

Evaluation of Nurse-Administered Relaxation Techniques on Anxiety in Preoperative Patients

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Abstract: *Background:* Preoperative anxiety will easily recognized psychological phenomenon among the surgical patients, which is usually linked to the bad results, including raised anesthetic demands, pain, and low recovery rate. Non-pharmacological interventions, particularly nurse-administered relaxation techniques, have emerged as effective strategies to alleviate anxiety in clinical settings. *Objective:* To assess the efficiency of relaxation interventions provided by nurses to decrease the stage of anxiety between preoperative patients. *Techniques:* A quasi-experimental study will be done on a sample of 100 preoperative patients to be admitted in elective surgery. Given the need to make participants random to either intervention (n=50) to which relaxation techniques would be applied (including deep breathing exercises and guided visualizations through supervision of trained nurses) or control condition (n=50) where reputation normal preoperative care would be applied, the participants were chosen randomly. The measure of anxiety was conducted on the State-Trait Anxiety Inventory (STAI) before and after the intervention. *Findings:* After the intervention, the mean STAI scores in the intervention were notably reducing (52.3 plus 8.4 to 38.7 plus 6.2, p<0.001) compared to the control where scores have been decreasing by very little (51.8 plus 7.9 to 49.5 plus 7.2, p>0.05). Subjective calmness and readiness to appear, or indeed appear at the time of the operation, were also decreased in patients of the intervention group. *Conclusion:* Relaxation techniques administered by nurses will work on decreasing preoperative anxiety and can be added to the daily workflow of a nurse to enhance the psychological condition of patients and the success of surgery. These findings support the role of nurses as key providers of holistic, patient-centered perioperative care.

Keywords: Preoperative anxiety, Relaxation techniques, Nurse-administered intervention, Deep breathing, Guided imagery, Surgical patients.

INTRODUCTION

Surgery irrespective of the level of its complexity is usually associated with a lot of emotional distress among patients with anxiety being the most reported form of psychological reaction. Preoperative anxiety might be recognized as multidimensional notion of realization, as it is indeed accomplished because of the fear of the unknown, anxiety about the anesthesia, postoperative torture, and potential complications, not mentioning fear of danger to life or death, that is more feminine and refers more to those patients at younger years and major procedural transitions [1].

The issue of preoperative anxiety is not only that of a psyche, but also has extensive physiological and clinical outcomes. The condition of high anxiety is linked by elevated activities going on in the compassionate nervous system resulting in tachycardia, hypertension among former processes as a result of increased oxygen uptake and loss of immunity. Moreover, uncontrolled anxiety can not only increase the challenges associated with managing anesthesia, intensify the level of intra operative anesthetic needs, but also affects the extent to which the patient might be satisfied with the alleviation of surgical care as well as delay the healing process following the operation, and increase intra operative

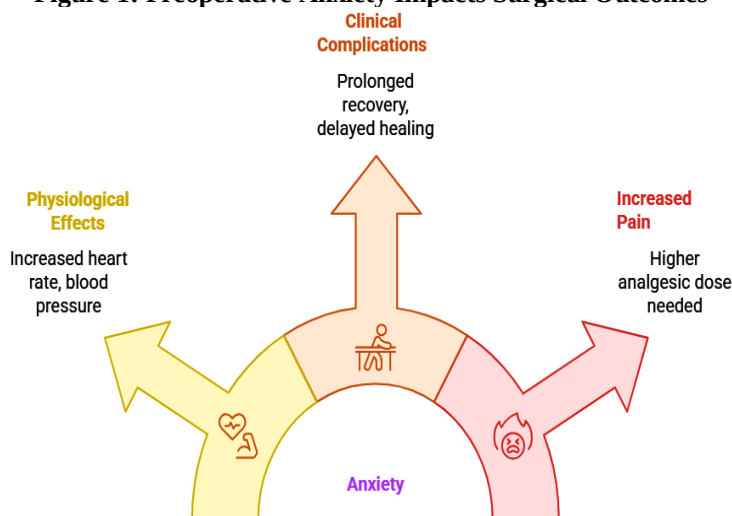
analgesic doses [2].

Benzodiazepines, opioids, and sedatives are often prescribed using pharmacological methods to help reduce preoperative anxiety. These interventions are not completely without limitations although they are effective. They are linked with risks of excessive sedation, respiratory depression, tolerance, dependence, and drug interactions especially among the vulnerable groups such as the elderly or comorbid population. Further, dependence on the pharmacotherapy fails to meet holistic needs of surgical patients, who on many occasions need reassurance, emotional support, and empowerment in addition to the control of their symptoms [3].

Corresponding measures of managing anxiety have become major with non-pharmacological interventions especially relaxation techniques. Examples of methods using the parasympathetic nervous system, lowering of cortisol, and promoting a sense of relaxation and control comprise deep breathing aerobics, progressive muscle relaxation moreover direct images. They are safe, economical and do not cause any pharmacological side effects hence can be used on a regular basis in a clinic [4]. Importantly, such interventions empower patients to

actively participate in their own care, enhancing their sense of preparedness for surgery (Figure 1).

Figure 1: Preoperative Anxiety Impacts Surgical Outcomes



Nurses are the key caregivers within the perioperative setting, and they are in a better position to provide these interventions. By being close to the patients during the preoperative stage, they are able to detect anxiety and offer the necessary support in good time and deliver relaxation skills to them. Nurse-administered interventions also enhance therapeutic communication and foster trust, further contributing to improved patient outcomes. Although the positive effects of relaxation methods are increasingly gaining scientific support, they are not yet interconnected with the routine work of preoperative nurses in many clinical settings, as they are either not well-structured or the focus on non-pharmacological approaches is inadequate [4].

The current revision be commence to estimate the effectiveness of nurse-administered relaxation methods, specifically deep breathing aerobics as well as direct images, on reducing anxiety levels in preoperative patients scheduled for elective surgeries. Creating evidence in that field, the study will demonstrate the importance of nurses in patients of different surgical fields to meet both psychological and physiological needs to promote holistic and patient-centered perioperative care [5].

MATERIALS ALONG WITH TECHNIQUES

Study Design and Setting

The study was carried out as a quasi-experimental study with a pre-test, post-test design, which included both a control (pre-test) and an intervention (post-test) group (based on their geographical location and job profile within the residential teaching hospital). The research was conducted within six months of time (January- June 2024) [6].

Sample and Sampling Technique

Purposive sampling was used to recruit 100 adult patients that were to undergo elective surgical procedures under general anesthesia. The patients were randomly selected into two groups, intervention groups (n=50) and non-intervention aka the control groups (n=50). A random computer generated table of random numbers was used in randomizing [7].

Inclusion Criteria

- Patients aged between 18-65 years.
- Patients, who were going to have an elective surgery with general anesthesia.
- Patients able to communicate and provide informed consent [8].

Exclusion Criteria

- Patients with diagnosed psychiatric disorders or on anxiolytic/antidepressant therapy.
- Patients with emergency surgical procedures [9].
- Patients with hearing impairment or cognitive dysfunction (Figure 2).

Intervention

Participants in the intervention group received nurse-administered relaxation techniques, which included [10]:
Deep breathing exercise- the patients were instructed to breathe deeply using the nose with a one-second hold together with

a slow exhale using the mouth, this was repeated until 10 minutes.

Guided imagery- patients were instructed to visualize a calm and pleasant scenario (such as a beach, garden, or mountain) with step-by-step verbal guidance provided by the nurse for 10 minutes [11].

The entire session lasted approximately 20 minutes and was administered one hour prior to surgery in a quiet preoperative waiting area. Control group underwent normal preoperative interventions involving regular instructions, reassuring words without antimuscular relaxation measures.

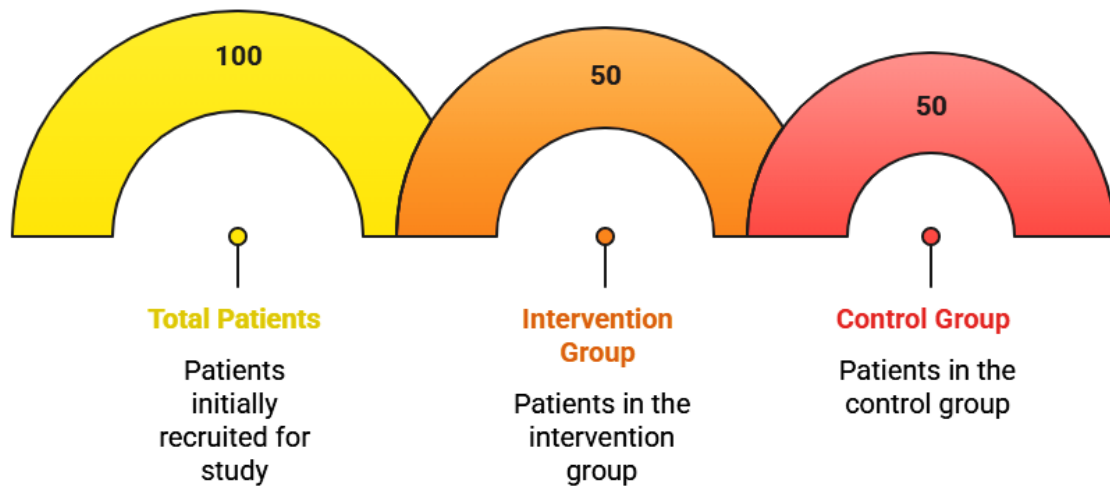


Figure 2: Patient Enrolment in Elective Surgery Study

Outcome Measures

The main dependent outcome was the level of anxiety measured with the help of State-Trait Anxiety Inventory (STAI) which is a well-checked instrument with 20 items that are measured by a 4-point Likert scale. One hour before the intervention, pre-test (baseline) anxiety level was measured, and post-test anxiety level was measured right after the intervention in the both groups [12].

Data Collection Procedure

Baseline demographic and clinical characteristics (age, gender, type of surgery, previous surgical experience) were recorded using a structured questionnaire. Anxiety levels were documented using STAI scores pre- and post-intervention. All interventions were delivered by nurses trained in relaxation techniques [13].

Ethical Considerations

The Institutional Ethics Committee approved it in terms of ethical clearance. All participants have been given informed consent, which was written. There was confidentiality and anonymity in the study [14].

Data Analysis

Data were analyzed with the SPSS 25. Mean, standard deviation, frequency, percentage: Demographic and clinical parameters were described using epidemiometric parameters. The treatment of pre-intervention and post-intervention STAI scores was performed using paired t-test between groups and independent t-test to evaluate the mean score among groups. The p-value of less than 0.05 was declared as statistically significant [15].

RESULTS

Demographic as well as Clinical Features

The study was assigned 100 participants, 50 patients in the intervention group, and 50 patients in the control group. The average age of the study participants was 42.6 -11.3 years, and 41.8 -10.3 years in the intervention and control groups, respectively. The two groups had more male patients (56 percent, and 52 percent in the intervention and control group, respectively). There was no significant dissimilarity between the two groups in regards to their demographic and clinical features of performing such surgery and prior surgical experience ($p > 0.05$) (Table 1).

Table 1. Demographic and Clinical Characteristics of Sample (N = 100)

Variable	Intervention Group (n=50)	Control Group (n=50)	p-value
Mean Age (years)	42.6 ± 11.3	41.8 ± 10.9	0.72

Gender (Male/Female)	28 (56%) / 22 (44%)	26 (52%) / 24 (48%)	0.68
Previous surgical history	20 (40%)	18 (36%)	0.71
Type of surgery			
– General surgery	22 (44%)	20 (40%)	0.83
– Orthopedic surgery	18 (36%)	19 (38%)	0.91
– Gynecological surgery	10 (20%)	11 (22%)	0.85

At baseline, there were no significant differences that were detected among the two groups.

Pre- with Post-Intervention Anxiety Levels

The self-reported anxiety scores (STAI) between the two groups indicated no significant difference of the two groups either at the baseline (52.3 $\pm$ 8.4 in intervention group and 51.8 $\pm$ 7.9 in the control group), but after intervention, there was significant fall in means as the intervention group had a mean score of 38.7 $\pm$ 6.2 (52.3 plus-8.4-38.7) and the control group had a mean score of 51.8 plus-7.9-51.8. Conversely, the control group indicated very little but not significant decrease in the level of anxiety (51.8 $\pm$ 7.9 to 49.5 $\pm$ 7.2, p = 0.09) (Table 2, Figure 3).

Table 2. Comparison of Pre- with Post-Intervention Anxiety Scores (STAI)

Group	Pre-Test Mean $\pm$ SD	Post-Test Mean $\pm$ SD	Mean Difference $\pm$ SD	p-value (within group)
Intervention Group (n=50)	52.3 $\pm$ 8.4	38.7 $\pm$ 6.2	13.6 $\pm$ 4.7	<0.001*
Control Group (n=50)	51.8 $\pm$ 7.9	49.5 $\pm$ 7.2	2.3 $\pm$ 3.1	0.09

Significant diminution in anxiety scores be experiential only in the involvement assembly

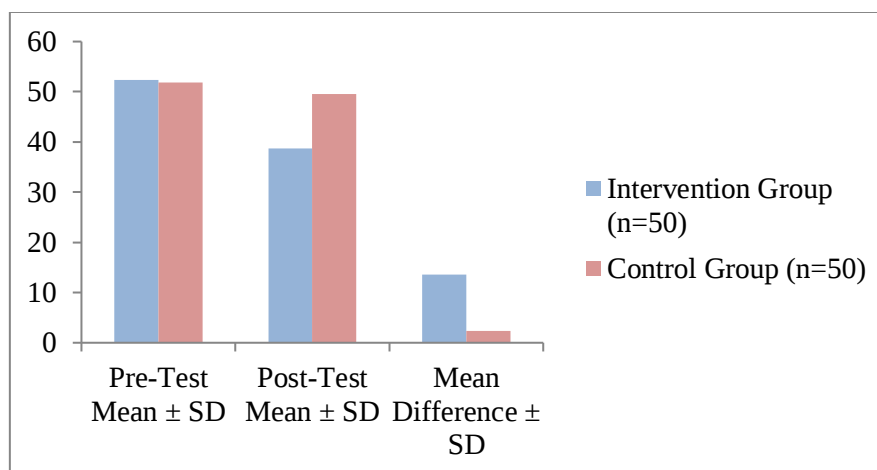


Figure 3: Graphical presentation of Pre- with Post-Intervention Anxiety Scores

Comparison Between Groups

The mean reduction in STAI score be extensively greater in the intervention group (13.6 $\pm$ 4.7) evaluated to the direct group (2.3 $\pm$ 3.1) (p < 0.001) (Table 3).

Table 3. Between-Group Comparison of Anxiety Reduction

Variable	Intervention Group (n=50)	Control Group (n=50)	p-value
Mean reduction in STAI	13.6 $\pm$ 4.7	2.3 $\pm$ 3.1	<0.001*

Meaningful group difference (p < 0.05)

Patient Feedback

In addition to quantitative findings, patients in the intervention group report subjective improvements, describing feelings of calmness, relaxation, and improved readiness for surgery.

DISCUSSION

The current research assessed the efficiency of the relaxation techniques delivered by the nurses to reduce preoperative anxiety among the elective surgery patients. The results showed that patients who underwent deep

breathing events as well as guided imagery had relatively fewer levels of anxiety than those who underwent normal preoperative care. This is aligned with the existing evidence highlighting the importance of non-pharmacological interventions in the management of the

perioperative anxiety [16].

The reductions in the mean scores of STAI by a full significant difference of the intervention and control groups (Stand 13.6 +- 4.7 versus 2.3 +- 3.1) and the strongly positive value of relaxation methods demonstrate the promising therapeutic effect of relaxation methods. These results align with earlier studies, who demonstrated that early active mobility and relaxation in intensive care settings improved psychological well-being and reduced stress-related results [17]. Equally, structured nursing new measures such as modifying bed rest and relaxation were reported to reduce vascular- and anxiety-related complications in pediatric patients having heart issues.

Reduction in preoperative anxiety can be identifiable in physiological terms as activation of the parasympathetic nervous system by proving slow and deliberate breathing process as well as visualizing something. This decreases sympathetic hyperactivity, decreases cortisol concentrations and induces a state of peace and equilibrium of the emotions [18]. The quantitative results (Figure 4) were further classified by the subjective opinions of patients housed in the intervention group and claiming of a higher level of attentiveness and relaxation.

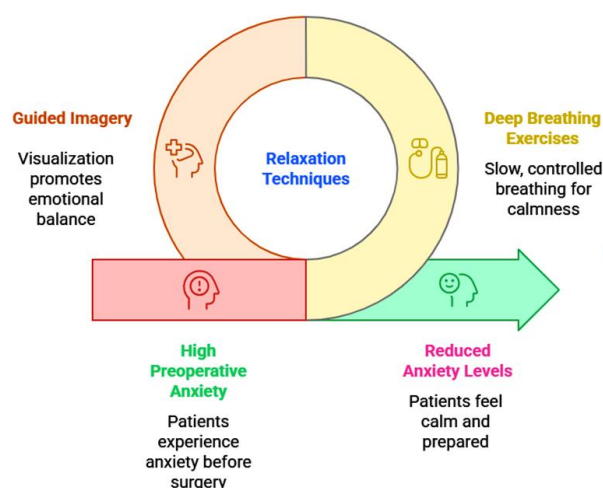


Figure 4: Reducing Preoperative Anxiety with Relaxation

The involvement of nurses in perioperative care is central because of their accessibility and the presence of their therapeutic presence. As mentioned, interventions that are led by nurses are able to engage not only in clinical work but also improve clinical communication, reassurance, and holistic care. The latter bows the end of this learning that relaxation methods would be easily incorporated into the guidelines of preoperative nursing at no extra expense or risk of unfavorable adverse properties to pharmacological ones, such as sedation or respiratory depression [19].

The findings are encouraging but regardless of that, it is necessary to agree that the study possesses certain drawbacks. The research was conducted on a single

tertiary hospital which can be already considered as a drawback to the overall results. Measurement of anxiety levels by administering self-report can actually rely on perceptions which the patients have. Also, there was no long-term assessment that would encompass postoperative pain, healing duration and length of stay and future research could be achieved [20].

Typically, this instruction imparts to the checking that ensues the integration of relaxation methods to preoperative nursing practitioners. Non-pharmacological treatments performed by the nurse may help in achieving satisfaction among patients, reduce the complications caused by anxiety, and transition to holistic perioperative care.

CONCLUSION

As demonstrated in this paper, relaxation strategies conducted by the nurses, as well as aerobics with profound breathing using direct imagery, are tremendously miraculous in decreasing patients awaiting surgical procedures and preoperative anxiety. The level of anxiety among patients in the intervention group is much lower than the anxiety among the usual preoperative treated patients whose preoperative treatment used the conventional approach, a factor making the inclusion of the non-pharmacological interventions in the usual preoperative treatment significant. Healthcare systems can improve patient preparedness, psychological health, and the comprehensive care provided during perioperative care by allowing nurses to provide these low-cost, easy-to-implement, and safe interventions. Future research must manage the case of the long-term effect of such interventions on the outcome of lingering pain, recovery rate, and patient satisfaction.

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