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A Study on the Effects of Preoperative Visits Led by Operating Room Nurses on Patients' Anxiety Levels and Postoperative Recovery Satisfaction

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Abstract

To investigate the effects of a standardized preoperative visitation model led by operating room nurses on alleviating preoperative anxiety levels and enhancing postoperative recovery satisfaction among elective surgery patients, a prospective randomized controlled study design was employed in which two hundred patients scheduled for elective surgery at a city-based hospital between June 2024 and May 2025 were enrolled. Using a random number table, they were divided into an intervention group (n=100) and a control group (n=100). The control group received routine preoperative preparation by ward nurses. while the intervention group additionally received standardized preoperative visits led by uniformly trained operating room nurses. Anxiety levels were assessed using the State-Trait Anxiety Inventory (S-TAI) at two time points: before the visit (T0) and after entering the operating room while calmly resting in bed (T1). Patient satisfaction was evaluated using the Newcastle Nursing Service Satisfaction Scale (NSNS) prior to discharge (T2). Results showed that at baseline (T0), no significant difference existed in S-TAI scores between groups ($P>0.05$). At T1, the intervention group's S-TAI score (42.1±5.3) was significantly lower than the control group (51.8±6.1) ($t=8.24$, $P<0.001$). At T2, the intervention group's NSNS total score and all dimension scores were significantly higher than the control group ($P<0.001$). Conclusions could be drawn as the standardized preoperative visit led by operating room nurses effectively alleviates patients' preoperative anxiety and significantly enhances their overall satisfaction with the postoperative recovery process. This model is recommended for promotion and application as a high-quality nursing practice in perioperative care in China and beyond.

Keywords: preoperative visit, operating room nurse, anxiety, postoperative recovery, patient satisfaction, nursing intervention

1. Foreword

Surgery, as a major stressor, often induces intense physiological and psychological stress responses in patients (Wang Ningli et al., 2014), with preoperative anxiety being the most common psychological issue during the perioperative period (Aust et al., 2018). Research indicates that high levels of preoperative anxiety are closely associated with adverse outcomes such as increased demand for anesthetic agents, heightened postoperative pain, prolonged recovery periods, and reduced satisfaction (Celik & Edipoglu, 2018). Preoperative anxiety is highly prevalent among surgical patients and the psychological stress it induces—such as tension and fear—along with physiological responses like accelerated heart rate and elevated blood pressure, significantly reduce patient cooperation during surgery, interfere with anesthetic management, and adversely affect postoperative recovery. It may even prolong hospital stays (Hu Shuai Hua et al., 2019) and delay wound healing (Li & Chen, 2023). Traditional preoperative preparations primarily focus on verifying physiological indicators and arranging surgical procedures, with relatively weak and insufficient attention to the psychological aspects of patients. Relevant studies have confirmed that providing continuous care through preoperative visits and postoperative follow-ups for surgical patients can effectively promote the improvement of their clinical symptoms and reduce the risk of complications (Luo, 2021).

As key members of the surgical team, operating room nurses participate in the entire surgical process from patient admission to recovery, granting them unique advantages in preoperative visits. When led by these nurses, preoperative visits provide patients with firsthand information about the operating room environment, procedures, and nursing interventions. This effectively reduces anxiety stemming from “unknown” and “uncertainty” factors, enhancing patients' overall sense of control over the surgical process (Hines et al., 2015). Implementing continuous care that integrates preoperative visits with postoperative follow-ups can strengthen patients' trust in nursing staff, thereby improving treatment adherence and nursing satisfaction (Mai Jinnan, 2019). Although the concept of preoperative visits is widely accepted, the effectiveness of standardized visit models conducted by operating room nurses requires further support from research evidence based on rigorous methodology. Traditional preoperative preparation models primarily focus on physiological readiness and instrument preparation, lacking systematic assessment and intervention for patients' psychological needs (Yu et al., 2023). As a crucial extension of operating room nursing, the preoperative visit serves as a bridge between the operating room and the ward, and is also an important measure to alleviate patients' preoperative anxiety (Chen Ruiqiong, 2019). However, most hospitals in China still face issues such as non-standardized implementation, inconsistent content, and inappropriate timing in their preoperative visits, which compromise their effectiveness (Powell et al., 2016). This study employs a randomized controlled trial to systematically evaluate the impact of standardized preoperative visits led by operating room nurses on patient anxiety levels and recovery satisfaction, providing evidence-based guidance for improving perioperative care.

2. Research Methods

2.1 General Information

A prospective randomized controlled study design was employed. A total of 200 elective surgery patients admitted to a certain hospital between June 2024 and May 2025 were selected. Inclusion criteria: (1) Age between 18 and 70 years; (2) American Society of Anesthesiologists (ASA) physical status classification I–II; (3) Alert and communicative; (4) Voluntary participation. Exclusion criteria: (1) History of psychiatric disorders or cognitive impairment; (2) Emergency surgery required; (3) Severe cardiac, pulmonary, hepatic, or renal insufficiency; (4) Hearing or speech impairment affecting communication; (5) Pregnant or lactating women.

2.2 Sample Size Calculation

Based on a pilot study and prior research (Hines et al., 2015), we estimated the effect size (Cohen's d) for the primary outcome (anxiety score) to be 0.65. Using G*Power 3.1 software with $\alpha = 0.05$ and power $(1-\beta) = 0.90$ for a two-sample independent t-test, the required sample size per group was calculated as 88 participants. Accounting for a 10% attrition rate, 100 participants were ultimately enrolled in each group.

2.3 Intervention Methods

Control Group: Received routine preoperative care administered by ward nurses, including verbal health education, distribution of educational pamphlets, notification of preoperative fasting and fluid restrictions, and explanation of the general surgical process. An anesthesiologist conducted a brief preoperative visit 2 hours before surgery.

Intervention Group: In addition to routine preoperative preparations, a standardized preoperative visit lasting approximately 20–30 minutes was conducted by a uniformly trained operating room nurse one day prior to surgery. The visit protocol was developed based on the Guidelines for Perioperative Practice (n.d.) from the American Association of Perioperative Registered Nurses (AAPRN). Specific components are as follows:

Visiting Team and Training: The visiting team consists of three charge nurses with over five years of operating room experience who have undergone standardized training. Training covers communication skills, anxiety assessment methods, surgical knowledge, and psychological intervention techniques. Only those who pass the training assessment may participate in the study.

Timing and Content of Visits: Visits are conducted between 3:00 PM and 5:00 PM on the afternoon before surgery, avoiding patient rest and treatment periods. Each visit lasts approximately 20-30 minutes per patient and includes:

(1) Introduction and Relationship Building: Self-introduction, explanation of visit objectives, and establishment of trust.

(2) Pre-operative Environment and Procedure Walkthrough: Utilize standardized visual aids and surgical diagrams to thoroughly explain the operating room environment, anesthesia

methods, surgical workflow, and patient positioning. Provide a detailed account of the entire process from ward transfer and anesthesia preparation through surgery to recovery, helping patients develop realistic expectations.

(3) Information Support and Psychological Counseling: Encourage patients to express their feelings and concerns. Patiently address questions, correct misconceptions, and teach simple relaxation techniques (e.g., abdominal deep breathing); employ empathy techniques for emotional support and share success stories to build confidence.

(4) Relaxation Technique Training: Guide patients through deep breathing exercises and progressive muscle relaxation to alleviate tension.

(5) Commitment to Continuity of Support: Inform patients that a visiting nurse or colleague will meet them in the operating room the following day to provide continuous supportive care.

(6) Postoperative Recovery Guidance: Inform patients about postoperative pain management methods, the importance of early mobilization, and precautions, while setting recovery goals.

Standardized Visiting Process

Follow the "Assessment-Planning-Implementation-Evaluation" model. First, assess the patient's anxiety level and information needs, then develop a personalized visiting plan. After implementing interventions, evaluate the effectiveness of the visit and document findings in a standardized visiting form.

2.4 Evaluation Indicators

(1) Anxiety Level: Assessed using the State Anxiety subscale from the Chinese version of the State-Trait Anxiety Inventory (S-TAI) (Zheng Xiaohua & Li Tingzhi, 1997), which demonstrates good reliability and validity in Chinese populations. Measurements were taken before the visit (T0) and after the patient entered the operating room and was resting calmly in bed (T1).

(2) Nursing Satisfaction: Systematically assessed using the Newcastle Nursing Service Satisfaction Scale (NSNS) prior to patient discharge (T2) (Thomas et al., 1995). This 19-item scale covers multiple dimensions including nursing skills, health education, and emotional support, with a reported Cronbach's α reliability coefficient of 0.92 (Thomas et al., 1996).

2.5 Data Collection and Blinding

Data collectors (research assistants) were unaware of group assignments. Patients were instructed not to disclose their group status during subsequent assessments.

2.6 Statistical Methods

Data were analyzed using SPSS 26.0 software. Quantitative data are expressed as mean ± standard deviation ($\bar{x} \pm s$), with intergroup comparisons performed using independent samples t-tests. Qualitative data are presented as counts (percentages), with intergroup comparisons conducted using chi-square (χ^2) tests. $P < 0.05$ was considered statistically significant.

3. Results

3.1 Comparison of Baseline Characteristics

No statistically significant differences were observed between groups in age, gender, ASA physical status, or surgical type ($P > 0.05$), indicating comparability (in Table 1).

Table 1. Comparison of Baseline Characteristics ($\bar{x} \pm s$), n (%)

Project	Intervention Group	Control Group	χ^2/t-value	P-value
Age (years)	52.4 ± 10.7	51.8 ± 11.3	0.395	0.693
Gender (Male/Female)	48/52	51/49	0.087	0.768
ASA classification (Class I/Class II)	42/58	40/60	0.185	0.912
Surgery type (General Surgery/Orthopedic Surgery/Gynecological Surgery)	35/32/33	38/30/32	0.682	0.711

3.2 Comparison of Anxiety Levels at Different Time Points Between the Two Groups

At Time Point T0, the difference in S-TAI scores between the two groups was not statistically significant ($P > 0.05$). At Time Point T1, the intervention group exhibited significantly lower S-TAI scores than the control group ($P < 0.001$). This indicates the intervention was effective in substantially alleviating patients' anxiety after admission (in Table 2 and Figure 1).

Table 2. Comparison of State Anxiety (S-TAI) Scores at Different Time Points Between the Two Groups (Points)

Group	Sample Size	T0 (Pre-Visit)	T1 (Post-Visit)
Control Group	100	39.5 ± 4.8	42.1 ± 5.3
Observation Group	100	40.1 ± 5.2	51.8 ± 6.1
t		-0.887	-12.735
P		0.376	< 0.001

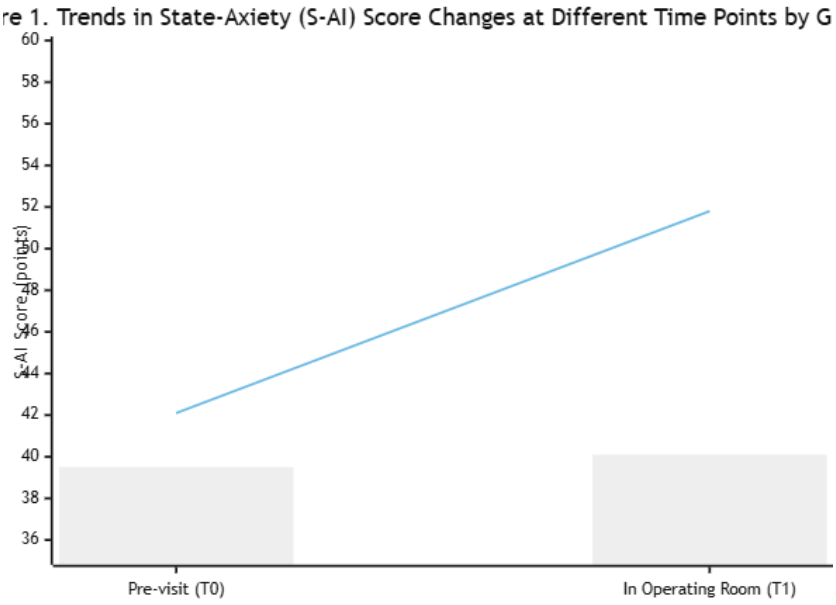

Figure 1. Trends in State Anxiety (S-AI) Scores at Different Time Points Among Two Patient Groups

3.3 Comparison of Nursing Satisfaction Between the Two Groups

At Time Point T2, patients in the intervention group scored significantly higher than those in the control group on both the overall NSNS scale and its individual dimensions, with statistically significant differences ($P<0.001$). This was particularly pronounced in the health education dimension (in Table 3).

Table 3. Comparison of Nursing Satisfaction (NSNS) Scores Between the Two Groups (Points)

NSNS Dimension	Intervention Group (n=100)	Control Group (n=100)	t-value	P-value
Nursing Technical Competence	92.5 ± 3.1	85.3 ± 4.5	13.827	< 0.001
Health Education	94.2 ± 2.8	82.7 ± 5.1	21.594	< 0.001
Emotional Support	91.8 ± 3.5	80.4 ± 4.9	19.632	< 0.001
Respect and Care	93.6 ± 2.9	84.1 ± 4.2	18.925	< 0.001
Overall Satisfaction	95.0 ± 2.5	86.8 ± 3.8	18.341	< 0.001
Total Score	467.1 ± 8.9	419.3 ± 12.6	31.459	< 0.001

4. Discussion

This randomized controlled trial demonstrated that standardized preoperative visits led by

operating room nurses effectively alleviate patient anxiety and enhance recovery satisfaction. Patients in the intervention group exhibited significantly reduced anxiety levels upon entering the operating room, likely attributable to the specific surgical information provided during visits, the trust-building between nurses and patients, and guidance on relaxation techniques. These combined measures strengthened patients' sense of control over the surgical process and psychological security. Nurse-led supportive-educational interventions effectively reduce preoperative anxiety and improve sleep with low cost and no side effects. It is recommended to incorporate non-pharmacological interventions (e.g., relaxation training) into routine preoperative care, with particular emphasis on sleep management during the preoperative night (Mousavi Malek et al., 2018). The mechanism of action likely involves: the "immersive" information provided by operating room nurses significantly reducing environmental unfamiliarity; the trust relationship established during visits, as a crucial component of physician-patient trust, offering reliable psychological security; and professional relaxation technique guidance empowering patients with active tools to manage anxiety.

Two-way communication with clinical staff, patient involvement in treatment decisions, and resolution of medical concerns emerged as key determinants of satisfaction. These findings underscore the multidimensional nature of patient satisfaction and reinforce hospitals' need for differentiated strategies (Fuentes & Núñez, 2025). Effective communication, patient engagement, and attention to demographic characteristics are all crucial for enhancing satisfaction and achieving person-centered healthcare.

Postoperative patient satisfaction showed significant improvement, particularly in the dimensions of "health education" and "emotional support." Within structured care interventions, personalized information and psychological preparation emerged as key drivers of patient satisfaction. Clear, consistent communication from healthcare providers, coupled with emotional empathy and support, significantly elevated patients' overall assessment of care. This improvement likely stems from the combined implementation of preoperative visits and postoperative follow-ups, which provide comprehensive care interventions. By offering psychological counseling before surgery and health education afterward, patients enter surgery in better physical and mental states and gain enhanced confidence in their recovery. This dual approach delivers superior care on both physiological and psychological fronts, improving mental well-being and satisfaction. Simultaneously, the systematic collection of patient feedback during postoperative follow-ups provides valuable insights for continuous quality improvement in nursing. Through regular analysis and discussion of this feedback, the nursing team can accurately identify issues, collaboratively develop strategies, and implement improvement measures into daily practice. This not only optimizes operating room management processes but also positively contributes to the professional growth and long-term development of both the hospital and its healthcare staff.

5. Limitations and Future Directions

Besides the aforementioned benefits and intricacies of the design of this research, this study also has certain limitations. First, as a single-center trial, the generalizability of its

conclusions requires further validation through multicenter research in different levels of hospitals all over China. Second, no subgroup analysis was conducted for patients undergoing different surgical procedures may confuse the results; future studies could explore the differentiated effects of this intervention on specific populations in different surgeries. Additionally, this study did not assess the impact of visits on long-term recovery indicators; subsequent research could extend to observe their effects on postoperative pain levels, complication rates, and recovery duration in a longitudinal dimension.

6. Conclusions

In summary, standardized preoperative visits led by operating room nurses could effectively alleviate patients' preoperative anxiety and enhance postoperative recovery satisfaction in general. This evidence-based nursing intervention holds significant clinical value for widespread adoption all across China and beyond. It is recommended to standardize and routinely implement this model in perioperative care to further improve the quality of operating room nursing and enhance the patient experience for building a better hospital-patient relationship which will benefit both parties.

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Competing interests

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Obtained.

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The data that support the findings of this study are available on request from the

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Data sharing statement

No additional data are available.

References

Aust, H., Eberhart, L., Sturm, T., Schuster, M., Nestoriuc, Y., Brehm, F., & Rüsch, D. (2018). A cross-sectional study on preoperative anxiety in adults. *Journal of Psychosomatic Research, 111*, 133-139. https://doi.org/10.1016/j.jpsychores.2018.05.012

Celik, F., & Edipoglu, I. S. (2018). Evaluation of preoperative anxiety and fear of anesthesia using APAIS score. *European Journal of Medical Research, 23*(1), 41. https://doi.org/10.1186/s40001-018-0339-4

Chen, R. Q. (2019). The Efficacy of Surgical Atlases in Preoperative Visits by Operating Room Nurses and Their Impact on Postoperative Patient Recovery. *Journal of Qiqihar University of Medicine, 40*(14), 1815-1816. https://doi.org/10.3969/j.issn.1002-1256.2019.14.039

Fuentes, V., & Núñez, A. (2025). Patient experience and satisfaction in Chilean hospitals: Insights for enhancing person-centered care. *Patient Education and Counseling, 141*, 109332. https://doi.org/10.1016/j.pec.2025.109332

Guidelines for Perioperative Practice. (n.d.). Aorn.Org. Retrieved November 14, 2025, from https://www.aorn.org/guidelines-resources/guidelines-for-perioperative-practice

Hines, S., Munday, J., & Kynoch, K. (2015). Effectiveness of nurse-led preoperative assessment services for elective surgery: A systematic review update: *JBI Database of Systematic Reviews and Implementation Reports, 13*(6), 279-317. https://doi.org/10.11124/jbisrir-2015-1996

Hu, S. H., Li, J. T., Huang, S. M., & Liu, J. (2019). Effect of the combined preoperative visit on the anxiety of patients undergoing a total hysterectomy. *Chinese Nursing Research, 33*(11), 2000-2002. https://doi.org/10.12102/j.issn.1009-6493.2019.11.048

Li, X. J., & Chen, T. Q. (2023). A study on the impact of a combined medical and nursing preoperative visitation program on the anxiety levels of female surgical patients. *Women's Health Research.*

https://ycfw.library.hb.cn:8000/vpn/4/https/MRYHPZLPM3RX635EMF4GCLUDN7XT6Z5P/Periodical/zwnxjkyj202312019

Luo, Q. (2021). The application and effectiveness of pre-operative visits and post-operative follow-ups in the overall care provided in the operating room. *World Latest Medicine Information*. https://doi.org/10.3969/j.issn.1671-3141.2021.03.162

Mai, J. N. (2019). Analysis of the Application Effectiveness of Preoperative Visits and Postoperative Follow-ups in Comprehensive Nursing Care within the Operating Room. *Health for Everyone, 13*, 179-180.

Mousavi Malek, N., Zakerimoghadam, M., Esmaeili, M., & Kazemnejad, A. (2018). Effects of Nurse-Led Intervention on Patients' Anxiety and Sleep Before Coronary Artery Bypass Grafting. *Critical Care Nursing Quarterly, 41*(2), 161-169. https://doi.org/10.1097/CNQ.0000000000000195

Powell, R., Scott, N. W., Manyande, A., Bruce, J., Vögele, C., Byrne-Davis, L. M., Unsworth, M., Osmer, C., & Johnston, M. (2016). Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. *Cochrane Database of Systematic Reviews, 2016*(5). https://doi.org/10.1002/14651858.CD008646.pub2

Thomas, L. H., MacMILLAN, J., McCOLL, E., Priest, J., Hale, C., & Bond, S. (1995). Obtaining Patients' Views of Nursing Care to Inform the Development of a Patient Satisfaction Scale. *International Journal for Quality in Health Care, 7*(2), 153-163. https://doi.org/10.1093/intqhc/7.2.153

Thomas, L. H., McColl, E., Priest, J., Bond, S., & Boys, R. J. (1996). Newcastle satisfaction with nursing scales: An instrument for quality assessments of nursing care. *Quality and Safety in Health Care, 5*(2), 67-72. https://doi.org/10.1136/qshc.5.2.67

Wang, N. L., Tang, H. Q., Huang, F. Y., Huang, S. N., Huang, C. Y., & Lu, M. X. (2014). A Practical Study on the Impact of Preoperative Visits on the Psychosomatic Stress Responses of Surgical Patients. *Journal of Youjiang Medical University for Nationalities, 36*(2), 313-315. https://doi.org/10.3969/j.issn.1001-5817.2014.02.092

Yu, Y., Zhou, X., Zeng, G., & Hou, Y. (2023). Impact of Virtual Operating Room Tours on Relieving Perioperative Anxiety in Adult Patients: A Systematic Review. *Journal of PeriAnesthesia Nursing, 38*(4), 657-663.e7. https://doi.org/10.1016/j.jopan.2022.11.013

Zheng, X. H., & Li, T. Z. (1997). State-Trait Anxiety Inventory. *Chinese Mental Health Journal, 4*, 28-29.