Section: Orthopaedic Surgery

Original Research Article

FROM CHRONIC PAIN TO INTIMACY: A PROSPECTIVE STUDY ON THE EFFECTS OF SPINAL SURGERY ON SEXUAL HEALTH

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ABSTRACT

Background: Lumbar spine disorders may impair sexual function through pain, neurological compromise, and reduced quality of life. This study assessed changes in sexual function and intercourse-related back pain before treatment and at six months after conservative management, selective nerve root block, microdiscectomy with laminotomy, and transforaminal lumbar interbody fusion.

Materials and Methods: This prospective observational study included one hundred sexually active adults aged 25 to 60 years with prolapsed intervertebral disc, spondylolisthesis, degenerative disc disease, or cauda equina syndrome. Participants underwent selective nerve root block (n = 20), transforaminal lumbar interbody fusion (n = 25), microdiscectomy with laminotomy (n = 30), or conservative management (n = 25). Outcomes included the International Index of Erectile Function-5 in male patients, the Female Sexual Function Index in female patients, back-pain visual analogue scale (0-10), intercourse-pain visual analogue scale (0-10), ejaculatory recovery (%), and satisfaction scores (0-10). Statistical analysis: paired t-test, ANOVA, chi-square, Pearson correlation; significance at $p<0.05$.

Results: Interventional and surgical groups showed significant improvements in sexual function, pain scores, and satisfaction at six months, with the greatest gains in the microdiscectomy group. Conservative management showed minimal change. Ejaculatory recovery was highest after microdiscectomy.

Conclusion: Lumbar spine interventions, particularly decompressive procedures, significantly improve sexual function and reduce intercourse-related back pain. Sexual health assessment should be incorporated into routine lumbar spine care.

Keywords: Low Back Pain, Sexual Dysfunction, Physiological, Intervertebral Disc Displacement, Spondylolisthesis, Spinal Fusion.

INTRODUCTION

Sexual function is a fundamental component of human well-being and an important indicator of quality of life in patients with chronic musculoskeletal and neurological disorders. Lumbar spine conditions such as prolapsed intervertebral disc (PIVD), spondylolisthesis, degenerative disc disease (DDD), and cauda equina syndrome (CES) can cause debilitating pain, neurological impairment, and functional limitation, all of which may adversely affect sexual health.[1,2]

The lumbosacral plexus and its autonomic connections are involved in erection, ejaculation, vaginal lubrication, orgasm, and other aspects of sexual activity. Compression of nerve roots, dorsal root ganglia, or central spinal structures due to degenerative disease or disc herniation may lead to erectile dysfunction, ejaculatory disturbance, reduced desire, impaired arousal, decreased lubrication, and difficulty achieving orgasm. Chronic back pain and stiffness may further restrict sexual activity, resulting in avoidance, anxiety, and reduced relationship satisfaction.[3,4]

Traditional outcome measures in spine practice focus mainly on pain relief, neurological recovery, and radiographic parameters. However, validated sexual function instruments such as the International Index of Erectile Function-5 (IIEF-5) and the Female Sexual Function Index (FSFI) provide a structured approach to evaluating sexual recovery after spinal intervention.[5,6]

These instruments remain underused in spine surgery research despite their clinical relevance. Although previous studies have reported postoperative improvement in sexual function after lumbar decompression, comparative analyses across different surgical and non-surgical modalities remain limited.[7,8]

Female sexual function has also been less frequently studied. The present study was therefore designed to evaluate changes in male and female sexual function before and after conservative management, selective nerve root block (SNRB), microdiscectomy with laminotomy, and transforaminal lumbar interbody fusion (TLIF).

Aims and Objectives

1. To assess changes in sexual function and intercourse-related back pain from baseline to six months after treatment.
2. To compare outcomes among conservative management, selective nerve root block, microdiscectomy with laminotomy, and transforaminal lumbar interbody fusion.
3. To correlate back-pain relief with sexual function outcomes.

MATERIALS AND METHODS

Study Design and Setting: This prospective observational study was conducted in the Department of Orthopaedic Surgery, Dr Pinnamaneni Siddhartha Institute of Medical Sciences, Gannavaram, from November 2023 to October 2025.

Participants

One hundred sexually active adults were enrolled, including fifty-five males and forty-five females, with a mean age of 42.6 +/- 9.8 years. Diagnoses included prolapsed intervertebral disc in forty patients, spondylolisthesis in twenty-five, degenerative disc disease in twenty, and cauda equina syndrome in fifteen. Patients with spinal trauma, tumours, infections, psychiatric illness, or pre-existing sexual dysfunction were excluded.

Interventions

Group A: Selective nerve root block (n = 20).

Group B: Transforaminal lumbar interbody fusion (n = 25).

Group C: Microdiscectomy with laminotomy (n = 30).

Group D: Conservative management with physiotherapy and medication (n = 25).

Post-Treatment Advice Regarding Sexual Activity

Intervention	Suggested timing for resumption of sexual activity
Selective nerve root block	Within one week
Microdiscectomy with laminotomy	After three months
Transforaminal lumbar interbody fusion	After six to eight months
Conservative management	As tolerated

Outcome Measures

Male patients: International Index of Erectile Function-5 and ejaculatory recovery.

Female patients: Female Sexual Function Index and intercourse-pain visual analogue scale.

All patients: Back-pain visual analogue scale and overall satisfaction score.

Statistical Analysis

Data were analysed using paired t-tests, analysis of variance, chi-square tests, and Pearson correlation. A p value of less than 0.05 was considered statistically significant.

RESULTS

A total of 320 school teachers participated in the study. The sociodemographic profile of study participants is presented in [Table 1].

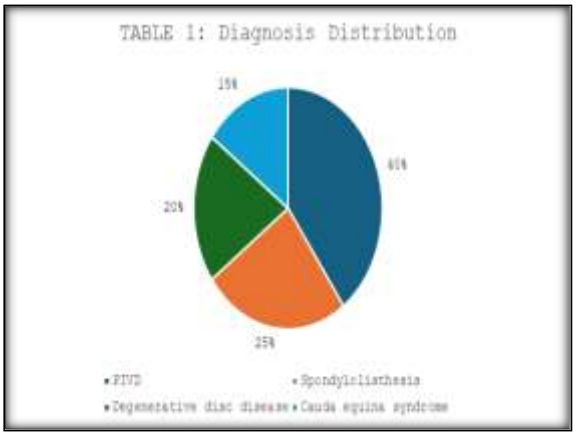

Figure 1

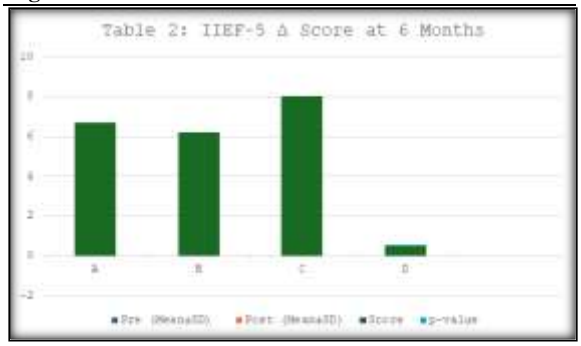

Figure 2

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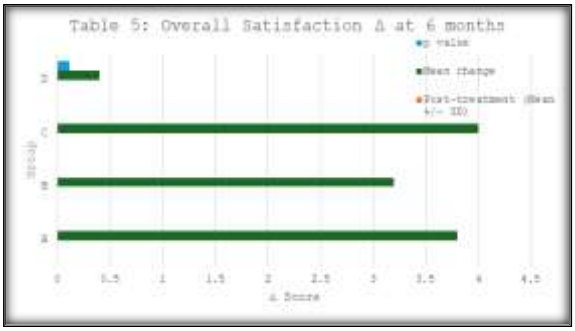

Figure 5

Table 1: Baseline Diagnosis Distribution

Condition	n
Prolapsed intervertebral disc	40
Spondylolisthesis	25
Degenerative disc disease	20
Cauda equina syndrome	15

Table 2: Male Sexual Function (IIEF-5) at Six Months

Group	Pre-treatment (Mean +/- SD)	Post-treatment (Mean +/- SD)	Mean change	p value
A	13.8 +/- 2.4	20.5 +/- 2.1	6.7	<0.001
B	12.0 +/- 2.9	18.2 +/- 2.6	6.2	<0.001
C	11.5 +/- 3.0	19.5 +/- 2.2	8.0	<0.001
D	14.5 +/- 2.0	15.0 +/- 2.3	0.5	0.07

Table 3: Female Sexual Function at Six Months

Group	Pre-treatment (Mean +/- SD)	Post-treatment (Mean +/- SD)	Mean change	p value
A	20.0 +/- 3.8	28.5 +/- 3.2	8.5	<0.001
B	18.2 +/- 4.1	26.8 +/- 3.9	8.6	<0.001
C	17.5 +/- 4.2	27.5 +/- 3.5	10.0	<0.001
D	20.8 +/- 2.4	21.1 +/- 2.5	0.3	0.13

Table 4: Back-Pain Visual Analogue Scale at Six Months

Group	Pre-treatment (Mean +/- SD)	Post-treatment (Mean +/- SD)	Mean change	p value
A	7.8 +/- 1.2	3.6 +/- 1.0	4.2	<0.001
B	8.0 +/- 1.3	3.0 +/- 1.2	5.0	<0.001
C	8.2 +/- 1.1	2.7 +/- 1.1	5.5	<0.001
D	7.5 +/- 1.0	6.3 +/- 1.2	1.2	0.09

Table 5: Overall Satisfaction at Six Months

Group	Pre-treatment (Mean +/- SD)	Post-treatment (Mean +/- SD)	Mean change	p value
A	4.0 +/- 1.0	7.8 +/- 1.2	3.8	<0.001
B	3.7 +/- 1.1	6.9 +/- 1.3	3.2	<0.001
C	3.5 +/- 1.2	7.5 +/- 1.0	4.0	<0.001
D	4.8 +/- 0.8	5.2 +/- 1.0	0.4	0.12

Table 6: Ejaculatory Recovery in Male Patients at Six Months

Group	Recovery at six months (%)
A	75
B	70
C	78
D	10

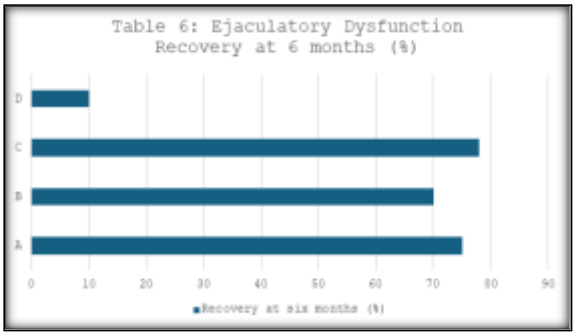

Figure 6

Interventional and surgical treatment groups showed marked improvement in sexual function, pain scores, and satisfaction when compared with conservative management. The greatest improvements were observed in the microdiscectomy with laminotomy group.

DISCUSSION

This prospective study demonstrates that lumbar spine interventions, particularly decompressive procedures such as microdiscectomy with laminotomy and transforaminal lumbar interbody fusion, may significantly improve sexual function in patients with lumbar spine disorders. The use of validated sex-specific tools, namely the IIEF-5 and FSFI, enabled assessment of multiple domains of sexual health that are often overlooked in spinal outcome research.[9,10]

Female patients in the operative groups showed substantial improvement in FSFI scores, including gains in desire, arousal, lubrication, orgasm, satisfaction, and pain reduction. Male patients demonstrated significant improvement in IIEF-5 scores, with the highest mean improvement observed in the microdiscectomy group. Ejaculatory recovery was also greatest in this group, suggesting that targeted neural decompression may play a role in restoring sexual function. These findings are broadly consistent with previous reports on lumbar decompression and sexual recovery.[11,12]

An important finding of the present study was the association between reduction in back pain and improvement in sexual function. Interventional and surgical groups showed a clinically meaningful decline in visual analogue scale scores, which paralleled improvement in sexual health measures. This supports the view that pain acts not only as a physical limitation but also as a psychological barrier to sexual activity and satisfaction.[13,14]

Among the interventions studied, microdiscectomy with laminotomy produced the most pronounced improvement across pain, sexual function, ejaculatory recovery, and patient satisfaction. Although transforaminal lumbar interbody fusion showed slower recovery, patients in this group also demonstrated significant benefit by six months. Selective nerve root block produced moderate improvement, whereas conservative management resulted in minimal change. These findings highlight the importance of addressing persistent neural compression in patients with spine-related sexual dysfunction.[15]

Table 7. Comparison of Current Study with Recent Literature

Study & Year	Interventio n	Outcome Metrics	Key Findings	Comparison to Current Study
Çamurcu et al., 2022,[1]	Lumbar discectomy	IIEF-5	Significant improvement	Similar IIEF-5 improvement; present study adds back pain and intercourse VAS
Liu et al., 2021,[3]	TLIF	Satisfaction, sexual QoL	Moderate gains	Current study shows greater post-op improvement

Johnson et al., 2020,[4]	Lumbar decompression	General sexual activity	Improved participation	Current study adds quantitative scores and intercourse-specific metrics
Park et al., 2021,[12]	Microdiscectomy	FSFI	FSFI increased in 80%	Matches our FSFI improvement pattern (C group highest)
Kim et al., 2021,[8]]	SNRB	Pain relief only	No sexual outcomes reported	Our study adds functional sex-specific findings to pain data
Singh et al., 2023,[10]	TLIF and discectomy	Pain + satisfaction	Significant satisfaction gains	Matches our satisfaction delta and IIEF/ FSFI findings

Merits of the Study

1. Comprehensive assessment using validated instruments for both male and female sexual function.
2. Comparative design involving four treatment modalities.
3. Clinically relevant relationship between pain relief and improved sexual health.
4. Real-world applicability in a tertiary care orthopaedic population.
5. Specific evaluation of female sexual function and ejaculatory recovery.

Limitations of the Study

1. Follow-up was limited to six months.
2. Some treatment groups had relatively small sample sizes.
3. Sexual function scores were self-reported and may be influenced by social and cultural factors.
4. Hormonal or urodynamic evaluations were not performed.
5. Partner-reported outcomes were not assessed.

CONCLUSION

This study shows that lumbar spine interventions, particularly microdiscectomy with laminotomy and transforaminal lumbar interbody fusion, are associated with meaningful improvement in sexual function among patients with lumbar spine disorders. Improvements were observed in both male and female sexual health measures, along with reduced back pain and greater overall satisfaction. Conservative management showed comparatively limited benefit.

The findings emphasise the importance of incorporating sexual health assessment into routine spine practice. Structured counselling on postoperative resumption of sexual activity should also be included in rehabilitation protocols to support holistic recovery and quality of life.

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