PREVALENCE OF ANXIETY AND ASSOCIATED FACTORS AMONG WOMEN UNDERGOING GYNECOLOGICAL SURGERY: A CROSS-SECTIONAL STUDY

Nguyen Thi Thuy Chung✉, Nguyen Thi Hong Gam, Nguyen Ngoc Thu
Le Phuong Thanh, Pham Thi Lieu, Nguyen Ba Thiet
National Hospital of Obstetrics and Gynecology

This study aimed to evaluate the prevalence and associated factors of anxiety among women scheduled for gynecological surgery. Conducted as a cross-sectional analysis, data collection involved structured interviews that assessed demographics, clinical history, perceptions of postoperative recovery, comprehension of surgical risks, and levels of social support. Anxiety was measured using the GAD-7 scale, and associations between anxiety severity and related factors were examined through ordinal logistic regression. Among the 300 participants, all reported some degree of anxiety, with 60% experiencing mild anxiety, 30% moderate, and 10% severe. Higher anxiety levels were notably linked to limited social support and lower comprehension of counseling. The high prevalence of anxiety observed underscores the need for comprehensive preoperative communication and robust support systems. These strategies could play a vital role in reducing anxiety, ultimately contributing to improved surgical recovery and overall patient well-being.

Keywords: Gynecological surgery, anxiety, GAD, counseling, social support.

I. INTRODUCTION

Gynecological surgery is a range of procedures involving the female reproductive system, including hysterectomies, ovarian cyst removals, and other interventions critical to reproductive health and quality of life.[1] These procedures, though often necessary, are associated with a range of physical and psychological challenges. Patients undergoing gynecological surgery may experience considerable stress due to the intimate nature of the procedures and their potential impact on body image, reproductive capability, and overall health.[2-4] In many cases, women face these challenges in a cultural context where discussions about reproductive health can be sensitive and even stigmatized, leading to increased feelings of vulnerability and emotional strain. This sensitivity is particularly relevant in Vietnam, where cultural expectations and healthcare accessibility shape the surgical experience, underscoring the need for a deeper understanding of the psychological impact on patients.

Anxiety is a prevalent and significant response among patients anticipating surgery, with gynecological procedures presenting unique stressors that can heighten this emotional reaction.[5,6] High preoperative anxiety levels have been associated with poorer surgical outcomes, including increased postoperative pain, slower recovery, and complications such as infections.[7] In gynecological surgery, the sources of anxiety are multifaceted, encompassing fears about anesthesia, potential

Corresponding author: Nguyen Thi Thuy Chung
National Hospital of Obstetrics and Gynecology
Email: thuychung2207@gmail.com
Received: 04/11/2024
Accepted: 25/11/2024

fertility impacts, and concerns about surgical success.[5,6] Elevated anxiety not only impacts physical recovery but also affects mental well-being, as patients may struggle with anticipatory stress. Research suggests that preoperative anxiety can also interfere with the effectiveness of anesthesia, resulting in a need for increased sedative doses and challenging the patient's overall surgical experience.[8] Despite the clinical implications, the psychological state of patients before gynecological surgery remains an under-explored area within the Vietnamese healthcare context, particularly concerning structured support for managing anxiety.

Given the unique cultural and clinical aspects surrounding gynecological surgery in Vietnam, this study aimed to address the gap in understanding preoperative anxiety in this population, specifically by determining the prevalence of anxiety and identifying the associated factors.

II. MATERIALS AND METHODS

1. Subjects

Patient eligibility

Eligible participants were females scheduled for gynecological surgery. Inclusion criteria required participants to be 18 years or older and able to provide informed consent. Patients with cognitive impairments or disabilities affecting communication, such as hearing or speech disabilities, were excluded from the study.

2. Methods

Study design

A cross-sectional study was conducted from July 2024 to September 2024 at the National Hospital of Obstetrics and Gynecology, Hanoi, Vietnam.

Data collection

Eligible participants were informed about the study's objectives, procedures, and data collection methods. Upon obtaining written consent, structured interviews and clinical assessments were conducted. Demographic data collected included age, religious affiliation, education level, income, place of residence, and employment status. Income levels were classified based on the regional minimum wage effective from July 2024. Accordingly, Hanoi falls under Region I, with a regional minimum wage of 4.96 million VND per month. Clinical characteristics included surgical history, comorbidities, and symptom duration. The primary surgical indication was categorized as uterine fibroids, ovarian tumors, endometriosis, uterine polyps, infertility, cervical abnormalities, or reproductive tract infections.

Additional data were gathered on participants' perceptions and experiences post-surgery. Confidence in postoperative recovery was recorded as "Confident of full recovery," "Partially confident," or "Unsure." Participants' comprehension of surgical risks was categorized as "Fully understood risks," "Understood some risks," or "Did not understand risks." The level of support received from family and friends was recorded as "Strong support," "Moderate support," or "Little or no support."

Study outcomes

Anxiety was the primary outcome of this study and was measured before the surgery using the GAD-7, a self-report questionnaire designed to assess the severity of generalized anxiety disorder symptoms. The GAD-7 consists of seven questions, each addressing a specific symptom experienced over the past two weeks. Participants rated the frequency of each symptom on a scale from 0 (not at all) to 3 (nearly every day). Item scores were summed to yield an overall score ranging from 0 to 21. Based on the total GAD-7 score, participants were classified into one of four anxiety levels:

minimal anxiety (0 - 4), mild anxiety (5 - 9), moderate anxiety (10 - 14), or severe anxiety (≥ 15).[9]

Sample size and sampling

Sample size was calculated based on the prevalence of anxiety in previous studies.[4,10,11] Assuming a prevalence of anxiety of 50% among women scheduled for gynecological surgery, a margin of error of 2.5%, and a confidence level of 95%, the minimum sample size was 180 participants. Accounting for the non-participate rate of 20%, we planned to recruit 200 participants. Conventional sampling was employed in this study.

Statistical analysis

Variables were presented as frequency and percentage for categorical variables and as mean (standard deviation) or median (interquartile range, Q1-Q3) for continuous variables. Ordinal logistic regression was employed to identify factors associated with the severity of anxiety. Candidates for the regression models were selected based on a theoretical framework derived from literature review and clinical experience. All analyses were performed using R version 4.3.2. An analysis with P-values of less than 0.05 was considered statistically significant.

3. Research Ethics

The study was conducted in accordance with the Declaration of Helsinki and approved by the National Hospital of Obstetrics and Gynecology under decision No. 860/QĐ - PSTW dated May 16th, 2024. The participants were informed about the study objectives and their right to withdraw at any moment without giving a reason. Written informed consent was obtained before data collection. Their responses were anonymous and kept confidential.

III. RESULTS

A total of 300 participants were included, with a mean age of 40.2 ± 10.7 years. Most had no religion (82.3%), college educated or higher (69.0%). Half had prior surgical experience, and 9.3% reported comorbidities. The majority has stable employment (68.7%), 81.3% earned above the regional minimum wage, and 90.0% resided in urban areas. The average symptom duration was 8.2 ± 3.5 months. The most common surgical indication was uterine fibroids (46.7%), followed by ovarian tumors (27.0%), endometriosis (5.7%), and uterine polyps (8.7%) (Table 1).

Table 1. Participants' characteristics

Characteristic	Overall	Anxiety Levels			p
		Mild (n = 175)	Moderate (n = 95)	Severe (n = 30)	
Age (years), mean ± SD	40.2 ± 10.7	39.6 ± 11.5	40.5 ± 10.0	42.7 ± 7.8	0.4
No religion, n (%)	247 (82.3%)	149 (85.1%)	73 (76.8%)	25 (83.3%)	0.2
Educational level, n (%)					0.3
High school and below	93 (31.0%)	50 (28.6%)	30 (31.6%)	13 (43.3%)	
College and above	207 (69.0%)	125 (71.4%)	65 (68.4%)	17 (56.7%)	
Had comorbidities	28 (9.3%)	11 (6.3%)	11 (11.6%)	6 (20.0%)	0.04

Characteristic	Overall	Anxiety Levels			p
		Mild (n = 175)	Moderate (n = 95)	Severe (n = 30)	
Occupational, n (%)					0.5
Retired	18 (6.0%)	10 (5.7%)	7 (7.4%)	1 (3.3%)	
Stable employment	206 (68.7%)	125 (71.4%)	63 (66.3%)	18 (60.0%)	
Freelance	76 (25.3%)	40 (22.9%)	25 (26.3%)	11 (36.7%)	
Income, n (%)					0.5
Below regional minimum wage	56 (18.7%)	29 (16.6%)	20 (21.1%)	7 (23.3%)	
Above regional minimum wage	244 (81.3%)	146 (83.4%)	75 (78.9%)	23 (76.7%)	
Residence, n (%)					0.3
Urban	270 (90.0%)	155 (88.6%)	88 (92.6%)	27 (90.0%)	
Rural	30 (10.0%)	20 (11.4%)	7 (7.4%)	3 (10.0%)	
Had previous surgery experience, n (%)	150 (50.0%)	80 (45.7%)	50 (52.6%)	20 (66.7%)	0.2
Duration of symptoms (months), mean ± SD	8.2 ± 3.5	7.5 ± 3.8	8.5 ± 3.3	9.2 ± 3.0	0.1
Indications for gynecological surgery, n (%)					0.2
Uterine fibroids	140 (46.7%)	72 (41.1%)	52 (54.7%)	16 (53.3%)	
Ovarian tumor	81 (27.0%)	51 (29.1%)	24 (25.3%)	6 (20.0%)	
Endometriosis	17 (5.7%)	12 (6.9%)	4 (4.2%)	1 (3.3%)	
Uterine polyp	26 (8.7%)	16 (9.1%)	7 (7.4%)	3 (10.0%)	
Infertility	13 (4.3%)	11 (6.3%)	1 (1.1%)	1 (3.3%)	
Cervical abnormalities	4 (1.3%)	1 (0.6%)	2 (2.1%)	1 (3.3%)	
Reproductive tract infections	5 (1.7%)	3 (1.7%)	-	-	

All participants experienced anxiety, with mild, moderate, and severe levels observed in 60%, 30%, and 10% of cases, respectively (Chart 1).

The majority of participants felt confident in their ability to fully recover (93%), with confidence highest in the mild anxiety group (96%) and lowest in the severe group (73%). Understanding of surgical risks was high (93%), with lower anxiety linked to better risk comprehension (p = 0.015). Strong support was reported by 77% of participants, with a significant association between support strength and anxiety (p = 0.04), indicating that

stronger support correlated with lower anxiety (Table 2).

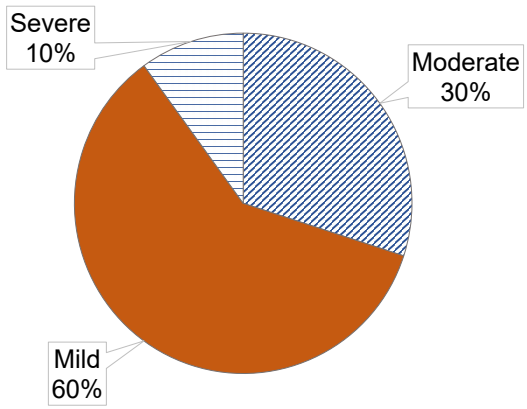

Chart 1. Distribution of Anxiety Levels Among Patients in the Study

Table 2. Factors associated with anxiety levels among study participants (n = 300)

Characteristic	Overall	Anxiety levels			p
		Mild (n = 175)	Moderate (n = 95)	Severe (n = 30)	
Postoperative recovery and rehabilitation					< 0.001
I'm confident I can fully recover	279 (93%)	168 (96%)	89 (94%)	22 (73%)	
I think I can partially recover	17 (5.7%)	7 (4.0%)	5 (5.3%)	5 (17%)	
I'm unsure about recovery	4 (1.3%)	0 (0%)	1 (1.1%)	3 (10%)	
Understanding of surgical risks before surgery					0.015
Fully understood risks	280 (93%)	170 (97%)	85 (89%)	25 (83%)	
Understood some risks	15 (5%)	5 (2.9%)	10 (11%)	0 (0%)	
Did not understand risks	5 (1.7%)	0 (0%)	3 (3.2%)	2 (6.7%)	
Support system					0.04
Strong support	230 (77%)	138 (79%)	70 (74%)	22 (73%)	
Moderate support	55 (18.3%)	30 (17%)	20 (21%)	5 (17%)	
Little or no support	15 (5%)	7 (4.0%)	5 (5.3%)	3 (10%)	

After adjusting for demographic and clinical factors, understanding of surgical risks, support from family and friends, and confidence in postoperative recovery were significantly associated with levels of anxiety (Table 3).

Table 3. Mutivariate analysis of factors associated with anxiety levels among study participants (n = 300)

Characteristic	OR	95% CI	p
Age	1	0.97, 1.03	0.9
Religion			
Yes	0.66	0.36, 1.24	0.2
No (Reference group)	-	-	-
Educational level			
High school and below	0.83	0.46, 1.51	0.5
College and above (Reference group)	-	-	-
Had comorbidities			
Yes	2.15	0.85, 5.33	0.1
No (Reference group)	-	-	-
Occupational			
Retired (Reference group)	-	-	-
Stable employment	1.37	0.46, 4.36	0.6
Freelance	1.85	0.58, 6.31	0.3
Income			
Below regional minimum wage	1.32	0.61, 2.87	0.5
Above regional minimum wage (Reference group)	-	-	-
Residence			
Urban (Reference group)	-	-	-
Rural	1.15	0.68, 2.56	0.3
Previous surgery experience, n (%)			
Yes	1.44	0.62, 3.01	0.2
No (Reference group)	-	-	-
Duration of symptoms (months), mean ± SD	1.05	0.94, 1.21	0.1
Indications for gynecological surgery, n (%)			0.2
Uterine fibroids (Reference group)	-	-	-
Ovarian tumor	0.68	0.37, 1.25	0.2
Endometriosis	0.32	0.09, 0.96	0.055
Uterine polyp	0.73	0.29, 1.73	0.5
Infertility	0.24	0.04, 1.01	0.084

Characteristic	OR	95% CI	p
Indications for gynecological surgery, n (%)			
Cervical abnormalities	3.82	0.53, 27.3	0.2
Reproductive tract infections	0.68	0.09, 3.76	0.7
Postoperative recovery and rehabilitation			< 0.001
I'm confident I can fully recover (Reference group)	-	-	-
I think I can partially recover	1.79	0.56, 5.67	0.3
I'm unsure about recovery	67.4	5.66, 1,973	0.002
Understanding of surgical risks before surgery			0.015
Fully understood risks (Reference group)	-	-	-
Understood some risks	1.24	0.63, 3.54	0.2
Did not understand risks	3.02	0.42, 22.5	0.3
Support system			0.04
Strong support (Reference group)	-	-	-
Moderate support	1.85	0.90, 3.73	0.05
Little or no support	2.71	1.08, 6.81	0.04

IV. DISCUSSION

In this study, we examined the prevalence of anxiety among patients undergoing gynecological surgery. Our findings showed that all participants experienced anxiety, with mild, moderate, and severe levels observed in 60%, 30%, and 10% of cases, respectively. This prevalence was higher than previous studies, which reported anxiety rates ranging from 45% to 70%.[6,10,11] This difference may be due to the fact that patients in these other studies underwent less complex or lower-risk procedures. The elevated anxiety levels observed in our study likely reflect the psychological burden associated with gynecological conditions, which may evoke specific concerns about fertility, pain, and recovery. Additionally, with a substantial proportion of our participants facing medium to high-risk surgeries, these heightened anxiety levels are to be expected.

Our study highlighted the importance of preoperative counseling and clear communication in reducing anxiety among patients undergoing gynecological surgery. When healthcare providers offer thorough, understandable explanations about surgical risks, expected outcomes, and the recovery process, patients often experience reduced anxiety due to a stronger sense of control and realistic expectations.[12-14] This is especially relevant in gynecological procedures, where concerns around fertility, pain, and recovery may heighten anxiety. Literature supports that effective counseling decreases anxiety, potentially leading to better postoperative outcomes such as reduced pain perception and quicker recovery.[15-17] By prioritizing patient counseling, healthcare providers can not only enhance patients' mental well-being but also

contribute to improved clinical outcomes, creating a more efficient healthcare experience. Lowering anxiety preoperatively can mitigate physiological responses that otherwise might complicate recovery, underscoring the clinical significance of this approach.

In addition to counseling, our findings emphasized the crucial role of social support from family and friends in alleviating anxiety. Social support systems provide both emotional and practical reassurance, allowing patients to feel more secure and reducing the isolation that often accompanies preoperative stress.[18,19] Previous studies confirm that strong support networks help buffer against stress, leading to lower anxiety, improved optimism, and greater adherence to care instructions.[5,11,18] Including family in counseling sessions may further strengthen this support by aligning their understanding with the patient's needs, thus reinforcing counseling messages and enhancing the patient's resilience. Clinically, assessing the strength of a patient's support network could allow providers to identify those in need of extra resources, promoting a more holistic approach that addresses both physical and emotional needs in surgical care.

This study is one of the few to examine anxiety prevalence and associated factors among women undergoing gynecological surgery in Vietnam, providing insights into the psychological challenges faced in this specific patient population. However, some limitations warrant discussion. First, as participants were not randomly sampled, there are concerns about generalizability. Women experiencing high levels of anxiety may have been less likely to participate, potentially leading to an underestimation of anxiety levels. Nevertheless, the findings reveal significant anxiety prevalence and suggest a need for enhanced preoperative support that remains relevant regardless of potential sampling bias. Additionally, the cross-sectional design limits causal inference regarding the relationships between anxiety and associated risk factors, such as social support and counseling comprehension. While associations were identified, the study cannot confirm whether these factors directly contribute to anxiety or if anxiety itself affects patients' perceptions and support needs. Despite this limitation, the findings provide valuable insights for improving patient care. Addressing preoperative anxiety through targeted support and communication strategies could have implications for both immediate mental health outcomes and overall surgical recovery. These insights can inform future approaches in gynecological surgery settings, promoting a holistic, patient-centered care model focused on both physical and emotional well-being.

V. CONCLUSIONS

This study revealed a high prevalence of preoperative anxiety among women undergoing gynecological surgery, with increased anxiety associated with limited social support, and challenges in understanding counseling. These findings emphasize the importance of effective communication and support systems to reduce anxiety and improve recovery outcomes. Addressing these needs through targeted preoperative care may foster a more holistic, patient-centered approach, enhancing both physical and emotional well-being in gynecological surgical settings.

REFERENCES

1. Shields J, Lupo A, Walsh T, et al. Preoperative evaluation for gynecologic surgery: a guide to judicious, evidence-based testing.

Curr Opin Obstet Gynecol. 2018;30(4):252-259. doi:10.1097/GCO.0000000000000472

2. Reddy DM, Wasserman SA. Patient anxiety during gynecologic examinations. Behavioral indicators. *J Reprod Med*. 1997;42(10):631-636.

3. Budden AK, Song S, Henry A, et al. Surgeon reported measures of stress and anxiety prior to and after elective gynecological surgery. *Acta Obstet Gynecol Scand*. 2024;103(2):360-367. doi:10.1111/aogs.14728

4. Dibabu AM, Ketema TG, Beyene MM, et al. Preoperative anxiety and associated factors among women admitted for elective obstetric and gynecologic surgery in public hospitals, Southern Ethiopia: a cross-sectional study. *BMC Psychiatry*. 2023;23(1):728. doi:10.1186/s12888-023-05005-2

5. Dibabu AM, Ketema TG, Beyene MM, et al. Preoperative anxiety and associated factors among women admitted for elective obstetric and gynecologic surgery in public hospitals, Southern Ethiopia: a cross-sectional study. *BMC Psychiatry*. 2023;23(1):728. doi:10.1186/s12888-023-05005-2

6. Carr E, Brockbank K, Allen S, et al. Patterns and frequency of anxiety in women undergoing gynaecological surgery. *J Clin Nurs*. 2006;15(3):341-352. doi:10.1111/j.1365-2702.2006.01285.x

7. Gu X, Zhang Y, Wei W, et al. Effects of Preoperative Anxiety on Postoperative Outcomes and Sleep Quality in Patients Undergoing Laparoscopic Gynecological Surgery. *J Clin Med*. 2023;12(5):1835. doi:10.3390/jcm12051835

8. Pokharel K, Bhattarai B, Tripathi M, et al. Nepalese patients' anxiety and concerns before surgery. *J Clin Anesth*. 2011;23(5):372-378. doi:10.1016/j.jclinane.2010.12.011

9. Spitzer RL, Kroenke K, Williams JBW, et al. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med*. 2006;166(10):1092-1097. doi:10.1001/archinte.166.10.1092

10. Ferede YA, Bizuneh YB, Workie MM, et al. "Prevalence and associated factors of preoperative anxiety among obstetric patients who underwent cesarean section": A cross-sectional study. *Ann Med Surg 2012*. 2022;74:103272. doi:10.1016/j.amsu.2022.103272

11. Jayawardane M, Gankanda W, Gunathilake M. Prevalence of pre-operative anxiety and associated factors among a group of women undergoing gynaecological surgeries at a single unit in a tertiary care hospital in Sri Lanka. *F1000Research*. 2021;10:74. doi:10.12688/f1000research.26964.1

12. Martin KL, Hodgson D. The role of counselling and communication skills: how can they enhance a patient's 'first day' experience? *J Radiother Pract*. 2006;5(3):157-164. doi:10.1017/S1460396906000215

13. Nikumb VB, Banerjee A, Kaur G, et al. Impact of doctor-patient communication on preoperative anxiety: Study at industrial township, Pimpri, Pune. *Ind Psychiatry J*. 2009;18(1):19-21. doi:10.4103/0972-6748.57852

14. Mahyuvi T, Masqurotin M, Rumpiati R. Therapeutic Communication with Patient Anxiety Levels During Operation Preparation: A Cross-Sectional Study. *Int J Nurs Health Serv IJNHS*. 2023;6(4):257-265. doi:10.35654/ijnhs.v6i4.716

15. Dewi Indana N, Aniroh M. Effective Nursing Counseling Reduces Anxiety in Major Preoperative Patients. Published online July 10, 2024. doi:10.5281/ZENODO.12506554

16. Horn R, Hendrix JM, Kramer J. Postoperative Pain Control. In: *StatPearls*.

StatPearls Publishing; 2024. Accessed November 3, 2024. http://www.ncbi.nlm.nih.gov/books/NBK544298/

17. Powell R, Scott NW, Manyande A, et al. Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. *Cochrane Database Syst Rev*. 2016;2016(5):CD008646. doi:10.1002/14651858.CD008646.pub2

18. Kok XLF, Newton JT, Jones EM, et al. Social support and pre-operative anxiety in patients undergoing elective surgical procedures: A systematic review and meta-analysis. *J Health Psychol*. 2023;28(4):309-327. doi:10.1177/13591053221116969

19. Drageset J. Social Support. In: Haugan G, Eriksson M, eds. *Health Promotion in Health Care – Vital Theories and Research*. Springer International Publishing; 2021:137-144. doi:10.1007/978-3-030-63135-2_11