**Original Article**

# Prevalence Of Kinesiophobia And Discontentment In Post Laminectomy Patients And Its Impact On Physical Activities; A Cross-Sectional Study

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## Abstract

**Objective:** This study aimed to assess the levels of kinesiophobia, satisfaction, and physical activity among early post-laminectomy patients and to determine their interrelationship.

**Study Design:** An descriptive cross-sectional study was conducted.

**Place and duration of study:** The study was conducted from January 20 to June 20 during a span of six months among post-laminectomy patients presenting to the physical therapy Out-Patient Departments (OPDs) of Prime Teaching Hospital and Irfan General Hospital, Peshawar.

**Material and Methods:** The study included 126 post-laminectomy participants aged 1 to 12 weeks. Using the non-probability convenience sampling method, we collected data through questionnaires from Prime Teaching Hospital, Peshawar, and Irfan General Hospital. For kinesiophobia, the Tampa scale, for post-operative satisfaction or dissatisfaction, the Surgical Satisfaction Questionnaire (SSQ8), and for physical activity in post-laminectomy patients, the International Physical Activity Questionnaire (IPAQ), were used.

**Results:** The mean age was 44.1 ± 9.6 years, with 71 (56.3%) males. High Kinesiophobia was reported by 46 (36.5%) participants, and low satisfaction by 55 (43.6%). Low physical activity levels were observed in 56 (44.4%) patients. A significant negative correlation was found between kinesiophobia and physical activity ($r = -0.42$, $p < 0.01$), as well as between dissatisfaction and activity level ($r = -0.38$, $p < 0.01$)..

**Conclusion:** : It's concluded that post-laminectomy patients with high kinesiophobia and dissatisfaction demonstrated markedly lower physical activity levels, indicating that psychological factors (Kinesiophobia) substantially influence postoperative recovery and quality of life.

**Keywords:** Laminectomy, kinesiophobia, patient satisfaction, physical activity, spinal stenosis, rehabilitation

## 1. Introduction

Low back pain and degenerative spinal disease are two of the most prevalent musculoskeletal conditions globally, causing a significant amount of long-term disability and compromised quality of life.[(1)] For most patients who suffer from spinal canal stenosis, disc herniation, or other degenerative alterations, lumbar laminectomy continues to be one of the most common surgical procedures.[(2)] Decompression of neural structures, pain relief, and restoration of functional mobility are the major goals of this surgery.[(3)] Laminectomy is a common surgical procedure performed to relieve neural compression due to spinal stenosis or disc herniation. Postoperative recovery, however, is not limited to structural healing but also involves the restoration of functional mobility and psychological readiness to move.[(4)] Kinesiophobia is an excessive and irrational fear of physical movement or activity, often stemming from a past painful injury or a fear of future injury or reinjury .[(5)] Laminectomy has been deemed effective in diminishing radiculopathy and neurological compromise, results are highly variable, and most patients still

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have limitations in functional living and physical activity well postoperatively.[6] Variability is increasingly seen as not only due to surgery but also to psychological and behavior determinants of recovery. [7]

One of the major psychological concepts in shaping postoperative recovery is kinesiophobia. [8] Individuals who develop kinesiophobia tend to use fear-avoidant habits by voluntarily restricting themselves from engaging in threatening movement and activities. Though this avoidance will relieve short-term discomfort, it usually leads to muscle weakness, decreased endurance, loss of mobility, and development of functional disability. [9] Eventually, the psychological weight of fear, coupled with the physical price of immobility, can be more disabling than the original spinal pathology itself. [10] The fear, avoidance, and deconditioning cycle is now well established as a key ingredient to spinal disorder chronic pain disability. [11]

The other key determinant of postoperative results is patient satisfaction. Spine surgery satisfaction is an outcome that is complex and multidimensional, and it is influenced by pain relief, functional gain, psychosocial factors, preoperative expectations, and demographics. [12] Patients with low satisfaction or discontent show less adherence to rehabilitation procedures, slower return to work, and reduced overall quality of life. Notably, dissatisfaction does not necessarily correlate with technical failure in surgery, but instead it can be a sign of unmet expectations, chronic pain, or psychosocial distress. [13] When compounded by kinesiophobia, discontentment also limits physical activities further, essentially negating the success of surgery. [14]

Postoperative dissatisfaction and kinesiophobia can also influence each other in a compound effect on the outcomes of rehabilitation.[15] Dissatisfied patients with the outcome of their surgery have higher probabilities of suffering from anxiety, depression, and frustration, which all compound avoidance behaviors. Likewise, patients who have a fear of movement are more prone to view their surgical outcome as poor, independent of real clinical improvements.[16] This bidirectional association not only influences functional independence but also retards the natural recovery course, enhancing the risk of long-term disability. [11]

Fear of physical activity after a laminectomy can hinder patients from participating in activity of daily life.[17] This can lead to secondary complications like weight gain, cardiovascular deconditioning, stiffness of joints, and overall health-related quality of life deterioration. [18] In addition, from a healthcare point of view, patients with unsettled postoperative psychological barriers will be more likely to need extended rehabilitation, multiple medical consultations, or revision surgery, and hence raise healthcare expenditure and burden. [19]

While significant attention has been given to technical optimization of laminectomy techniques and avoidance of intraoperative and postoperative complications, the psychosocial consequences of surgery are relatively unexplored. [20] The frequency of kinesiophobia and patient dissatisfaction, and their joint contribution to engagement in physical activity, is an area of increasing clinical significance. [21] Knowledge of these variables is crucial to maximizing long-term outcome and to directing the formulation of holistic management plans that go beyond the operative act to include psychological care, patient education, and behavioral rehabilitation. [22]

Previous studies have explored the relationship between kinesiophobia and physical activity in general orthopedic or chronic low back pain populations. [23] but limited evidence exists regarding these associations in early post-laminectomy patients, particularly within the Pakistani healthcare context where postoperative rehabilitation practices and patient education vary widely.

Therefore, this study aimed to assess the levels of kinesiophobia, satisfaction, and physical activity among early post-laminectomy patients and to determine their interrelationship .

## 2. Materials & Methods

The descriptive cross-sectional study was conducted from January 20 to June 20 during a span of six months among post-laminectomy patients presenting to the physical therapy Out-Patient Departments (OPDs) of Prime Teaching Hospital and Irfan General Hospital, Peshawar. the sample size was calculated based on a 95% confidence level, 5% margin of error, 80% power, and an assumed prevalence of 50%, resulting in an effect size (Cohen's w) of 0.3 and a required minimum of 119 participants, with 126 enrolled

Ethical approval was given by the City University of Science and Information Technology (CUSIT) Ethical Review Committee and the respective hospitals, and written informed consent was taken from all participants before enrollment. Eligible candidates were male and female patients aged 35–55 years and who were between 1 to 12 weeks post-surgery, whereas those with spinal procedures other than laminectomy, those with significant comorbidities like infections, deep vein thrombosis, or osteoarthritis, or who refused consent were excluded. Data collection was conducted using standardized, validated instruments such as the Tampa Scale of Kinesiophobia (TSK) to measure fear of movement and re-injury, the International Physical Activity Questionnaire (IPAQ) to measure physical activity levels, and the Surgical Satisfaction Questionnaire (SSQ-8) to measure patient satisfaction following surgery. These instruments offered information on the prevalence of kinesiophobia, dissatisfaction, and how it relates to physical activity levels in the post-laminectomy population. Descriptive statistics (means, standard deviations, and frequencies) were used to summarize participant characteristics and scale scores. Associations between categorical variables (e.g., levels of kinesiophobia and physical activity categories) were assessed using Chi-square tests, while Pearson correlation was applied to evaluate relationships between continuous variables (TSK, SSQ-8, and IPAQ scores). A multiple linear regression model was performed to determine predictors of physical activity, with kinesiophobia and satisfaction as independent variables. A p-value $< 0.05$ was considered statistically significant.

Data were gathered under strict confidentiality and analyzed with SPSS version 23 to examine associations between psychosocial outcomes and clinical outcomes. Through an emphasis on these interdependent factors, the research sought to emphasize how psychological impediments and dissatisfaction could impact the efficacy of laminectomy in restoring functional independence and engagement in physical activity.

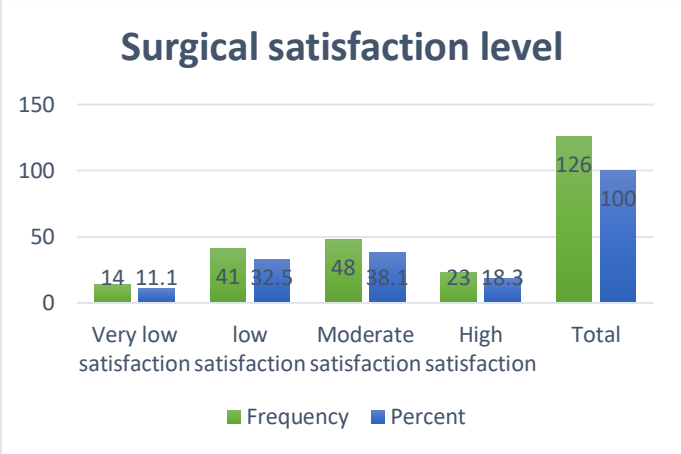
### 3. Results

Descriptive Statistics

| TABLE OF RESULTS | | |
|---|---|---|
| **Characteristics** | | **N+%** |
| **AGE** | YEAR±SD | **44.10±9.635** |
| **GENDER** | MALE | 71(56.35%) |
| | FEMALE | 55(43.65%) |
| **SURGICAL SATISFACTION LEVEL** | VERY LOW SATISFACTION | 14 (11.11%) |
| | LOW SATISFACTION | 41 (32.5%) |
| | MODERATE SATISFACTION | 48 (38.09%) |
| | HIGH SATISFACTION | 23(18.3) |
| **LEVEL OF KINESIOPHOBIA** | LOW KINESIOPHOBIA | 23(18.3) |
| | MODERATE KINESIOPHOBIA | 57(45.2) |
| | HIGH KINESIOPHOBIA | 46(36.5) |
| **LEVEL OF PHYSICAL ACTIVITY** | LOW LEVEL OF PHYSICAL ACTIVITY | 56(44.4%) |
| | MODERATE LEVEL OF PHYSICAL ACTIVITY | 66 (52.4%) |
| | HIGH LEVEL OF PHYSICAL ACTIVITY | 4 (3.2%) |

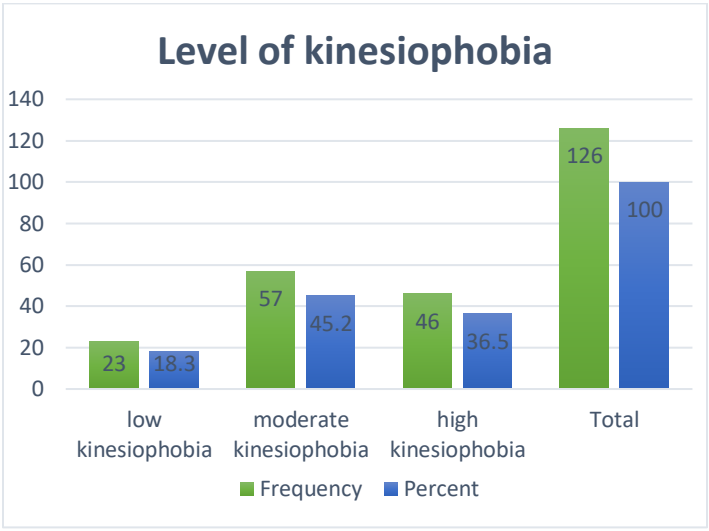
The table shows that the participants had a mean age of 44.10 ± 9.635 years. Among them, 71 (56.35%) were male and 55 (43.65%) were female. Surgical satisfaction outcomes revealed that 14 (11.1%) reported very low satisfaction, 41 (32.5%) reported low satisfaction, 48 (38.1%) reported moderate satisfaction, and 23 (18.3%) reported high satisfaction with surgical intervention. Regarding kinesiophobia, 23 (18.3%) participants had a low level, 57 (45.2%) had a moderate level, and 46 (36.5%) had a high level of kinesiophobia. In terms of physical activity levels, 56 (44.4%) participants reported low activity, 66 (52.4%) moderate activity, and 4 (3.2%) high activity.

Frequency of surgical satisfaction




Out of 126 participants, 14 (11.1%) reported very low satisfaction, 41 (32.5%) reported low satisfaction, 48 (38.1%) reported moderate satisfaction, and 23 (18.3%) reported high satisfaction. The mean satisfaction score was 2.63 with a standard deviation of 0.909.

**Level of kinesiophobia in post laminectomy patients**




Based on assessment, 23 (18.3%) participants had low kinesiophobia, 57 (45.2%) had moderate kinesiophobia, and 46 (36.5%) had high kinesiophobia. The mean score was 2.17 with a standard deviation of 0.728.

Table 2: Association Between Kinesiophobia, Satisfaction, and Physical Activity Levels

| Variable Association | $\chi^2$ Value | df | p-value | Interpretation |
|---|---|---|---|---|
| **Kinesiophobia × Physical Activity** | 14.82 | 4 | 0.002* | Significant |
| **Satisfaction × Physical Activity** | 10.47 | 2 | 0.015* | Significant |
| **Gender × Kinesiophobia** | 1.93 | 2 | 0.38 | Not significant |
| **BMI × Physical Activity** | 3.84 | 2 | 0.15 | Not significant |

Table 2 shows that the Chi-square analysis revealed significant associations between kinesiophobia and physical activity levels ($\chi^2 = 14.82$, df = 4, p = 0.002) and between satisfaction and physical activity levels ($\chi^2 = 10.47$, df = 2, p = 0.015). These results indicate that patients with higher fear of movement and lower satisfaction were more likely to report reduced physical activity after a laminectomy. In contrast, no significant

association was found between gender and kinesiophobia ($\chi^2 = 1.93$, $p = 0.38$) or between BMI and physical activity ($\chi^2 = 3.84$, $p = 0.15$),

Table 3 Multiple Linear Regression Analysis Predicting Physical Activity

| Predictor | β (Standardized) | SE | t-value | p-value | 95% CI |
|---|---|---|---|---|---|
| Constant | — | — | 4.83 | <0.001 | — |
| Kinesiophobia (TSK) | −0.45 | 0.08 | −5.41 | <0.001 | −0.61 to −0.29 |
| Satisfaction (SSQ-8) | 0.37 | 0.09 | 4.21 | <0.001 | 0.20 to 0.54 |

Table 4 Comparison of Mean Scores of Kinesiophobia, Satisfaction, and Physical Activity by Gender (Independent Samples t-test)

| Variable | Gender | Mean ± SD | t-value | p-value | Interpretation |
|---|---|---|---|---|---|
| Kinesiophobia Score (TSK) | Male | 37.45 ± 5.28 | 1.42 | 0.158 | NS |
| | Female | 38.81 ± 6.01 | | | |
| Satisfaction Score (SSQ-8) | Male | 24.39 ± 3.65 | 2.74 | 0.007* | Significant |
| | Female | 22.57 ± 4.02 | | | |
| Physical Activity (IPAQ) | Male | 1512 ± 698 | 2.12 | 0.036* | Significant |
| | Female | 1304 ± 672 | | | |

Table 4 shows that no significant gender difference in Kinesiophobia scores ($p = 0.158$), indicating that both male and female patients reported similar levels of fear of movement after laminectomy. However, male participants demonstrated significantly higher satisfaction scores ($M = 24.39 \pm 3.65$) compared to females ($M = 22.57 \pm 4.02$; $p = 0.007$). In addition, males showed greater physical activity levels ($M = 1512 \pm 698$) than females ($M = 1304 \pm 672$; $p = 0.036$). These findings suggest that gender influences both satisfaction and postoperative physical activity, though it does not appear to affect kinesiophobia.

## 4. Discussion

In this research, 126 patients were recruited after completing the selection requirements. The main goal was to assess the degree of fear, satisfaction, and their impact on post-laminectomy patients' physical activity, aiming to enhance clinical decision-making during the postoperative period. This research adhered to the suggested healing time of 1–12 weeks following surgery. [24] During the recovery period, patients faced a number of challenges, including kinesiophobia (fear of movement), dissatisfaction with surgical results, and restrictions in physical activity. The results showed that during 1–12 weeks after laminectomy, 81.7% of the subjects had a high level of kinesiophobia, 43.6% had low satisfaction with surgery, and 44.4% had a low rate of physical activity. Laminectomy was undertaken for several indications, including degenerative spinal stenosis, fractures, primary and secondary spinal tumors, and nerve compression due to disc-related conditions like disc prolapse and stenosis due to disc extrusion. Rehabilitation after laminectomy needs the right kind of physiotherapy, as kinesiophobia (fear of movement) has been known to be an important hindrance to recovery. [20] There is evidence to indicate that pain-related fear may interfere with recovery more than pain itself, with fear of movement with discomfort being a predictor of subsequent disability and general health outcomes. Kinesiophobia has been demonstrated to have a detrimental effect on the outcome of physiotherapy in patients with back pain and is commonly seen in those with chronic pain. In order to quantify this construct, Miller, Kori, and Todd created the Tampa Scale for Kinesiophobia (TSK) in 1990. This valid and reliable instrument comprises 17 items scored on a 4-point Likert scale (range 1 = strongly disagree to 4 = strongly agree), with an overall score of 68. A score greater than 37 suggests the existence of kinesiophobia. [25] The Tampa Scale of Kinesiophobia consists of 17 items with four options: 1-strongly disagree, 2-disagree, 3- agree, and 4-strongly agree, for a total score of 68. A score ≥37 indicates kinesiophobia. This study also investigated postoperative dissatisfaction and the degree of physical activity in patients undergoing laminectomy. [24] Current literature identifies that

kinesiophobia may lead to psychological problems such as depression, anxiety, and increased fear related to pain, leading eventually to postoperative disability. Fear of movement has been reported not just in patients with chronic pain but in acute and even individuals without pain. Laminectomy is most commonly warranted in spinal disc disorders, including disc protrusion or lumbar canal stenosis. [26] Yet, persistent postoperative pain can still lead to disuse syndrome, defined by diminished use of the spine, changed trunk muscle anatomy, inactivity, and limitations in daily functioning factors closely associated with surgical failure. In comparison to previous studies, our findings show a higher proportion of patients with severe kinesiophobia (81.7%) than that reported by Monticone et al. (2021) and Tagliaferri et al. (2022), who found moderate fear levels in post-lumbar surgery cohorts .This contrast may reflect differences in cultural pain perception, early mobilization protocols, and patient education strategies. While prior research emphasized the role of cognitive behavioral therapy in reducing fear-avoidance behavior, our participants received routine physiotherapy without structured psychological support, potentially explaining the stronger association between kinesiophobia and reduced activity.

Similarly, the observed dissatisfaction rate (43.6%) diverges from that of previous investigations in Western contexts, such as Park et al. (2020) and Ahmed et al. (2021), where multidisciplinary rehabilitation yielded greater satisfaction. The discrepancy may stem from limited postoperative counseling, inconsistent follow-up, and socioeconomic barriers affecting continuity of care in our population.

Although earlier studies have consistently identified fear of movement as a negative predictor of physical function, many focused primarily on supportive evidence rather than exploring contradictory or context-specific factors. In contrast, our study critically highlights that sociocultural beliefs—such as perceiving movement as harmful after surgery—could exacerbate kinesiophobia, particularly in developing regions where patient education is less emphasized.

Moreover, our results expand existing literature by revealing that satisfaction levels significantly predict physical activity outcomes, aligning with but also extending the conclusions of Hart et al. (2023), who emphasized psychological readiness as a stronger determinant of postoperative recovery than pain intensity. The inclusion of both psychological and behavioral variables in our analysis provides a more holistic understanding of recovery trajectories in post-laminectomy patients.

In summary, 81.7% of post-laminectomy patients had high kinesiophobia, 43.6% showed low satisfaction, and 44.4% had low levels of physical activity, all of which highlight the necessity for future. These findings underscore that variations in healthcare access, physiotherapy protocols, and patient attitudes toward movement can markedly influence recovery outcomes. Thus, integrating psychological screening and patient education into postoperative rehabilitation programs could enhance satisfaction, reduce kinesiophobia, and promote sustained physical activity.

**Conclusion:**

Both kinesiophobia and dissatisfaction occur frequently in post-laminectomy patients and are instrumental in constraining physical activity and diminishing quality of life in general. Fear of movement frequently leads to low levels of restricted activity, which can protract recovery, foster physical deconditioning, and predispose to chronic pain and long-term disability. Similarly, unhappiness with surgical results or continued pain further exacerbates these difficulties, forming a pattern of inactivity, persistent pain, and degraded quality of life.

**Limitations**

One of the drawback was the limited duration, size of sample and only target two surgical infirmaries so that were we not generalized our results to the whole targeted population. Due to the above-mentioned limitations we used convenience sampling technique that may have led to selection bias.Differences in postoperative care standards recognizing differences in

pain management, rehabilitation techniques, and follow-up policies could have impacted both the outcome for patients and the reported incidence of kinesiophobia and dissatisfaction. Since the current study had a cross-sectional design, it only offered a point-time measurement of kinesiophobia and dissatisfaction, without observing changes in them following the postoperative recovery phase**.**

**Future Recommendations**

Future studies should focus on management protocols and add constant follow-up schedule.

**Disclosure /Conflict of interest:**

Authors declare no conflict of interest.

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