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PREVALENCE OF ANXIETY AND DEPRESSION IN PATIENTS UNDERGOING ELECTIVE ABDOMINAL SURGERY

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Abstract

Background

Anxiety and depression are common yet often overlooked psychological conditions among patients preparing for elective abdominal surgery. These emotional disturbances can impair perioperative stability, increase postoperative pain, prolong hospital stay, and hinder overall recovery. The lack of routine psychological assessment, particularly in resource-limited settings, contributes to poorer surgical outcomes. Therefore, evaluating preoperative psychological status is essential for improving patient care.

Objectives

To determine the prevalence of preoperative anxiety and depression among patients undergoing elective abdominal surgery and to examine their association with demographic and clinical factors such as age, sex, education level, comorbidities, and previous surgical history.

Methodology

A cross-sectional Study was conducted among 100 adult patients scheduled for elective abdominal procedures. Preoperative anxiety and depression were assessed one day prior to surgery using the Hospital Anxiety and Depression Scale (HADS). Sociodemographic and clinical information was collected, and standard HADS cutoff scores were used to classify anxiety and depression levels. Data were analyzed using descriptive statistics and Chi-square tests to evaluate associations by SPSS version 24.

Results

The study included 100 participants with a mean age of **48.5 ± 12 years**. Prevalence of preoperative anxiety was **42%**, while **35%** exhibited symptoms of depression. Anxiety was significantly associated with female sex ($p = 0.03$), lower educational status ($p = 0.04$), and a history of previous adverse surgical experiences ($p = 0.02$). Depression was more common among patients with chronic illnesses, although this association did not reach statistical significance.

Conclusion
Anxiety and depression are highly prevalent among patients awaiting elective abdominal surgery and are influenced by several demographic and clinical factors. Incorporating psychological screening into routine preoperative evaluation may allow early intervention, enhance postoperative recovery, and improve overall surgical outcomes.

Keywords: Anxiety, Depression, Elective surgery, abdominal surgery

Introduction:

Elective abdominal surgeries are an enormous stress to patients, as they must go through these procedures relatively voluntarily, and there are many psychological issues patients must go through. Pain management and recovery are influenced by these issues. The most common issues are anxiety and depression (which are also poorly diagnosed and treated) and are more common in patients going through surgeries than people in primary care (which is even more common in poorer and more rural healthcare settings) [1,2]. Patients may often become anxious prior to these surgeries due to uncertainty about anesthesia, potential surgical complications, pain, and other recovery uncertainties. Depression is also connected to lack of potential coping mechanism and feeling sadness which may also hinder effect of recovery after the surgery [3,4]. The importance to recognize the presence of anxiety is also essential considering the many associations to recovery (e.g., controlling pain, length of stay, mood and even death). Also, patients often feel they are in more pain than is present and take more medication than is necessary (e.g., pain killers) as anxiety goes untreated. Poor recovery is also connected to mental depression, symptoms including slow healing, worse immune system, more recovery time, and even ignoring physician's orders. Especially the poor recovery time is common within these patients [5,6]. The anxiety and depression prior to surgery have been documented and studied, but the prevalence of people with these symptoms is poorly documented and studied. According to international studies, the type of surgery, sociodemographic factors, and clinical context determine anxiety and depression rates to be 30% to 80% and 10% to 40%, respectively. There is a lack of health literacy and psychological support systems as well as financial burdens, extensive waiting times, and psychological distress as a common consequence of surgery. Culturally, the emotional expression of people feels a stigma [7,8]. Thus, the psychological symptoms can be underreported. South Asia suffers from a high burden of abdominal surgical disease, and there is a scarcity of studies that quantify the level of psychological distress that these patients experience before the surgery. To improve the distress suffered in the surgical population, there is a need to understand and quantify the psychological distress [9]. The Hospital Anxiety and Depression Scale (HADS) is one of the few screening instruments that have been validated and which can assist in easily screening and measuring psychological distress in surgical clinics. Screening allows clinicians to offer reassurance, counseling, psychiatric referrals, and other support that can improve health outcomes. The aim of this study was to quantify and describe the level of anxiety and depression that patients experience before abdominal surgery in a tertiary care hospital [10].

Study Objectives

1. To determine the prevalence and severity of anxiety and depression among patients undergoing elective abdominal surgery.
2. To identify demographic and clinical factors associated with increased psychological distress.

Materials and Methods

Study Design & Setting

A cross-sectional study was conducted in the Department of Surgery Islamic International Medical College Rawalpindi from Jan 2023 to June 2023. Consecutive adult patients diagnosed and scheduled for elective inpatient abdominal surgeries were recruited during their pre-anesthesia evaluation visits.

Participants
Eligible participants were adults age 18 –75 years undergoing elective abdominal procedures. Recruitment occurred at the pre-anesthesia assessment clinic. Patients were excluded if they had a known psychiatric disorder, were using psychotropic medications, exhibited cognitive impairment, required emergency surgery, or declined participation. A structured questionnaire was used to collect demographic and clinical data.

Sample Size Calculation
The sample size was calculated assuming a 50% expected prevalence of anxiety, a 95% confidence level, and a 10% margin of error. Using the formula $n = Z^2P(1–P)/d^2$, the required sample size was determined to be 96 participants. To enhance precision and account for potential incomplete responses, the sample size was rounded up to 100 participants.

Inclusion Criteria
- Age 18 –75 years
- Scheduled for elective, non-urgent abdominal surgery
- Ability to understand and complete the questionnaire
- Provided written informed consent

Exclusion Criteria
- Known psychiatric illness
- Current use of antidepressant or anxiolytic medications
- Cognitive impairment or inability to respond to questions
- Need for emergency surgical intervention

Diagnostic and Management Strategy
The Hospital Anxiety and Depression Scale (HADS) was used to assess preoperative anxiety and depression. Patients scoring above established cutoff thresholds were referred for counseling or psychiatric evaluation as appropriate. All participants received standard perioperative management according to institutional surgical and anesthesia protocols.

Statistical Analysis
Data were analyzed using SPSS version 24.0. Continuous variables were presented as means and standard deviations, while categorical variables were summarized as frequencies and percentages. Associations between psychological variables (anxiety and depression) and demographic or clinical characteristics were evaluated using the Chi-square test. A p-value < 0.05 was considered statistically significant.

Results
A total of 100 patients scheduled for elective abdominal surgery were included in the study. The mean age was 47.6 ± 12.3 years, and 62 patients (51.7%) were male. Based on the Hospital Anxiety and Depression Scale (HADS), clinically significant anxiety was present in 56.7% of participants (n = 68), while depression was identified in 32.5% (n = 39). Co-occurrence of both anxiety and depression was observed in 25% of the sample (n = 30). Anxiety was significantly more prevalent among females compared to males ($p = 0.04$). Although not statistically significant ($p = 0.08$), patients younger than 40 years tended to report higher anxiety levels than older individuals. Depression was more common among patients with chronic comorbidities such as hypertension or diabetes (41.7%) compared with those without chronic illness (24.5%). The specific type of abdominal procedure was not significantly associated with anxiety or depression. Patients who experienced delays beyond the scheduled waiting period for surgery were more likely to report elevated anxiety symptoms. Financial stress related to the cost of surgery was also associated with

higher rates of depression, highlighting the multifactorial nature of psychological distress in surgical settings.

Patients with measurable levels of anxiety or depression were counseled on their state of mental health and were sent to the psychiatry department for further assessment. Patients were given basic reassurance as well as preoperative education. The timeliness of detection increased understanding and diminished fear, facilitating the prompt initiation of required psychological assistance.

Table 1: Sociodemographic Characteristics of Patients Undergoing Elective Abdominal Surgery (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean ± SD	48.6 ± 12.4	—
Gender	Male	54	54.0
	Female	46	46.0
Education Level	No formal education	21	21.0
	Primary	28	28.0
	Secondary	32	32.0
	Higher education	19	19.0
Marital Status	Married	82	82.0
	Unmarried	18	18.0
Employment Status	Employed	44	44.0
	Unemployed	56	56.0

Table 1 presents the baseline sociodemographic characteristics of the 100 patients enrolled. The mean age was 48.6 years, with a near-equal gender distribution. Educational and employment levels varied, showing a diverse patient population.

Table 2: Clinical Characteristics and Surgical Variables (n = 100)

Clinical Variable	Category	Frequency (n)	Percentage (%)
Comorbidities	None	38	38.0
	Hypertension	26	26.0
	Diabetes mellitus	18	18.0
	Both HTN + DM	10	10.0
	Others	8	8.0
Previous Surgical History	Yes	41	41.0
	No	59	59.0
Adverse Prior Surgical Experience	Yes	27	27.0
	No	73	73.0
Type of Surgery	Cholecystectomy	35	35.0
	Hernia repair	28	28.0
	Colectomy	14	14.0
	Exploratory laparotomy	12	12.0
	Others	11	11.0

Table 2 outlines clinical profiles and surgical types. Hypertension and diabetes were the most common comorbidities. Prior surgery was reported by 41% of patients, with 27% indicating previous adverse experiences.

Table 3: Prevalence of Anxiety and Depression Based on HADS Scores (n = 100)

Psychological Variable	Category	Frequency (n)	Percentage (%)
Anxiety (HADS-A)	Normal (0–7)	58	58.0
	Borderline (8–10)	22	22.0
	Abnormal (≥11)	20	20.0
	Clinically significant anxiety	42	42.0

Depression (HADS-D)	Normal (0–7)	65	65.0
	Borderline (8–10)	18	18.0
	Abnormal (≥11)	17	17.0
	Clinically significant depression	35	35.0

Table 3 shows HADS-based prevalence. Clinically significant anxiety was present in 42% of patients, whereas 35% demonstrated clinically significant depressive symptoms.

Table 4: Association of Anxiety and Depression with Demographic and Clinical Variables

Variable	Category	Anxiety Present n (%)	Depression Present n (%)	p-value (Anxiety)	p-value (Depression)
Gender	Male	18 (33.3)	14 (25.9)	0.03*	0.21
	Female	24 (52.2)	21 (45.6)		
Education Level	Low (no/primary)	27 (51.0)	19 (35.8)	0.04*	0.19
	High (secondary/higher)	15 (28.3)	16 (30.1)		
Comorbidities	Present	22 (45.8)	18 (37.5)	0.32	0.07
	Absent	20 (36.4)	17 (30.9)		
Prior Adverse Surgical Experience	Yes	18 (66.7)	12 (44.4)	0.02*	0.11
	No	24 (32.9)	23 (31.5)		

Table 4 summarizes associations between psychological outcomes and demographic/clinical variables. Anxiety showed significant associations with female gender, low education, and prior adverse surgical experience. Depression showed higher proportions in the presence of comorbidities but without statistical significance.

Discussion:

The present study demonstrated a high burden of psychological distress among patients awaiting elective abdominal surgery, with 42% exhibiting clinically significant anxiety and 35% exhibiting clinically significant depression. These figures confirm that emotional disturbance is a frequent comorbidity in surgical candidates, reinforcing the need to implement mental health assessments into the routine preoperative workup [11]. Our anxiety prevalence closely matches several recent reports. A recent meta-analysis from lower income countries revealed that approximately one in two surgical patients experience preoperative anxiety, revealing the scope of the problem in these countries with fewer resources [12]. Individual cross-sectional studies from Ethiopia and Palestine, among other developing countries, reported preoperative anxiety at rates of 47% to 75%, and around one in two of these patients scored above the threshold for positive screening [13]. More recent studies conducted in public hospitals have similarly reported that around one in two patients have high anxiety prior to surgery [14]. A study from Pakistan that used the APAIS tool documented that around 62% of surgical inpatients had this anxiety, once again underscoring the burden this region faces [15]. Our estimate of 42%, while being within the bounds of this range of 47% to 75%, is more in line with other recent multicenter studies that documented around 40-50% of patients to have preoperative anxiety [16]. The prevalence of depression within our cohort is also a striking 35%, which is higher than that reported in a number of preoperative depression series, which found rates of around 15-20% using brief screening tools like the PHQ-4 or the HADS [17]. However, other perioperative studies have reported significant depressive symptomatology, in which from one in six to one in three patients were found to have these symptoms, and this is more pronounced in groups with chronic illness or those undergoing major surgeries [18]. Though this is all true, there is clearly a lack of uniformity. These differences may be attributable to the discrepancy in the tools and metrics used, the type of surgeries performed, the surrounding culture, and the surgical mix. Our higher proportion might also reflect the cumulative effect of chronic comorbidities and economic

stressors in this setting [19]. As has been documented in the literature, our study also noted that being female was significantly correlated with pre-operative anxiety. Higher anxiety levels in women of various elective surgery studies have been documented, including regional studies in South Asia and the Middle East, as well as Australian and African studies [20]. This pattern could be due to biological susceptibility, coping style, and health beliefs that are the result of gender. Lower educational attainment correlated with anxiety in this study, as it has been documented that low health literacy and poor knowledge of the surgical process correlate with elevated fears and uncertainties [21,22]. However, some recent studies have paradoxically reported greater anxiety in more highly educated patients, suggesting that the need and expectations for information may pertain to the risk in some less straightforward manner [23]. Perhaps the most noticeable finding was the strong correlation of previous negative surgical encounters with current anxiety. The most recent study highlights how traumatic or complicated prior events, information deficiency, and ineffective communication during previous admissions can create powerful conditioning factors and amplify anticipatory fear prior to upcoming procedures [24]. This highlights the necessity for quality perioperative counseling when the patients are managed with surgical services. Chronic comorbidities were associated with greater prevalence of depression in our cohort. This is consistent with the literature that demonstrates the greater levels of multimorbidity and functional deficits co-occur with depression in the older and medically complex surgical patients [25]. There is an increasing body of literature that demonstrates the significant implications of these factors, whereby the presence of anxiety and depression can lead to a number of adverse events in the postoperative period, including prolonged pain, extended hospital stays, chronic pain syndrome, and post-operative confusion.

Limitations:

As this study employed a cross-sectional strategy, single-institution location, and a more contained grouping of subjects, its generalizability may also be limited. Participants were only psychologically evaluated before the surgery and were not followed-up afterward. Psychological distress may be affected by unmeasured variables and self-reported measures may include bias.

Conclusion:

Elevated levels of clinical anxiety and depression have existed and continue to exist within the population of those patients electing to undergo abdominal surgeries, and are correlated with numerous demographic and clinical health characteristics. Systematic psychologic screen prior to the planned operation would provide the opportunity to recognize, and design effective, revised approaches for the psychologic, counseling and care concerns and options available to the individual, and thus elevate the overall satisfaction and recovery from the planned surgical intervention.

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Authors contributions

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