PREVALENCE OF SACROILIAC JOINT DYSFUNCTION AMONG ADULT FEMALES – A CROSS SECTIONAL STUDY

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***Abstract* :**SI joint dysfunction is the putative source of lower back pain, many times presented with radicular symptoms and miss-lead as the lumbar problem. Numerous medical researches have assessed the prevalence of sacroiliac joint dysfunction in the general population, which is between 19.3% and 47.9% among individuals with low back pain. Women are more likely to experience it.due to the load-bearing surfaces in the SI joint, the consequences of pregnancy, a sedentary lifestyle, or prolonged standing with the sacrum more horizontal.

Objective :The purpose of this study is to estimate the prevalence of sacroiliac joint dysfunction in the adult female population.

Methodology :A cross sectional study was conducted on 372 adult female participants taken from general population and divided into young adult (ages 18–35 years) and middle-aged adult females (ages 36–55 years).Females who meet the inclusion and exclusion criteria where selected using non-probability sampling technique . Five pain provocation tests were used for evaluation: the SI distraction test, the SI compression test, the thigh thurst test, the Faber test, and the Gensler test. The assumption made was that the presence of discomfort in more than three tests implies involvement of the sacroiliac joint. The gathered information was filled out and examined.

Results :The study result showed that out of 372 adult females 100 (11.02%) were positive to sacroiliac joint pain. The dysfunction was more common in middle-aged adult females that were 18.4% out of 125 participants.

Conclusion: It was concluded that the prevalence of sacroiliac joint dysfunction among adult females is 11.02 % and it was significantly more common among middle aged adult females.

Index Terms- *Sacroiliac Joint, Sacroiliac joint dysfunction, Pain Provocation Test, Prevalence.*

I. INTRODUCTION

The sacroiliac joint (SIJ) is a putative source of low back pain.[1] The sacroiliac joint (SIJ) is one of the most commonly misdiagnosed causes of low back pain (LBP) because of its complexity and the possibility that presumptive radicular pain syndromes are related to the SIJ.[2]

Iliosacraljoint dysfunction as a state of altered mechanics, characterized by an increase or decrease from the expected normal or by the presence of an aberrant motion.[44]SIJ injury mechanisms may result from both intra- and extra-articular etiologies, such as capsular disruption, ligamentous stress, muscle inflammation, shearing, fractures, arthritis, and infection. Patients may experience SIJ discomfort on a random basis, following a traumatic incident, or as a result of repeated shear. SIJ dysfunction can be brought on by previous lumbar fusion, scoliosis, leg length disparities, sustained athletic activity, pregnancy, seronegative HLA-B27 spondyloarthropathies, or aberrant gait patterns.[7]

Given the overall number of patients who come with LBP each year, the prevalence of SIJ dysfunction among patients with LBP is predicted to range from 15% to 30%.[8]Women seem to be more likely than men to experience sacroiliac joint dysfunction.[9]so the objective of this study is to find out how common sacroiliac joint dysfunction is in the community of adult females with age 18 – 55(early and middle adulthood) [9]

The gold standard method to diagnose SIJD is the anesthetic block under fluoroscopic monitoring.[33]But we can also usePPT to diagnose.Cluster of the tests that provoke pain in the SIJ offer diagnostic test accuracy for SIJ discomfort. A positive test result provides a 35% assurance that the SIJ was accurately identified as the source of pain, assuming a 20% prevalence of SIJ pain. When using clusters of pain provocation tests, clinicians can rule out the SIJ as the cause of pain with greater certainty than they can rule in the SIJ as the source of pain (i.e., the clinician has 92% assurance that a negative test result is true).Improved

diagnosis results in better therapies since it enabled them distinguish between back pains caused by SIJ dysfunction and rule it out. Also .Lower the risk factors for this pathology and the secondary MSK issues and prevent SIJ dysfunction by changing their lifestyle and posture.

II. METHODOLOGY

Descriptive cross sectional study was completed in 4 months after approval of synopsis. Data of 372 adult females were collected from general population in District health Quarter Hospital ,THQ and rehab physio clinics settings. Potentially willing participants were selected according to the inclusion and exclusion criteria. Females aged between 18 - 55 years(middle and later adulthood) were included in this study by using non probability convenient sampling technique and were divided in two groups 19-35 years (early adulthood) and 36-55(middle adults) for comparison. Patients with reported lumbar pain due to any systemic/infectious disease ,congenital deformities [sacral agenesis , AS] [11],recent lumber / hip surgery (6 weeks) , lumbar/ pelvic fractures ,ongoing malignancy ,mental illness , or females with severe and progressive neurological deficit diagnosed with lumber disc pathology or recent road traffic accident were excluded from study. Consent was taken and details about pain provocation tests was explained to participants prior to performance and necessary demographic information such as age , name , and health status was taken. Five (PPT) pain provocational test including Sacroiliac distraction test , Gensler's Test, Compression test , Thigh thrust test and Faber's test (kappa coefficient of 0.78 and a PABAK coefficient of 0.92)with"Sensitivity and specificity for three or more positive SIJ tests were 94% and 78%".[43]All test were done by an expert physiotherapist experienced in musculoskeletal physiotherapy. To all the participants, thank you card was given on the completion of assessment. Data was filled and taken for the analysis.

III. RESULTS

Demographic characteristics of participants are mentioned in table no1 in which mean age is 31.11 and mean BMI is 24.5.

Table no-1 Statistical values of Demographic data

Statistics	
Variable	Mean ±S.D
Age of participants in year	31.11±11.77
BMI(Kg/m2)	24.50±3.25

BMI = Body mass index S.D = Standard deviation

Table – 2 shows the frequency percentages of different varriables. Age of participants has been divided into two groups. According to our data participants belonging to group one 19 – 35 (Early Adulthood) have greatest number of participants 247 (61.6%) while group two 35-55 (Middle Adulthood) had 125 (33.6%).Health status is divided into four categories, 2nd group had most of frequency 248(66.7%) following third group of overweight 86(23.1%) then obese having frequency 28(7.5%) and underweight having least 10(2.7%).

The most frequent positive test in the study was faber test with n% 213(42.7%), on second Genslers test 73(19.6%) then distraction test 41(11) then compression test 40(10.8%). Three positive tests results in Prevalence of sacroiliac joint dysfuntion with frequency of 100.

Table no-2 Frequency Percentage Table

		n(%)
Age group of participants	19-35 (Early Adulthood)	247(61.60)
	35-55 (Middle Adulthood)	125(33.6)
Health status	< 18.5 (underweight)	10(2.7)
	18.5 - 24.9 (normal)	248(66.7)
	25 - 29.9 (overweight)	86(23.1)
	>30 (obese)	28(7.5)
Distraction test	Absent	331(89)
	Present	41(11)
Compression test	Absent	332(89.2)
	Present	40(10.8)
Thigh thurst test	Absent	335(90.1)
	Present	37(9.9)
Faber test	Absent	213(57.3)
	Present	213(42.7)
Genslers test	Absent	299(80.4)
	Present	73(19.6)
Prevalence of SIJD	Absent	331(89)
	Present	41(11)
Total		100

Table -3 shows different frequency percentages of variable while comparing two age groups.in this study .Early adults were mostly single with n% 227(91.9%) and middle adults were mostly married with frequency 123(98.4%).Faber test is present in majority of middle aged females with percentage 57.6% and in early adults 35.2%. Hence sacroiliac joint dysfunction is more prevalent among middle adulthoods with 18.4%.

Table – 3 Frequency Variables by Age Group

	Age group of participants		n(%)
Occupation	19-35 (Early Adulthood)	Student	227(91.9)
		Job holder	13(5.3)
		Housewife	4(1.6)
		Other	3(1.2)
	35-55 (Middle Adulthood)	Job holder	34(27.2)
		Housewife	77(61.6)
		Other	14(11.2)
Marital status	19-35 (Early Adulthood)	Single	227(91.9)
		Maried	20(8.1)
	35-55 (Middle Adulthood)	Single	2(1.6)
		Maried	123(98.4)
Distraction test	19-35 (Early Adulthood)	Absent	228(92.3)
		Present	19(7.7)
	35-55 (Middle Adulthood)	Absent	102(81.6)
		Present	23(18.4)
Compression test	19-35 (Early Adulthood)	Absent	228(92.3)
		Present	23(84)
	35-55 (Middle Adulthood)	Absent	104 (83.2)
		Present	21(16.8)
Thigh thurst test	19-35 (Early Adulthood)	Absent	224(90.7)
		Present	23(9.3)
	35-55 (Middle Adulthood)	Absent	111(88.8)
		Present	14(11.2)
Faber test	19-35 (Early Adulthood)	Absent	160(64.8)
		Present	87(35.2)
	35-55 (Middle Adulthood)	Absent	87(42.4)
		Present	72(57.6)
Genslers test	19-35 (Early Adulthood)	Absent	215(87)
		Present	32(13)
	35-55 (Middle Adulthood)	Absent	84(67.2)
		Present	41(32.8)
Prevalence of sacroiliac joint dysfuntion	19-35 (Early Adulthood)	Absent	228(92.3)
		Present	19(7.7)
	35-55 (Middle Adulthood)	Absent	102(81.6)
		Present	23(18.4)

IV. DISCUSSION :

SIJ pain is one of the most common etiologies of low back pain encountered in daily practice The main aim of this study was to find out how common sacroiliac joint dysfunction is in adult females. 66.4 percent of participants being between the ages of 19-35 years (early adulthood) and 33.6% being between the ages of 33-55 years (middle adulthood).Out of 372 adult females 100 (11.02%)were positive to dysfunction of sacroiliac joint and its more common in middle-aged adult ladies that was 18.4% out of 125 participants. The most frequent positive test in the study was Faber test with n% 213(42.7%).

In another study conducted in year 2020 by researchers from the European University of Lefke ,Turkey, prevalence of SIJD was 33.3%.[13] In 2021 using the Nordic musculoskeletal questionnaire and provocation tests revealed that 61% of people in the chosen demographic had musculoskeletal issues. About 30% of those with low back discomfort reported sacroiliac joint problems.[11] andaccording to a study done on females with LBP , 78(46.71) of the 167 females reported having sacroiliac pain. Married women(58.68) had a advanced frequency of the complaint.[14]Using pain provocation tests(PPT) in 2018 the frequency of sacroiliac joint dysfunction in 136 cases with LBP had a BMI of 23.35 –2.9 kg/ m2 was reported to be 40. The FABER and thrust tests were the most common, while the distraction test was the least common.[10]

In Iran, the sacroiliac joint(SIJ) block will no longer be considered the gold-standard evaluation fashion for cases with sacroiliac joint dysfunction in 2020. The FABER and thigh thrust test had the top most overall individual enhancement to diagnose SIJD.[26] Another study showed the long- sitting test's implicit operation as a measure of iliosacral dysfunction.[28]In sample of physically fit council scholars, sacroiliac joint dysfunction, was set up to do in 19.3 of cases. The dysfunction and LB pain weren't set up to be significantly identified in this study.

The International Association for the Study of Pain's concluded that the contraction test, the thrust test, and three or further positive stressing tests have been shown to have discriminational eventuality for relating SI common pain, according to a meta-analysis.[32] For iliosacral Joint Pain 18 possible pain- referral zones were developed and there's no suggestion that the buttock and lumbar region are the only locales where the sacroiliac joint can relate pain. The complicated innervation of the joint, sclerotomal pain referral, vexation of near structures, and colorful locales of sacroiliac common damage are only a many causes of the different patterns of pain referral that have been reported.[34]

RECOMMENDATION(S) :

- Future research needs to be done on risk factors of developing sacroiliac joint dysfunction.
- Awareness studies about the right ergonomic factors.
- Further research can be done on male factory workers.
- Use probability sampling and pool.
- Further do trail study for different treatment protocols.

LIMITATION(S) :

- Risk factors are not considered in this study.
- Sample size was excessively large, which results in lot of problems.
- Use of 5 pain provocational test rather than gold standard nerve block anesthetic shot because of expenses.

V. CONCLUSION

It was concluded that the prevalence of sacroiliac joint dysfunction among adult females is 11.02 % and it was significantly more common among middle aged adult females.

Conflict of Interest
There was no conflict of interest.

Financial Statement
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Data availability
Data will be provided on the demand by corresponding author.

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