

PREVALENCE OF SCIATICA AMONGST PREGNANT WOMEN IN ABBOTTABAD: A CROSS-SECTIONAL STUDY

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ABSTRACT

Aim: Sciatica is a common peripheral neuropathy affecting pregnant women worldwide, characterized by pain, tingling, or numbness radiating down the leg due to sciatic nerve compression. Limited evidence exists regarding sciatica prevalence among pregnant women in Abbottabad. This study aimed to determine the prevalence of sciatica among pregnant women in Abbottabad.

Methodology: A descriptive cross-sectional study was conducted at Ayub Medical Complex and Safe Maternity Home Abbottabad over six months. A total of 384 pregnant women in their second and third trimesters, aged 18-45 years, were recruited using convenience sampling. Data were collected using the Sciatica Bothersomeness Index Questionnaire and analyzed using SPSS version 22. Women with diabetes, psychological disorders, or previous lumbosacral fracture/surgery were excluded.

Results: Among 384 pregnant women surveyed, 112 (29.1%) had sciatica symptoms. The condition was more prevalent in the third trimester with 92 women (82.1%) compared to 20 women (17.9%) in the second trimester. Leg pain was reported by 120 participants (31.2%), numbness or tingling by 120 (31.2%), weakness by 121 (31.4%), and pain while sitting by 123 (32.2%). The mean age of participants was 28.8 ± 5.28 years.

Limitations and Future Implications: The study was limited to two healthcare facilities in Abbottabad with a cross-sectional design preventing causal relationships establishment. Future longitudinal studies should explore risk factors and long-term outcomes of pregnancy-related sciatica.

Originality: This is the first comprehensive study documenting sciatica prevalence specifically among pregnant women in Abbottabad, providing baseline data for healthcare planning and intervention strategies in the region.

Keywords Sciatica, Pregnancy, Peripheral Nervous System Diseases, Prevalence, Cross-Sectional Studies, Pregnancy Trimesters, Pakistan, Women's Health

INTRODUCTION:

The sacral plexus's nerve roots L4, L5, S1, 2 and 3 are the origins of the sciatic nerve. The tibial nerve and the common peroneal nerve, which go down to the legs and feet, contain two branches that deliver motor function to the hamstrings, lower limb adductors, calf muscles, anterior lower leg muscles, and some foot muscles. Sciatica is a

neurological disorder commonly referred to as lumbar radicular pain that is characterized by pain, tingling, or numbness that travels down the leg and is caused by direct compression or irritation of the sciatic nerve, its nerve roots, or its branches(1). Nerve conduction studies (NCS) and magnetic resonance imaging (MRI), which are more frequently performed in cases of disc-related

sciatica, are radiological tests that are used to confirm the diagnosis when necessary(2). The prevalence of sciatica varies across different populations and regions. The lifetime prevalence of sciatica is estimated to be between 10% and 40% of the general population based on the data currently available. Both men and women can get sciatica, and as people age, their chance of getting it tends to rise(3, 4). Although becoming pregnant is a life-changing and miraculous experience, it comes with some difficulties along the way. One common peripheral neuropathy that can negatively affect a woman's quality of life during this critical time is sciatica, which may impair her mobility, sleep, and general well-being(5). Due to body weight increases by more than ten kilograms during pregnancy, the pelvis's function becomes even more crucial. The uterine enlargement is the main cause of sciatica. The leg experiences tingling, numbness, and pain when the sciatic nerve is compressed. Because the sciatic nerve gets stuck between the fetal head and pelvic brim, sciatica typically develops late in pregnancy.(6) Lying supinely is a relieving factor because it relieves pressure on the sciatic nerve. Sciatic neuropathy affects 9.3% of the population in Pakistan; females are more likely to have it at 52.2%(7) and 41% of pregnant women experience symptoms of the condition (8).

Etiology:

Herniated disks: A herniated disk is a condition where the soft disc that acts as a cushion between the vertebrae in the spine bulges or ruptures(9).

Degenerative disk disease: The spine naturally wear and tear over time. It usually involves the intervertebral discs gradually breaking down, drying out, or shrinking as we years of age. (10)

Foraminal stenosis: The narrowing of the neural foramen, which are tiny apertures on each side of the vertebrae through which nerve roots leave the spinal canal, is known as foraminal stenosis. These openings can compress the nerve roots exiting, resulting in pain, numbness, or weakness in the areas those nerves supply when they narrow due to conditions like bone spurs or herniated discs.(11)

Spondylolisthesis: A disorder called spondylolisthesis can be defined by the forward

displacement of one vertebra over another, usually in the lumbar spine, or lower back. It may arise from degenerative changes or from a flaw or fracture in the spine's bony architecture. Depending on the degree and site of the slippage, spondylolisthesis can result in pain, stiffness in the muscles, and symptoms of nerve compression(12)

Osteoarthritis: Degenerative joint disease, another name for osteoarthritis, is the most prevalent type of arthritis. It happens when the cartilage that covers the ends of bones gradually deteriorates, causing stiffness, pain, and decreased mobility in the joints. Osteoarthritis can cause back pain, restricted spinal movement, and the formation of bone spurs in the spine, among other joints in the body(13)

Damages: Physical harm or damage resulting from mishaps, trauma, or undue physical strain on the body is referred to as an injury. Fractures, sprains, strains, dislocations, and other traumatic events that impact the spine's muscles, ligaments, nerves, or bones can all be considered injuries to the spine. Whiplash, spinal cord injuries, and vertebral fractures are common example of osteoarthritis(14).

Pregnancy: The time a woman carries a developing fetus in her uterus is referred to as pregnancy. A woman's body experiences numerous hormonal and physical changes during pregnancy, which may have an impact on the spine.(15)

Tumors, cysts, or other growths: Spinal tumors, cysts, and other growths can be malignant (cancerous) or benign (non-cancerous). The soft tissues of the spine, the spinal cord, nerve roots, or bones can all be the source of these aberrant growths.(16)

Conus medullaris syndrome: A disorder known as conus medullaris syndrome is defined by injury or compression of the conus medullaris, the lowest segment of the spinal cord. It can arise from a number of conditions, including inflammation, tumors, and trauma.(17)

Caudaequina syndrome: Compression of the nerve roots of the caudaequina, a bundle of

nerves at the base of the spinal cord, can result in the uncommon but dangerous ailment known as cauda equina syndrome. Tumors, spinal stenosis, and herniated discs are some of the conditions that can cause it. (18)

Risk Factor:

The longest nerve in the human body, the sciatic nerve, is the source of pain that radiates along its course in sciatica. Although the precise cause of sciatica can differ from person to person, there are a number of risk factors that can raise the chance of getting the illness(19). Here is some common risk factors associated with sciatica.

Age: The risk of getting sciatica rises with age. This is due to the fact that age-related changes like spinal stenosis and degenerative disc disease may compress or irritate the sciatic nerve.(20)

Herniated Disc: A spinal disc that has had its soft inner core push out through a weak spot in the outer layer is called a herniated or slipped disc. Sciatica symptoms can arise from compression of the sciatic nerve by a herniated disc(21).

Obesity: Obesity and being overweight place too much strain on the spine and can aggravate sciatica. The extra weight may put more strain on the intervertebral discs and cause compression of the nerves.(22)

Sedentary Lifestyle: Prolonged sitting and inactivity may reduce the strength of the muscles supporting the spine. (23)

Inadequate support and stability from weak muscles can result in ailments like sciatica(24)

Occupation: Sciatica risk may increase in certain occupations involving extended periods of sitting, heavy lifting, or twisting motions. Work jobs requiring a lot of repetitive motion or strain can aggravate nerve and spinal disc problems.(25)

Diabetes: Diabetic neuropathy, a condition characterized by nerve damage, is more common in people with diabetes. The sciatic nerve may be impacted by this nerve damage, which raises the risk of sciatica.(26)

Smoking: Smoking decreases oxygen and blood flow to the spinal discs, which hinders their ability to mend and raises the possibility of disc

degeneration. Sciatica may then result from this.(27)

Poor Posture: Having bad posture can put extra strain on the spine and exacerbate spinal abnormalities that cause sciatica, particularly when standing or sitting for long periods of time. (25)

Trauma or Injury: Sciatica symptoms may result from damage to or dislocation of the vertebrae, discs, or other spinal structures caused by accidents, falls, or other spine related injuries. (28)

METHODS

Study Design: A descriptive cross-sectional study was conducted to determine the prevalence of sciatica among pregnant women in Abbottabad.

Study Setting: Data collection was performed at two major healthcare facilities: Ayub Medical Complex Abbottabad and Safe Maternity Home Abbottabad. These facilities were selected due to their high patient volume and representation of the diverse pregnant population in Abbottabad.

Study Duration: The study was conducted over a six-month period from January 2023 to June 2023.

Sample Size Calculation: The sample size was calculated using Raosoft online calculator with the following parameters: population size (infinite), confidence level (95%), margin of error (5%), and expected response rate (50%). The calculated sample size was 384 participants.

Sampling Technique: Convenience sampling was employed to recruit pregnant women attending antenatal clinics at the selected healthcare facilities.

Inclusion Criteria:

- Pregnant women in second and third trimesters
- Age range 18-45 years
- Willingness to provide informed consent
- Ability to understand and complete questionnaires

Exclusion Criteria:

- Diabetic pregnant women
- Patients with psychological disorders
- Women with previous history of lumbosacral fracture or surgery
- First trimester pregnancies
- Incomplete questionnaire responses

Data Collection Tool: The Sciatica Bothersomeness Index Questionnaire was utilized for data collection. This validated instrument assesses various aspects of sciatic symptoms including leg pain, numbness or tingling in foot, leg, or groin area, weakness in leg or foot, and back or leg pain while sitting. Each symptom is rated on a scale from 0-6, with scores 4-6 considered bothersome.

Data Collection Procedure: Following approval from the institutional research committee, pregnant women meeting inclusion criteria were approached during their routine antenatal visits. The study objectives, procedures, and participants' rights were explained in detail. Written informed consent was obtained from all participants before data collection. Trained research assistants administered the questionnaires in a private, comfortable environment to ensure confidentiality and accurate responses.

Ethical Considerations: Ethical approval was obtained from the Research Committee of FIMS College of Physiotherapy and Medical Rehabilitation. All participants provided written informed consent after receiving detailed information about the study objectives, procedures, risks, and benefits. Participants were assured of confidentiality and their right to withdraw from the study at any time without

consequences. No personal identifiers were included in the dataset to maintain anonymity.

Data Management: All completed questionnaires were checked for completeness and accuracy. Data were entered into a secure database with appropriate backup procedures. Access to data was restricted to authorized research team members only.

Statistical Analysis: Data analysis was performed using Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics including frequencies, percentages, means, and standard deviations were calculated for all variables. Cross-tabulation was performed to examine the relationship between pregnancy trimesters and sciatica symptoms. Results were presented using tables and graphs for clear visualization of findings.

RESULTS

Descriptive Statistics: A total of 384 pregnant women participated in the study. The participants' ages ranged from 18 to 45 years with a mean age of 28.8 ± 5.28 years. Regarding pregnancy stage distribution, 112 women (29.1%) were in their second trimester, while 272 women (70.9%) were in their third trimester.

Prevalence of Sciatica Symptoms:

Among the 384 participants, individual symptom analysis revealed leg pain in 120 participants (31.2%), numbness or tingling in 120 (31.2%), weakness in 121 (31.4%), and pain while sitting in 123 (32.2%). The most commonly reported symptom was pain while sitting (32.2%), followed by weakness (31.4%), with leg pain and numbness or tingling showing equal prevalence (31.2%).

Table 1. Overall Sciatica Prevalence

Sciatica Status	Frequency	Percent
Positive	112	29.1%
Negative	272	70.9%
Total	384	100.0%

Based on the comprehensive assessment using the Sciatica Bothersomeness Index, 112 participants (29.1%) were identified as having sciatica, while

272 participants (70.9%) showed no signs of sciatic involvement (Table 1).

Table 2. Trimester Distribution with Sciatica

Trimester	Sciatica Positive	Sciatica Negative	Total
2nd	20 (17.9%)	92 (82.1%)	112
3rd	92 (33.8%)	180 (66.2%)	272
Total	112 (29.1%)	272 (70.9%)	384

Trimester-Specific Analysis:

Among women in their second trimester (n=112), 20 (17.9%) were diagnosed with sciatica, while 92 (82.1%) showed no sciatic symptoms. In contrast,

among women in their third trimester (n=272), 92 (33.8%) were diagnosed with sciatica, while 180 (66.2%) showed no sciatic symptoms.

Table 3. Symptom Distribution by Trimester

Trimester	Leg Pain	Numbness/Tingling	Weakness	Pain While sitting
2nd (n=112)	26 (23.2%)	23 (20.5%)	17 (15.2%)	24 (21.4%)
3rd (n=272)	94 (34.6%)	97 (35.7%)	104 (38.2%)	100 (36.8%)
Total (n=384)	120 (31.2%)	120 (31.2%)	121 (31.4%)	124 (32.3%)

Individual symptom analysis by trimester revealed higher prevalence in the third trimester across all categories: leg pain (34.6% vs 23.2%), numbness or tingling (35.7% vs 20.5%), weakness (38.2% vs 15.2%), and pain while sitting (36.8% vs 21.4%).

Comparative Analysis Between Trimesters: The prevalence of sciatica was significantly higher in the third trimester (33.8%) compared to the second trimester (17.9%). Of all women diagnosed with sciatica, 82.1% were in their third trimester, while only 17.9% were in their second trimester. This pattern was consistent across all individual symptom categories, demonstrating a clear progression of symptoms with advancing pregnancy.

The uniform distribution of symptoms (ranging from 31.2% to 32.3%) suggests that sciatica during pregnancy presents as a constellation of related neurological symptoms rather than isolated manifestations, supporting the validity of using comprehensive assessment tools like the Sciatica Bothersomeness Index.

Symptom Distribution: The most commonly reported symptom was pain while sitting (32.2%), followed by weakness (31.4%), and leg pain and numbness or tingling (both at 31.2%). This relatively uniform distribution of symptoms suggests that sciatica during pregnancy presents as a constellation of related neurological symptoms rather than isolated manifestations.

DISCUSSION

This study reports a 29.1% prevalence of sciatica among pregnant women in Abbottabad, consistent with global findings but providing important local data for healthcare planning. Sciatica was more common in the third trimester (33.8%) than the second (17.9%), reflecting increased mechanical pressure on the sciatic nerve as pregnancy progresses. Symptoms like leg pain, numbness, weakness, and pain while sitting appeared together, indicating sciatica as a comprehensive syndrome during pregnancy.

Regional differences exist, as studies like one in Karnataka, India, show lower prevalence (16.9%), emphasizing the need for local data. The study used standardized tools to ensure reliable results but suggests future research should consider cultural factors and adopt longitudinal designs to clarify causes and long-term impacts.

Clinically, the high prevalence calls for better monitoring and management, especially in later pregnancy stages. Public health strategies should include prenatal education, posture and exercise guidance, and early symptom detection to reduce sciatica's impact on maternal well-being and healthcare costs.

CONCLUSION

This study found that (29.1%) of pregnant women in Abbottabad experience sciatica, with a higher prevalence in the third trimester (33.8%) than the second (17.9%). Sciatica presents as

multiple neurological symptoms, including leg pain, numbness, tingling, weakness, and pain related to posture.

The high prevalence highlights the need for improved healthcare preparation, such as provider training, resource allocation, and systematic screening, especially in late pregnancy. The study offers important baseline data for healthcare planning and supports integrating musculoskeletal assessments into prenatal care. Future research should explore risk factors, symptom progression, effective treatments like physiotherapy, and the economic impact of pregnancy-related sciatica to guide clinical practice and policy decisions.

DISCLAIMER

This research was conducted as part of academic requirements and represents the findings specific to the study population and timeframe. The results should be interpreted within the context of the study's methodology and limitations.

CONFLICT OF INTEREST

The authors declare no conflicts of interest related to this research. No financial support or competing interests influenced the study design, data collection, analysis, or manuscript preparation.

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