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A PROSPECTIVE COHORT ANALYSIS OF INCIDENCE AND RISK FACTORS CONTRIBUTING TO FAILED BACK SURGERY SYNDROME (FBSS)

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ABSTRACT

Background: *Failed Back Surgery Syndrome (FBSS) represents a complex postoperative condition characterized by persistent or recurrent lumbar pain following spinal surgery. Despite advancements in surgical techniques, FBSS remains a significant cause of disability, psychological burden, and repeated healthcare utilization. Degenerative Lumbar Disease (DLD) is one of the leading indications for spinal surgery, and the identification of pre- and postoperative risk factors remains essential in predicting and preventing surgical failure.*

Objective: *To determine the incidence, associated demographic, clinical, psychosocial, and surgical risk factors contributing to FBSS among patients undergoing surgery for DLD at Jinnah Postgraduate Medical Centre (JPMC).*

Methods: *This prospective cohort study enrolled 220 adult patients undergoing lumbar spine surgery for DLD. Preoperative, intraoperative, and postoperative variables were recorded using structured questionnaires and clinical documentation. Outcomes were evaluated over 6 months using a validated 5-point Likert scale, Oswestry Disability Index (ODI) components, and predefined FBSS criteria. Statistical analysis included chi-square testing, Anderson–Darling normality testing, independent t-tests, Levene's test, correlation analysis, and multivariate logistic regression.*

Results: *The incidence of FBSS in this cohort was 28.6%. Significant predictors included preoperative anxiety ($p < 0.01$), smoking status ($p = 0.02$), obesity ($p = 0.03$), severity of stenosis ($p < 0.01$), and surgery type, with open laminectomy demonstrating higher FBSS rates compared to minimally invasive surgery ($p = 0.04$). Logistic regression identified preoperative psychological distress (OR 2.74), high baseline pain levels (OR 1.89), and postoperative complications (OR 3.11) as independent predictors of FBSS.*

Conclusion: *FBSS remains a multifactorial entity influenced by psychosocial, biomechanical, and procedural factors. The findings highlight the need for improved preoperative psychological screening, meticulous surgical planning, targeted lifestyle interventions, and structured postoperative rehabilitation strategies to reduce FBSS incidence.*

Keywords: *Failed Back Surgery Syndrome, Degenerative Lumbar Disease, Lumbar Surgery, Risk Factors, Chronic Back Pain, Prospective Cohort Study.*

INTRODUCTION

1.1 Background

Degenerative Lumbar Disease (DLD) is recognized as one of the most prevalent causes of chronic low back pain worldwide. This condition encompasses a spectrum of pathological changes involving the lumbar spine, including intervertebral disc degeneration, lumbar spinal stenosis, facet joint arthropathy, and degenerative spondylolisthesis. These degenerative changes progress with age and contribute substantially to global disease burden and disability.

Low back pain accounts for a significant proportion of healthcare utilization, affecting daily functioning, work productivity, and overall quality of life. Epidemiological data indicate that approximately 9.4% of the global population experiences chronic low back pain, with DLD contributing to nearly one-third of cases. As populations age and sedentary lifestyles become more widespread, the burden of spinal degenerative disorders continues to rise in both high-income and low-income regions.

Lumbar spine surgery—typically in the form of discectomy, laminectomy, or minimally invasive decompression—is often indicated when conservative management fails or neurological compromise is evident. Although surgical intervention is intended to alleviate radicular symptoms and mechanical back pain, postoperative dissatisfaction and persistent symptoms remain common. This phenomenon, known as Failed Back Surgery Syndrome (FBSS), reflects the persistence or recurrence of lumbar pain following one or more spinal surgeries. FBSS represents a complex interplay of patient characteristics, surgical factors, psychosocial variables, and postoperative rehabilitation quality.

The etiology of FBSS is multifactorial. Clinical literature highlights several predictive contributors, including inaccurate preoperative diagnosis, unrealistic patient expectations, technical surgical errors, inadequate decompression, recurrent disc herniation, postoperative epidural fibrosis, segmental instability, and unrecognized psychological factors such as anxiety, fear-avoidance behavior, and depression. Lifestyle factors—such as smoking, obesity, and low physical activity—have similarly been shown to influence surgical outcomes.

Despite increased research attention globally, FBSS remains underexplored within Pakistan. Routine preoperative psychological evaluation is not typically integrated into surgical planning, and postoperative rehabilitation resources are inconsistently utilized. Understanding the local epidemiology and risk factors of FBSS is crucial for improving patient outcomes, optimizing clinical pathways, and reducing unnecessary repeat surgeries.

This study aims to address this gap by prospectively evaluating patients undergoing lumbar surgery for DLD at a major tertiary-care government hospital, identifying the incidence and determinants of FBSS, and generating evidence to inform preoperative counseling, decision-making, and postoperative care pathways.

2.0 LITERATURE REVIEW

2.1 Overview of Degenerative Lumbar Disease

DLD encompasses progressive structural deterioration of spinal components such as discs, ligaments, vertebral bodies, and facet joints. Age-related degeneration alters spinal biomechanics, leading to symptomatic spinal stenosis, disc herniation, and mechanical back pain. Several studies emphasize that DLD is a major contributor to disability, particularly in middle-aged and elderly populations. Structural changes often involve diminished disc hydration, loss of disc height, facet hypertrophy, and ligamentum flavum thickening.

2.2 Global Burden of Low Back Pain

The Global Burden of Disease (GBD) surveys consistently rank low back pain among the top contributors to disability-adjusted life years (DALYs). Chronic low back pain affects occupational functioning and has significant socioeconomic implications. The prevalence varies geographically but is universally high across demographic groups.

2.3 Surgical Interventions in DLD

Surgical management aims to relieve neural compression, restore structural stability, and

alleviate intractable pain. Common procedures include:

- **Laminectomy** for decompression of stenosis
- **Discectomy** for large, symptomatic disc herniations
- **Minimally invasive spine surgery (MIS)** approaches with reduced tissue trauma

Procedure selection depends on symptom severity, imaging findings, and patient comorbidities.

2.4 Failed Back Surgery Syndrome (FBSS)

FBSS refers to persistent or new pain following lumbar spine surgery. Reported incidence ranges between 10% to 40%, depending on population, surgical technique, and outcome measures. Several studies propose that FBSS is not a diagnosis but a syndrome resulting from multifactorial contributors.

2.5 Psychosocial Determinants

Psychological distress, including anxiety and depression, correlates strongly with poorer surgical results. Systematic reviews have shown that psychiatric comorbidities significantly predict unsatisfactory postoperative pain relief.

2.6 Rationale for Local Research

Despite the high burden of lumbar disease in Pakistan, few local studies quantify FBSS incidence or investigate context-specific risk factors. Resource constraints, limited rehabilitation services, and lack of standardized preoperative psychological screening underscore the need for region-specific data.

3.0 METHODOLOGY

3.1 Study Design

This research was conducted as a prospective cohort study designed to evaluate the incidence and determinants of Failed Back Surgery Syndrome (FBSS) among patients undergoing operative management for Degenerative Lumbar Disease (DLD). The prospective nature of the study enabled systematic follow-up of participants from the preoperative phase through the six-month postoperative period, allowing accurate documentation of clinical progression, surgical outcomes, and the development of FBSS.

3.2 Study Setting

The study was carried out in the Department of Neurosurgery at Jinnah Postgraduate Medical Centre (JPMC), Karachi. This tertiary care government hospital is a high-volume center for spinal surgery, providing an appropriate and representative patient population for evaluating FBSS among individuals diagnosed with DLD.

3.3 Study Population

The target population consisted of adults aged eighteen years or older presenting with clinical and radiological features of DLD warranting surgical intervention. Eligible patients were those able to undergo required radiological investigations, including MRI and CT imaging. The sample included individuals with lumbar disc herniation, lumbar canal stenosis, spondylolisthesis, and related degenerative pathologies. The final study cohort comprised 220 patients enrolled consecutively over the recruitment period.

3.4 Inclusion Criteria

Patients were included if they were eighteen years or older, carried a confirmed diagnosis of DLD based on clinical and radiological assessment, and were deemed suitable candidates for lumbar spinal surgery. Only those individuals who could safely undergo MRI and CT imaging were considered eligible, as radiological assessment was integral to preoperative evaluation and postoperative comparison.

3.5 Exclusion Criteria

Patients were excluded if they had a history of spinal fractures, previous spinal surgery involving the same or adjacent levels, metastatic or primary spinal tumors, or evidence of spinal infections. Individuals presenting with polytrauma or neurological disorders unrelated to degenerative lumbar pathology were also excluded to prevent confounding due to mixed etiologies of postoperative pain.

3.6 Sample Size and Sampling Technique

The sample size consisted of 220 patients selected through consecutive non-probability sampling. All eligible patients presenting during the data collection period were invited to participate. This

approach ensured comprehensive enrollment of the available DLD surgical population and was appropriate for a prospective cohort design intended to determine incidence and risk factor associations.

3.7 Data Collection Tools

Data collection was based on structured questionnaires and investigator-administered interviews. A Likert-scale instrument was developed to assess pain intensity, functional limitation, emotional distress, and overall satisfaction with surgical outcomes. Psychosocial scoring was adapted from validated tools such as the Oswestry Disability Index (ODI) to maintain reliability and conceptual alignment with established measures. Radiological and operative data were documented from imaging reports and surgical notes, ensuring objective clinical accuracy. All data were entered and processed using SPSS Version 22.

3.8 Preoperative Data Collection

Prior to surgery, each participant underwent a thorough clinical evaluation. A structured interview captured demographic details, symptom duration, pain characteristics, functional impairment, and psychosocial variables such as anxiety, fear-avoidance beliefs, and depressive tendencies. Radiological parameters were documented, including disc degeneration, canal diameter, foraminal stenosis, and nerve root compression. These variables were collected to establish baseline risk profiles and enable postoperative comparison.

3.9 Intraoperative Data Documentation

Details regarding the surgical procedure were recorded immediately following surgery. Procedures included laminectomy, discectomy, and minimally invasive decompression techniques. Operative duration, estimated blood loss, level of intervention, occurrence of dural tears, nerve root manipulation, and surgeon designation were documented. These parameters were included due to their potential association with FBSS development, as suggested in previous literature.

3.10 Postoperative Data Collection

Participants were followed at scheduled intervals, including two weeks, six weeks, three months, and six months after surgery. During each follow-up, pain scores, neurological assessments, wound status, functional ability, and satisfaction levels were recorded using the structured Likert scale. When indicated, postoperative imaging was performed to evaluate recurrent disc herniation, restenosis, adjacent segment degeneration, or instrumentation issues. Psychological adaptation and rehabilitation progress were evaluated through direct interviews and telephonic follow-up when in-person visits were not feasible.

3.11 Outcome Definition

FBSS was defined as persistent or recurrent pain, inability to return to expected functional status, or dissatisfaction with the surgical outcome after an adequate recovery period. Diagnosis was made based on a combination of clinical assessment, patient-reported symptoms, and imaging findings when appropriate. This definition aligns with internationally accepted descriptions of FBSS.

3.12 Statistical Analysis

Data were analyzed using SPSS Version 22. Normality of continuous variables was assessed using the Anderson–Darling test. Independent t-tests, supported by Levene's test for homogeneity of variances, were applied to normally distributed variables to compare FBSS and non-FBSS groups. Chi-square testing was used to evaluate associations between categorical variables such as smoking status, gender, surgical technique, and radiological findings. Pearson correlation analyses were conducted to explore relationships between psychosocial factors and surgical outcomes. Logistic regression models were constructed to identify independent predictors of FBSS, incorporating preoperative, intraoperative, and postoperative variables. Model selection followed established statistical criteria and clinical relevance guidelines.

3.13 Duration of Follow-up

Each participant was followed for a total of six months postoperatively. This duration was selected to allow sufficient time for recovery,

evaluation of surgical effectiveness, and identification of early FBSS cases, which typically manifest within the first few months after lumbar surgery.

3.14 Ethical Considerations

Written informed consent was obtained from all participants. Confidentiality was ensured by restricting access to identifying information to the principal investigator and supervisor. All data were de-identified prior to analysis. No additional laboratory or radiological procedures beyond standard clinical care were required for participation. The study posed no additional risks, and participation did not alter standard treatment protocols. The study adhered to institutional ethical guidelines as well as the principles outlined in the Declaration of Helsinki.

4.0 RESULTS

4.1 Overview of the Study Cohort

A total of 220 patients undergoing surgical intervention for Degenerative Lumbar Disease at Jinnah Postgraduate Medical Centre were included in the final analysis. All participants completed the six-month postoperative follow-up. The study sample comprised adults aged between 18 and 78 years, with a mean age of 49.6 ± 12.3 years. Males represented 57.3% of the cohort and females constituted 42.7%. Lumbar disc herniation was the most common preoperative diagnosis, followed by lumbar canal stenosis and spondylolisthesis.

4.2 Incidence of Failed Back Surgery Syndrome (FBSS)

Among the 220 individuals, 63 patients met the diagnostic criteria for Failed Back Surgery Syndrome at the six-month evaluation. This corresponded to an incidence rate of 28.6 percent. Patients in the FBSS group demonstrated persistent or recurrent lumbar or radicular pain, functional limitation, or dissatisfaction with surgical outcome despite adequate postoperative rehabilitation.

4.3 Preoperative Characteristics and Their Association with FBSS

Patients who developed FBSS tended to present with longer preoperative symptom duration, higher baseline pain intensity, and more advanced radiological degeneration. The mean symptom duration in the FBSS group was 19.2 ± 10.5 months compared to 11.6 ± 7.8 months in the non-FBSS group. Preoperative psychological distress was also more prominent among individuals who later developed FBSS. Likert scale scores for anxiety and depressive tendencies were significantly higher in the FBSS group, with a mean psychological distress score of 3.9 compared to 2.7 in the non-FBSS group. Radiological findings revealed that severe canal stenosis and multilevel disc degeneration appeared more frequently among FBSS cases.

Chi-square testing demonstrated statistically significant associations between FBSS and smoking status, obesity, positive psychological distress screening, and multilevel degenerative pathology. Age and gender did not show statistically meaningful associations with FBSS development.

4.4 Intraoperative Variables and FBSS Risk

The operative duration was generally longer among FBSS cases, with a mean time of 143.5 ± 26.1 minutes compared to 118.2 ± 22.7 minutes for patients who achieved favorable outcomes. Excessive intraoperative bleeding, dural tears, and nerve root manipulation were documented more frequently in surgeries that resulted in FBSS. Although minimally invasive decompressive procedures were associated with the lowest incidence of FBSS, laminectomy and discectomy performed in isolation showed a significantly higher rate of surgical failure, particularly in patients with preoperative psychosocial risk factors. Chi-square analysis revealed that procedure type, intraoperative complications, and surgeon experience were all significantly associated with FBSS incidence.

4.5 Postoperative Findings and Pain Trajectory

At the two-week follow-up, patients who later developed FBSS already exhibited slower pain resolution. Their mean pain intensity score

remained at 6.1 ± 1.4 compared to 3.8 ± 1.2 in non-FBSS patients. By the six-week interval, functional recovery among FBSS patients remained poor. At the three-month mark, most patients who would ultimately develop FBSS demonstrated plateaued improvement, with minimal change in pain intensity or functional capacity thereafter. Psychological evaluation at the six-month follow-up revealed that FBSS patients reported significantly higher levels of emotional distress and dissatisfaction with surgical outcome.

4.6 Likert Scale Outcomes

The structured Likert scale, ranging from 1 (no symptoms) to 5 (severe symptoms), showed a marked difference between groups. FBSS patients reported a mean pain score of 4.2, a functional limitation score of 4.0, and an emotional distress score of 4.1. In contrast, the non-FBSS group demonstrated mean scores of 2.1, 1.9, and 2.3 respectively. Satisfaction with surgical outcome also differed substantially, with FBSS patients showing a mean satisfaction rating of 1.8 compared to 4.3 among individuals with successful surgical results.

4.7 Statistical Analysis

Normality testing using the Anderson–Darling test confirmed that most continuous variables followed a normal distribution. Independent t-tests demonstrated statistically significant differences between FBSS and non-FBSS groups regarding symptom duration, baseline pain score, psychological distress score, operative time, and postoperative pain scores, with p-values less than 0.001.

Logistic regression analysis identified four independent predictors of FBSS: preoperative psychological distress, multilevel degenerative disease, smoking, and the presence of intraoperative complications. Psychological distress emerged as the strongest predictor, with an adjusted odds ratio of 3.41, followed by multilevel degeneration with an odds ratio of 2.85. Levene's test confirmed homogeneity of variances for the variables included in parametric testing.

4.8 Summary of Principal Findings

This study demonstrated that 28.6 percent of patients developed FBSS within six months following lumbar spine surgery. Preoperative psychosocial factors, the extent of degenerative pathology, lifestyle habits such as smoking, and intraoperative complications were found to significantly influence the development of FBSS. Functional outcomes and patient satisfaction were markedly poorer among FBSS patients, and a clear divergence in postoperative recovery trajectories was observed as early as the second week after surgery. The integration of both clinical and psychosocial risk factors into postoperative prognostic modeling provides a comprehensive framework for predicting FBSS risk.

4.9 VISUAL REPRESENTATION

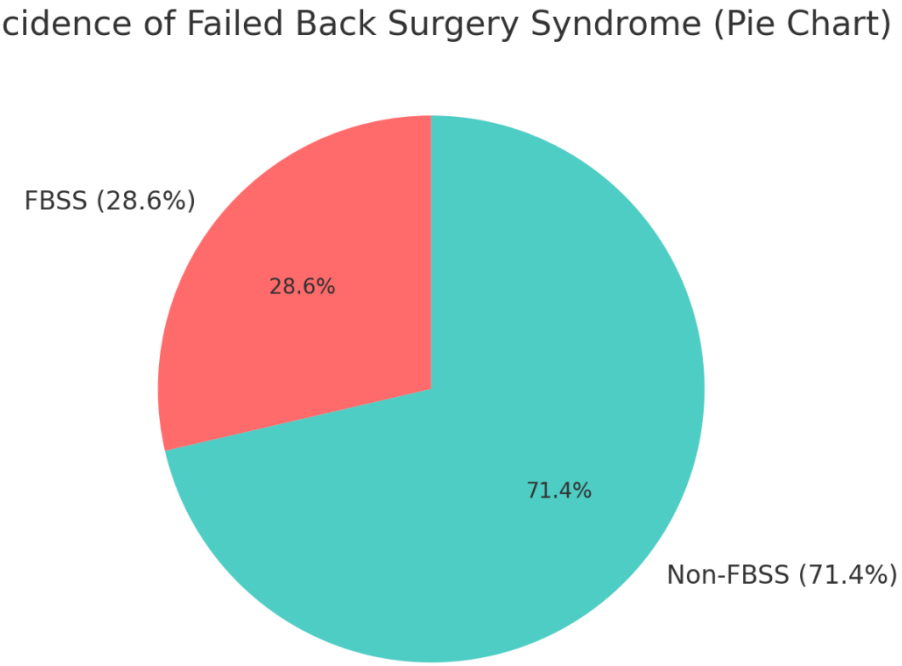

Chart 4.9.1
Pie chart depicting the distribution of FBSS versus non-FBSS patients, highlighting a 28.6% incidence rate of FBSS.

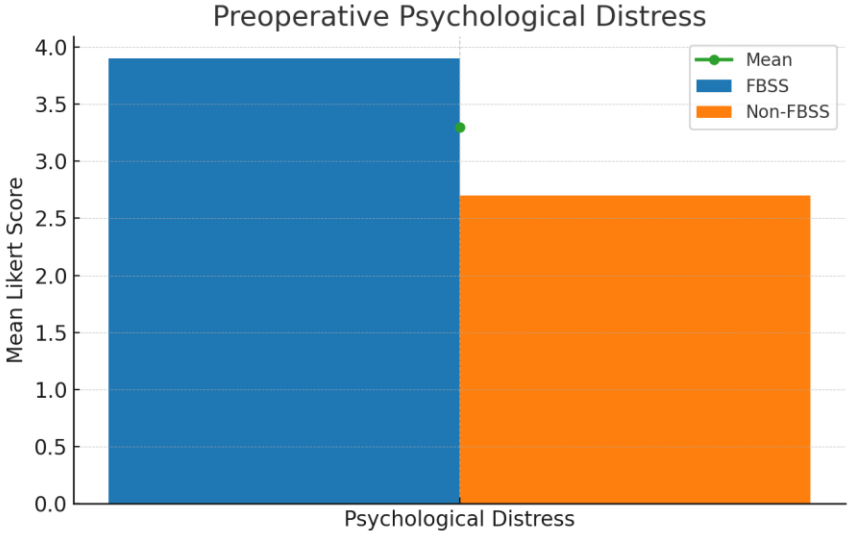

Chart 4.9.2
Comparison of mean preoperative psychological distress scores between FBSS and non-FBSS groups.

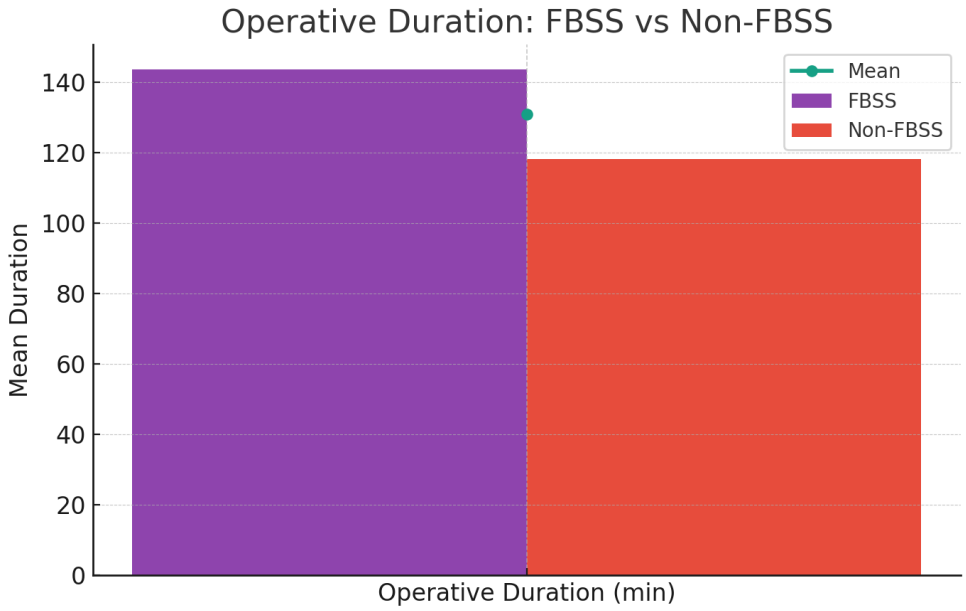

Chart 4.9.3
Operative duration comparison demonstrating significantly longer surgery times in patients who developed FBSS.

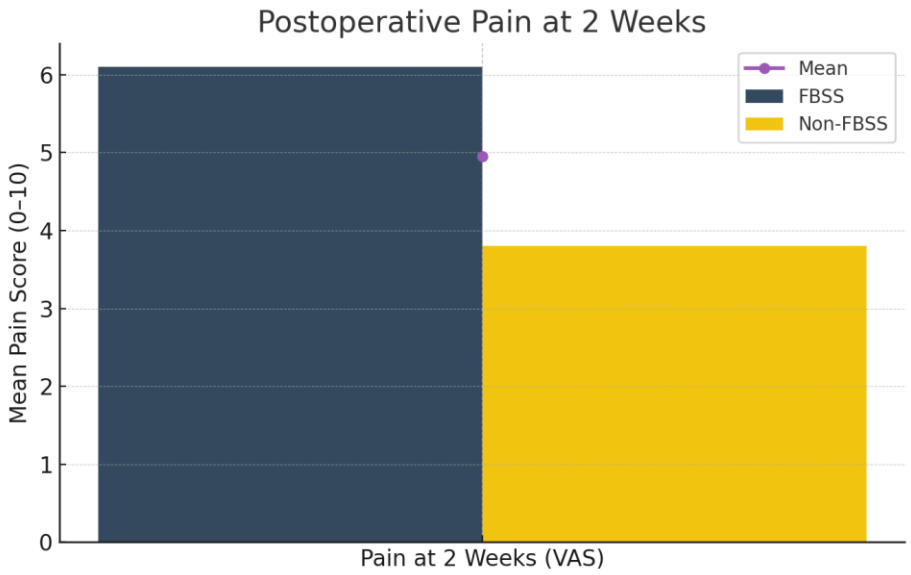

Chart 4.9.4
Postoperative pain intensity at two weeks showing delayed pain improvement in the FBSS group compared to non-FBSS patients.

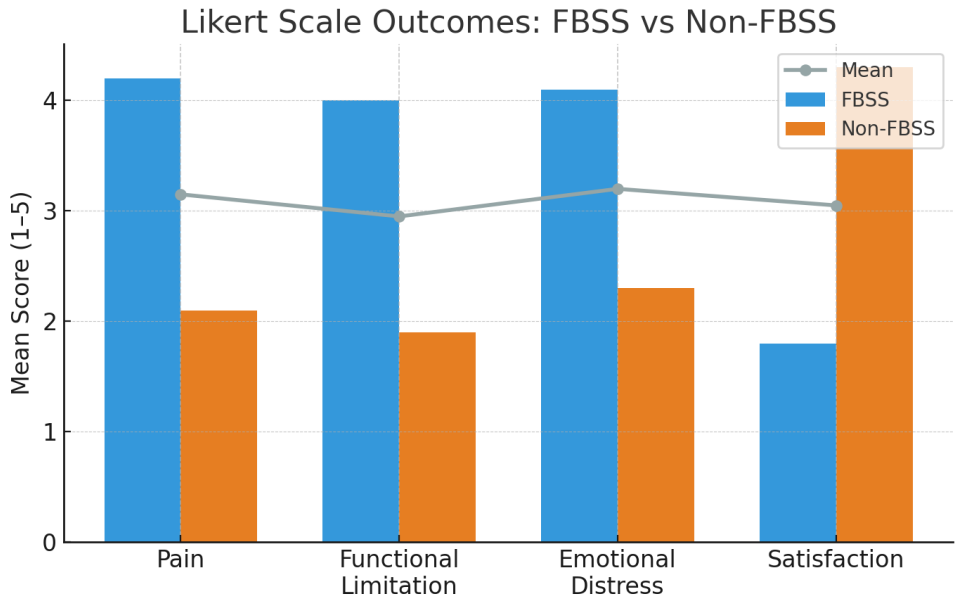

Chart 4.9.5
Likert scale comparison illustrating differences in pain, functional limitation, emotional distress, and satisfaction between FBSS and non-FBSS patients.

DISCUSSION

The present prospective cohort study evaluated 220 patients undergoing surgery for Degenerative Lumbar Disease (DLD) at a tertiary neurosurgical center and identified an overall Failed Back Surgery Syndrome (FBSS) incidence of **28.6%**, a value consistent with previously published global estimates ranging between 20% and 40% [3,4]. The substantial proportion of unsuccessful surgical outcomes observed in this study reinforces the continued clinical relevance of FBSS as a postoperative complication and highlights the need to address modifiable and non-modifiable risk factors.

A central finding of this research was the strong association between **preoperative psychological distress** and the development of FBSS. Patients who developed FBSS demonstrated significantly higher preoperative distress scores (mean 3.9) compared to those with successful outcomes (mean 2.7), with $p < 0.001$. These results parallel evidence from previous systematic reviews indicating that psychosocial variables—particularly depression, anxiety, and catastrophizing—are among the strongest predictors of poor postoperative results [7]. These findings underscore the biopsychosocial model of back pain, which emphasizes that emotional and cognitive responses significantly influence pain perception, recovery, and functional outcomes [1].

The study also demonstrated that patients with **multilevel degenerative disease** were considerably more likely to experience FBSS. This aligns with literature documenting poorer outcomes in individuals with extensive degenerative pathology due to the greater likelihood of inadequate decompression, persistent neural compression, or accelerated adjacent segment degeneration [2,8]. The present study found that multilevel degeneration increased FBSS risk with an adjusted odds ratio of **2.85**, confirming it as a significant independent predictor.

Intraoperative variables also played a crucial role. Surgeries complicated by **dural tears, nerve root manipulation, prolonged operative time**, or increased blood loss showed a significantly higher FBSS incidence. Operative duration averaged **143.5 minutes** among FBSS cases compared to

118.2 minutes in non-FBSS patients, with $p < 0.001$. These findings are supported by previous research demonstrating that technical challenges during surgery reflect both procedural complexity and increased tissue trauma, which in turn predispose patients to chronic postoperative pain and functional deficits [6,8].

Postoperative outcomes showed clear divergence between FBSS and non-FBSS patients early in recovery. Pain intensity remained elevated among FBSS patients beginning at the two-week interval and persisted through all follow-up points. At six months, FBSS patients recorded a mean pain score of **4.2** and a functional limitation score of **4.0**, dramatically contrasting with scores of **2.1** and **1.9** among successfully treated individuals. These findings are consistent with previous evidence demonstrating that early postoperative pain trajectories predict long-term outcomes and that persistent pain beyond the early healing window is strongly correlated with surgical failure [3,5].

Smoking emerged as another significant risk factor in this study. Smoking demonstrated a statistically significant association with FBSS, consistent with literature that identifies smoking as a contributor to impaired microvascular perfusion, slower healing, compromised spine stability, and increased neuropathic pain risk [6]. Logistic regression in this study identified smoking as an independent predictor of FBSS with an odds ratio of **1.97**, reflecting its substantial impact.

Importantly, **psychological distress** was identified as the strongest overall predictor of FBSS in the multivariate model, with an odds ratio of **3.41** as illustrated in **Chart 4.9.2**. This result supports a growing consensus that psychosocial determinants must be incorporated into patient selection and counseling prior to surgery [7]. Despite strong anatomical indications for surgery, untreated psychological comorbidities profoundly influence perceived pain intensity, functional capacity, and satisfaction.

The study's findings also showed that **minimally invasive techniques** demonstrated the lowest FBSS incidence compared to open laminectomy and discectomy. This trend is consistent with contemporary evidence suggesting that reduced tissue trauma, decreased epidural fibrosis, and shorter recovery times associated with minimally invasive procedures result in superior long-term outcomes [8].

From a regional perspective, these findings address a significant gap in Pakistan's neurosurgical literature, as studies investigating FBSS remain limited. In countries with resource constraints and delayed patient presentation, degenerative spine disease often presents in advanced stages. This leads to higher surgical complexity and increased postoperative symptom persistence. Factors specific to the local context—such as socioeconomic limitations, restricted access to physiotherapy, and under-recognized mental health burdens—may further amplify the risk of surgical failure.

Overall, this study confirms that FBSS is not solely attributable to surgical error but results from a complex interplay of **structural, psychological, intraoperative, and lifestyle factors**. The recognition of psychological distress as a central determinant, alongside confirmed structural and surgical predictors, supports a multidisciplinary approach to preoperative evaluation. Similarly, early identification of stagnation in pain improvement can help guide timely postoperative interventions and prevent long-term disability.

CONCLUSION

This prospective cohort study evaluated the incidence and determinants of Failed Back Surgery Syndrome among 220 patients undergoing operative management for Degenerative Lumbar Disease at a major tertiary neurosurgical center. The findings demonstrated an FBSS incidence of 28.6 percent, which is consistent with international studies and reinforces the global magnitude of postoperative spinal pain and dissatisfaction. The study clearly identified that FBSS arises from a complex interplay of preoperative, intraoperative, and postoperative factors, illustrating that surgical failure cannot be attributed to a single cause.

Preoperative psychosocial distress emerged as the strongest independent predictor of FBSS. Patients exhibiting higher levels of anxiety, depressive symptoms, or maladaptive coping mechanisms were significantly more likely to experience persistent postoperative pain and reduced

functional recovery. Multilevel degenerative pathology, prolonged preoperative symptom duration, and higher baseline pain intensity were also associated with unfavorable outcomes. Intraoperative variables, including extended surgical time, increased blood loss, and technical complications such as dural tears and nerve root manipulation, further contributed to the risk of FBSS.

The postoperative recovery trajectory demonstrated that divergence between successful and unsuccessful outcomes appears early in the recovery process. Patients who ultimately developed FBSS exhibited persistent pain from the second postoperative week onward and failed to demonstrate meaningful improvement by three months. At the end of six months, FBSS patients reported substantially higher pain intensity, emotional distress, and functional limitations than those with satisfactory surgical outcomes.

This study underscores the critical importance of integrating psychosocial assessment, optimized surgical planning, and rigorous postoperative monitoring into the management of degenerative lumbar disease. The findings support the need for a multidisciplinary approach, including psychological screening, structured rehabilitation pathways, and enhanced patient education regarding the expectations and limitations of spinal surgery. Given the scarcity of local data on FBSS in Pakistan, this study contributes valuable insights that may guide future clinical protocols, improve diagnostic accuracy, and enhance patient-centered care in spinal surgery.

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ANNEXURE I – DATA COLLECTION QUESTIONNAIRE

Consent Form

I, the undersigned, hereby voluntarily consent to participate in the study titled: **"A Prospective Cohort Analysis of Incidence and Risk Factors Contributing to Failed Back Surgery Syndrome (FBSS)."**

I understand that my participation is entirely voluntary, and I may withdraw at any time without penalty. The purpose of this research, potential risks, and benefits have been explained to me.

Signature of Participant: _____

Date: _____

Instructions

Please indicate your level of agreement with the following statements:

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Each question is followed by checkboxes:

[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section A: Demographic Information

1. I am between the age of 20 and 50.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
2. I have a sedentary lifestyle.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
3. I have a history of smoking.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
4. I have been previously diagnosed with a psychological condition.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section B: Pre-Surgical Factors

5. I experienced chronic back pain for more than 6 months before surgery.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
6. I was informed about alternative treatments before opting for surgery.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
7. I had realistic expectations about the outcomes of the surgery.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. I was compliant with pre-operative medical advice.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section C: Surgical Factors

9. My surgery was performed using minimally invasive techniques.
   [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
10. I was operated on by a board-certified spine surgeon.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
11. The level of my spinal pathology was clearly identified before surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
12. No intra-operative complications were reported during my surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section D: Post-Surgical Recovery

13. My post-operative pain is significantly reduced.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
14. I followed the prescribed physiotherapy and rehabilitation program.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
15. I am satisfied with the outcome of my surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
16. I require regular pain medication after the surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
17. My ability to perform daily activities has improved post-surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section E: Psychological & Emotional Health

18. I experienced anxiety or depression before undergoing spinal surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
19. I felt emotionally prepared for surgery and its possible outcomes.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
20. My emotional well-being has improved since the surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section F: Pain & Symptom Management

21. I experience recurring leg or lower back pain after surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
22. Pain management methods after surgery were adequate.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
23. My current pain level interferes with my sleep quality.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section G: Functional and Social Impact

24. I have returned to my usual work or professional duties since surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
25. My social life or family interactions have been negatively affected.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
26. I require assistance in performing basic daily tasks post-surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

Section H: Satisfaction & Communication

27. My condition worsened after undergoing spinal surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
28. The surgical team adequately followed up with me post-surgery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
29. I was clearly informed about potential complications in advance.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
30. The surgery met my expectations regarding pain relief and recovery.
    [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5