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Assessment of Preoperative Surgical Fear in Patients Undergoing Lumbar Spine Surgery

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Abstract: Background: Lumbar spine surgery for degenerative spine disease is one of the most common neurosurgical procedures. Despite surgery having immediate pain relief and lumbar spine laminectomy/discectomy being a straight forward procedure, many patients exhibit increased level of anxiety and fear in the pre-operative period. Objective: This study aims to explore these fears and sources of anxiety in patients advised lumbar spine surgery for degenerative diseases. Methods: This cross-sectional study was conducted in the department of Neurosurgery, Liaquat National Hospital from 1st April to 31st May 2026Adult patients who were advised lumbar spine surgery for degenerative spinal diseases completed the Surgical Fear Questionnaire (SFQ) before surgery. Data was analysed via SPSS version 27. Results: Study population consisting of 110 patients mainly had males (65.5%), with a mean age of 45.9 years. The median total SFQ score was 46 (IQR 41–50). Patients were most afraid of the surgical procedure itself (95%), prolonged rehabilitation (91%), followed by fear of anaesthesia and recovery (79% and 70% respectively). SFQ scores did not significantly differ based on age, gender, education level, employment status, pain severity, or type of surgery advised ($p > 0.05$). The most common information sources were friends and family (87%). Most common coping mechanism included family reassurance (95.5%). Conclusion: Fear of surgery is multifactorial and prevalent in spinal surgery patients regardless of demographics. Family and friends are most important for emotional support. This study's findings highlights need of structured counselling program for patients preoperatively.

Keywords: Surgical fear, Lumbar laminectomy, Pre op anxiety, SFQ in spine

INTRODUCTION

Degenerative spine disease including disc herniation, spinal stenosis and instability are common neurosurgical diseases in which spine surgery often results in immediate pain relief and improves function for appropriately selected patients. [1,2] In spite of this, patients often experience psychological distress in the preoperative period. Preoperative fear and anxiety are common and are associated with higher post operative pain intensity. [3]

There are a number of factors which are fearful for patients undergoing spine surgery, including concerns about anaesthesia, post operative pain, and disability. [4] Furthermore, limited understanding of surgical procedure and misconceptions may increase this fear. This highlights how important it is to assess and address both emotional and informative aspects of patient preparation. [4] To target these fears preoperatively, one must identify these fears and perform targeted counselling, offer reassurance and include patients in decision making.

The Surgical Fear Questionnaire (SFQ) has been developed and validated across different surgical populations to quantify preoperative surgical fear. [5,6,7] The SFQ

evaluates both the short term and long-term fears including anaesthesia, pain, hospital stay and recovery disability, incomplete cure respectively. It offers an assessment of patients' emotional state before surgery.

While the SFQ has been applied in various surgical population, there is limited data targeting patients undergoing lumbar spine surgery. Most of the existing literature is focused on physical functional predictors of post operative outcomes rather than prevalence of preoperative fears. [8]

Because of this gap, assessment of surgical fear particularly in spine patients is important to understand patient perspective and tailoring perioperative care. Surgeons may better address concerns and reduce fear in this population once common domains of fear are identified, positively influencing the perioperative experience.

This study aims to evaluate preoperative fears among patients who are scheduled for lumbar spine surgery by using the Surgical Fear Questionnaire. Secondarily, it also aims to identify knowledge and expectations of patients about the surgical procedure. Once these concerns are identified, they can be addressed through patient education and counselling.

METHODS

This is a cross-sectional study. Ethical review committee approval was taken. (REF# 1335-2026—LNH-ERC) Data were collected in the outpatient department (OPD) between 1st April 2026 to 31st May 2026 in the out-patient department of neurosurgery in Liaquat National Hospital. Patients who were offered lumbar spine surgery for lumbar canal stenosis from either hypertrophy of ligaments, joints, or herniated lumbar disc, as evident by an MRI done within the last 3 months, were included and questioned by one of the authors on a pre-designed questionnaire after explaining the purpose of this study and obtaining verbal consent, in a face-to-face interview. Patients who refused to answer were excluded from the study. Assessment was done on the OPD visit where patients were advised lumbar spine surgery for the first time.

Convenient sampling was performed. A sample size of 109 was calculated by keeping anticipated frequency as 64.59% [9], precision 9%, confidence interval 95% using openepi sample size online calculator.

Baseline demographics were inquired. The Surgical Fear Questionnaire was applied, which is a validated questionnaire to assess surgical fear in preoperative adult patients. [5] This scale has been used for a variety of surgical procedures. It is an eight-item self-reporting questionnaire, comprising two subscales. Questions from 1-4 assess fear of short-term consequences of surgery, and the items 5-8 are a subscale for fear of long-term consequences of surgery. Each item has a possible score from 1-10, 10 being very afraid, and 1 being not afraid at all. This sums up to 80 highest possible score. Individual scorings are added and the final number is out of 80.

Analysis of data was done using SPSS ver. 27. Analysis consisted of the evaluation of demographics. Normal distribution was checked using the Shapiro-Wilk Test. Continuous data is reported as median and interquartile ranges as data was skewed. Categorical data is reported as percentages and numbers. Subgroup analysis was performed using Mann-Whitney U test.

RESULTS

Demographics

A total of 110 patients were included in this study. The mean age of the participants was 45.9 ± 6.7 years, with an age range of 27 to 76 years. The study population consisted predominantly of males (65.5%), with females accounting for 34.5% of participants. All patients were assessed in the pre-operative period. With regard to educational status, the majority had completed at least secondary education. Approximately 31.8% held a bachelor's degree and most of the participants were employed (78.2%). The most commonly advised procedure was lumbar discectomy or microdiscectomy, which was recommended in 91 patients (82.7%). Spinal fusion with screw fixation was advised in 19 patients (17.3%). (Table-1)

Outcomes

The data was checked for normality using the Kolmogorov-Smirnov test. It was skewed data, hence the median with interquartile ranges is reported.

SFQ Score

Total Surgical Fear Questionnaire (SFQ) scores were calculated for all participants. The median SFQ score was 46 (interquartile range [IQR]: 41–50) out of a maximum possible score of 80. On subgroup analysis using Mann-Whitney U test, female patients demonstrated slightly higher SFQ scores compared to males (median [IQR]: 43 [38–47] vs. 41 [38–45]); however, this difference was not statistically significant (p = 0.99). Similarly, no significant difference in SFQ scores was observed across age using Spearman's correlation (p value = 0.478).

The association between surgical fear and pain severity was also not statistically significant. Patients with moderate pain intensity (VAS score 4–6) had a median SFQ score of 43 (35–43), while those reporting severe pain had a median score of 42 (38–47) (p = 0.83) on Mann-Whitney U test, suggesting that the degree of surgical fear was largely independent of preoperative pain severity.

Educational status did not show any statistically significant difference with SFQ scores (p = 0.149). Similarly, employment status showed no significant association with surgical fear; the median SFQ score being 42 (38–46) in employed patients and 43 (40–47) in unemployed patients (p = 0.12) on Mann-Whitney U test. Similarly, no statistically significant difference in SFQ scores was seen depending upon the type of surgical procedure advised. Patients scheduled for lumbar discectomy or microdiscectomy had a median SFQ score of 42 (38–46), compared to 42 (40–48) in those advised spinal fusion with screw fixation (p = 0.335) using Mann-Whitney U test. (Table 2)

Source of Information, Coping Mechanisms, and Expectations

Patients described multiple sources of information used regarding their condition and the planned surgical procedure. The most frequently stated sources were friends and family (87%), followed by healthcare professionals (78%) and the internet (51.8%). Very few

patients reported using printed educational materials such as brochures or pamphlets (2.7%).

Commonly implemented coping mechanisms included reassurance from family, followed by seeking information online (reported by 95.5% and 41.8% respectively).

The majority of patients anticipated a moderate level of improvement post operatively, characterized by noticeable positive changes with some residual limitations (66.4%), and most patients expected significant postoperative pain reduction, with only minor discomfort remaining (59.1%). Table 3

Most Stressful SFQ Subset

Analysis of the SFQ subscales demonstrated that fear related to the surgical procedure itself was the most important domain (95%) followed by fear of prolonged rehabilitation period reported by 91% of patients. This was followed by fear of anaesthesia, reported by 79% of patients, and apprehension regarding inadequate postoperative recovery, reported by 70%. (Table 3)

DISCUSSION

Degenerative spine disease is common and include pathologies like disc herniation, spinal stenosis and instability. Lumbar spine surgery including laminectomy, discectomy and spinal fixations are routinely performed procedures in neurosurgery [1]. It is usually a straightforward procedure with limited risks, but despite this, patients experience increased anxiety pre operatively. [3] This can contribute to surgical failure and poor outcomes post operatively. [2]

This study assessed preoperative surgical fear in patients undergoing lumbar spine surgery. We used the Surgical Fear Questionnaire (SFQ) and added some supplementary questions inquiring about patients' source of information, expectations of surgery, and coping strategies. Results show clinically meaningful preoperative surgical fear in this population, with a median SFQ score of 46 (IQR 41-50) out of a total score of 80, which is more than half. This indicates that surgical fear is a considerable component of preoperative experience in lumbar spine patients. This is in concordance with existing literature. [10]

The most prevalent subsets were fear related to the surgical procedure itself and prolonged rehabilitation required, as reported by 95 and 91% of the patients, respectively. This is consistent with the literature, which shows that patients are most fearful about activities postoperatively, and this fear is related to poor outcomes. [11, 12] Fear of anaesthesia and inadequate post-operative recovery were seen frequently as well, reported by 79 and 77% of patients, demonstrating that intra-operative and long-term concerns contribute to overall presurgical anxiety.

This study evaluated whether fear changed based on demographic variables such as age, gender, education, or employment status, but found no significant association. Although surgical fear was slightly higher in female patients, this difference was not statistically significant. Similarly, pre-operative severity of pain was assessed to contribute in surgical fear but no relationship could be established. This suggests that preoperative

fear and anxiety may be relatively independent of patient's symptoms at the time of surgical procedure. This suggests that surgical fear is multifactorial, and, instead of being purely influenced by clinical condition, is influenced more by cognitive, emotional, and informational factors.

Another important finding was the reliance on informal sources for surgical information. Patients reported that the most common source of information regarding surgery was friends and family (87%), followed by healthcare professionals (78%) and the internet (51.8%). This proposes that although healthcare professionals play an important role in patient education, a significant amount of information is derived from non-medical sources, because patients perceive peer experience to be more realistic, genuine, and relatable than formal written and verbal information delivered by healthcare professionals. [13] This may contribute to misconceptions and aggravate anxiety and fear in patients. The high reliance on family as a coping mechanism (95.5%) may also reflect the cultural and social importance of family for patients' emotional regulation. Studies show an association of anxiety and depression in the perioperative phase with lack of information, functional disability, and pain. [14,15] This suggests that preoperative counselling practices may merit further evaluation in future studies.

Despite the presence of considerable pre operative fear, most patients showed optimistic and realistic expectations regarding surgical outcomes. The majority of patients expected moderate improvement in function and significant pain reduction rather than a complete cure.

As the findings of this research show clinically meaningful level of pre operative surgical fear, it is important to recognize that such fear can have negative impact on surgical success. This relationship is well documented in the existing literature. [16,17,18] Addressing this fear pre operatively, therefore, will contribute to improved outcomes in addition to improving patients per-operative experience, thus underscoring the value of adequate preoperative counselling and discussion about post operative expectations.

From a clinical perspective, these results emphasize the need for structured preoperative counselling. Every patient should be informed of the surgical procedure, complications, expected outcomes, realistic recovery timelines, and anaesthesia-related safety and expected complications. All the queries of the patient should be addressed to mitigate preoperative fear to avoid surgical failure. We propose that patients should be given adequate time whenever possible before elective surgery to process information and ask any questions at a later time before surgery. Incorporating educational sessions, written materials, or multimedia tools may enhance patients' preparedness and confidence for surgery. [10, 19,20,21]

This study has a few limitations. First, it was conducted at a single tertiary care centre with convenient sampling. This may limit generalizability of these findings to patients in other healthcare institutes. Secondly, a formally validated Urdu version of the SFQ was unavailable at the time of study which may lead to translation related bias. Thirdly, this is a cross-sectional study design, which prevents assessment of causal relationships between fear and postoperative outcomes, as only associations can be inferred at a single point in time, and the direction of this association remains unclear. Future multicentre studies are required with larger sample size to clarify this relationship and establish causality more

definitely. Further studies should also focus on impact of fear pre operatively with functional outcomes.

CONCLUSION

Preoperative fear is prevalent among patients scheduled for lumbar spine surgery. These fears are mostly concerning the procedure itself and postoperative rehabilitation. Surgical fear is multifactorial and not based entirely on demographical features. Targeted preoperative counselling addressing fear, anxiety for the procedure, and expected outcomes may play an important role in improving perioperative experience and optimizing surgical outcomes.

Conflict of Interest

There are no conflicts of interest to declare.

Declaration

Ethical review committee approval was taken. (REF# 1335-2026—LNH-ERC.

Table 1: demographic data of patients.

Variable	Value
Age (years)	45.9 ± 6.7 (range: 27–76)
Gender	
Male	72 (65.5%)
Female	38 (34.5%)
Educational status	
Middle school	29 (26.4%)
High school	22 (20.0%)
Bachelor's degree	35 (31.8%)
Masters' Degree or higher	24 (21.9%)
Employment status	
Employed	86 (78.2%)
Unemployed	24 (19.0%)
Retired	3 (2.7%)
Type of surgery advised	
Lumbar discectomy/microdiscectomy	91 (82.7%)
Spinal fusion with screw fixation	19 (17.3%)

Table 2: SFQ scores across different variables.

Variable	Median SFQ (IQR)	Test	p-value
Overall SFQ score	46 (41–50)		—
Gender		Mann-Whitney U test	
Male	41 (38–45)		0.990
Female	43 (38–47)		

Pain severity (VAS)		Mann-Whitney U test	
Moderate (4–6)	43 (35–43)		0.83
Severe (>6)	42 (38–47)		
Age		Spearman's rho	0.478
Educational status	—	Kruskall Wallis test	0.149
Middle school			
High school			0.087
Bachelor's degree			
Masters' Degree or higher			
Employment status		Mann Whitney U test	
Employed	42 (38–46)		0.12
Unemployed	43 (40–47)		
Type of surgery advised		Mann-Whitney U test	
Lumbar discectomy	42 (38–46)		0.335
Spinal fusion	42 (40–48)		

Table 3: Shows most stressful SFQ fear domains, sources of information, coping mechanisms and post op expectations

SFQ Domain	**Patients reporting fear n (%)**
Fear of surgery	105 (95%)
Fear of prolonged rehabilitation	100 (91%)
Fear of anaesthesia	87 (79%)
Fear of poor postoperative recovery	77 (70%)
Parameter	n (%)
Sources of information †	
Friends and family	96 (87.0%)
Healthcare professionals	86 (78.0%)
Internet	57 (51.8%)
Printed materials	3 (2.7%)
Coping mechanisms †	
Reassurance from family	105 (95.5%)
Seeking information online	46 (41.8%)
Postoperative expectations	
Moderate functional improvement	73 (66.4%)
Significant pain reduction	65 (59.1%)

† patients could select more than one option.

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