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Effectiveness of Procedural Education in The Reduction of Hars Anxiety Scores in Pre-Surgical Patients

Rokhmatul Hikhmat, Muslimin, Herlinawati, Muhidin, Desi Arisandi
Cirebon College of Health Sciences, Cirebon City, Indonesia

ABSTRACT

This study aims to analyze the effectiveness of providing procedural education in reducing the Hamilton Anxiety Rating Scale (HARS) anxiety score in pre-surgical patients at Purwakarta Holistic Hospital. Anxiety is a systemic stress response that often arises due to uncertainty of information about the invasive procedures that patients will face. The research method uses a quantitative approach with a correlative descriptive design through a cross-sectional design. The study population involved all pre-operative patients in the study period with a total sampling technique of 30 respondents. The research instruments included a completeness questionnaire and a HARS scale observation sheet to measure 14 parameters of clinical manifestations of anxiety. Data analysis was carried out univariate and bivariate using the Chi-Square correlation test. The results showed that the majority of respondents had a secondary education background (53.3%) and received procedural information in the incomplete category (63.3%). The distribution of anxiety levels was dominated by the moderate category of 46.7%, where the most prominent clinical manifestations were palpitations, motor anxiety, and insomnia. The results of statistical tests proved that there was a significant relationship between the completeness of the procedural information provision and the reduction of the patient's anxiety score ($p < 0.05$). The study's conclusions confirm that comprehensive procedural education is effective as a therapeutic instrument to mitigate systemic stress responses and improve patients' adaptive coping before invasive measures. The research recommendations emphasize the importance of revitalizing the educational role of nurses through standard operating procedures that require pain management guidance to ensure hemodynamic stability and patient safety in the surgical unit.

Keywords: *Procedural Education, Anxiety, HARS Score, Pre-Surgery.*

Corresponding author
Name: Rokhmatul hikhmat
Email: rokhmatulhikhmat@gmail.com

INTRODUCTION

Nurses are a major pillar in the global health ecosystem with representation reaching fifty-nine percent of the total medical professional workforce (World Health Organization [WHO], 2022). As practitioners with the most extensive duration of clinical interactions, nurses are holistically responsible for the patient's physical recovery as well as psychosocial stability during the course of treatment. Based on the Indonesian Nursing Diagnosis Standards, nurse competence is now emphasized on the ability to perform independent interventions to manage patients' adaptive responses to various pathological conditions and environmental stressors (PPNI, 2022). Optimizing standardized nursing care has been proven to be a significant determinant factor in

increasing the success rate of medical procedures and patient satisfaction in surgical installation units (Sari & Ramadhan, 2024). Therefore, the professionalism of nurses is crucial in mitigating the psychological distress of patients before undergoing high-risk operative procedures.

Surgical actions are classified as major stressors that induce complex biological responses through activation of the hypothalamic-pituitary-adrenal axis as well as stimulation of the sympathetic nervous system. Such invasive interventions trigger the massive release of neuroendocrine mediators that can result in systemic homeostasis dysregulation in the periprocedural phase (Chen et al., 2023). Clinical manifestations of these stress hormone fluctuations are often seen in hemodynamic instability characterized by tachycardia as well as a significant increase in myocardial oxygen consumption (Rodriguez & Silva, 2024). Surgery is not only a physical trauma to somatic integrity, but also represents a profound psychological threat related to the uncertainty of clinical outcomes and post-procedure pain expectations (Santoso & Utami, 2025). Failure to mitigate pre-operative stressors risks inhibiting tissue regeneration mechanisms, increasing complications of surgical area infections, and significantly prolonging the duration of patient hospitalization.

Pre-operative anxiety responses involve synergies between cognitive perception and somatic activation that can disrupt individual coping mechanisms. Physiologically, the threat of surgery stimulates the release of the neurotransmitter noradrenaline that triggers autonomic symptoms such as palpitations, diaphoresis, as well as increased respiratory frequency (Brunner & Suddarth, 2017). This anxiety is multidimensional, including fear of pain, the risk of procedure failure, to disorientation of the operating room environment (Isaacs, 2017). Recent studies show that uncontrolled anxiety intensity can lower the patient's pain threshold and inhibit the anesthesia induction process (Wahyudi & Pratama, 2023). The integration of affective and cognitive management is needed to minimize the distortion of perception that worsens clinical conditions on the operating table (Nursalam, 2018). This psychophysiological impact underscores the need for accurate anxiety screening before invasive interventions are performed.

Ideally, pre-operative patients should be entitled to receive nursing care that is able to provide a sense of security and mental stability before undergoing surgery. However, clinical reality shows a significant disparity between service standards and the level of emotional distress patients experience in hospitals. The results of the preliminary study identified that about eighty-five percent of patients showed varying manifestations of anxiety, ranging from mild to severe (Arisandi, 2025). This phenomenon is exacerbated by the limited educational interaction between nurses and patients who are often stuck in administrative routines (Hidayat & Saputra, 2024). The high anxiety rate, which reaches the majority of the population, reflects the obstacles in fulfilling the right to adequate patient health information (Mulyadi et al., 2023). This imbalance demands an in-depth evaluation of the effectiveness of communication strategies implemented by health workers in the surgical unit.

Mental preparation through procedural education is a primary nursing intervention that aims to improve health literacy and psychological readiness of patients. Providing comprehensive information about the surgical flow has been proven to be able

to change the perception of threats into a more controlled cognitive response (Amran, 2007). Through a clear understanding of the procedure, patients can develop adaptive coping mechanisms to reduce psychophysical tension independently (Notoatmodjo, 2018). Recent research confirms that patient involvement in information exchange increases compliance as well as reduces disruptive restless behavior that is counterproductive (Rahayu & Kurnia, 2025). Effective education does not only focus on medical content, but also on aspects of affective calming that strengthen confidence (Pratama, 2024). Thus, procedural information serves as a therapeutic instrument to maintain emotional stability during the critical pre-operative phase.

Based on this clinical urgency, an objective assessment of the effectiveness of education on the reduction of anxiety scores measured through standard instruments is needed. The use of the Hamilton Anxiety Rating Scale is the gold standard in identifying fourteen parameters of anxiety symptoms with precision (Hawari, 2017). This study is focused on analyzing the correlative relationship between the completeness of procedural information provision and the reduction of HARS scores in patients in the surgical unit (Arisandi, 2025). The formulation of the problem in this study emphasizes the effectiveness of educational interventions in controlling the manifestations of systemic anxiety prior to invasive measures. The results of the study are expected to provide empirical justification for the development of operational standards for more effective health education procedures (Sugiyono, 2017). This knowledge is essential to optimize clinical outcomes through the latest evidence-based nursing care approaches.

Literature Review

Theoretical constructions of anxiety in perioperative nursing practice are arranged hierarchically to understand the mechanisms of human adaptation to environmental stressors. Roy (2009) through the Grand Theory of the Adaptation Model views the individual as a holistic system that constantly adjusts to internal and external stimuli to maintain self-integrity. In the perspective of Middle Range Theory, Peplau (1952) conceptualized anxiety as an emotional energy that arises due to tension in interpersonal relationships or threats to psychic security. At the level of Applied Theory, this psychophysiological phenomenon is measured objectively through the Hamilton (1959) instrument which identifies the degree of severity of individual somatic and cognitive responses with precision. The synergy of the three levels of theory provides a comprehensive scientific foundation for nurses in designing anxiety reduction strategies through measurable health education interventions.

The etiology of pre-operative anxiety is theoretically classified into predisposing and precipitation factors that affect the patient's psychophysical adaptive capacity. Notoatmodjo (2018) stated that internal factors such as education level are the main determinants that determine an individual's cognitive ability to process medical information and describe new problems rationally. In line with this, Brunner and Suddarth (2017) stated that precipitation factors include threats to biological integrity due to invasive actions as well as perceptions of unfamiliar hospital environments. In the perspective of contemporary nursing, Nurhasanah and Ridwan (2023) emphasized that the limitations of infrastructure and means of information delivery in service units are significant external variables that hinder the mental readiness of patients. The

integration of these factors forms a framework for understanding the mechanisms of the emergence of anxiety in the periprocedural phase.

The levels of anxiety in nursing care are theoretically classified into a continuous range that starts from mild stages to panic states . Stuart (2024) defines mild anxiety as an alert response that increases motivation to learn, while severe anxiety significantly reduces the field of perception so that individuals are only able to focus on specific details. Theoretically, Hawari (2017) explained that at a moderate level, respondents experienced selective attention and decreased concentration that hindered the optimization of cognitive function. The Hamilton (1959) measurement scale emphasizes this classification through the identification of somatic and psychic symptoms that manifest as the intensity of mental tension increases. The determination of this category of anxiety is based on the clinical manifestations that arise to determine mental stabilization interventions that correspond to the psychophysical needs of the individual. A recent study by Rodriguez (2024) emphasizes the importance of accurate anxiety degree assessments to prevent the risk of systemic hemodynamic complications during the induction phase of invasive procedures.

The manifestations of pre-operative anxiety theoretically include physiological, cognitive, behavioral, and affective dimensions that emerge as forms of systemic protective mechanisms. Brunner and Suddarth (2017) explain that primary physiological responses involve improving the function of vital organ systems such as palpitations in the cardiovascular system as well as tacupnea in the respiratory system as a form of reaction to stressors. Cognitively, Saefudin and Nurhayati (2022) stated that anxiety can result in concentration barriers, forgetfulness, and decreased brain ability to process information efficiently. According to Zulkarnain and Suryani (2023), behavioral manifestations often manifest in the form of motor anxiety, tremors, and a tendency to withdraw from social interaction during the surgical preparation period. All of these clinical indicators are a reflection of the fluctuations in homeostasis due to the psychophysical stress experienced by the patient prior to the invasive procedure.

Procedural education is defined as the provision of a structured set of medical information aimed at improving the literacy and mental readiness of pre-operative patients. Smeltzer and Bare (2017) emphasized that adequate information regarding surgical objectives, anesthesia procedures, and post-surgical pain management serves as a therapeutic instrument to facilitate adaptive coping. In line with this, Rahman and Fatmawati (2023) stated that the delivery of interactive information through digital platforms is able to provide affirmation of patient understanding so as to reduce negative perceptions of the threat of surgery. Pratama (2024) added that the quality of accurate and timely procedural information is the main determinant factor in reducing the uncertainty that is the root of the emergence of systemic anxiety. Through the right educational strategy, patients are expected to be able to internalize each stage of the procedure as part of a safe healing effort.

The standard of information delivery in nursing practice requires full transparency regarding the clinical reasons, nature of the action, and the risks inherent in each operative procedure. Nasution (2017) emphasized that legally, the process of providing information must be carried out by paying attention to individual characteristics to ensure the validity of the approval of medical measures without any

element of coercion or intimidation. From an ethical perspective, Mulyadi (2023) stated that the fulfillment of patients' information rights is a form of respect for autonomy that has a direct impact on the patient's emotional stability during the hospitalization period. Hidayatullah and Salma (2023) added that the use of innovative media such as animation simulations can clarify the delivery of complex medical concepts to avoid fear-inducing disinformation. The quality of communication in this educational phase is both a legal protection and a key to creating a safe and professional care environment for surgical patients.

METHODS

This study applies a quantitative approach with a pre-experimental design through a correlative descriptive design to empirically analyze the relationship between variables. A cross-sectional approach was chosen to study correlation dynamics through observation and data collection conducted simultaneously over a specific time period. The operational focus of this study was to evaluate the provision of pre-operative information as an independent variable against fluctuations in the patient's anxiety level as a dependent variable. Sugiyono (2023) emphasized that the quantitative method is a scientific procedure that aims to test hypotheses through standard instrument measurements to obtain objective generalizations of results. Through this methodological framework, researchers can identify the measurable effectiveness of procedural education on the psychophysiological response of patients during the preparatory phase of invasive measures in hospitals.

The study was carried out in the Surgical Care Room of RSU Holistic Purwakarta by involving the entire population of pre-operative patients in the study period. The sampling technique uses the total sampling method so that thirty respondents are obtained to ensure comprehensive data representation. The data collection instruments included a questionnaire of procedural completeness as well as a Hamilton Anxiety Rating Scale observation sheet to measure fourteen parameters of anxiety symptoms with precision. Data analysis was carried out univariate to describe the frequency distribution of variables, and bivariate analysis using Chi-Square correlation tests to test the significance of the relationship between these variables. Arikunto (2022) stated that systematic data management through the stages of editing, coding, and tabulating is essential to maintain the validity of findings in nursing research.

RESULTS AND DISCUSSION

Research results

The presentation of the results of the study describes empirical findings systematically which includes the distribution of respondent demographic characteristics, the level of pre-operative information completeness, and the categorization of patient anxiety scores. All clinical data were quantified through a frequency distribution table to provide an objective picture of the variables studied in the surgical unit.

Table 1: Demographic Characteristics of Respondents (n=30)

Characteristics	Categories	Frequency (f)	Percentage (%)
Gender	Male	12	40,0
	Women	18	60,0
Education	Elementary (Elementary/Junior High)	8	26,7
	Middle (SMA)	16	53,3
	Height (PT)	6	20,0
Jobs	Work	19	63,3
	Not Working	11	36,7

The distribution of demographic characteristics shows that the majority of respondents in this study are female, which is as many as eighteen individuals or sixty percent of the total sample. Based on education level, more than half of the respondents had a high secondary education background that theoretically affected the capacity to rationally absorb health information. In addition, job profiles are dominated by working productive groups, reflecting socioeconomic dynamics that can affect an individual's perception of the duration of hospitalization. These basic characteristics are important control variables because maturity and educational background are significant internal determinants in modulating psychological responses to surgical stressors

Table 2. Distribution of Pre-Operation Information Completeness

Yes	Pre-Operation Information Items	Delivered (f)	%	Not Delivered (f)	%
1	Purpose of Operation	24	80,0	6	20,0
2	Reason for Operation	22	73,3	8	26,7
3	How to Reduce Pain	12	40,0	18	60,0
4	How to Reduce Anxiety	10	33,3	20	66,7
5	Things After the Operation	13	43,3	17	56,7
	Average Completeness	**11 (Complete)**	**36,7**	**19 (Incomplete)**	**63,3**

Analysis of the details of information items shows a significant disparity in the fulfillment of patients' information rights in the surgical unit. The domain of basic administrative-clinical information such as the purpose and reason for the operation has the highest rate of delivery, reaching eighty percent, as it is generally directly related to *informed consent* procedures . However, there is a critical deficit in the domain of psychophysical education, where only thirty-three percent of patients receive guidance on anxiety reduction strategies. The lack of explanation of pain management techniques and post-operative care reflects a focus on services that is still procedural-centric rather than patient-centric. This gap indicates that although formal communication has been

made, aspects of postoperative patients' emotional support and functional readiness are often overlooked in the routine of pre-operative nursing care.

Table 3. Distribution of Anxiety Levels and Dominant Manifestations Based on the HARS Scale (n=30)

Categories Emergencies	Score Range	Frequency (f)	Percentage (%)	Dominant Manifestations
Not Anxious	0 - 24	3	10,0	Stable physiological response
Mild Anxiety	25 - 34	6	20,0	Mild muscle tension
Moderate Anxiety	35 - 45	14	46,7	Palpitations, Insomnia, Restlessness
Severe Anxiety	46 - 50	5	16,7	Tachycardia, Disorientation
Panic	> 51	2	6,6	Extreme Fear, Hyperventilation
Total		**30**	**100,0**	

The results of the identification of anxiety levels showed a heterogeneous psychophysiological profile with a dominant tendency in the category of moderate anxiety, which was forty-six percent. Based on questionnaire data, cardiovascular symptoms in the form of heart palpitations and vegetative symptoms such as sleep disturbances were the most frequently complained clinical manifestations by respondents in this group. A small percentage of patients who reach the severe to panic phase show signs of behavioral disorganization characterized by excessive fear of death as well as an inability to follow simple operative instructions . The phenomenon of high HARS scores represents the existence of coping barriers to surgical stressors that can significantly affect the patient's hemodynamic stability during the periprocedural period

Discussion

Demographic characteristics as shown in table one show that the respondent profile is dominated by the productive age group with a secondary education level of 53.3 percent, which significantly affects psychosocial adaptation capacity. The authors analyze these findings with the Callista Roy Adaptation Model (2009) which views education as a cognitive stimulus that determines the effectiveness of the patient's adaptation mechanism to surgical stressors. This means that there is a match between educational background and the potential for individual coping development, but Notoatmodjo (2018) reminds that without the right information support, age maturity alone is not enough to reduce distress. In line with that, Sari and Ramadhan (2024) emphasized that the ability to process medical information is highly dependent on the level of health literacy formed by the level of formal education. The integration of these factors confirms that the demographic profile of respondents provides an adequate

cognitive foundation to receive procedural educational interventions to achieve adaptive balance.

The distribution of completeness of information in table two reveals that 63.3 percent of respondents received information in the incomplete category, which shows a disparity between service standards and clinical realities in the field. The authors analyze that this majority figure represents a failure in fulfilling the right to health information that is educational-therapeutic because health workers tend to focus on administrative-procedural aspects. Rahman and Fatmawati (2023) stated that a high workload is often the main obstacle to providing comprehensive education in surgical care units. This means that there is a discrepancy between the ideal role of nurses as health educators and the implementation of independent nursing care. According to Hidayat and Saputra (2024), neglect of pain management information items contributes to increased cognitive uncertainty in patients. The authors conclude that the revitalization of the educational function of nurses is very urgent to ensure the quality of procedural information that supports mental readiness.

The findings regarding the level of anxiety in table three, which is dominated by the moderate category of 46.7 percent, reflect the presence of psychological tension that is not compensated for the threat to biological integrity. The author analyzes this phenomenon through Hildegard Peplau's Middle Range Theory (1952) which defines anxiety as energy that arises due to threats to personal security. This means that there is a logical correlation between the low completeness of procedural information by 63.3 percent and the high manifestation of somatic symptoms such as palpitations and sleep disorders in respondents. Rodriguez (2024) explains that anxiety at the intermediate level indicates that the patient's field of perception begins to narrow, so it requires cognitive stabilization immediately before the procedure begins. In line with that, Mulyadi (2023) emphasized that without an effective reduction strategy, the anxiety risks disrupting hemodynamic stability during the surgical induction phase.

Bivariate analysis using the Chi-Square correlation test showed a significant relationship between information and the patient's anxiety level with a p-value of less than 0.05, which means that the hypothesis of this study is empirically proven. The authors analyzed the results using Hamilton's Applied Theory (1959) which confirmed that the clinical score of anxiety decreased drastically when educational interventions were adequately administered through the Hamilton Anxiety Rating Scale parameters. There was a match between 36.7 percent of respondents who received complete information and their psychological status who was in the category of not anxious or mild anxiety. Sugiyono (2023) stated that this statistical significance reflects the strong influence of educational variables in modulating individual psychological responses. The authors conclude that the reinforcement of the informative aspect is directly correlated with the reduction of clinical manifestations of anxiety measured through the HARS parameters.

The dominant manifestation of somatic symptoms as identified in table three, in which cardiovascular symptoms and sleep disorders are the main complaints, reflect the activation of the hypothalamic-pituitary-adrenal axis due to intense surgical stressors. The authors analyzed this neurobiological mechanism based on the theory of Brunner and Suddarth (2017) who explained that the massive release of catecholamines

triggered dysregulation of homeostasis in 46.7 percent of patients with moderate to severe anxiety. This shows that mental unpreparedness causes the body to be in a state of alert that risks surgical safety if not mitigated immediately. Chen et al. (2023) added that procedural education is able to stabilize the sympathetic nervous system response by providing cognitive certainty to the patient before the procedure begins. Rodriguez and Silva (2024) also assert that hemodynamic stability is highly dependent on the control of psychological distress before the anesthesia induction phase. Therefore, the authors argue that information intervention is an attempt at systemic biological stabilization.

The process of cognitive transformation through the provision of procedural information theoretically functions to transform the perception of the threat into a controlled challenge for the patient's coping mechanism. The author analyzes this internalization process as a form of strengthening health literacy which, according to Notoatmodjo (2018), is able to increase respondents' confidence in dealing with invasive procedures in hospitals. There was a correlation between providing detailed information and improving patient cooperative behavior in the operating room due to reduced cognitive uncertainty. Rahayu and Kurnia (2025) stated that the active involvement of patients in the exchange of medical information effectively reduces the distortion of the mind that is the root of anxiety. Pratama (2024) also emphasized that accurate information acts as a sedative stimulus that triggers a positive affective response. The authors conclude that through structured education, patients can develop adaptive coping so that they are able to control the manifestations of anxiety independently.

The characteristics of the findings in this study show that the moderate anxiety rate of 46.7 percent correlates with global trends in various surgical installations in hospitals. The authors analyze that this phenomenon is in line with the World Health Organization report (2022) which identified psychosocial distress as a major challenge in the safety of surgical patients globally. This means that there are similarities in the patient's behavior patterns in dealing with invasive procedures even though they are in different geographical backgrounds. Suhardi and Rahmawati (2023) revealed that information gaps are a universal factor that triggers significant emotional instability in the surgical treatment room. Furthermore, Saefudin and Nurhayati (2022) emphasized that this anxiety problem requires a standardized care approach to minimize post-operative clinical risks. The authors conclude that these findings reinforce the urgency of implementing more massive and structured therapeutic communication protocols internationally.

As a final synthesis, the author emphasizes that the effectiveness of procedural education in lowering HARS scores is not just an administrative complement, but a nurse's independent clinical intervention that is vital to patients. The author analyzes that based on the Indonesian Nursing Diagnosis Standards by PPNI (2022), nurses have the professional authority to carry out psychological stabilization through the provision of adequate health information. There is a correlation between the high rate of information incompleteness of 63.3 percent and the need for ethical obligations of health workers in ensuring the transparency of medical procedures to reduce cognitive fear. Rahmatullah and Aini (2022) suggest that hospitals start integrating information technology in the education process to close the disinformation gap found in the table

two of these studies. Pratama (2024) also emphasized that nurse professionalism is measured by the success of the patient's emotional management before invasive measures begin. The authors recommend an update of standard operating procedures that require pain management guidance as an integral part of pre-operative nursing care.

CONCLUSION

Based on the results of data analysis, this study concluded that the implementation of procedural education has significant effectiveness in reducing HARS anxiety scores in pre-surgical patients at Purwakarta Holistic Hospital. Empirical evidence shows that there is a strong correlation between the completeness of information and the emotional stability of patients, where the information gap of 63.3% is shown to be directly proportional to the high prevalence of moderate anxiety which reaches 46.7%. The results *of the Chi-Square statistical test* confirmed the significance of the association ($p < 0.05$), which confirmed that the provision of comprehensive medical information was effectively able to reduce the clinical manifestations of anxiety from the intermediate level to the mild or non-anxiety level. Thus, the reduction of HARS scores through adequate procedural guidance is a valid therapeutic instrument to mitigate the systemic stress response and ensure the patient's mental readiness before undergoing invasive procedures.

Based on these findings on effectiveness, it is recommended that health care institutions establish standard operating procedures that require the provision of complete procedural education as a core component in perioperative nursing care. Nursing personnel need to improve their competence in therapeutic communication techniques and the use of interactive educational media to ensure that complex clinical information can be optimally received and internalized by patients. In addition, it is necessary to have a periodic screening system on the respondents' anxiety level using the Hamilton Anxiety Rating Scale instrument as an objectivity parameter to ensure that the patient's psychophysiological condition has reached a stable point before entering the induction phase. The development of more specific guidance protocols on pain management aspects and self-relaxation techniques is also highly recommended to complement the procedural education intervention package in hospitals. This recommendation is expected to strengthen the professionalism of nurses in reducing clinical risks due to psychological distress in an ongoing manner.

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