



Association Between Nurse Anesthetists' Caring Behaviors and Preoperative Self-Efficacy Among Surgical Patients: A Cross-Sectional Study

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ABSTRACT

Background: Preoperative patients often experience fear, anxiety, and reduced confidence when facing anesthesia and surgical procedures. Nurse anesthetists' caring behaviors may help patients feel safer, more supported, and more confident during the preoperative phase.

Objectives: This study aimed to examine the association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients at RSUD Sleman, Indonesia.

Methods: This study employed a quantitative correlational design with a cross-sectional approach. A total of 80 preoperative patients were selected using purposive sampling. Eligible participants were aged 18–55 years, had undergone pre-anesthesia assessment, were conscious and cooperative, and were scheduled for their first or second surgery. Nurse anesthetists' caring behaviors were measured using a modified 24-item Caring Behaviors Inventory questionnaire, while preoperative self-efficacy was assessed using the Indonesian version of the General Self-Efficacy Scale. Data were analyzed using descriptive statistics and the Spearman rank correlation test, with statistical significance set at $p < 0.05$.

Results: Most participants perceived nurse anesthetists' caring behaviors as good (67.5%), and most had high preoperative self-efficacy (80.0%). The Spearman rank correlation test showed a significant positive association between nurse anesthetists' caring behaviors and preoperative self-efficacy ($p = 0.044$; $r = 0.226$), indicating a weak positive correlation.

Conclusions: Nurse anesthetists' caring behaviors were significantly associated with preoperative self-efficacy among surgical patients. Strengthening caring-based communication, reassurance, and emotional support may contribute to patients' confidence and psychological readiness before surgery.



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Introduction

Surgery is an invasive health intervention that requires comprehensive preparation, including physical optimisation, psychological readiness, patient education, and coordination among perioperative professionals (Leonardsen et al., 2024). The preoperative phase is a critical period because patients are often confronted with uncertainty regarding anaesthesia, surgical procedures, postoperative pain, possible complications, and recovery outcomes (Friedrich et al., 2022). These concerns may generate fear, anxiety, tension, and reduced confidence, particularly when patients have limited information or previous unpleasant surgical experiences (Pennington et al., 2023). Preoperative psychological distress is clinically relevant because it may influence haemodynamic responses, anaesthetic management, postoperative pain, sleep quality, and recovery outcomes (Bedaso et al., 2022; Gu et al., 2023).

Anaesthesia care is an essential component of perioperative services because it contributes directly to patient safety, comfort, procedural success, and postoperative recovery (Friedrich et al., 2022). During the preoperative phase, nurse anesthetists are expected to support both technical and psychosocial aspects of care through assessment, preparation, communication, reassurance, and patient advocacy (Lekens et al., 2023). Effective preoperative communication and education have been shown to reduce anxiety, improve patients' understanding of anaesthesia-related procedures, and enhance their preparedness for surgery (Kharod et al., 2022; Ng et al., 2022). However, patient involvement in anaesthesia-related decision-making is often limited, despite many patients preferring active or shared roles in decisions related to general anaesthesia (Pennington et al., 2023).

Patient-centred perioperative care emphasises information sharing, emotional support, shared decision-making, respect for patients' values, and recognition of patients' fears and expectations (Leonardsen et al., 2024; Saasouh et al., 2024). In this context, nurse anesthetists have an important role in helping patients feel safe, respected, and psychologically prepared before anaesthesia and surgery (Petersen et al., 2024). Patients' perceptions of safety during the perioperative period are influenced by the presence of healthcare professionals, clear communication, emotional closeness, and a sense of control (Larsson et al., 2024). Therefore, interpersonal care delivered by nurse anesthetists should be considered an essential dimension of perioperative nursing practice that complements technical competence in anaesthesia services.

One psychological factor that may influence patients' readiness to undergo surgery is self-efficacy. Self-efficacy refers to an individual's belief in their capability to organise and execute actions required to manage challenging situations effectively (Schunk & DiBenedetto, 2020). In the preoperative context, self-efficacy may reflect patients' confidence in controlling emotional responses, following medical instructions, communicating concerns, and facing anaesthesia and surgery with greater psychological control (Hanalis-Miller et al., 2022). Higher self-efficacy has been associated with better health-related behaviours, psychological adaptation, and quality of life, whereas lower self-efficacy may increase patients' perceived inability to cope with stressful medical procedures (Du et al., 2022; Hanalis-Miller et al., 2022).

Caring behavior is a fundamental component of nursing practice and patient-centred care. It includes empathy, respect, attentiveness, therapeutic communication, emotional presence, responsiveness, professional competence, and concern for patients' dignity (Alikari et al., 2022; Ghanbari-Afra et al., 2022). Human caring is also understood as an ethical and relational process that integrates scientific competence with humanity, compassion, and interpersonal connection (Ghanbari-Afra et al., 2022). In hospital settings, patients' perceptions of caring behavior may influence their comfort, trust, satisfaction, and evaluation of nursing care quality (Alikari et al., 2022; Ataro et al., 2024). Caring behavior is clinically relevant because it can be measured from patients' perspectives and used as an indicator of nursing care quality (Khaletabad et al., 2023).

In anaesthesia nursing, caring behavior has particular significance because nurse anesthetists often interact with patients at a time when psychological distress is likely to increase before surgery (Petersen et al., 2024). Caring behavior may be expressed through clear explanations, active listening, respectful communication, protection of privacy, prompt responses

to patients' needs, and reassurance before anaesthesia procedures (Lekens et al., 2023). Effective anesthetist communication has also been identified as an important component of clinical anaesthesia practice because poor communication may compromise patient safety, perioperative assessment, and patient experience (Berhe et al., 2023). Thus, caring behavior can be regarded as a professional and psychological resource that may strengthen patients' confidence before entering the operating room (Larsson et al., 2024; Lekens et al., 2023).

The potential relationship between caring behavior and self-efficacy can be understood through social cognitive theory, which explains that self-efficacy is influenced by mastery experiences, vicarious experiences, verbal persuasion, and physiological or emotional states (Schunk & DiBenedetto, 2020). In preoperative care, caring behaviors demonstrated by nurse anesthetists may serve as verbal persuasion and emotional support through explanation, encouragement, reassurance, and confirmation of patients' ability to cope with anaesthesia and surgery (Hanalis-Miller et al., 2022). Caring behavior may also influence patients' emotional states by reducing fear, improving comfort, and creating a sense of security (Larsson et al., 2024). These mechanisms suggest that caring behavior is not only an ethical and relational aspect of nursing care but also a potential determinant of patients' psychological readiness and self-efficacy (Kargar et al., 2021).

Previous studies have shown that caring behavior is associated with positive patient experiences, perceived support, satisfaction, psychological comfort, and perceived quality of care (Alikari et al., 2022; Ataro et al., 2024). A cross-sectional study among patients with cardiovascular disease found a significant association between perceived caring behaviors and self-efficacy, suggesting that caring interactions may contribute to patients' confidence in managing health-related challenges (Kargar et al., 2021). Nevertheless, studies in perioperative settings have more frequently focused on anxiety, fear, and psychological distress than on self-efficacy as a positive psychological construct (Friedrich et al., 2022; Pennington et al., 2023). Evidence regarding the association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients remains limited, particularly in regional hospital settings and developing healthcare contexts (Berhe et al., 2023; Kargar et al., 2021).

In Indonesian regional hospitals, high surgical workloads and limited interaction time may challenge healthcare professionals in balancing technical competence with patient-centred communication. Preliminary observations at RSUD Sleman indicated a high volume of surgical procedures and the presence of patients who lacked confidence before surgery. This condition highlights the importance of strengthening caring behavior among nurse anesthetists as part of comprehensive psychological preparation before anaesthesia and surgery. Understanding this association may provide evidence for improving perioperative nursing practice and enhancing patients' readiness to undergo surgical procedures.

Therefore, this study aimed to examine the association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients at RSUD Sleman, Indonesia. This study hypothesised that better perceived caring behaviors of nurse anesthetists would be positively associated with higher levels of preoperative self-efficacy among surgical patients.

Methods

This study employed a quantitative correlational approach with a cross-sectional design to examine the association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients. The study was conducted in the Central Surgical Installation of RSUD Sleman, Yogyakarta, Indonesia, from 6 April to 24 April 2026.

Participants were selected using purposive sampling. Eligible participants were preoperative patients who had undergone pre-anaesthesia assessment by nurse anesthetists, were aged 18–55 years, were conscious, cooperative, able to communicate effectively, scheduled for their first or second surgical procedure, and willing to provide written informed consent. Patients were excluded if they were in emergency or unconscious conditions, had communication,

cognitive, or mental disorders, refused to participate, or experienced severe emotional distress before surgery.

The final sample consisted of 80 preoperative patients, calculated from an accessible population of approximately 400 surgical patients per month using the Slovin formula with a 10% margin of error. Nurse anesthetists' caring behaviors were measured using a modified 24-item Caring Behaviors Inventory questionnaire covering knowing, being with, doing for, enabling, and maintaining belief. Each item was scored on a four-point Likert scale, and the total score was categorized as poor, moderate, or good caring behavior. The instrument had been tested among 30 respondents and showed acceptable reliability with a Cronbach's alpha of 0.889.

Preoperative self-efficacy was measured using the Indonesian version of the General Self-Efficacy Scale, consisting of 10 items scored on a four-point Likert scale. The total score was categorized as low, moderate, or high self-efficacy. Participant characteristics, including age, sex, educational level, and previous surgical experience, were also recorded.

Data were analyzed using IBM SPSS Statistics version 25. Descriptive statistics were used to summarize participant characteristics, nurse anesthetists' caring behaviors, and preoperative self-efficacy. The association between nurse anesthetists' caring behaviors and preoperative self-efficacy was analyzed using the Spearman rank correlation test because both variables were ordinal. Statistical significance was set at $p < 0.05$.

Ethical approval was obtained from the Health Research Ethics Committee of RSUD Sleman No. 100.3.12/1286. All participants received an explanation about the study objectives, procedures, voluntary participation, confidentiality, and their right to withdraw from the study. Written informed consent was obtained from all participants before data collection.

Results

A total of 80 preoperative patients participated in this study. Most participants were aged 46–55 years (53.6%), followed by those aged 26–35 years (23.8%), 36–45 years (13.8%), and 18–25 years (8.8%). Based on sex, 42 participants (52.5%) were female and 38 participants (47.5%) were male. More than half of the participants had completed senior high school or vocational high school education (53.8%). Regarding previous surgical experience, 45 participants (56.3%) had undergone surgery for the second time, while 35 participants (43.7%) were undergoing surgery for the first time.

Table 1: Characteristics of participants

Characteristics	Frequency (n)	Percentage (%)
Age		
18–25 years	7	8.8
26–35 years	19	23.8
36–45 years	11	13.8
46–55 years	43	53.6
Sex		
Male	38	47.5
Female	42	52.5
Educational level		
Elementary school	10	12.5
Junior high school	18	22.5
Senior/vocational high school	43	53.8
Bachelor's degree	9	11.2
Previous surgical experience		
First surgery	35	43.7
Second surgery	45	56.3

Most participants perceived nurse anesthetists' caring behaviors as good. A total of 54 participants (67.5%) rated caring behavior as good, while 26 participants (32.5%) rated it as moderate. No participant perceived nurse anesthetists' caring behavior as poor. Regarding preoperative self-efficacy, 64 participants (80.0%) had high self-efficacy, while 16 participants (20.0%) had moderate self-efficacy. No participant had low self-efficacy.

Table 2: Distribution of nurse anesthetists' caring behaviors and preoperative self-efficacy

Variable	Category	Frequency (n)	Percentage (%)
Nurse anesthetists' caring behaviors	Poor	0	0.0
	Moderate	26	32.5
	Good	54	67.5
Preoperative self-efficacy	Low	0	0.0
	Moderate	16	20.0
	High	64	80.0

The cross-tabulation showed that among participants who perceived nurse anesthetists' caring behaviors as good, 44 participants (55.0%) had high self-efficacy and 10 participants (12.5%) had moderate self-efficacy. Among participants who perceived caring behaviors as moderate, 20 participants (25.0%) had high self-efficacy and 6 participants (7.5%) had moderate self-efficacy.

Table 3: Association between nurse anesthetists' caring behaviors and preoperative self-efficacy

Nurse anesthetists' caring behaviors	Moderate self-efficacy		High self-efficacy		Total		p-value	Correlation coefficient
	n	%	n	%	n	%		
Good	10	12.5	44	55.0	54	67.5	0.044	0.226
Moderate	6	7.5	20	25.0	26	32.5		
Poor	0	0.0	0	0.0	0	0.0		
Total	16	20.0	64	80.0	80	100.0		

The Spearman rank correlation test showed a statistically significant association between nurse anesthetists' caring behaviors and preoperative self-efficacy ($p = 0.044$). The correlation coefficient was 0.226, indicating a weak positive correlation. This finding suggests that better perceived caring behaviors among nurse anesthetists were associated with higher levels of preoperative self-efficacy among surgical patients.

Discussion

This study found a significant positive association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients. Although the strength of the correlation was weak, the finding indicates that patients who perceived better caring behaviors from nurse anesthetists tended to report higher levels of self-efficacy before surgery. This result supports the assumption that interpersonal aspects of anaesthesia care, such as therapeutic communication, reassurance, attentiveness, and emotional support, may contribute to patients' confidence in facing anaesthesia and surgical procedures.

Most participants in this study perceived nurse anesthetists' caring behaviors as good. This finding suggests that nurse anesthetists in the study setting had generally demonstrated supportive and patient-centred behaviors during the preoperative phase. Caring behavior in anaesthesia nursing is not limited to technical competence but also involves emotional presence, clear communication, protection of patient dignity, and responsiveness to patients' concerns. These caring elements are particularly important in the preoperative setting because patients often experience fear, uncertainty, and dependence on healthcare professionals shortly before surgery (Lekens et al., 2023; Petersen et al., 2024). When nurse anesthetists provide explanations, listen to patients' concerns, and offer reassurance, patients may feel safer and more respected during a vulnerable clinical situation.

The finding that most participants had high preoperative self-efficacy indicates that many patients were confident in their ability to manage the psychological demands of surgery. This may be influenced by several patient-related factors, including previous surgical experience and educational background. In this study, more than half of the participants had undergone surgery for the second time, and most had completed senior or vocational high school education. Previous exposure to surgery may provide patients with a clearer understanding of perioperative procedures, while education may support their ability to process information and follow instructions. Self-efficacy is known to influence how individuals interpret stressful situations, regulate emotional responses, and engage in health-related behaviors (Du et al., 2022; Schunk & DiBenedetto, 2020).

The significant association between caring behavior and self-efficacy is consistent with previous evidence showing that patients' perceptions of caring behaviors are related to self-efficacy in clinical populations. Kargar et al. (2021) reported a significant association between perceived caring behaviors and self-efficacy among patients with cardiovascular disease, suggesting that caring interactions may strengthen patients' confidence in managing health-related challenges. In the preoperative context, caring behaviors may function as psychological support that helps patients feel more capable of facing anaesthesia and surgery. Clear explanations, encouragement, and emotional reassurance can reduce uncertainty and support patients' belief that they are able to cope with the procedure.

The relationship between caring behavior and self-efficacy can also be understood through the mechanism of verbal persuasion and emotional regulation. Supportive communication from nurse anesthetists may help patients interpret surgery as a manageable event rather than an overwhelming threat. In addition, caring behaviors may reduce fear and promote a sense of security, which can improve patients' emotional state before surgery. Psychological interventions and supportive preoperative communication have been shown to improve psychological readiness and reduce distress in surgical patients (Hanalis-Miller et al., 2022; Kharod et al., 2022). Therefore, caring behavior may indirectly strengthen self-efficacy by improving patients' emotional stability and perceived control.

However, the weak correlation coefficient indicates that caring behavior is not the only factor associated with preoperative self-efficacy. Self-efficacy may also be influenced by previous surgical experience, family support, health literacy, anxiety level, type of surgery, severity of disease, and the amount of information received before surgery. The weak association may also be explained by the distribution of the data, as no participants reported poor caring behavior or low self-efficacy. This limited variation may reduce the strength of statistical correlation even when a significant association is present. Thus, although caring behavior is relevant, it should be viewed as one component within a broader set of psychological and contextual factors that shape patients' confidence before surgery.

These findings have implications for perioperative nursing and anaesthesia services. Nurse anesthetists should continue to strengthen caring behaviors during preoperative care, particularly through clear communication, active listening, emotional reassurance, and respect for patient preferences. Patient-centred perioperative care requires healthcare professionals to address not only physical preparation but also patients' fears, expectations, and psychological readiness (Leonardsen et al., 2024; Saasouh et al., 2024). Strengthening caring behavior may be a practical strategy to improve patients' confidence and readiness before surgery, especially in hospital settings with high surgical workloads and limited interaction time.

Overall, this study highlights the importance of humanistic and relational aspects of anaesthesia nursing practice. Although technical competence remains essential for patient safety, caring behavior provides an additional psychological benefit by helping patients feel supported, valued, and more confident before undergoing surgery. The findings suggest that improving nurse anesthetists' caring behaviors may contribute to better preoperative self-efficacy, although future studies should examine other psychological and contextual factors that may influence this relationship.

Implication and limitation

The findings of this study indicate that nurse anesthetists' caring behaviors may represent an important interpersonal component of preoperative care to support patients' self-efficacy before surgery. Through clear communication, reassurance, active listening, emotional support, and respectful interaction, caring behaviors may help patients feel more confident and psychologically prepared to face anaesthesia and surgical procedures. Nevertheless, several limitations should be considered. The cross-sectional design limits causal interpretation, while the relatively small sample size, purposive sampling, and single-center setting may reduce the generalizability of the findings. In addition, both caring behaviors and self-efficacy were measured using patient-reported questionnaires, which may be influenced by subjective

perception. Future studies with larger multicentre samples and longitudinal or interventional designs are needed to further examine the effect of caring-based preoperative care on patients' psychological readiness.

Relevance for Practice

The present findings support the integration of caring-based communication into routine preoperative anaesthesia care. Nurse anesthetists should provide clear explanations, listen to patients' concerns, offer reassurance, maintain privacy, and show empathy during pre-anaesthesia assessment. These simple and practical caring behaviors may help improve patients' confidence, reduce psychological discomfort, and enhance their readiness before entering the operating room. Strengthening caring behaviors may therefore contribute to more patient-centered and psychologically supportive anaesthesia nursing practice.

Conclusion

This study found a significant positive association between nurse anesthetists' caring behaviors and preoperative self-efficacy among surgical patients at RSUD Sleman. Most patients perceived nurse anesthetists' caring behaviors as good and reported high levels of self-efficacy before surgery. Although the strength of the association was weak, the findings suggest that caring behaviors, including clear communication, reassurance, active listening, and emotional support, may contribute to patients' confidence and psychological readiness before anaesthesia and surgical procedures. Strengthening caring-based preoperative care may therefore support more patient-centered anaesthesia nursing practice.

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Author Contribution

Wafirotul Khasanah contributed to conceptualization, methodology development, data collection, data analysis, manuscript drafting, and preparation of the original manuscript. Anita Setyowati contributed to study supervision, methodology refinement, data interpretation, and critical review of the manuscript. Joko Murdiyanto contributed to study supervision, clinical interpretation, manuscript review, and final editing. All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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Declaration of Conflicting Interest

The authors declare no conflict of interest.

Declaration of Use of AI in Scientific Writing

The authors declare that generative AI and AI-assisted technologies were used to support language editing and grammatical refinement of the manuscript.

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