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Impact of Preoperative Psychological Interventions on Patients Undergoing Elective Surgery

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Abstract: *Objective:* To assess the impact of preoperative psychological interventions on the care of patients undergoing elective surgery. *Methods:* Ninety-two patients scheduled for elective surgery in the surgical department between August 2021 and August 2023 were selected and divided into groups using a random number table. The observation group received preoperative psychological interventions, while the reference group received standard preoperative care. Anxiety and depression scores, fear grading, vital signs, and self-efficacy levels were compared. *Results:* After the intervention, the anxiety and depression scores in the observation group were lower than those in the reference group, and the proportion of fear graded as Level I was higher. During the waiting period and 15 minutes before entering the operating room, vital sign levels in the observation group were lower than those in the reference group. Additionally, the self-efficacy scores of the observation group were significantly higher than those of the reference group ($P < 0.05$). *Conclusion:* Preoperative psychological interventions can alleviate negative emotions, stabilize preoperative vital signs, and significantly improve self-efficacy in patients undergoing elective surgery, demonstrating high feasibility for implementation.

Keywords: Preoperative psychological intervention; Elective surgery; Negative emotions; Vital signs; Self-efficacy

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1. Introduction

Elective surgery is a commonly employed treatment method in clinical surgery, characterized by a broad range of applications and high curative potential. However, as a significant stressor, surgery often induces anxiety and fear in patients [1]. Moreover, the limited understanding of surgical procedures among patients can lead to pronounced psychological stress reactions before surgery, potentially affecting surgical outcomes. Elective surgery requires patients to wait for an appropriate surgical timing, exacerbating their psychological burden and resulting in abnormal vital signs, such as increased heart rate or elevated blood pressure before entering the operating room. These factors reduce the patient's surgical tolerance [2].

Consequently, clinical surgical departments place great emphasis on preoperative psychological interventions

for elective surgery patients. Systematic and targeted interventions aim to regulate negative emotions, help patients approach surgery with a positive mindset, and actively cooperate during the procedure. Against this background, this study evaluated the effects of preoperative psychological interventions by selecting 92 patients undergoing elective surgery.

2. Materials and methods

2.1. General information

A total of 92 patients undergoing elective surgery in the surgical department between August 2021 and August 2023 were selected. Patients were randomly divided into two groups using a random number table. The observation group included 46 patients (25 males and 21 females) aged 19–71 years, with a mean age of 45.92 ± 5.17 years. The reference group also consisted of 46 patients (27 males and 19 females) aged 20–73 years, with a mean age of 46.13 ± 5.23 years. There were no statistically significant differences in baseline characteristics between the two groups ($P > 0.05$).

Inclusion criteria: Patients with an education level above junior high school; first-time surgery; meeting the indications for elective surgery; normal cognitive abilities; and informed consent to participate in the study.

Exclusion criteria: Missing clinical data; presence of psychiatric disorders; malignant tumors; inability to tolerate surgery; or voluntary withdrawal during the study.

2.2. Methods

2.2.1. Reference group

Patients received standard preoperative care. This included regular monitoring and recording of vital signs, detailed explanations about the purpose, procedure, and outcomes of elective surgery, assessing the patient's knowledge of surgery, targeted education, assisting with preoperative examinations, and preoperative preparations, and providing dietary and exercise guidance.

2.2.2. Observation group

Patients received preoperative psychological interventions, including:

(1) Formation of a responsible team

(a) Team composition: The team consisted of a senior nurse (team leader), an operating room nurse, and a responsible nurse.

(b) Responsibilities of the team leader: Analyze causes of preoperative psychological stress, and key points of psychological intervention for elective surgery, and formulate intervention plans based on the department's conditions. The leader also organized discussion meetings used brainstorming to improve measures, regularly evaluated intervention effects, and implemented continuous improvements.

(c) Responsibilities of team members: The operating room nurse conducted visits one day before surgery and immediately before entering the operating room. The responsible nurse accompanied patients throughout, assessing their psychological states and providing timely, individualized guidance.

(2) Intervention methods

(a) Day of admission: The responsible nurse communicated with the patient to understand their cognitive

level, disease condition, psychological traits, and medical history. A smile service approach with patience, sincerity, and friendliness was used to welcome patients, familiarize them with the environment, and explain hospital regulations. The nurse evaluated the patient's mindset, encouraged them to express concerns about surgery, and provided physical gestures like nodding and back-patting to build trust.

(b) Waiting period for surgery: Once the surgery date was determined, patients were given educational materials and information about the safety and efficacy of the surgery. Videos and PowerPoint presentations were used to help patients understand surgical procedures comprehensively. Psychological state evaluations were conducted:

(i) For anxiety: Patients were encouraged to perform deep breathing exercises (2–3 times daily, 20 minutes each session) and engage in reading or drawing.

(ii) For depression: Patients were encouraged to keep a journal and participate in peer support groups to share experiences.

(iii) For fear: Operating room nurses provided one-on-one education on topics such as incision size, surgical duration, and recovery timelines. Three days before surgery, nurses demonstrated postoperative positioning and breathing exercises, prepared patients for surgery, and addressed potential psychological issues with interventions like meditation training.

(c) Day of surgery: Operating room nurses welcomed patients, and responsible nurses accompanied them throughout. Operating room nurses informed patients about the qualifications of the surgeon and anesthesiologist, shared success stories, and emphasized perioperative self-management techniques to help patients relax.

2.3. Observation indicators

(1) Anxiety and depression scores: Anxiety was assessed using the Self-Rating Anxiety Scale (20 items; standard score of 50), and depression was assessed using the Self-Rating Depression Scale (20 items; standard score of 53). Higher scores indicated more severe negative emotions.

(2) Fear grading: Fear was evaluated using a three-grade scale:

(a) Grade I: No or mild fear, no avoidance of surgery.

(b) Grade II: Moderate fear, with attempts to avoid surgery.

(c) Grade III: Severe fear, with clear avoidance of surgery.

(3) Vital signs: Pulse, systolic blood pressure, and diastolic blood pressure were measured during the waiting period and 15 minutes before entering the operating room.

(4) Self-efficacy: Measured using the Self-Efficacy Scale for Perceived Personal Health (SUPPH), which includes 10 items on stress relief, 3 on self-decision-making, and 15 on positive attitudes. Each item is rated on a 1–5 scale, with total scores ranging from 28 to 140. Higher scores indicate better self-efficacy.

2.4. Statistical analysis

Data were analyzed using SPSS 28.0. Measurement data were expressed as mean ± standard deviation (SD), and *t*-tests were used for comparisons. Count data were expressed as [*n* (%)], and χ^2 tests were used for comparisons. A *P*-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of anxiety and depression scores

Before the intervention, there were no significant differences in anxiety and depression scores between the two groups ($P > 0.05$). After the intervention, the observation group showed significantly lower anxiety and depression scores compared to the reference group ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of anxiety and depression scores between the two groups before and after the intervention (mean ± SD, points)

Group	*n*	Anxiety		Depression	
		Before	After	Before	After
Observation group	46	54.29 ± 4.71	29.62 ± 2.84	52.16 ± 4.77	26.32 ± 2.40
Reference group	46	54.22 ± 4.62	35.14 ± 2.93	52.13 ± 4.79	30.19 ± 2.48
t		0.072	9.175	0.030	7.605
P		0.943	0.000	0.976	0.000

3.2. Comparison of fear grading

Before the intervention, no significant differences were observed in fear grading between the two groups ($P > 0.05$). After the intervention, the proportion of Grade I fear (no or mild fear) in the observation group was significantly higher than that in the reference group ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of fear grading between the two groups before and after the intervention [*n* (%)]

Group	*n*	Grade I fear		Grade II fear		Grade III fear	
		Before	After	Before	After	Before	After
Observation group	46	19 (41.30)	29 (63.04)	21 (45.65)	13 (28.26)	6 (13.04)	4 (8.70)
Reference group	46	18 (39.13)	19 (41.30)	20 (43.48)	19 (41.30)	8 (17.39)	8 (17.39)
χ^2		0.045	4.356	0.044	1.725	0.337	1.533
P		0.832	0.037	0.834	0.189	0.562	0.216

3.3. Comparison of vital signs

During the waiting period for surgery and 15 minutes before entering the operating room, the observation group had significantly lower levels of all vital signs (pulse, systolic blood pressure, and diastolic blood pressure) compared to the reference group ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of vital signs between the two groups (mean ± SD)

Group	*n*	Pulse (bpm)		Systolic blood pressure (mmHg)		Diastolic blood pressure (mmHg)	
		During waiting	15 min before	During waiting	15 min before	During waiting	15 min before
Observation group	46	67.21 ± 4.15	69.44 ± 4.62	118.53 ± 9.67	125.37 ± 8.74	72.53 ± 5.95	75.15 ± 6.31
Reference group	46	75.16 ± 4.20	79.61 ± 4.81	126.17 ± 9.70	131.32 ± 8.83	77.51 ± 5.79	82.46 ± 6.42
t		9.132	10.342	3.783	3.248	4.068	5.508
P		0.000	0.000	0.000	0.002	0.000	0.000

3.4. Comparison of self-efficacy

Before the intervention, there was no significant difference in self-efficacy scores between the two groups ($P > 0.05$). After the intervention, the observation group had significantly higher self-efficacy scores than the reference group ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of self-efficacy between the two groups before and after the intervention (mean ± SD, points)

Group	*n*	Stress relief		Self-decision making		Positive attitude	
		Before	After	Before	After	Before	After
Observation group	46	20.36 ± 4.12	30.18 ± 4.51	8.56 ± 1.43	12.24 ± 1.82	40.36 ± 4.97	51.23 ± 5.38
Reference group	46	20.42 ± 4.18	25.98 ± 4.43	8.58 ± 1.48	11.17 ± 1.63	40.31 ± 4.82	47.13 ± 5.32
t		0.069	4.506	0.066	2.970	0.049	3.675
P		0.945	0.000	0.948	0.004	0.961	0.000

4. Discussion

Patients undergoing elective surgery often experience preoperative negative emotions, which can be attributed to several factors:

(1) Patients may doubt the professional competence of their attending physician and fear unexpected complications during surgery, including damage to other organs.

(2) Concerns about significant pain from the procedure and its potential impact on postoperative physiological function are common [3].

(3) The high cost of surgery can increase the financial burden on patients.

(4) Limited knowledge about surgical procedures and expected outcomes often leads to excessive anxiety or fear.

Given these psychological characteristics, it is essential to provide psychological interventions for patients undergoing elective surgery. Professional, continuous, and individualized measures can alleviate their negative emotions and ensure better surgical outcomes [4,5].

Preoperative psychological intervention employs a bidirectional communication mechanism to increase interaction between healthcare providers and patients. By addressing patients' psychological states, surgical schedules, and medical conditions, this approach reduces preoperative psychological stress. It helps patients recognize their emotional challenges and learn to regulate them, enabling more effective collaboration with medical staff [6,7]. This intervention addresses patients' knowledge gaps through brief educational sessions and psychological counseling, fulfilling their informational needs about the surgery, enhancing trust, and embodying a humanistic approach to care [8].

The results indicate that after the intervention, the anxiety and depression scores of the observation group were significantly lower than those of the reference group ($P < 0.05$), consistent with the findings of Shen [9]. Additionally, the proportion of Grade I fear in the observation group was higher than that in the reference group after the intervention. During the waiting period for surgery and 15 minutes before entering the operating room, vital signs were lower in the observation group than in the reference group. Moreover, self-efficacy scores in the observation group were higher than those in the reference group after the intervention ($P < 0.05$).

The reasons for these results can be analyzed as follows: Preoperative psychological intervention uses

psychological theories to analyze the common psychological characteristics of patients undergoing elective surgery. By implementing a time-sequential intervention, patients' psychological states can be continuously assessed and addressed in a timely manner. Respecting individual differences, the intervention considers the underlying causes of negative emotions and stimulates patients' active participation, enabling them to self-regulate their emotions and maintain stable vital signs [10,11]. This intervention gradually cultivates patients' self-management abilities, equipping them with the skills needed for preoperative preparation, thereby enhancing their self-efficacy.

5. Conclusion

In conclusion, preoperative psychological intervention can improve the negative emotions of patients undergoing elective surgery, reduce physiological stress before surgery, and enhance self-efficacy, facilitating the smooth progression of elective procedures.

Disclosure statement

The authors declare no conflict of interest.

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