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IMPACT OF PREOPERATIVE ANXIETY ON PREOPERATIVE AND POSTOPERATIVE HEMODYNAMICS IN PATIENTS UNDERGOING UROLOGICAL AND GYNAECOLOGICAL PROCEDURES

Original Research

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ABSTRACT

Background: Anxiety is a physical and psychological reaction of a patient to unfamiliar, stressful and dangerous situations associated with distress and dreadful feelings. Anxiety is a typical human response, but if gets excessive or persists beyond appropriate time interval, it may be diagnosed as an anxiety disorder. It can cause hemodynamic changes such as hypertension and tachycardia, leading to complications, delayed recovery, and increased mortality.

Objective: This study aimed to evaluate the impact of preoperative Anxiety on Preoperative and Postoperative Hemodynamic in Patients Undergoing Urological and Gynaecological Procedures

Methods: A descriptive cross-sectional study was conducted at Khyber Teaching Hospital, Peshawar, following ethical approval and informed consent from participants. Anxiety levels were assessed using the State-Trait Anxiety Inventory (STAI) questionnaire, while hemodynamic parameters (BP, HR, RR, and SPO2) were recorded preoperatively and postoperatively. Participants were selected from those undergoing urological and gynaecological procedures.

Results: This study assessed the impact of preoperative anxiety on hemodynamic changes in 300 patients undergoing urological and gynaecological surgeries. Higher anxiety levels, especially in gynaecology patients (23.3% very severe anxiety), significantly affected blood pressure, heart rate, and respiratory rate ($p<0.05$). Hemodynamic fluctuations were more pronounced in anxious patients but reduced postoperatively. Gender, ASA classification, and anaesthesia type influenced anxiety levels, with females reporting higher anxiety. Preoperative psychological support improved hemodynamic stability and surgical outcomes.

Conclusion: Preoperative anxiety was higher in females, especially during gynaecological procedures, and linked to factors like age, anaesthesia type, and the OT environment. Anxiety was associated with greater hemodynamic instability, particularly in gynaecological surgeries.

Keywords: Hemodynamic, State-Trait Anxiety Inventory, Operating theatre.

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INTRODUCTION

Anxiety is a natural physiological and psychological response to unfamiliar, stressful, or potentially dangerous situations. It serves as an adaptive mechanism to prepare individuals for challenges, but when excessive or persistent beyond an appropriate time frame, it transitions into a pathological state, often diagnosed as an anxiety disorder. Anxiety disorders encompass various clinical manifestations, including generalized anxiety disorder (GAD) and obsessive-compulsive disorder (OCD), and are characterized by excessive fear (emotional response to perceived or real threats) and/or anxiety (worrying about a future threat), both of which can have significant behavioral and physiological consequences. While transient anxiety is common in preoperative settings, severe or prolonged anxiety can negatively impact surgical outcomes and postoperative recovery. The prevalence of preoperative anxiety is notably high, ranging between 60–80% in western populations, and recent studies indicate that it has become a significant concern for anesthesiologists and surgeons globally (1). Excessive preoperative anxiety can trigger reflex sympathetic hyperactivity, leading to significant hemodynamic fluctuations such as hypertension, tachycardia, and arrhythmias, which may result in surgical delays or cancellations. The importance of adequate preoperative counseling cannot be overstated, as it has been shown to reduce anxiety, fear of surgery, depression, and postoperative analgesic requirements while shortening hospital stays (2). However, despite extensive research on anxiety and its impact on surgical outcomes, there remains a lack of consensus on optimal assessment tools and intervention strategies (3).

The management of preoperative anxiety remains a significant challenge in perioperative care. While anxiety is often considered a natural response to surgery, its effects extend beyond psychological distress and directly influence physiological parameters. Patients experiencing heightened anxiety often exhibit increased mean arterial pressure (MAP) and heart rate (HR), necessitating greater anesthetic requirements to achieve an appropriate depth of anesthesia (4). Inadequate management of preoperative anxiety is associated with major cardiovascular events, including acute myocardial infarction, congestive heart failure, and pulmonary edema, leading to increased hospital readmission rates, prolonged postoperative recovery, and decreased overall patient satisfaction (5). The influence of anxiety on surgical outcomes underscores the need for comprehensive perioperative assessment and intervention strategies (6). Despite its clinical significance, evaluating preoperative anxiety remains challenging due to time constraints, particularly in emergency cases where rapid surgical intervention is required. Additionally, the absence of a universally accepted preoperative anxiety assessment tool further complicates clinical evaluation. Although various questionnaires exist for this purpose, including the Amsterdam Preoperative Anxiety and Information Scale (APAIS) and the State-Trait Anxiety Inventory (STAI), there is no standardized approach universally accepted within the medical community (7). While STAI is frequently employed as a gold standard, its applicability across different patient populations and surgical specialties remains a subject of ongoing investigation (8).

Research indicates that anxiety significantly impacts perioperative hemodynamics, leading to fluctuations in blood pressure, heart rate, respiratory rate, and oxygen saturation (9). Elevated anxiety levels have been linked to increased anesthetic and analgesic consumption, delayed postoperative recovery, and higher rates of surgical complications (10). Several observational studies have demonstrated a strong correlation between preoperative anxiety and adverse postoperative outcomes, with a meta-analysis of over 16,000 patients highlighting anxiety as the most commonly reported distressing factor in the surgical period (11). Furthermore, preoperative anxiety has been associated with increased postoperative morbidity and mortality, emphasizing the need for targeted interventions to mitigate its impact on patient outcomes (12). Psychological support, patient education, and pharmacological interventions are commonly employed strategies to address preoperative anxiety, yet their effectiveness varies based on individual patient factors and the nature of the surgical procedure (13). The role of healthcare professionals extends beyond procedural execution to include patient education and psychological support, ensuring optimal preoperative preparation and postoperative recovery (14).

The physiological consequences of preoperative anxiety are particularly pronounced in patients undergoing urological and gynaecological surgeries, yet limited research has been conducted to specifically assess its impact within these specialties. Most studies investigating the relationship between anxiety and surgical outcomes have focused on general, orthopaedic, and neurological procedures, leaving a gap in the literature regarding its effects on urological and gynaecological procedures (15). Given the distinct physiological and psychological challenges associated with these surgical specialties, understanding the hemodynamic implications of anxiety in this patient population is critical for improving perioperative management strategies. Moreover, research evaluating preoperative anxiety in surgical patients has primarily relied on general assessment tools, with limited exploration of specialty-specific variations in anxiety

responses and hemodynamic changes (16). This study aims to bridge this gap by assessing the impact of preoperative anxiety on hemodynamic fluctuations in patients undergoing urological and gynaecological procedures using the State-Trait Anxiety Inventory (STAI) questionnaire, a widely recognized tool for anxiety assessment in surgical settings (17). With a sample size of 300 patients, this study is designed to provide valuable insights into the correlation between anxiety and perioperative hemodynamic changes, ultimately contributing to the optimization of perioperative care protocols. Ethical approval was obtained from the Institutional Review Board, ensuring adherence to ethical research standards. The findings of this study will serve as a foundation for future research, guiding the development of targeted interventions to minimize preoperative anxiety and improve surgical outcomes in patients undergoing urological and gynaecological procedures.

METHODS

This study was conducted at Khyber Teaching Hospital, Peshawar, in compliance with ethical standards and after obtaining written approval from the hospital's Ethical Committee. Ethical clearance was granted after a thorough review of the study protocol, ensuring that all aspects of the research adhered to the ethical principles outlined in the Declaration of Helsinki. The primary focus was to respect the rights, dignity, and welfare of the participants involved. Individual informed consent was obtained from each patient before initiating data collection. Participants were provided with detailed information about the study's objectives, methodology, and potential implications. This information was conveyed in a language they understood, ensuring that they were fully aware of their rights, including the right to withdraw from the study at any stage without any consequences.

For data collection, patients undergoing urological and gynaecological procedures were approached during the preoperative and postoperative periods. They were provided with the State-Trait Anxiety Inventory (STAI) questionnaire, a validated and universally recognized tool for assessing anxiety levels. Additionally, hemodynamic data, including blood pressure (BP), heart rate (HR), respiratory rate (RR), and oxygen saturation (SPO2), were collected with the utmost care to ensure accuracy and confidentiality. All data were anonymized to protect participant privacy and were securely stored in compliance with data protection regulations. The research team adhered to strict ethical guidelines throughout the study, ensuring that the participants' trust and well-being were prioritized at every stage. This commitment to ethical integrity ensures that the findings of the study are both reliable and ethically sound.

Statistical program used in this research study for the data analysis is "Statistical Product and Service Solutions, SPSS (version 22.0, IBM Corporation, Armonk, NY, USA) for both Urological and Gynaecological data. The description values of the urological and gynaecological acquired data were measured in numbers and frequencies expressed in percentages while standard deviation for those values has also been acquired. The anxiety state (Normal, Mild to moderate, Moderate to severe, severe) of patient's was assessed via STAI (State Trait Anxiety Inventory) Questionnaire. STAI is composed of nine evaluatary questions. Each question is answered within the parameter of a response scale (1= Very much so, 2=moderately so, 3= somewhat, 4= Not at all). This response scale is measuring tool for assessing patient's emotions and in summation they are constitute of anxiety scale for that individual. If the score ranges between 0-9, it is considered Normal. If the patient's anxiety score ranges between10-18, it is considered Mild to moderate. If the score is between19-29, it is categorized as Moderate to severe and if it persists between 30- 63, then it is considered as Very severe. Frequencies and percentages of STAI Questionnaire for urological and gynaecological data are shown in table 1.3, given below;

Table 1: STAI Questionnaire Frequency (Urology Table 1.3)

Questions	Very much so	Moderately so	Somewhat	Not at all
I feel calm	Fr:98	Fr:15	Fr:26	Fr:11
	65.3%	10.0%	17.3%	7.3%
I feel secure	Fr:52	Fr:48	Fr:39	Fr:11
	34.7%	32.0%	26.0%	7.3%
I feel at ease	Fr:55	Fr:51	Fr:30	Fr:14
	36.7%	34.0%	20.0%	9.3%

Questions	Very much so	Moderately so	Somewhat	Not at all
I feel satisfied	Fr:57	Fr:48	Fr:33	Fr:12
Questions	Very much so	Moderately so	Somewhat	Not at all
	38.0%	32.0%	22.0%	8.0%
I feel comfortable	Fr:74	Fr:28	Fr:36	Fr:12
	49.3%	18.7%	24.0%	8.0%
I feel self-confident	Fr:63	Fr:39	Fr:36	Fr:12
	42.0%	26.0%	24.0%	8.0%
I feel relaxed	Fr:73	Fr:30	Fr:35	Fr:12
	48.7%	20.0%	23.3%	8.0%
I feel reassured	Fr:70	Fr:27	Fr:39	Fr:14
	46.7%	19.0%	26.0%	9.3%
I feel stable	Fr:81	Fr:20	Fr:34	Fr:15
	54.0%	13.3%	22.7%	10.0%

(Table 1.3) (Fr= Frequency, %= Percentage

Table 2: STAI Questionnaire Frequency (Gynecology Table 1.4)

Questions	Very much so	Moderately so	Some what	Not at all
I feel calm	Fr:71	Fr:28	Fr:17	Fr:34
	47.3%	18.7%	11.3%	22.7%
I feel secure	Fr:59	Fr:28	Fr:16	Fr:47
	39.3%	18.7%	10.7%	31.3%
I feel at ease	Fr:46	Fr:32	Fr:33	Fr:39
	30.7%	21.3%	22.0%	26.0%
I feel satisfied	Fr:38	Fr:30	Fr:48	Fr:34
	25.3%	20.0%	32.0%	22.7%
I feel comfortable	Fr:41	Fr:26	Fr:46	Fr:34
	27.3%	17.3%	32.7%	22.7%
I feel self-confident	Fr:45	Fr:30	Fr:45	Fr:30
	30.0%	20.0%	30.0%	20.0%
I feel relaxed	Fr:52	Fr:28	Fr:44	Fr:26
	34.7%	18.7%	29.3%	17.3%
I feel reassured	Fr:60	Fr:28	Fr:33	Fr:29
	40.0%	18.7%	22.0%	19.3%
I feel stable	Fr:78	Fr:19	Fr:25	Fr:28
	52.0%	12.7%	16.7%	18.7%

(Table 1.4) (Fr= Frequency, %= Percentage)

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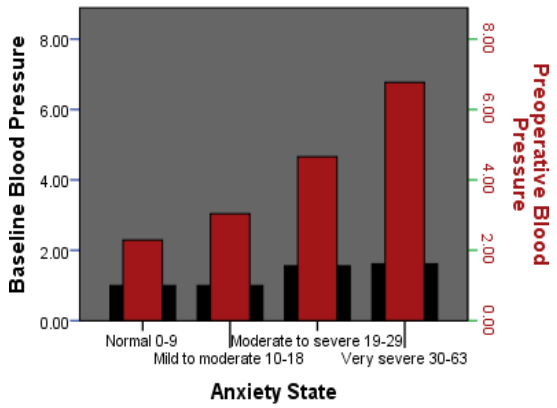
The same pattern regarding questions and their response scale is used for anxiety evaluation in patients undergoing Urological and gynaecological surgical procedures. The difference between baseline vitals, preoperative and postoperative vitals were compared by using Chi Square Test and Independent T Test. The significance value ($P<0.05$) for statistical data analysis was taken as standard. The sample size of 300 (150 for Urology and 150 for Gynaecology) is acquired via WHO Sample Size Calculator and was taken from the study population via Randomly Sampling Technique. The anxiety state frequencies and their percentages for acquired urological and gynaecological data are shown in tables (1.1 and 1.2), given above.

RESULTS

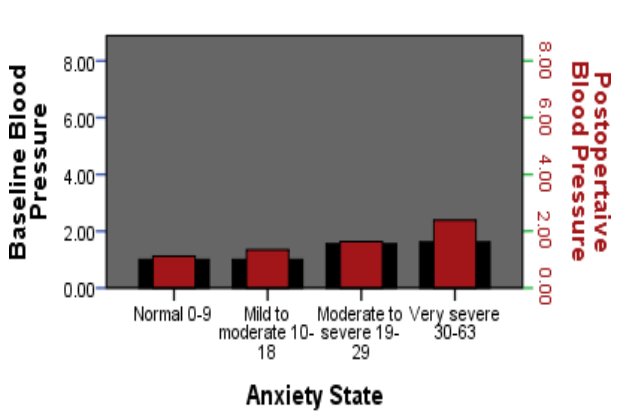
Mainly Four variables (Blood pressure, Heart rate, Respiratory rate and SPO2), regarding patients undergoing Urological and Gynecological procedures, are discussed in this study and changes in all of these with regard to preoperative anxiety are assessed and got noted. Blood pressure fluctuations are assessed via methodologies regarding concerned instruments like stethoscope, automatic sphygmomanometer and cuff pressure monitoring. Respiratory rate, heart rate and Spo2 were valued via capnographs and pulse oximeters, while the base line values of all of these were collected from the patient's chart and shows previous data of nearly 1 – 2 days before surgery. Patient's anxiety was assessed via STAI Questionnaires just 15 -30 mints before the surgery gets started. The preoperative vitals were recorded just before induction of anaesthesia while postoperative vitals were recorded 40-80 mints after surgery had finished.

Urology: For preoperative period, it is found that as the anxiety state of patient fluctuates, the vitals (blood pressure, heart rate, respiratory rate and Spo2) also got changes. With increase anxiety of the patient, blood pressure shows drastic elevation, particularly when base line got compared with preoperative data (graph 1.1). Respiratory rate also increases up to great extent with increase in anxiety score (graph 1.3). Heart rate increases to prominent level from baseline values (graph 1.5), but the difference here is less as compared to BP and RR graphs. SPO2 (Graph 1.7), shows little negative deviation for severely anxious patients, as their oxygen saturation drops due to high anxiety score.

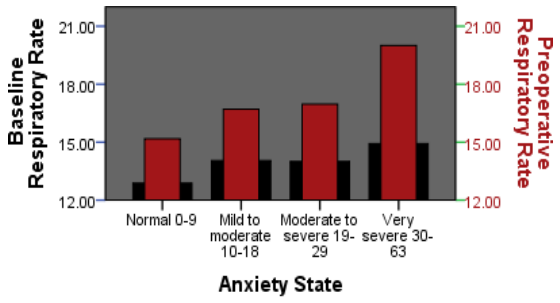
In case of postoperative readings, blood pressure, respiratory rate, heart rate and SPO2 shows little deviation from baseline values (graph 1.2, 1.4, 1,6 and 1.8), as in both periods, patients appear to be less anxious as compared to preoperative time, regarding surgical procedures and environmental stress. Whereas, relative comparison between baseline/ preoperative and baseline/postoperative readings for all the four vital signs undergoing procedures with regards anxiety state are shown in graphs, given below;



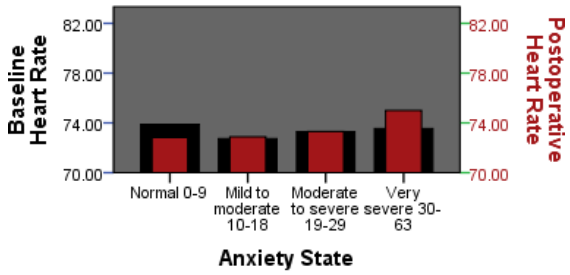
Graph 1.1 (Urology)



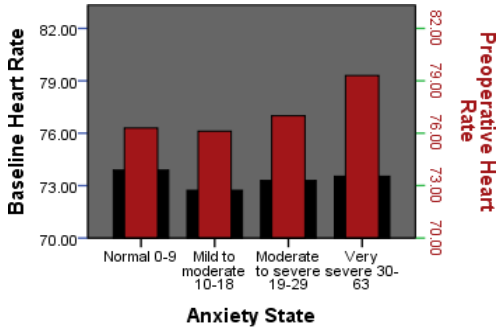
Graph 1.2 (Urology)



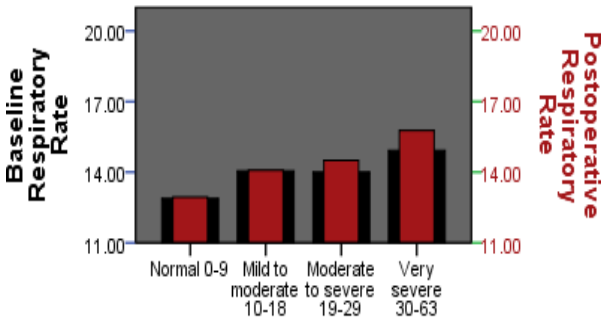
Graph 1.3 (Urology)



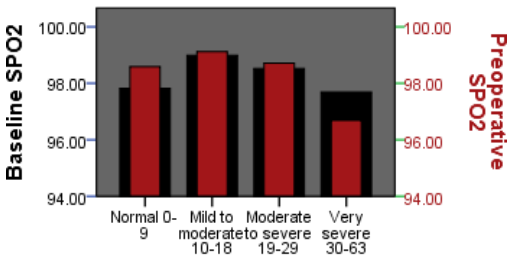
Graph 1.4 (Urology)



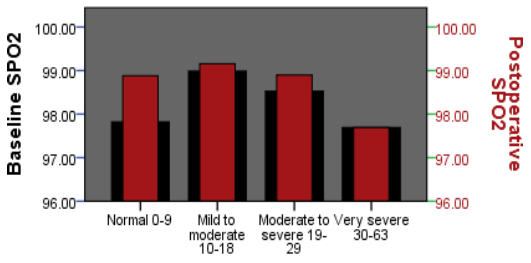
Graph 1.5 (Urology)



Graph 1.6 (Urology)



Graph 1.7 (Urology)



Graph 1.8 (Urology)

Kind of undergoing surgical procedure is also shown to have impact upon anxiety level of patient, more complicated the surgery becomes, more would be the anxiety score, which would lead to more hemodynamics changes. 8.7% patients in Urology were found with severely elevated anxiety because of fear of surgery, OT environment, physiological changes and postoperative complications which in turn leads to hemodynamic shifts. Percentage wise distribution of anxiety scale is shown in (table 1.1), given below. Gender, age and type of anaesthesia (table 1.9) are factors known for having impacts on anxiety level. ASA class also had an impact on anxiety level, as nearly all patients of ASA class 2 had high anxiety score. ASA frequencies in urology are shown by (table 1.7), given below;

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Table 1: Anxiety State Frequencies (Urology Table 1.1)

Anxiety State	Frequency	Percentage%
Normal	17	11.3%
Mild to moderate	82	54.7%
Moderate to severe	38	25.3%
Very Severe	13	8.7%
Total	150	100%

Table 2: ASA Classification (Urology Table 1.7)

Class	**Frequency**	**Percentage%**
ASA 1	131	87.3%
ASA 2	19	12.7%
Total	150	100%

Table 3: Anesthesia Type Frequency (Table 1.9)

Specialty	**Anesthesia type**	**Frequency**	**Percentage%**
	GA	104	69.3%
Urology	LA	45	30%
	GA/LA	1	0.7%
	GA	90	60%
Gynecology	LA	60	40%
	GA/LA	0	0%
	GA	194	129.3%
Total	LA	105	70%
	GA/LA	1	0.7%

According to this study, female patients are more sensitive to surgical and environmental perception thus presented to have more chance to become anxious and showed more drastic hemodynamic fluctuations as compared to relative aged men. Beside all scenarios discussed above, good control of anxiety preoperatively leads to proper surgical stability and better hemodynamic outcomes. In urological data, significance value for vital signs in between baseline and preoperative periods was (P=0.00), means those readings were statistically significant (having prominent standard deviations), whereas postoperative values show little standard deviation from baseline readings, as shown by above graphs. Frequencies and percentages of all the four main vital signs (blood pressure, respiratory rate heart rate and SPO2) at three different time periods (Baseline, Preoperative and Postoperative) are shown by table 1.5, given below; Hematological Frequencies (Urology Table 1.5)

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Table 4

Category	Measurement Range	Frequency	Percentage
	Blood Pressure (117/79-120/80)	121	80.7%
	Blood Pressure (121/80-124/80)	29	19.3%
Baseline	Heart Rate 70-72	41	27.3%
	Heart Rate 73-75	106	70.7%
	Heart Rate 76-83	3	2%
	Respiratory Rate 11-13	37	24.6%
	Respiratory Rate 14-16	111	74%
	Respiratory Rate 17-18	2	1.4%
	SPO2 96-98	50	33.4%
	SPO2 99-100	100	66.6%
Preoperative	Blood Pressure (121/80-136/81)	137	91%
	Blood Pressure (137/81-148/82)	13	9%
	Heart Rate 73-75	43	28.6%
	Heart Rate 76-78	82	54.7%
	Heart Rate 79-82	25	16.7%
	Respiratory Rate 12-14	10	6.6%
	Respiratory Rate 15-17	82	54.7%
	Respiratory Rate 18-21	58	38.7%
	SPO2 96-98	46	30.7%
	SPO2 99-100	104	69.1%
	Blood Pressure (171/79-124/80)	143	95.4%
	Blood Pressure (125/80-128/80)	7	4.6%
Postoperative	Heart Rate 73-75	93	62%
	Heart Rate 76-79	9	6%
	Respiratory Rate 11-13	46	30.6%
	Respiratory Rate 14-16	96	64%
	Respiratory Rate 17-18	8	5.4%
	SPO2 97-98	36	24%
	SPO2 99-100	114	76%

Gynaecology: For preoperative period, preoperative data in comparison to baseline values shows statistically valid significance figure of (P=0.00-0.01) and prominent positive deviation (increase) is shown by the graphs, for preoperative values. Blood pressure shows

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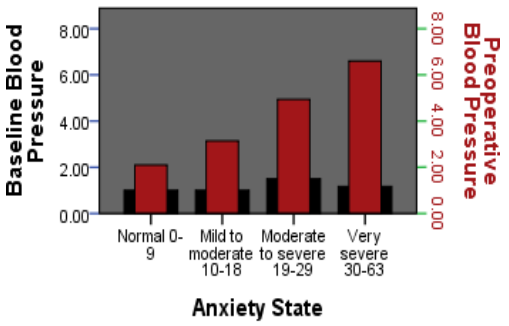
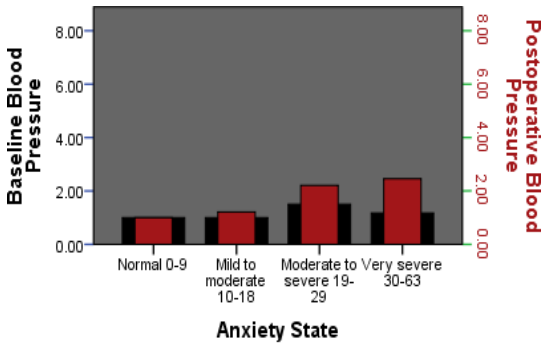
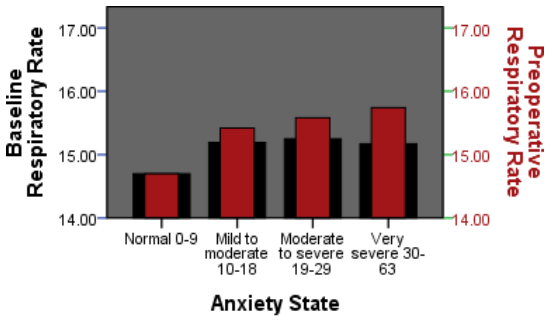
drastic elevation pattern, as the anxiety score increases, as shown in (graph 2.1). Respiratory rate and heart rate graph also show ascending pattern (graph 2.3 and 2.5), with increase in anxiety level, shows direct relation of respiratory rate with anxiety state, like blood pressure. SPO2 decreases prominently as the anxiety state increases (2.7), shows indirect relation with anxiety scale.



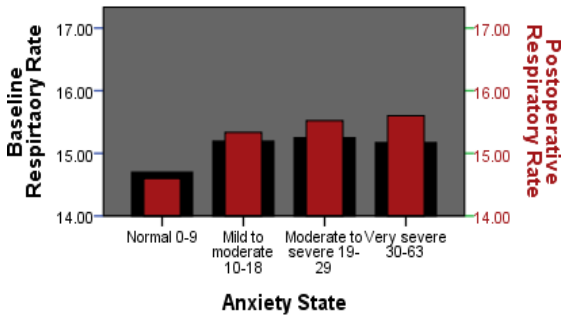
Graph 2.1 (Gynaecology)



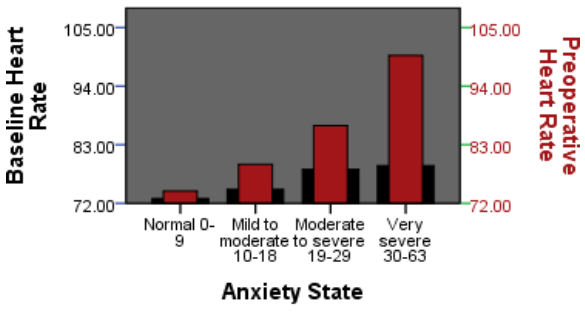
Graph 2.2 (Gynaecology)



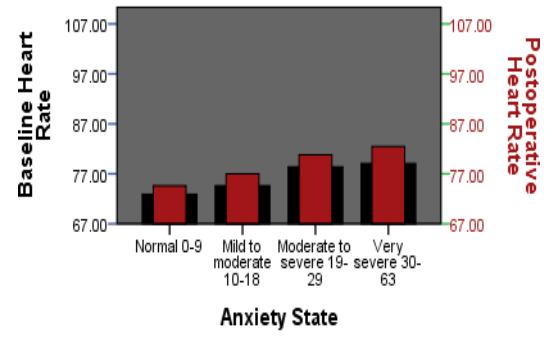
Graph 2.3 (Gynaecology)



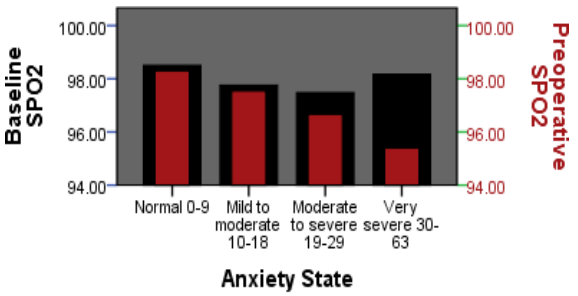
Graph 2.4 (Gynaecology)



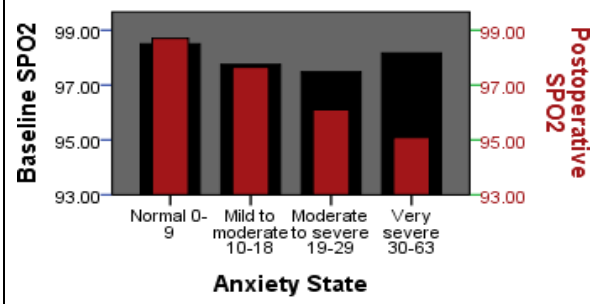
Graph 2.5 (Gynaecology)



Graph 2.6 (Gynaecology)



Graph 2.7 (Gynaecology)



Graph 2.8 (Gynaecology)

As far as postoperative data is concerned, it is found that blood pressure, respiratory rate and heart rate graphs show little but considerable deviations from baseline values, as shown by (graphs 2.2, 2.4 and 2.6). values of these vitals clearly show that anxiety persists up to considerable level in patients undergoing gynaecological procedures. SPO2 graph shows prominent negative deviations from baseline values, indicates that as anxiety scale moves towards severity, oxygen consumption increases while oxygen saturation decreases (graph 2.8) during postoperative period. Anxiety have potent impact over SPO2 as compared to BP, RR and HR in gynaecological procedures. Graphical representation to hemodynamic deviations in accordance with anxiety scale in patients undergoing gynaecological procedures is given below;

Like urological procedures, gynaecological procedures are also found to have impact over anxiety state of the patient, as the surgery becomes complicated, anxiety score increases, and leads to greater deviations of vitals from baseline values. 35% patients, even greater than urological data, were founded with severely elevated anxiety due to fear of surgical interventions, environmental stress and physiological changes related to pregnancy and postoperative complications related to surgical procedures, leads to further hemodynamic shifts. Percentage wise distribution of anxiety scale is shown in (table 1.2), given below. Age, gender and type of anesthesia are also some factors founded to have impacts over anxiety level (table 1.9). ASA class also have clear impact over anxiety level, as nearly all ASA class 2 patients suffer from severe anxiety state. ASA class frequency is shown in (table 1.8), given below;

Table 5: Anxiety State Frequencies (Gynecology Table 1.2)

Anxiety State	Frequency	Percentage%
Normal	10	6.7%
Mild to moderate	57	38%
Moderate to severe	48	32%
Very severe	35	23.3
Total	150	100%

Table 6: ASA Classification (Gynaecology Table 1.7)

Class	Frequency	Percentage%
ASA 1	136	90.7%
ASA 2	14	9.3%
Total	150	100%

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In gynaecological data, significance in between baseline and preoperative periods was (P=0.00), means those readings were statistically significant (having prominent standard deviations), whereas readings from postoperative data shows little standard deviation from baseline readings, as shown in above graphs. Frequencies and percentages of vital signs (blood pressure, respiratory rate heart rate and SPO2) at three different time periods (Baseline, Preoperative and Postoperative) are shown by (table 1.6), given below; Hematological Frequencies (Gynecology Table 1.6)

Table 7

Category	Measurement Range	Frequency	Percentage
	Blood Pressure (117/79-120/80)	120	80%
	Blood Pressure (121/80-124/80)	30	20%
Baseline	Heart Rate 72-75	68	45.4%
	Heart Rate 76-79	50	33.3%
	Heart Rate 80-83	25	16.6%
	Heart Rate 84-92	7	4.7%
	Respiratory Rate 14-15	94	62.6%
	Respiratory Rate 16-17	56	37.4%
	SPO2 96-97	55	36.7%
	SPO2 98-99	95	63.3%
Preoperative	Blood Pressure (121/80-136/81)	115	76.7%
	Blood Pressure (137/81-148/82)	35	23.3%
	Heart Rate 72-84	78	52%
	Heart Rate 85-96	44	29.3%
	Heart Rate 97-106	28	18.7%
	Respiratory Rate 14-15	75	50%
	Respiratory Rate 16-17	75	50%
	SPO2 94-96	57	38%
	SPO2 97-99	93	62%
Postoperative	Blood Pressure (117/79-124/80)	126	84%
	Blood Pressure (125/80-132/80)	24	16%
	Heart Rate 67-83	112	74.6%
	Heart Rate 84-94	38	25.4%
	Respiratory Rate 14-15	82	54.7%

Category	Measurement Range	Frequency	Percentage
	Respiratory Rate 16-17	68	45.3%
	SPO2 94-96	71	47.4%
	SPO2 97-99	79	52.6%

DISCUSSION

The study included 300 patients, of whom 150 (50%) had to go through urological procedures, out of which 66.7% were male while 33.3% were female, whereas 150 (50%) were from gynaecological procedures. Complete score range of STAI questionnaire was 0-63. Categorical distribution of anxiety states was as follow; Normal (0-9), Mild to moderate (10-18), Moderate to severe (19-29), Very severe (30-63). Under different urological procedures, 11.3% patients were of normal anxiety level while 8.7% were from very severe state, whereas in gynaecological procedures, 6.7% were from normal while 23.3% of patients had very severe anxiety state (Table 1.1 and 1.2). From this we can conclude, that majority of the sample population had preoperative anxiety.

Previous study have no or inadequate data regarding anxiety and its impacts over hemodynamic stability, but this study clearly showed that preoperative anxiety had drastic impact over hemodynamics of patients undergoing urological and gynaecological surgical interventions, particularly in those patients whom anxiety state score is Moderate to severe or Very severe, as the difference between baseline and preoperative readings of blood pressure, respiratory rate, heart rate and SPO2 were statistically significant ($P<0.05$). The difference between baseline and preoperative readings increases as anxiety score prevails towards severity. Unlike baseline and preoperative correlation, baseline and postoperative readings were less statistically significant in urology as compared to gynaecology.

CONCLUSION

This study highlighted the significant impact of preoperative anxiety on patients undergoing urological and gynecological procedures, emphasizing its strong correlation with hemodynamic fluctuations during the perioperative period. Anxiety levels were found to be influenced by various factors, including age, gender, surgical history, type of anesthesia, and the operating theater environment. Female patients, particularly those undergoing gynecological procedures, exhibited higher levels of anxiety compared to those in urological interventions, reinforcing the need for tailored preoperative anxiety management strategies. In contrast, patients with prior surgical experience, medical backgrounds, or those who received premedication demonstrated lower anxiety levels, suggesting the effectiveness of both psychological and pharmacological interventions in stabilizing preoperative stress responses. The findings further underscored that heightened anxiety contributes to greater physiological instability, impacting blood pressure, heart rate, and overall surgical outcomes. By reinforcing the importance of early identification and targeted intervention strategies, this study advocates for a multidisciplinary approach to perioperative care that integrates psychological support, patient education, and individualized anesthesia planning. Addressing preoperative anxiety proactively can lead to smoother surgical experiences, improved recovery, and enhanced overall patient well-being, ultimately contributing to better clinical outcomes and optimized perioperative management.

AUTHOR CONTRIBUTIONS

Author	Contribution
M Ammar Zia Chishti	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Ahmad Ullah*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Arsalan Nisar	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Waqas Ahmad	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Wajahat Hussain	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

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