occurs in almost 79–89% of people[7]. SIJ dysfunction is often misdiagnosed as LBP because the pain is mostly discogenic or radicular[8]. In most cases, LBP occurs due to dysfunction of the SIJ. According to previous literature, the prevalence rate of SIJ dysfunction among the LBP population is 25%. Any mechanical fault in the lumbar region or pubic symphysis leads to pelvic asymmetry and SIJ dysfunction. During bending movements, the SIJ absorbs the shock which transfers the vertical load from the lumbar region to the lower limb[9], making it more prone to pain. Pain was present at or just inferomedial to the posterior superior iliac spine, which is also known as the Fortin finger test, along with pain in the gluteal region, groin, lateral hip, and lower limb[9].

However, there is a scarcity of literature on its prevalence. In addition, another thing that we observe in the literature is that the difficulty of diagnosis or variability present in the diagnostic criteria makes it further difficult to report and leads to uncertainty in clinical decision-making. Therefore, there is a need to consolidate the synthesis of prevalence across the population under one umbrella to guide clinicians and researchers. Therefore, this study aimed to synthesise the existing literature to estimate the prevalence of SIJ dysfunction among various populations.

Initially, we aimed to include the prevalence of SIJ dysfunction in all types of populations. During the literature search, we found the prevalence of LBP among participants who underwent lumbar surgeries, pregnant or postpartum females, athletes, and the asymptomatic population. However, there are various systematic reviews on the prevalence of SIJ dysfunction among participants who underwent surgery; therefore, we excluded them from this review. Pelvic girdle pain is prevalent in pregnant/postpartum women, without mentioning the exact SIJ dysfunction. Therefore, we did not report this in our study; the remaining three (prevalence among the LBP population, athletes, and asymptomatic population) were included in the present study.

METHODOLOGY

The design of this systematic review was based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines 2020[10]. This review was registered under "The International Prospective Register of Systematic Reviews" (PROSPERO) with an ID number of CRD420261347212.

Eligibility Criteria:

Inclusion Criteria:

The included studies were

- Cross-sectional study
- Cohort studies reporting prevalence
- Hospital or community-based studies

Exclusion criteria:

The excluded studies were

- Case reports
- Intervention studies
- Prevalence studies on paediatric populations and surgeries.
- Protocol studies

- Commentary and Letter to the Editor
- Non-peer-reviewed sources
- Studies other than the English language

Information sources:

PubMed, Cochrane Library, and PEDro databases were used to extract studies on the prevalence of SIJ dysfunction, along with manual searching using forward and backward snowballing techniques.

Search Strategy:

The search of the study was done on the basis of the "CoCoPop" strategy, where "Co" stands for "Condition". In this study, sacroiliac dysfunction was considered a condition. The second "Co" stands for "Context". Studies conducted in any setting, whether community or hospital/clinic, were included. "Pop" refers to the population. In this review, studies that reported the prevalence of SIJ dysfunction in adults, older adults, pregnant women, athletes, and other populations were included, except for the paediatric population. The keywords used are listed in Table 1. Title/abstract/keywords were selected in these databases while entering the keywords. Medical Subject Headings (MeSH) terms and Boolean operators "AND" and "OR" were also used during the search. The "Peer Review of Electronic Search Strategy" (PRESS) was adopted for electronic search engines. The articles were extracted from inception to February 2026.

Table 1: *Search Strategy*

Search Strategy	**PubMed Record**
Search: ((((((((((((((((((((((sacroiliac joint[Title/Abstract]) OR (SI joint[Title/Abstract])) OR (sacroiliac joint dysfunction[Title/Abstract])) OR (sacroiliac dysfunction[Title/Abstract])) OR (SIJ dysfunction[Title/Abstract])) OR (SI dysfunction[Title/Abstract])) OR (sacroiliac joint syndrome[Title/Abstract])) OR (sacroiliac syndrome[Title/Abstract])) OR (SIJ syndrome[Title/Abstract])) OR (SI syndrome[Title/Abstract])) OR (sacroiliac joint pain syndrome[Title/Abstract])) OR (SIJ pain syndrome[Title/Abstract])) OR (sacroiliac pain syndrome[Title/Abstract])) OR (SI pain syndrome[Title/Abstract])) OR (sacroiliac joint pain dysfunction[Title/Abstract])) OR (SIJ pain dysfunction[Title/Abstract])) OR (sacroiliac pain dysfunction[Title/Abstract])) OR (SI pain dysfunction[Title/Abstract])) OR (posterior pelvic pain[Title/Abstract])) OR (sacroiliac joint pain[Title/Abstract])) OR (SIJ pain[Title/Abstract])) OR (sacroiliac pain[Title/Abstract])) OR (SI pain[Title/Abstract])	9534
Search: ((((((prevalence[Title/Abstract]) OR (epidemiology[Title/Abstract])) OR (incidence[Title/Abstract])) OR (occurance[Title/Abstract])) OR (frequency[Title/Abstract])) OR (proportion[Title/Abstract])) OR (burden[Title/Abstract])	3958979
Search: ((((((((((((((((((((((sacroiliac joint[Title/Abstract]) OR (SI joint[Title/Abstract])) OR (sacroiliac joint dysfunction[Title/Abstract])) OR (sacroiliac dysfunction[Title/Abstract])) OR (SIJ dysfunction[Title/Abstract])) OR (SI dysfunction[Title/Abstract])) OR (sacroiliac joint syndrome[Title/Abstract])) OR (sacroiliac syndrome[Title/Abstract])) OR (SIJ syndrome[Title/Abstract])) OR (SI syndrome[Title/Abstract])) OR (sacroiliac joint pain syndrome[Title/Abstract])) OR (SIJ pain syndrome[Title/Abstract])) OR (sacroiliac pain syndrome[Title/Abstract])) OR (SI pain syndrome[Title/Abstract])) OR (sacroiliac joint pain dysfunction[Title/Abstract])) OR (SIJ pain dysfunction[Title/Abstract])) OR (sacroiliac pain dysfunction[Title/Abstract])) OR (SI pain dysfunction[Title/Abstract])) OR (posterior pelvic pain[Title/Abstract])) OR (sacroiliac joint pain[Title/Abstract])) OR (SIJ pain[Title/Abstract])) OR (sacroiliac pain[Title/Abstract])) OR (SI pain[Title/Abstract])) AND (((((((prevalence[Title/Abstract]) OR (epidemiology[Title/Abstract])) OR (incidence[Title/Abstract])) OR (occurance[Title/Abstract])) OR (frequency[Title/Abstract])) OR (proportion[Title/Abstract])) OR (burden[Title/Abstract]))	1726

Selection Process:

The overall selection process was performed by two independent authors at each step. Initially, the screening was performed based on the title of the study, followed by the abstract. Subsequently, full-text articles were retrieved. If any discrepancy occurred between the authors in any of the steps, it was resolved through discussion with the third author. Duplicates were removed using EndNote software. The overall selection process and the number of records are shown in the PRISMA flow chart.

Data Collection Process:

The data were collected by two independent authors, and discrepancies were resolved by discussion with the third author. The data were collected in the form of Author & Year, Country, Sample Size, Population Characteristics, Settings (hospital/community), diagnostic method used, Prevalence, and Key Findings.

Risk of Bias Assessment

The risk of bias in the included studies was assessed by two independent authors; any discrepancies were resolved by discussion with a third author. The Risk of Bias in the studies was assessed using Hoy's Risk of Bias tool, which is a 10-item tool (1-4 on external validity and 5-10 on internal validity). Each item was answered as yes or no. A "yes" indicates a low risk of Bias and No indicates a high risk of bias[11]. The overall risk of bias was interpreted as 0-3: Low risk of bias, 4-6: Moderate risk of bias, and 7-10: High risk of bias[12] (Table 2).

Table 2: Hoy Risk of Bias Tool

Questions	**Yes(LowRisk)**	**No(HighRisk)**
Q1: Was the study's target population a close representation of the national population in relation to relevant variables e.g. age, sex, occupation?		
Q2: Was the sampling frame a true or close representation of the target population?		
Q3: Was some form of random selection used to select the sample, OR, was a census undertaken?		
Q4: Was the likelihood of non-response bias minimal?		
Q5: Were data collected directly from the subjects (as opposed to a proxy)?		
Q6: Was an acceptable case definition used in the study?		
Q7: Was the study instrument that measured the parameters of interest (e.g. prevalence of low back pain) shown to have reliability and validity (if necessary)?		
Q8: Was the safe mode of data collection used for all subjects?		
Q9: Was the length of the shortest prevalence period for the parameter of interest appropriate?		
Q10: Where the numerator (s) and denominator (s) for the parameter of interest appropriate?		

Synthesis Methods:

The results of the included studies were synthesised based on the reported prevalence rates. Further prevalence was compared using subgroup analysis. The results of the study were presented based on the type of population, diagnostic criteria used, region, and setting of the study. A meta-analysis was not conducted in the present review because of the heterogeneity of the diagnostic criteria and study population. However, the findings were synthesised narratively and presented in a tabular format.

Natural Resourcesfor Human Health
eISSN: 2583-1194

RESULTS

Study Selection:

Three databases, PubMed (n=1785), Cochrane Library (n=406), and PEDro (n=1), were used to identify studies on the prevalence of SIJ dysfunction. A total of 2165 articles were identified from these databases after the removal of duplicates, and 1785 articles were screened for their eligibility. Of these, 1654 articles were excluded by reading the title of the study: 1601 were not relevant to the topic, and 53 were reviews. The remaining 131 articles were further screened by reading the abstracts. Of these, 68 articles were excluded because they did not report on the prevalence of SIJ dysfunction. The remaining 63 articles were retrieved for full-text review. Of these, 7 were not full-text articles, and the remaining 56 were read in full. During full-text reading, three articles were retrieved from the references of the full-text articles. Therefore, 59 articles were read in full. Of these, 39 were excluded: 22 did not meet the inclusion and exclusion criteria, one was a study on the prevalence of SIJ dysfunction in osteochondromatosis, seven were studies on post-surgery patients, five were on pregnant women, and four were on low back pain (three studies did not report the prevalence rate, and one study measured the inflammatory changes in the SIJ). The remaining 20 studies were included in this systematic review. The included studies were divided into three subgroups according to population: SIJ prevalence in the low back population (n=11), SIJ prevalence in athletes (n=5), and SIJ prevalence in asymptomatic population (n=4), which included two studies on asymptomatic adults, one on asymptomatic school students, and one on asymptomatic construction workers) (Figure 1).

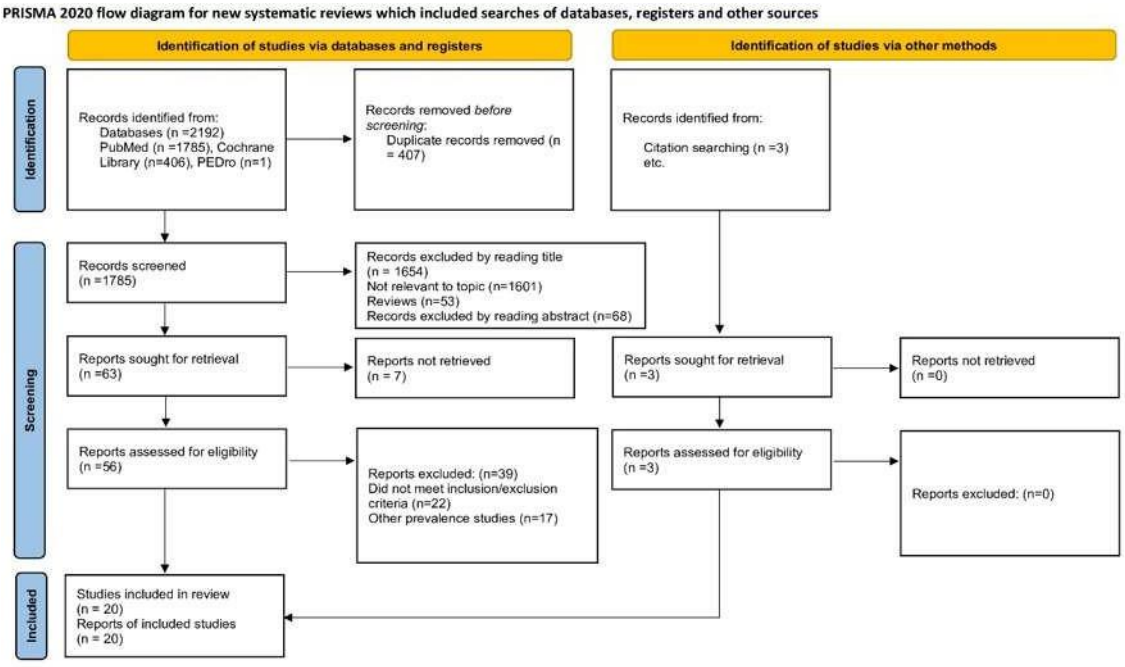


Figure 1: PRISMA Flow Chart on Prevalence of Sacroiliac Joint Dysfunction Among Different Population

Study characteristics:

A total of 20 studies were included in the present review. Of these, 11 studies were on LBP, five on athletes, and four on the asymptomatic population.

Studies on low back pain

A total of 11 studies included the prevalence of SIJD among the LBP population[13-23]. The year of the study ranged from 2023 to 1995. The sample sizes varied from 34 to 700 participants. The participants included in all studies were either LBP or disc herniation cases. Six of the 11 studies used the SIJ provocation test, one used Osteopathic Manipulative Treatment, one used clinical evaluation by diagnostic and physical therapy, three used diagnostic block (two studies used it alone and one used it along with the provocation test), and one used manual medicine examination as a diagnostic method. The overall prevalence

rate varied from 14.5% to 72.3% based on the SIJ provocation test and 2% to 30% based on the diagnostic block. The results of all studies indicated that SIJD is a contributing factor to LBP (Table 3).

Table 3: Study Characteristic of Prevalence of SIJD Among LBP Population

Author & Year	Country	Sample Size	Population Characteristics	Setting	Diagnostic method used	Prevalence/ Incidence rate	Key Findings
Lopes BCP et al., 2023[13]	Brazil	192	Adults with lumbar pain with a mean age of 49.1 year	University pain clinic	SIJ provocation tests (Gaenslen test, Distraction test, Patrick's sign); diagnosis based on ≥3 positive tests further IA sacroiliac block was used to confirm the diagnosis.	The prevalence rate of SIJD is 26% (50/192) based on the SIJ test and there is 82% (41/50) SIJD based on IA sacroiliac block.	The result of the study stated that LBP is caused by SIJD. IA SIJ block and provocation tests are a successful diagnosis and SIJ block also helps the patient in reducing their pain.
Wieczorek A et al., 2021[14]	USA	34	Participants age above 18 year who received OMT for LBP	Clinic	OMT intervention	60.7%	The result of the study stated a strong correlation between LBP and SIJD based on the treatment.
Telli H et al., 2020[15]	Turkey	234	Lumbar disc herniation patients with an age of 20-60 year	Hospital	SIJ provocation tests (Distraction test, Compression test, Gaenslen test, Thigh thrust test, sacral thrust test, FABER test); diagnosis based on ≥3 positive tests.	33.3% (out of which 52.6% is on right side and 47.4% is on left side)	The result of the study stated that there is SIJD present even in diagnosed herniated disc patients. Therefore, this condition should be taken into consideration while planning the

							treatment of lumbar disc herniation.
Illeez OG et al., 2016[16]	Turkey	700	Mechanical LBP patients with an age group of 18-83 years	Hospital	SIJ provocation tests (Gillet test, Standing Flexion test, Distraction test, Gaenslen test, sacral thrust test); diagnosis based on ≥3 positive tests.	15.4%	The result of the study stated that when examining the cause of LBP, SIJD must be taken into consideration.
Madani SP et al., 2013[17]	Iran	202	Lumbar disc herniation patient with an age group of 19-70 year	University hospital	SIJ motion, palpation, provocation tests (Sitting flexion test, standing flexion test, Patrick-FABER test, long sitting test, Gillet test, Sphinx test); diagnosis based on ≥4 anatomical and ≥2 positive provocation tests.	72.3% out of which 55.9% have females. Out of 72.3% (95.2% has L on L SIJD, 2.1% R on L SIJD, 2.7% R on R SIJD)	The result of the study stated that one of the pathological elements that causes LBP is SIJD. Therefore, it should be taken into account when making the clinical decision regardless of disc pathology.
Sembrano JN & Polly DW, 2009[18]	USA	200	LBP patient with an age group of 11-92 year	Hospital	Clinical evaluation by diagnostic and physical therapy	14.5%	The result of the study stated that SIJ pain frequently mistaken as lumbar spine pain.
Weksler N et al., 2007[19]	Israel	200	Lumbar disc herniation patient without claudication and neurological	University Hospital	SIJ provocation tests (Yeoman's test, Gaenslen	25%	The result of the study stated that the provocation test showed

			abnormalities with a mean age group of 49.5 year		test, FABER test, Compression test, Resisted hip abduction test, posterior pelvic pain provocation test (Thigh thrust test); diagnosis based on ≥3 positive tests.		positive results in patients with LBP which indicates SIJ involvement.
Manchikanti L et al., 2001[20]	USA	120	Chronic LBP patient with an age group of 18-90 year	Pain Clinic	Diagnostic Blocks	2%	The result of the study stated that SIJ contributes significantly to chronic LBP.
Galm R et al., 1998[21]	Germany	150	Patient with LBP, sciatica & had lumbar disc herniation with an age range for male (24-70 year), females (18-79 year)	Hospital	SIJ were tested for Hypomobility using Spine test Zones of segmental irritation point Manual medicine examination (movement of sacral bone in cranial, caudal, ventral & dorsal direction)	31%	The result of the study stated that even in patients with radiological disc pathology the SIJ may be a factor causing LBP.
Maigne JY et al., 1996[22]	France	67	Chronic unilateral LBP patient with an age group of 18-75 year	Hospital	Double diagnostic block & SIJ provocation tests (Distraction test, Compression	18.5%	The result of the study stated that provocation test is also useful to diagnose SIJD before

					test, Sacral pressure test, Gaenslen test, Patrick test); diagnosis based on ≥3 positive tests.		confirmed with blocks.
Schwarzer AC et al., 1995[23]	Australia	43	Chronic LBP patient with an age group of 18-80 year	Pain Clinic	Diagnostic SIJ blocks	30%	The result of the study stated that SIJ is a significant pain generator in chronic LBP.

FABER test- Flexion, Abduction and External Rotation Test, IA- Intra-articular, L on L- Left on Left, LBP- Low Back Pain, OMT- Osteopathic Manipulative Treatment, R on L- Right on Left, R on R- Right on Right, SIJ- Sacroiliac Joint, SIJD- Sacroiliac Joint Dysfunction.

Studies on athletes

Five studies reported the prevalence of SIJD among athletes[24-28]. The year of the study varied from 1999 to 2025. The sample sizes varied from 44 to 891 participants. Most studies included male participants. All studies used the SIJ provocation test as a diagnostic tool. The overall prevalence rate varied from 2.5% to 54.1%. The results of all studies indicated that SIJD mainly occurs due to biomechanical default or stress injuries. (Table 4).

Table 4: Study Characteristic of Prevalence of SIJD Among Athletes

Author & Year	**Country**	**Sample Size**	**Population Characteristics**	**Setting**	**Diagnostic method used**	**Prevalence/ Incidence rate**	**Key Findings**
Kirthen H et al., 2025[24]	India	44	Male university level cricket fast bowlers with an age group of 18-26 year	University sports setting	SIJ provocation tests (Standing and sitting flexion test)	15.9% to 22.7%. 15.9% positive in seated flexion test and 22.7% positive in standing flexion test	The result of the study stated that the repetitive bowling load and asymmetrical mechanics increase potential risk of injury and leads to SIJD.
Abdollahi S et al., 2023[25]	Iran	204	Male junior professional basket ball players of Iran league	Sports rehabilitation camp clinics	SIJ provocation tests (Patrick's FABER test, posterior shear test, sacral compression test, Active SLR, and sacral thrust test); diagnosis based	32.8%	The result of the study stated that the SIJD significantly associated with previous lower extremity injuries and altered biomechanics.

					on ≥3 positive tests.		
Kato K et al., 2022[26]	Japan	891	High school male baseball players	Medical checkup camps	SIJ was evalusted based on tenderness over PSIS and SIJ provocation test (Patrick test, Gaenslen test)	2.5%	The result of the study stated that the SIJ was significantly correlated with a restriction in hip internal rotation on the throwing arm side. Also subjects with SIJD had substantially higher rates of prior LBP episodes.
Kunene SH et al., 2018[27]	South Africa	271	Male & Female Golfer player with an age group of 21-55 years	Community sports setting (Golf club)	SIJ provocation tests (Compression test, Distraction test, thigh thrust test, sacral thrust test); diagnosis based on ≥3 positive tests.	23%	The result of the study stated that there was a strong correlation present between mechanical LBP and SIJD. This may occur due to rotational stress during golf swing.
Timm KE et al., 1999[28]	USA	54	Both Male & Female senior national rowing team players	Training centre	SIJ provocation tests (standing flexion test) and palpatory examination of anatomical landmarks.	54.1%. Out of which 66% is sweep rowers and 34% is scullers.	The result of the study stated that repetitive flexion-extension and asymmetrical loading contribute to SIJD in rowers.

FABER test- Flexion, Abduction and External Rotation LBP- Low Back Pain, SIJ- Sacroiliac Joint, SIJD- Sacroiliac Joint Dysfunction, SLR- Straight Leg Raise.

Studies on the asymptomatic population

Four studies reported the prevalence of SIJD among asymptomatic population[29-32]. Of these, two were on asymptomatic adults, one on male students, and one on construction workers. Because there are no symptoms or pathology involved in these latter studies, we included them in the asymptomatic population. The year of the study ranged from 2015 to 1994. The sample sizes varied from 101 to 480 participants. Most studies used the SIJ provocation test as a diagnostic method, except one that used CT imaging as a diagnostic method. The overall prevalence rate varied from 20% to 65.1%. The results of all studies indicate a high prevalence rate of SIJ dysfunction among the asymptomatic population. (Table 5).

Table 5: Study Characteristic of Prevalence of SIJD among Asymptomatic Population

Author & Year	Country	Sample Size	Population Characteristics	Setting	Diagnostic method used	Prevalence/ Incidence rate	Key Findings
Eno JJ et al., 2015[29]	USA	373	Asymptomatic adults with all age group upto 100 years	Hospital	CT imaging	65.1%	The result of the study stated the high prevalence rate of degenerative changes in SIJ and it increases as the age progresses.
Ayanniyi O et al., 2008[30]	Nigeria	Male secondary school students with an age group of 10-15 years	203	Schools	SIJ provocation tests (Standing flexion test, Prone knee bending test, Supine long sitting test, Seated flexion test)	21.7%	The result of the study stated the high prevalence rate of SIJD among male school students.
Toussaint R et al., 1999[31]	Germany	Constructional workers with an age group of 30-40 year	480	Hospital	SIJ provocation tests (Standing flexion test, Spine test, Iliac compression test in supine, Iliac springing test in side lying)	The overall prevalence rate is 43.2% (Out of which 29% has SIJD-I, 6.3% is SIJD-II, and 7.9% is having SIJD along with LBP)	The result of the study stated the prevalence of SIJD in constructional workers.
Dreyfuss P et al., 1994[32]	USA	Asymptomatic adults with an age group of 18-60 year	101	Community	SIJ provocation tests (Gillet test, Standing flexion test, Seated flexion test)	20%	The result of the study stated the prevalence of SIJD on the basis of provocation test not on the basis of radiography.

CT- Computer Tomography, LBP- Low Back Pain, SIJ- Sacroiliac Joint, SIJD- Sacroiliac Joint Dysfunction.

Risk of Bias

Hoy's risk of bias tool was used to assess the risk of bias in the included studies. Of the 11 studies on the prevalence of SIJD among the LBP population, 9 had an overall low risk of bias, and 2 had an overall moderate risk of bias (Table 6). All five studies on the prevalence of SIJD among athletes had an overall low risk of bias (Table 7). Of the four studies on the prevalence of SIJD among asymptomatic populations, all had an overall low risk of bias(Table 8). The common questions with a high risk of bias were Q1, Q2, Q3, and Q9. Q1 concerns target population representation. The reason for the studies marked "No" is that the age of the population is not clearly mentioned. Q2 is regarding the sampling frame. The studies in which "NO" was stated were because the data were not taken from the overall population. Q3 is regarding the random selection of the sample. The reason behind This is because there is no clarity in the study regarding how the sample was taken. Q9 is about the length of the prevalence period. It is marked "NO" in some studies, as they did not mention a clear time frame for the prevalence.

Table 6: *Hoy Risk of Bias Tool for Prevalence Studies on SIJD Among LBP Population*

Author, Year	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Overall Risk**
Lopes BCP et al., 2023[13]	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Low
Wieczorek A et al., 2021[14]	N	N	N	Y	Y	N	Y	Y	Y	Y	Moderate
Telli H et al., 2020[15]	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Low
Illeez OG et al., 2016[16]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low
Madani SP et al., 2013[17]	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Low
Sembrano JN & Polly DW, 2009[18]	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Low
Weksler N et al., 2007[19]	N	N	N	Y	Y	Y	Y	Y	N	N	Moderate
Manchikanti L et al., 2001[20]	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Low
Galm R et al., 1998[21]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low
Maigne JY et al., 1996[22]	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Low
Schwarzer AC et al., 1995[23]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Table 7: Hoy Risk of Bias Tool for Prevalence Studies on SIJD Among Athletes

Author, Year	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Overall Risk
Kirthen H et al., 2025[24]	N	N	N	Y	Y	Y	Y	Y	Y	Y	Low
Abdollahi S et al., 2023[25]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low
Kato K et al., 2022[26]	N	Y	N	Y	Y	N	Y	Y	Y	Y	Low
Kunene SH et al., 2018[27]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low
Timm KE et al., 1999[28]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low

Table 8: Hoy Risk of Bias Tool for Prevalence Studies on SIJD Among Asymptomatic Population

Author, Year	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Overall Risk
Eno JJ et al., 2015[29]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Ayanniyi O et al., 2008[30]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low
Toussaint R et al., 1999[31]	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Low
Dreyfuss P et al., 1994[32]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Low

DISCUSSION

The present systematic review aimed to determine the prevalence of SIJD in various populations. The results of our study indicate that SIJD is a relatively common condition that affects all types of populations, from asymptomatic participants to participants with some kind of pathology, such as LBP or biomechanical defaults, as in the case of athletes. The prevalence rate of sacroiliac joint dysfunction among the low back pain population varies from 14.5% to 72.3% when assessed on the basis of pain provocation test; however, when using confirmatory blocks, its prevalence rate reduces. The prevalence rate of SIJD is 2% to 30% based on the diagnostic block. The results of our review are also in line with those of Cohen et al. The author also stated that the prevalence rate was reduced when confirmatory blocks were used. The overall prevalence rate of SIJD was 15-30% among the chronic low back population[33]. However, a significant difference was observed in the maximum range. The reason behind this may be that the previous review was done in 2013, and we included the studies up to 2023, which again shows that the prevalence rate of SIJD increases as the year progresses, and the studies had been done in different settings. Regarding the prevalence rate of SIJD among athletes, our study reported a prevalence rate of 2.5% to 54.3%, which occurs mainly due to biomechanical default or stress injury. The results of our review are also in line with those of Mirdamadi et al. The author also stated that the risk factors for SIJD are stress injuries and biomechanical movements. He reported an overall prevalence rate of 10.72%[34].

Based on the studies included in this review, SIJD not only occurs in the LBP population or in populations with previous injuries, as in the case of athletes. It also affected the population who do not have any symptoms. We found a prevalence rate of 20% to 65.1% among the asymptomatic population. The reason behind This may be because some biomechanical alterations may occur without sufficient nociceptive input to initiate pain. Furthermore, as discussed in previous studies, the pain provocation test might not have the best specificity, which may produce false-positive results[32]. These results could potentially be explained by the normal anatomical and biomechanical variability of the sacroiliac joint. Additionally, despite an underlying malfunction, good neuromuscular adaptations and compensatory mechanisms may limit symptom onset. When taken as a whole, these factors demonstrate how difficult it is to diagnose SIJD; therefore, caution must be exercised when interpreting the results, especially in the asymptomatic population.

The overall prevalence rate varies from 2.0% to 72.3% across different population groups. The reason behind the huge difference between the minimum and maximum range may be that the studies were conducted on different populations and settings, and most importantly, there is heterogeneity in the diagnostic criteria. Some studies used diagnostic blockade, while others used the SIJ provocation test. In addition, there was heterogeneity in the type of SIJ provocation test chosen for the diagnosis of SIJD among the included studies. However, some studies used both diagnostic blockade and the SIJ provocation test, and some used clinical tests.

According to previous studies, diagnostic blockade is the gold standard and an accurate confirmatory test for assessing SIJD[35]. Furthermore, the International Association for the Study of Pain (IASP) criteria state that an intra-articular local anaesthetic block is necessary to confirm SIJD[36].

In most of the diagnostic studies, the participants were first assessed based on the SIJ provocation test, and then diagnostic blockade was applied to confirm the diagnosis, and in most of the studies, the prevalence rate was almost similar[37] which may indicate that SIJ pain provocation tests are reliable, non-invasive, and cost-effective tools to assess the prevalence of SIJD among all types of populations. However, there is a possibility of false-positive results may be presented.

Clinical implication

Overall, the findings of our review highlight the importance of evaluating SIJD during the clinical assessment of all types of populations so that early identification can be performed to improve treatment planning and patient outcomes. Furthermore, we highlighted the need for provocation tests in addition to the existing confirmatory tool, such as anaesthetic blockade, for the initial screening of participants.

LIMITATION

Despite these results, this review has a few limitations.

A few studies have reported on the prevalence of SIJD among athletes and asymptomatic populations.

A meta-analysis was not performed due to the heterogeneity of the data, which may have enhanced the results of the study.

There was heterogeneity in the study population and the diagnostic criteria used to assess the prevalence rate.

Future study

High-quality studies on the prevalence rate of SIJD, especially those using standardised diagnostic criteria, are needed.

CONCLUSION

The SIJ is a significant cause of pain in all age groups, from adolescents to older adults. The prevalence rate of SIJD is significantly high, especially in the low back pain population, which indicates that SIJD may be a significant contributing factor for LBP.

Acknowledgement: None

Funding: None

Disclosure of Interest: The authors report there are no competing interests to declare.

REFERENCES

[1] Park JH, Moon JH, Kim HJ et al. Sedentary Lifestyle: Overview of Updated Evidence on Potential Health Risks. Korean J Fam Med. 2020 Nov;41(6):365-373. doi: 10.4082/kjfm.20.0165. Epub 2020 Nov 19. PMID: 33242381; PMCID: PMC7700832.

[2] da Costa L, Lemes IR, Tebar WR et al. Sedentary behavior is associated with musculoskeletal pain in adolescents: A cross sectional study. Braz J Phys Ther. 2022 Sep-Oct;26(5):100452. doi: 10.1016/j.bjpt.2022.100452. Epub 2022 Oct 13. PMID: 36257097; PMCID: PMC9579307.

[3] Wu A, March L, Zheng X 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 Mar;8(6):299. doi: 10.21037/atm.2020.02.175. PMID: 32355743; PMCID: PMC7186678.

[4] Chen S, Chen M, Wu X et al. Global, regional and national burden of low back pain 1990-2019: A systematic analysis of the Global Burden of Disease study 2019. J Orthop Translat. 2021 Sep 10;32:49-58. doi: 10.1016/j.jot.2021.07.005. PMID: 34934626; PMCID: PMC8639804.

[5] GBD 2021 Low Back Pain Collaborators. Global, regional, and national burden of low back pain, 1990-2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. Lancet Rheumatol. 2023 May 22;5(6):e316-e329. doi: 10.1016/S2665-9913(23)00098-X. PMID: 37273833; PMCID: PMC10234592.

[6] Barros G, McGrath L, Gelfenbeyn M. Sacroiliac Joint Dysfunction in Patients With Low Back Pain. Fed Pract. 2019 Aug;36(8):370-375. PMID: 31456628; PMCID: PMC6707638.

[7] Cappaert TA. The Sacroiliac Joint as a Factor in Low Back Pain: A Review. J Sport Rehabil.2000;9:169-183.

[8] Weksler N, Velan GJ, Semionov M et al. The role of sacroiliac joint dysfunction in the genesis of low back pain: the obvious is not always right. Arch Orthop Trauma Surg. 2007;127:885-888.

[9] Newman DP, Soto AT. Sacroiliac Joint Dysfunction: Diagnosis and Treatment. Am Fam Physician. 2022 Mar 1;105(3):239-245. PMID: 35289578.

[10] Page MJ, McKenzie JE, Bossuyt PM et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021 Mar 29;372:n71. doi: 10.1136/bmj.n71. PMID: 33782057; PMCID: PMC8005924.

[11] Hoy D, Brooks P, Woolf A et al. Assessing risk of bias in prevalence studies: modification of an existing tool and evidence of interrater agreement. J Clin Epidemiol. 2012 Sep;65(9):934-9. doi: 10.1016/j.jclinepi.2011.11.014. Epub 2012 Jun 27. PMID: 22742910.

[12] Aldera MA, Alexander CM, McGregor AH. Prevalence and Incidence of Low Back Pain in the Kingdom of Saudi Arabia: A Systematic Review. J Epidemiol Glob Health. 2020 Dec;10(4):269-275. doi: 10.2991/jegh.k.200417.001. Epub 2020 Apr 24. PMID: 32959606; PMCID: PMC7758856.

[13] Lopes BCP, Rocha-Lauretti G, Defino HLA et al. Sacroiliac joint dysfunction and lumbar pain. Evaluation in a Brazilian population. Acta Ortop Mex. 2023 Jul-Aug;37(4):227-323. English. PMID: 38373733.

[14] Wieczorek A, Campau E, Pionk E et al. A Closer Look into the Association between the Sacroiliac Joint and Low Back Pain. Spartan Med Res J. 2021 Apr 13;6(1):21971. doi: 10.51894/001c.21971. PMID: 33870003; PMCID: PMC8043903.

[15] 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 (Phila Pa 1976). 2020 Apr 15;45(8):549-554. doi: 10.1097/BRS.0000000000003309. PMID: 31842104; PMCID: PMC7208275.

[16] Illeez OG, Atıcı A, Ulger EB et al. The transitional vertebra and sacroiliac joint dysfunction association. Eur Spine J. 2018 Jan;27(1):187-193. doi: 10.1007/s00586-016-4879-4. Epub 2016 Nov 18. PMID: 27864680.

[17] Madani SP, Dadian M, Firouznia K et al. Sacroiliac joint dysfunction in patients with herniated lumbar disc: a cross-sectional study. J Back Musculoskelet Rehabil. 2013;26(3):273-8. doi: 10.3233/BMR-130376. PMID: 23893142.

[18] Sembrano JN, Polly DW Jr. How often is low back pain not coming from the back? Spine (Phila Pa 1976). 2009 Jan 1;34(1):E27-32. doi: 10.1097/BRS.0b013e31818b8882. PMID: 19127145.

[19] Weksler N, Velan GJ, Semionov M et al. The role of sacroiliac joint dysfunction in the genesis of low back pain: the obvious is not always right. Arch Orthop Trauma Surg. 2007 Dec;127(10):885-8. doi: 10.1007/s00402-007-0420-x. Epub 2007 Sep 8. PMID: 17828413.

[20] Manchikanti L, Singh V, Pampati V et al. Evaluation of the relative contributions of various structures in chronic low back pain. Pain Physician. 2001 Oct;4(4):308-16. Erratum in: Pain Physician. 2002 Jan;5(1):114. PMID: 16902676.
[21] Galm R, Fröhling M, Rittmeister M et al. Sacroiliac joint dysfunction in patients with imaging-proven lumbar disc herniation. Eur Spine J. 1998;7(6):450-3. doi: 10.1007/s005860050107. PMID: 9883953; PMCID: PMC3611293.
[22] Maigne JY, Aivaliklis A, Pfefer F. Results of sacroiliac joint double block and value of sacroiliac pain provocation tests in 54 patients with low back pain. Spine (Phila Pa 1976). 1996 Aug 15;21(16):1889-92. doi: 10.1097/00007632-199608150-00012. PMID: 8875721.
[23] Schwarzer AC, Aprill CN, Bogduk N. The sacroiliac joint in chronic low back pain. Spine (Phila Pa 1976). 1995 Jan 1;20(1):31-7. doi: 10.1097/00007632-199501000-00007. PMID: 7709277.
[24] Kirthen H, Sudha G, Raman SA et al. Musculoskeletal Screening of the Lumbopelvic Complex Among Male University-Level Fast Bowlers: A Cross-Sectional Study. Cureus. 2025 Jun 7;17(6):e85514. doi: 10.7759/cureus.85514. PMID: 40625509; PMCID: PMC12233110.
[25] Abdollahi S, Sheikhhoseini R, Rahimi M et al. The sacroiliac dysfunction and pain is associated with history of lower extremity sport related injuries. BMC Sports Sci Med Rehabil. 2023 Mar 20;15(1):36. doi: 10.1186/s13102-023-00648-w. PMID: 36941717; PMCID: PMC10029172.
[26] Kato K, Otoshi KI, Tominaga R et al. The prevalence and clinical characteristics of sacroiliac joint dysfunction in adolescent baseball players. J Orthop Sci. 2022 Mar;27(2):335-341. doi: 10.1016/j.jos.2021.01.011. Epub 2021 Mar 7. PMID: 33750607.
[27] Kunene SH, Luthuli H, Nkosi M et al. Mechanical lower back pain and sacroiliac joint dysfunction in golfers at two golf clubs in Durban, South Africa. S Afr J Physiother. 2018 Mar 28;74(1):402. doi: 10.4102/sajp.v74i1.402. PMID: 30135917; PMCID: PMC6093125.
[28] Timm KE. Sacroiliac joint dysfunction in elite rowers. J Orthop Sports Phys Ther. 1999 May;29(5):288-93. doi: 10.2519/jospt.1999.29.5.288. PMID: 10342566.
[29] Eno JJ, Boone CR, Bellino MJ et al. The prevalence of sacroiliac joint degeneration in asymptomatic adults. J Bone Joint Surg Am. 2015 Jun 3;97(11):932-6. doi: 10.2106/JBJS.N.01101. PMID: 26041855.
[30] Ayanniyi O, Raji FS, Adegoke BO. Prevalence of asymptomatic sacroiliac joint dysfunction and its association with leg length discrepancies in male students in selected junior secondary schools in Ibadan. Afr J Med Med Sci. 2008 Mar;37(1):37-42. PMID: 18756853.
[31] Toussaint R, Gawlik CS, Rehder U et al. Sacroiliac dysfunction in construction workers. J Manipulative Physiol Ther. 1999 Mar-Apr;22(3):134-8. doi: 10.1016/S0161-4754(99)70125-9. PMID: 10220710.
[32] Dreyfuss P, Dryer S, Griffin J et al. Positive sacroiliac screening tests in asymptomatic adults. Spine (Phila Pa 1976). 1994 May 15;19(10):1138-43. doi: 10.1097/00007632-199405001-00007. PMID: 8059269.
[33] Cohen SP, Chen Y, Neufeld NJ. Sacroiliac joint pain: a comprehensive review of epidemiology, diagnosis and treatment. Expert Rev Neurother. 2013 Jan;13(1):99-116. doi: 10.1586/ern.12.148. PMID: 23253394.
[34] Mirdamadi N, Khadembashiri MM, Moghadam N et al. Prevalence and Risk Factors of Sacroiliac Joint Pain in Athletes: A Systematic Review and Proportional Meta-Analysis. Clin J Sport Med. 2025 Mar 26;35(4):514-525. doi: 10.1097/JSM.0000000000001341. PMID: 40135982.
[35] Buchanan P, Vodapally S, Lee DW et al. Successful Diagnosis of Sacroiliac Joint Dysfunction. J Pain Res. 2021 Oct 8;14:3135-3143. doi: 10.2147/JPR.S327351. PMID: 34675642; PMCID: PMC8517984.
[36] Szadek KM, van der Wurff P, van Tulder MW et al. Diagnostic validity of criteria for sacroiliac joint pain: a systematic review. J Pain. 2009 Apr;10(4):354-68. doi: 10.1016/j.jpain.2008.09.014. Epub 2008 Dec 19. PMID: 19101212.
[37] Nejati P, Sartaj E, Imani F et al. Accuracy of the Diagnostic Tests of Sacroiliac Joint Dysfunction. J Chiropr Med. 2020 Mar;19(1):28-37. doi: 10.1016/j.jcm.2019.12.002. Epub 2020 Sep 12. PMID: 33192189; PMCID: PMC7646135.