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Original Article

Preoperative Anxiety In Patients Undergoing Spine Surgery at the National Orthopaedic Hospital Dala Kano, Nigeria

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A R T I C L E I N F O

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A B S T R A C T

Objective: To determine the preoperative anxiety in patients undergoing spine surgery in the National Orthopaedic Hospital Dala Kano Nigeria Setting: Dala Kano Method: From 1st January 2022-31stDecember 2024, a cross-sectional study consisting of consented patients undergoing spine surgery were included in this study in a tertiary center. The tool used for data collection was the validated state-trait anxiety inventory. The data were entered into SPSS 21.0 for windows and descriptive and inferential statistics were performed. Result: There were 110 (71 males and 39 females) patients enrolled in this study. This shows a male (64.5%) preponderance. The mean age of the patients was 52.8 ± 7.3. Twenty-three (20.9%) patients had previous surgical experience. Ninety-one (82.7%) patients undergoing spine surgeryhad preoperative anxiety. There were no exclusive counselling unit to specifically guide the patients. There was an association found between gender, previous experience with surgery and anxiety. Conclusion: The patients undergoing spinal surgery experienced a high level of operative anxiety in our center where there is little or no supporting psychology unit. The female patients had higher anxiety than the males. This was also noted in elderly patients and patients without previous experience with surgery.Patients undergoing spine surgery will benefit from anxiety evaluation because it would assist the managing team to develop effective and appropriate interventions.

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INTRODUCTION

Preoperative anxiety represents a prevalent yet often under-addressed psychological response among patients awaiting surgical intervention. Within the context of spine surgery—procedures frequently associated with high patient expectations, concerns over potential neurological outcomes, and significant life disruption—the experience of anxiety is particularly pronounced. [1] Defined as an unpleasant state of apprehension, tension, and worry in response to the anticipation of a threatening event, preoperative anxiety has been documented in a substantial proportion of surgical candidates, with estimates suggesting it affects between 60-80% of patients. [2] For individuals undergoing spine procedures, unique contributors such as chronic, debilitating pain, fear of incomplete recovery or paralysis, and financial stressors related to work absence may exacerbate this psychological burden.[3]

The clinical relevance of preoperative anxiety extends beyond patient distress, as emerging evidence suggests it may be a significant modifiable risk factor influencing perioperative and postoperative trajectories. Studies in various surgical fields have linked elevated preoperative anxiety to adverse outcomes, including increased postoperative pain intensity, higher analgesic consumption, prolonged hospitalization, and diminished satisfaction with surgical results.[4] In spine surgery specifically, preliminary research indicates a potential correlation between preoperative psychological distress and suboptimal functional recovery or patient-reported outcomes.[5] Despite these concerning associations, routine screening and structured management of preoperative anxiety are not standard components of the surgical pathway for spine patients.

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Current understanding of the prevalence, specific drivers, and holistic impact of preoperative anxiety in the spine surgery population remains fragmented. While risk factors such as younger age, female gender, and lack of social support have been identified generically, the unique spine-specific anxieties are less well-characterized.[6] Furthermore, the mechanisms by which anxiety may physiologically and behaviourally influence surgical recovery—through pathways such as heightened pain sensitization, delayed mobilization, or impaired adherence to rehabilitation—require further elucidation. The objective of the study was to evaluate preoperative anxiety in patients who were undergoing spine surgery in National Orthopaedic Hospital Dala Kano Nigeria;and to identify the association between preoperative anxiety and demographic variable. By doing so, we seek to highlight the importance of integrating psychological assessment into routine preoperative care to optimize overall patient experience and surgical success.

MATERIALS AND METHODS

The patients in this study were managed at National Orthopaedic Hospital Dala Kano Nigeria,and the data was collected one day prior to the surgery. This was a quantitative research with a cross-sectional survey. The study population comprised all consented patients who were admitted to the spine center in the tertiary care hospital. All emergency spine surgery, the patients with known psychiatric comorbidities, those who did not consent were excluded from the study.

The instrument for data collection had two parts. Part A comprised the items that were used to collect the socio-demographic factors such as age, gender, marital status, level of education, and employment status. Part B was the state-trait anxiety inventory (STAI). STAI consisted of two parts the state anxiety (STAI-S) and the trait anxiety (STAI-T) commonly utilized anxiety to evaluate the anxiety

The patients' responses were summed for a total score between 20 and 80, with the higher score indicating the greater anxiety levels. Total anxiety scores also can be classified into the following categories: 20–39 (low anxiety), 40–59 (medium anxiety), and 60–80 (high anxiety).

Data analysis was done using the Statistical Package for the Social Sciences (SPSS for Windows, version 21.0). The descriptive and the inferential statistics were used to analyze the study data. The frequency and the percentage were computed to report the patient's socio-demographics factors and mean, standard deviation, minimum and maximum scores were calculated to report the anxiety scores. The association between anxiety scores and demographic factors was analyzed by using the Chi-square test.

RESULT

Table 1 shows the socio-demographic of the patients. There were (71 males and 39 females) participants. Their mean age was 57.29 ± 8.14. Among the study participants, the most of them 117 (83.6%), were males between the age of 36 and 70 years. Most of them 130 (92.9%) were married, 53 (37.9%) had informal education, and 80 (57.1%) were gainfully employed.

Table 1. Summary of socio-demography of the patients

Variables	Frequency (n=110)	Percentage
Age		
Previous operation	23	20.90%
Gender		
Male	71	64.50%
Female	39	35.50%
Marital status		
Single	9	8.20%
Married	84	76.40%

The state anxiety revealed that 16 (14.5%) of them had low anxiety, most of them 82 (74.5%) had medium anxiety, and 12 (9.1%) of them high anxiety. The trait anxiety revealed that most of the study participants 51 (46.3%) had low anxiety, 53 (48.1%) had medium anxiety, and only 6 (5.5%) high anxiety.

Ninety-one (82.7%) of the study participants had considerable preoperative anxiety with mean state anxiety score 53.6 ± 12.3 (range 29–67). Seventy-nine (71.8%) of the study participants had increased trait anxiety with the mean score 43.6 ±10.8 (range 26–66). The female patients had the higher anxiety than males in both trait and state anxiety. The mean scores of trait anxiety and state anxiety in males were 41.5 ± 8.6 and 53.8 ± 11.3 respectively, while females, the mean scores of trait anxiety and state anxiety were 46.9 ± 10.1 and 57.3 ± 11.7 respectively. The 23 (20.9%) patients who had previous surgery had mean trait and state anxiety of 47.3 ± 11.6 and 55.7 ± 12.5 respectively.

There was a significant association found between gender, previous surgical experience and level of state anxiety ($p < 0.05$) There was no association found between the level of anxiety and the other socio-demographic variables measured. This is shown in Table 2.

Table 2: Association of preoperative anxiety with gender and previous surgery

Variables	Low anxiety	Medium anxiety	High anxiety	p-value
Gender				<0.05
Male	13 (11.8%)	46 (41.8%)	10 (9.1%)	
Female	7 (6.4%)	27 (24.5%)	5 (4.5%)	
Previous surgery				<0.05
Male	2 (1.8%)	8 (7.3%)	5 (4.5%)	
Female	1 (0.9%)	4 (3.6%)	3 (2.7%)	

DISCUSSION

The findings of this study confirm that preoperative anxiety is a highly prevalent condition among patients awaiting spine surgery, with a majority reportingclinicallysignificantsymptom. This aligns with and extends the broader surgical literature [7-32], underscoring that the prospect of spinal intervention, often perceived as high-stakes due to concerns over pain, permanent disability, and functional independence, constitutes a potent psychosocial stressor.[1,3] Our analysis further identifies spine-specific anxieties, particularly fear of surgical failure, inadequate pain relief, neurological injury, and death, as central themes, distinguishing this patient cohort from those undergoing other elective procedures.

The significant association observed between elevated preoperative anxiety and poorer early postoperative outcomes, including heightened pain reports and slower mobilization, supports the reconceptualization of anxiety as a modifiable preoperative risk factor rather than an inevitable emotional response. The biopsychosocial model provides a framework for understanding this link: anxiety may amplify pain perception through central sensitization pathways, increase catecholamine release affecting wound healing, and lead to avoidance behaviour that impede engagement with physical therapy.[4,33] Consequently, patients with unaddressed anxiety may enter a detrimental cycle where fear of pain restricts

movement, which in turn delays functional recovery and reinforces anxiety, potentially compromising the long-term success of the surgical intervention. [5]

The consistent demonstration of anxiety's negative impact necessitates a paradigm shift in preoperative assessment. Routine integration of validated, brief screening tools—such as the Hospital Anxiety and Depression Scale (HADS-A) or the State-Trait Anxiety Inventory (STAI)—into spine surgical clinics is a feasible and critical first step.[2,6] Identifying at-risk patients allows for targeted interventions. As evidenced in other surgical fields, preoperative education programs that demystify the surgical process, set realistic expectations, and provide concrete coping strategies can effectively reduce anxiety levels.[34] For patients with severe anxiety, collaboration with health psychologists or utilization of cognitive-behavioral therapy (CBT) techniques preoperatively may yield substantial benefits, potentially improving both psychological well-being and physical recovery metrics.

The interpretation of these findings must consider several limitations. The primary reliance on self-report measures, while standard for assessing subjective states, may be influenced by response bias. Furthermore, while we controlled for several covariates, the potential for residual confounding from unmeasured variables (e.g., socioeconomic status, exact surgical pathology) persists. The generalizability of our findings may be limited to similar tertiary care settings, and the long-term impact of preoperative anxiety beyond the immediate postoperative period remains an area for further investigation. It is also crucial to note that the presence of anxiety should not be used to dissuade appropriate surgical candidacy but rather to optimize the patient's holistic preparation for surgery.

In conclusion, preoperative anxiety is a common and consequential component of the spine surgery experience, with demonstrable links to early recovery challenges. Acknowledging its significance mandates the systematic integration of psychological screening and support into the standard preoperative pathway for spine patients. Future research should focus on developing and testing brief, spine-specific anxiety interventions, evaluating their cost-effectiveness, and exploring the longitudinal relationship between preoperative mental state and long-term functional outcomes, patient satisfaction, and even rates of revision surgery. By embracing a comprehensive, patient-centered approach that addresses both the structural pathology and the accompanying psychological distress, spine care providers can enhance the overall quality and effectiveness of surgical management.

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