

ORIGINAL ARTICLE

Frequency of Psychological Changes in Surgical Patients: A Prospective Cross-Sectional Multi-Center Study

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<p>Affiliations</p> <p>1. Neurosurgeon, Mohammadi Hospital, Khadim Ali Road, Sialkot.</p> <p>2. Doctor, Rachna Center, Khawaja Safdar Road, Sialkot Cantt. 03004949520 hamnasaeed@gmail.com</p> <p>3. Psychologist, Bashir Hospital, Sialkot. Contact # 0308-0899100 Email: fatimagillani85@yahoo.com</p> <p>4. MBBS Student, Islam Medical College, Sialkot 0332-4170962 hamzashahzad@gmail.com</p> <p>5. MBBS Student, C/O Bashir Hospital, Sialkot 0321-6141820 hassanshahzad@gmail.com</p> <p>6. MBBS Student, C/O Faiz Lab, Commissioner Road, Sialkot 0302-8711724 mushahadfaiz@gmail.com</p> <p>Corresponding Author: Dr. Tasleem Abbas, Neurosurgeon, Mohammadi Hospital, Khadim Ali Road, Sialkot. 0334-4690472 Tasleemabbas51@gmail.com Contact #.03338657516</p>	<p>Abstract</p> <p>Objectives: To find how often patients have psychological symptoms in surgery-related cases.</p> <p>Methodology: A prospective cross-sectional study was conducted from 1st June to 10th of August 2025 across five hospitals in Sialkot. One hundred fifty post-operative patients (age ≥ 11 years) were enrolled consecutively. Participants completed a 20-item symptom questionnaire (0 = Never to 4 = Always). Analyses included descriptive statistics, reliability testing (Cronbach's α), exploratory factor analysis, and multiple linear regression. Results are reported as β coefficients with 95% confidence intervals (CI) and model fit (R^2).</p> <p>Results: The questionnaire showed excellent reliability (Cronbach's $\alpha = 0.92$). Factor analysis supported four groups of symptoms: Anxiety, Depression, Irritability, and Hypervigilance, explaining 62% of the variance. Symptoms reported "Often" or "Always" included feeling overwhelmed (24.7%), feeling tired (22.7%), and excessive worry (20.7%). In the regression model ($F(6,143) = 8.24, p < 0.001, R^2 = 0.26$), female gender ($\beta = 4.10; 95\% \text{ CI: } 1.98\text{--}6.22; p < 0.001$) and being 1–6 months after surgery ($\beta = 3.85; 95\% \text{ CI: } 1.45\text{--}6.25; p = 0.002$) predicted higher distress scores.</p> <p>Conclusion: Psychological changes after surgery are common. Females and patients in the 1–6 month recovery period show higher distress.</p> <p>Keywords: Post-operative, psychological changes, anxiety, depression, surgery, cross sectional.</p> <p>Cite this Article as: <i>Tasleem M., Saeed H., Masood F., Shahzad H., Shahzad H., Faiz M.; Frequency of Psychological Changes in Surgical Patients: A Prospective Cross-Sectional Multi-Center Study. SIAL J Med. Sci. March-2026 V-4 (Issue-03, Overall Issue-15):33-37</i></p> <p>Author contribution: TA; conceptualization of project, data collection, writing manuscript, statistical analysis, and final approval. HS, FM, HS, HS, MF; data collection, drafting, and revision.</p> <p>Submission completed: Nov, 2025 Review began: Nov, 2025 Review ended: Jan, 2026 Accepted: Feb, 2026 Published: March, 2026</p>
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Introduction

Surgery is a major life event that can bring pain, worry, and temporary disruption of daily

life. Although healthcare teams focus on physical recovery, mental health effects such as anxiety, sadness, irritability, and

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increased alertness (hyper-vigilance) are common and can delay the recovery and reduce the quality of life. Most published research comes from high income countries; local data are limited and many studies used untested questionnaires. This study uses a prospectively collected sample and a 20-item questionnaire that we tested for reliability and structure to give a clear local picture.

Objectives:

To find how often patients have psychological symptoms after surgery by testing with a 20 item questionnaire. To find out which demographic and surgery-related factors are associated with psychological changes in post-operative patients.

Methodology

A prospective cross-sectional study was conducted at five hospitals in Sialkot (Mohammadi Hospital, Allama Iqbal Memorial Teaching Hospital, Govt. Sardar Begum Teaching Hospital, Islam Central Hospital and Bashir Hospital) between 1st June and 10th of August 2025.

Consecutive sampling yielded 150 post-operative patients. Those having age ≥11 years with any surgical procedure but within six months of surgery were included. Patients who were unable to give consent (or assent when needed) or having major cognitive impairment were excluded.

This study was approved by the Institutional Review Board and Ethical Committee of Bashir Healthcare Services, Sialkot. Written informed consent was obtained from adult participants. For participants aged 11–17 years, written parental/guardian consent and participant assent were obtained. The study followed the Declaration of Helsinki. Participants’ data were anonymized and stored on password-protected devices; only the research team had access to identifiable information.

Results

Participant characteristics Mean age = 37.2 ± 13.4 years. Females: 100 (66.7%). Most common procedures: cholecystectomy 24 (16.0%), C-section 22 (14.7%), and

appendectomy 16 (10.7%). Time since surgery: <1 week 96 (64.0%), 1–4 weeks 32 (21.3%), 1–6 months 16 (10.7%), >6 months 6 (4.0%).

Characteristic	Category	n	%
Gender	Male	50	33.3
	Female	100	66.7
Age Group	11–20 years	20	13.3
	21–40 years	85	56.7
	41–60 years	35	23.3
	>60 years	10	6.7
Surgery Type	Cholecystectomy	24	16.0
	C-Section	22	14.7
	Appendectomy	16	10.7
	Thyroidectomy	10	6.7
	Hernioplasty	14	9.3
	Other	64	42.6
Duration since surgery	<1 week	96	64.0
	1–4 weeks	32	21.3
	1–6 months	16	10.7

Table 1. Baseline Demographic and Clinical Characteristics of Participants (N = 150)

Reliability and factor structure of the questionnaire Cronbach’s α (coefficient alpha) = 0.92, indicating excellent reliability. Exploratory factor analysis showed four meaningful groups of items — Anxiety, Depression, Irritability, and Hypervigilance — which together explained about 62% of the total variance. Item loadings were consistent and communalities acceptable.

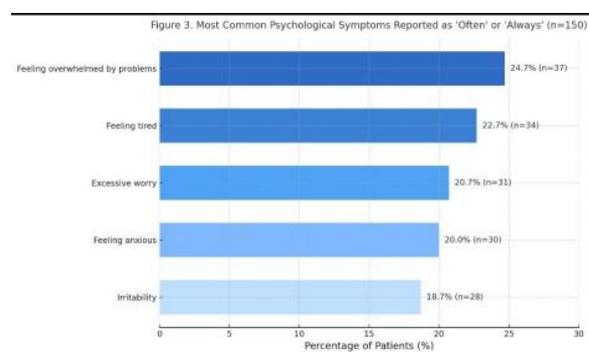


Figure. Top five psychological symptoms reported as “Often/Always” (Bar chart)

Predictors of psychological distress Multiple linear regression (total distress score as dependent variable) was significant: F(6,143) = 8.24, p < 0.001, R² = 0.26. Female gender was associated with higher distress (β = 4.10; 95%

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CI: 1.98–6.22; $p < 0.001$). Being 1–6 months after surgery was associated with higher distress compared with <1 week ($\beta = 3.85$; 95% CI: 1.45–6.25; $p = 0.002$). Age and surgery type were not statistically significant.

Predictor	β (Coefficient)	95% CI	p-value
(Intercept)	22.10	18.45 – 25.75	<0.001
Gender (Female)	4.10	1.98 – 6.22	<0.001
Age	-0.02	-0.09 – 0.05	0.532
Surgery Duration; 1–4 weeks	2.15	-0.61 – 4.91	0.126
Surgery Duration: 1–6 months	3.85	1.45 – 6.25	0.002
Surgery Duration: >6 months	2.90	-1.22 – 7.02	0.167

Table 3. Multivariable Linear Regression Predictors of Total Psychological Distress Score

Analysis: Analyses were done in R (v4.3.0). We used descriptive statistics (counts, percentages, means \pm SD). Cronbach's α tested internal consistency. Exploratory factor analysis (principal axis factoring with oblique rotation) explored the questionnaire's structure; a four-factor solution was kept based on eigenvalues and interpretability (explaining $\approx 62\%$ variance). Group comparisons used t-tests or ANOVA as appropriate. Multiple linear regression modeled the total distress score with predictors: gender, age, surgery type, and time since surgery. We report β coefficients with 95% CIs and p-values; model fit shown by R^2 .

Discussion

Our aim was to determine the frequency of psychological changes occurring in postoperative patients as well as the demographic and surgical factors influencing it. On the basis of this aim, a prospective, multi-center study was conducted that shows that a meaningful number of patients experience psychological symptoms after surgery and these symptoms can continue into the months following surgery. A 20-item questionnaire was used as a screening tool,

which performed well, showing the high reliability and a logical factor structure. Our results demonstrated that the post-operative recovery is often accompanied by significant psychological changes. Especially in the

women where we can see higher rates of anxiety and depression. This aligns with previous research showing that the female patients are more likely to experience psychological distress in perioperative period.^{2-5,6}

Biologically, hormonal fluctuations and stress related neuroendocrine responses may increase vulnerability to mood changes in women^{4,8}.

Some cultural factors influencing help seeking and reporting the behaviour also explain the higher observed rates⁷. There is also the higher score in the 1–6 month recovery window which suggests that psychological problems can persist beyond the immediate postoperative period³ — possibly due to postoperative pain, limited mobility, dependence on care givers, and uncertainty about recovery^{5,9,1}. Moreover residual anesthesia effects, inflammatory responses and neuroendocrine alterations following surgery can transiently affect mood and cognition^{11,12}.

Our finding is consistent with a broad body of literature demonstrating that surgery often triggers significant emotional and cognitive responses. Numerous studies have identified the anxiety, depression, irritability and mood fluctuations as common postoperative psychological phenomena⁽¹³⁻¹⁵⁾. Hinrichs-Rocker et al. reported that up to 30–50% of surgical patients experience postoperative psychological distress, with the anxiety and the depressive symptoms being the most frequent¹³. Similarly, Bedaso et al. found a high prevalence of pre- and postoperative anxiety among surgical patients, suggesting that psychological factors play an important role in recovery¹⁶.

Jayaraman et al. observed that anxiety and depression tend to fluctuate during the recovery course, particularly in the early months following surgery¹⁷. This study

underscores the need to address psychological well-being as an integral part of post-operative care. Routine screening and early psychological support can help identify patients at risk of anxiety, depression, leading to better recovery and outcome. Mental health assessment promotes more holistic, patient centered approach to the recovery. The study has certain limitations that should be acknowledged. It is a cross sectional design with no causal claims, there is the use of self-reported data which may introduce the reporting bias. Modest sample size (N=150) limits generalizability of findings to a broader population. And an R2 of 0.26 showing other factors not captured. This study underscores the importance of recognizing psychological changes as a key aspect of postoperative recovery. It highlights the need for the mental health screening and support in standard care. Future studies should include larger, longitudinal studies, and explore targeted interventions such as counseling and rehabilitation programs.

Conclusion:

Psychological changes after surgery are common and matter for recovery. The data reveals women and patients 1–6 months after surgery are at higher risk. Detecting these changes can help give better overall care. Routine screening and early mental health support should be the part of postoperative care as it can help improve patient's recovery and quality of life. Routine use of a short, validated screening questionnaire in follow up clinics could help detect the patients who need mental health support, especially women and those with longer recoveries.

Recommendations

The experience of undergoing surgery is an important life event that challenges a patient's not only physical but psychological wellbeing. While surgical and anesthetic techniques have advanced rapidly to minimize physical morbidity and mortality, attention is increasingly turning toward the

patient's holistic recovery, which includes their mental and emotional well-being (1)

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