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Effect of family support on preoperative stress among older adults undergoing general anesthesia

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Abstract

Background: Preoperative stress is common among geriatric patients undergoing surgery with general anesthesia because of age-related physiological decline and reduced adaptive capacity. Elevated stress levels may increase the risk of perioperative complications, delay postoperative recovery, and adversely affect surgical outcomes. Family support is considered an important non-pharmacological approach to improving psychological readiness before surgery.

Purpose: To determine the effect of family support on stress levels among preoperative geriatric patients undergoing general anesthesia.

Method: A quantitative study with a pre-experimental one-group pretest–posttest design was conducted among 35 geriatric patients scheduled for surgery under general anesthesia. Participants were selected using purposive sampling. Family support was assessed using the family subscale of the Multidimensional Scale of Perceived Social Support (MSPSS), while stress levels were measured using the stress subscale of the Depression Anxiety Stress Scale-21 (DASS-21). Data were analyzed using the Wilcoxon Signed-Rank Test.

Results: Before the intervention, 48.6% of participants experienced moderate stress and 17.1% experienced severe stress. Following family support, the proportion of participants with severe stress decreased to 8.6%, while 14.3% achieved normal stress levels. The mean stress score decreased from 22.00 at pretest to 18.23 at posttest. Statistical analysis demonstrated a significant reduction in stress levels after the intervention ($Z = -4.776$; $p < 0.001$).

Conclusion: Family support significantly reduced stress levels among preoperative geriatric patients undergoing general anesthesia. Integrating family involvement into preoperative nursing care may enhance psychological preparedness and contribute to improved perioperative outcomes.

Keywords: Family Support; General Anesthesia; Geriatric Patients; Preoperative Stress.

INTRODUCTION

Surgical procedures are essential interventions for managing various health conditions but are frequently associated with psychological distress during the preoperative period. Preoperative stress commonly arises from concerns about anesthesia, postoperative pain, surgical outcomes, potential complications, and mortality (Shawahna, Jaber, Maqboul, Hijaz, Tebi, Ahmed, & Shabello, 2023). Excessive stress may activate physiological responses, including increased

blood pressure, heart rate, and cortisol secretion, which can adversely affect perioperative stability, delay postoperative recovery, and worsen clinical outcomes (Ni, Zhu, & Ma, 2023). Geriatric patients are particularly susceptible to preoperative stress because aging is accompanied by progressive physiological decline, multiple comorbidities, and reduced adaptive capacity to stressful situations (World Health Organization, 2020). These conditions

increase psychological vulnerability before surgery and may contribute to perioperative complications, prolonged hospitalization, and poorer recovery if stress is not adequately managed (Zietlow, Wong, Heflin, McDonald, Sickeler, Devinney, & Berger, 2022). Therefore, interventions that improve psychological preparedness are essential in geriatric perioperative care (Rashid, Rakapi, Johari, & Ludin, 2025).

Family support is a widely recognized non-pharmacological strategy for promoting psychological well-being during hospitalization. Emotional encouragement, informational support, instrumental assistance, and the presence of family members can enhance patients' sense of security, strengthen coping mechanisms, and reduce stress before surgery. Previous studies have demonstrated that greater family support is associated with lower levels of anxiety and psychological distress among hospitalized patients (Berg, 2023). Evidence focusing specifically on geriatric patients undergoing surgery with general anesthesia remains limited (Setyawan, Koto, & Daeli, 2025).

In Indonesia, research examining the influence of family support on preoperative stress among geriatric patients is still scarce despite the increasing number of elderly individuals requiring surgical treatment. Considering the unique physiological and psychological characteristics of this population, evidence-based nursing interventions are needed to optimize perioperative mental health and improve surgical outcomes (Wahyuni, 2022; Fitriani, Mandaku, Tanto, & Gumilar, 2025).

RESEARCH METHOD

A quantitative approach with a pre-experimental one-group pretest–posttest design (Creswell & Creswell, 2017). The study was conducted at Regional General Hospital Sleman, Yogyakarta, Indonesia, from February to March 2026. The study population consisted of geriatric patients scheduled to undergo surgery under general anesthesia. Participants were recruited using purposive sampling according to predetermined inclusion and exclusion criteria, resulting in a total sample of 35 respondents. The independent variable was family support, while the dependent variable was the stress level of preoperative geriatric patients. The intervention consisted of family support provided during the preoperative period through emotional support, informational support, and family presence. Family support was measured using the family subscale of the Multidimensional Scale of Perceived Social Support (MSPSS), whereas stress levels were assessed using the stress subscale of the Depression Anxiety Stress Scale-21 (DASS-21). Stress levels were evaluated before (pretest) and after (posttest) the family support intervention.

Demographic characteristics, including age, sex, and the American Society of Anesthesiologists (ASA) physical status classification, were collected to describe the study participants. Data were analysed using Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize participant characteristics and study variables. The effect of family support on stress levels was analysed using the Wilcoxon Signed-Rank Test, with statistical significance set at $p < 0.05$. This study was approved by the Ethics Committee of RSUD Sleman (No. 100.3.12/00772). Written informed consent was obtained from all participants before data collection, and participant confidentiality was maintained throughout the study.

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RESEARCH RESULTS**Table 1. Characteristics of Respondents (N= 35)**

Variable	Results
Age (n/%) (MeanSD) (Range) (Year)	(60-79) (67.6±4.8)
60-69	24/68.6
70-79	11/31.4
Gender (n/%)	
Male	14/40.0
Female	21/60.0
ASA Physical Status (n/%)	
ASA I	19/54.3
ASA II	16/45.7
Family Support (n/%)	
Low	11/31.4
Moderate	16/45.7
High	8/22.9

Table 1 presents the demographic and clinical characteristics of the respondents. The mean age of the participants was 67.6 ± 4.8 years (range: 60–79 years). Most respondents were in the early elderly group (60–69 years) (68.6%), while 31.4% were aged 70–79 years. Female participants accounted for the majority of the sample (60.0%), whereas males comprised 40.0%. Based on the American Society of Anesthesiologists (ASA) physical status classification, 54.3% of respondents were classified as ASA I and 45.7% as ASA II. Regarding perceived family support, most respondents reported a moderate level of family support (45.7%), followed by low (31.4%) and high (22.9%) levels of family support.

Table 2. Comparison of Preoperative Stress Scores Before and After Family Support Intervention

Stress	Std. Deviation	Min	Max	Z value	Sig.(2-tailed)
Pre Intervention	4.472	16	32	-4.776 ^b	0.000
Post Intervention	4.697	8	28		

Table 2 presents the comparison of preoperative stress scores before and after the family support intervention. The mean stress score decreased from 22.00 ± 4.47 before the intervention to 18.23 ± 4.70 after the intervention. The minimum stress score also decreased from 16 to 8, whereas the maximum score decreased from 32 to 28. The Wilcoxon Signed-Rank Test demonstrated a statistically significant difference between pre-intervention and post-intervention stress scores ($Z = -4.776$, $p < 0.001$), indicating a significant

reduction in stress levels following the family support intervention.

DISCUSSION

This study demonstrated that family support significantly reduced stress levels among preoperative geriatric patients undergoing general anesthesia. Before the intervention, most respondents experienced moderate stress, indicating that the preoperative period represents a psychologically challenging phase for older adults

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(Nasution, Nasution, & Marbun, 2024). Fear of anesthesia, uncertainty regarding surgical outcomes, concerns about postoperative complications, and age-related physiological decline may contribute to increased psychological distress and reduced coping capacity in this population (Sugara, Syahputra, Fadli, Zola, Putri, Amalianita, & Fitria, 2020). These findings are consistent with previous reports showing that geriatric patients are more vulnerable to preoperative stress because of declining physical resilience and multiple comorbidities (Wahyuningsih, Purwati, & Handayani, 2025). Following the family support intervention, stress levels decreased, as reflected by the reduction in severe stress and the increase in respondents with normal stress levels. The Wilcoxon Signed-Rank Test confirmed a statistically significant reduction in stress scores after the intervention ($Z = -4.776, p < 0.001$). This finding indicates that family involvement may improve the psychological readiness of geriatric patients before surgery. Family members provide emotional reassurance, practical assistance, and informational support that help reduce uncertainty and strengthen patients' coping abilities during the preoperative period (Cing & Annisa, 2022).

The present findings are consistent with previous studies demonstrating that stronger family support is associated with lower levels of stress and anxiety among surgical patients. Family involvement contributes positively to patients' psychological well-being before surgery (Kreca, Musters, Van Dieren, van der Wal-Huisman, Romijn, & Nieveen van Dijkum, 2026). Unlike most previous studies that used correlational designs, the present study employed a pre-experimental one-group pretest–posttest design, enabling direct observation of changes in stress levels following the family support intervention (Mueller & Moskowitz, 2020).

The findings may also be explained by the Social Support Theory, which suggests that social support acts as a protective factor by buffering the negative effects of stressful events. Emotional support reduces fear and uncertainty, informational support improves patients' understanding of the surgical procedure, and instrumental support enhances feelings of safety and confidence. Collectively, these forms of support strengthen adaptive coping mechanisms and facilitate better psychological adjustment before surgery (Dewi & Riyadi, 2023). From a clinical perspective, reducing preoperative stress is particularly important in geriatric

patients because excessive psychological stress may activate the sympathetic nervous system, resulting in increased blood pressure, heart rate, and cortisol secretion, which may complicate anesthetic management and adversely affect perioperative outcomes (Jainurakhma, Arini, & Hardiyanto, 2025). Therefore, integrating family participation into routine preoperative nursing care represents a feasible, low-cost, and non-pharmacological strategy to improve psychological preparedness before surgery (Garjito, 2021).

This study has several limitations. The use of a one-group pretest–posttest design without a control group limits the ability to establish causal relationships and increases the potential influence of external factors. In addition, the relatively small sample size from a single hospital may limit the generalizability of the findings. Future studies are recommended to employ randomized controlled or quasi-experimental designs with larger and more diverse populations to further evaluate the effectiveness of family support interventions in reducing preoperative stress among geriatric patients (Yuan, Zhou, Wang, Wan, & Hu, 2025).

CONCLUSION

Family support significantly reduced stress levels among preoperative geriatric patients undergoing general anesthesia. The family support intervention effectively improved patients' psychological readiness before surgery, as evidenced by a significant reduction in stress scores following the intervention ($Z = -4.776, p < 0.001$). These findings highlight the importance of integrating family involvement into routine preoperative nursing care as a simple, low-cost, and non-pharmacological strategy to reduce psychological distress and support better perioperative outcomes among geriatric patients. Future studies using controlled experimental designs and larger sample sizes are recommended to strengthen the evidence regarding the effectiveness of family support interventions.

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