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The Relationship Between Family Knowledge, Family Education, and Anxiety Levels Among Family Members of ICU Patients

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ABSTRACT

Introduction: Family members of critically ill patients in the Intensive Care Unit (ICU) often experience significant anxiety due to uncertainty about the patient's condition, highlighting the importance of family knowledge and education in reducing psychological distress.
Objective: This study aims to analyze the relationship between family knowledge and education level and the anxiety levels of family members of patients treated in the Intensive Care Unit (ICU) at Bakti Timah Pangkalpinang Hospital in 2025.
Method: This quantitative research with a cross-sectional design aims to analyze the relationship between family knowledge and education towards the anxiety level of family members of patients who were treated in the ICU of Bakti Timah Pangkalpinang Hospital in 2025. By using a sample of 61 respondents selected through the Simple Random Sampling technique.
Result: The results of the Chi-Square test showed a significant relationship between family knowledge and anxiety levels (p-value = 0.000; POR = 10.00), where less knowledge is 10 times more at risk of experiencing anxiety. Similarly, a significant relationship was found between family education and anxiety levels (p-value = 0.000; POR = 5.00), indicating that low education increased the risk of anxiety 5 times greater.
Conclusion: The conclusion shows that family knowledge and education are important factors that affect anxiety. Therefore, it is recommended to improve therapeutic communication training for nurses and ensure optimal information provision and psychological support to reduce the patient's family anxiety level.

Keywords: anxiety, family education, family knowledge, intensive care unit

Introduction

The family is the smallest social unit, playing a fundamental role and serving as the primary support system in determining the health status of each member (Friedman, 2010). In the context of social life in general, health is one of the most valuable and valued aspects by every individual and community. When a family member experiences a serious health problem, the situation not only impacts the patient's physical and mental well-being but also significantly impacts the functioning, stability, and psychological balance of all other family members (Helena, 2018).

In the healthcare setting, life-threatening critical illnesses require specialized care in the Intensive Care Unit (ICU). The ICU is a treatment area specifically designed for unstable patients who require intensive monitoring and are at high risk of morbidity and mortality (Morton, 2014). The ICU environment, dominated by sophisticated equipment, alarms, and the patient's critical condition, often creates a tense and uncertain atmosphere. This atmosphere makes the ICU experience a highly stressful period, not only for the patient but also for the family members who accompany them (Haryani, 2021).

This critical situation triggers a variety of emotional responses in families. One of the most common psychological reactions experienced by families of patients in the ICU is anxiety. This anxiety arises from uncertainty about the patient's health condition, which can trigger stress and fear of loss (Misbach, 2019). The emotional distress felt by families includes various forms such as anxiety, depression, fear, and stress, impacting more than half of the family members of critically ill patients (Hanafi & Sitorus, 2022).

Globally, data shows that the prevalence of anxiety and depression among families of patients in the ICU is increasing, with approximately 30% of them reporting high levels of anxiety (WHO, 2020). Meanwhile, in Indonesia, the prevalence of anxiety among families of patients in the ICU is reported to have reached 70.8% (Dharma, 2023). There are no public reports or statistics detailing the prevalence of patients admitted to the ICU across hospitals in the Bangka Belitung Islands for 2023-2025. At Bakti Timah Hospital in Pangkal Pinang, 296 patients were treated in the ICU in 2022. This number increased to 311 in 2023, and again to 324 in 2024. From January to June, there were 156 critically ill patients in 2025.

Families of patients treated in the ICU often experience a range of emotions, such as worry, anxiety, and fear of losing a loved one. Patients are typically admitted to the ICU in serious condition. Within a family unit, the illness of one family member will affect one or more family members in some way, often affecting other family members. Every family member experiences anxiety when a family member becomes ill and requires care, causing anxiety not only for the individual but also for the family (Musliha 2018) in (Yuli Irawati et al., 2023).

The patient's profile in the intensive care unit reflects the patient's serious condition and varying levels of vulnerability. This vulnerability includes feelings of helplessness, weakness, and dependence on medical equipment (Sunatrio, 2018). A patient in critical condition is a situation where there is a possibility of irreversible dysfunction in one or more organs, which poses a life-threatening risk and requires specialized care in the ICU (Musliha, 2018). Critically ill patients typically have high morbidity and mortality rates. Quickly recognizing the signs of critical illness and providing appropriate care for patients at risk or in critical condition can help prevent further deterioration and increase the chances of recovery (Gwinnut, 2018).

Patients admitted to the ICU can pose a risk to their safety and health. This is considered a warning sign of imminent death, causing anxiety in patients and their families (Hudak, 2018). The emotional distress experienced by families includes various forms, such as anxiety, depression, fear, and stress, which impact more than half of the family members of critically ill patients (Musliha, 2018). Anxiety produces a mental reaction in the individuals experiencing it. These mental reactions can include difficulty concentrating, confusion, ignoring external cues, focusing only on internal thoughts, and difficulty solving problems (Keliat & Pasaribu, 2016).

Based on a preliminary survey conducted by researchers on July 27, 2025, by interviewing five family members of patients in the ICU, significant expressions of anxiety and feelings of helplessness were revealed. These concerns were primarily driven by the uncertainty of the prognosis and the perception that information regarding the patient's condition was still limited or not optimally communicated. Family education has not been consistently implemented in all intensive care units due to various factors. Therefore, this study is crucial to empirically evaluate the extent to which family knowledge and education can help reduce their anxiety.

Objective

This study aims to analyze the relationship between family knowledge and education level and the anxiety levels of family members of patients treated in the Intensive Care Unit (ICU) at Bakti Timah Pangkalpinang Hospital in 2025.

Method

This study employed a quantitative research approach with a cross-sectional design to examine the relationship between family knowledge and family education level with the anxiety level of family members of patients treated in the Intensive Care Unit (ICU) at Bakti Timah Hospital, Pangkalpinang, in 2025. The cross-sectional design was chosen because all variables were measured simultaneously at one point in time, allowing the researcher to identify associations between independent and dependent variables efficiently.

The population in this study consisted of all family members of patients who were undergoing treatment in the ICU during the study period. The sample size was 61 respondents who met the inclusion criteria, namely being immediate family members of ICU patients, willing to participate, and able to communicate effectively. Respondents were selected using a simple random sampling technique to ensure that each member of the population had an equal opportunity to be included in the study, thereby minimizing selection bias.

Data were collected using structured questionnaires that consisted of three main sections, including demographic characteristics, family knowledge, and anxiety level assessment. The knowledge variable measured respondents' understanding of ICU care, patient condition, and treatment procedures, while education level was categorized based on the highest formal education attained by respondents. Anxiety levels were measured using a standardized anxiety assessment instrument that has been widely used in health research.

Data collection was conducted after obtaining informed consent from all participants and ensuring confidentiality and anonymity of the respondents. The collected data were then processed and analyzed using statistical software. Univariate analysis was performed to describe the distribution of each variable, while bivariate analysis using the Chi-Square test was conducted to determine the relationship between knowledge and education with anxiety levels. The level of significance was set at $\alpha = 0.05$ with a 95% confidence interval. Ethical

approval for this study was obtained from the relevant institutional ethics committee prior to data collection, ensuring that the research adhered to ethical principles including respect for persons, beneficence, and justice.

Result

Table 1. Relationship of Knowledge to Anxiety Levels of Family Members Treated in the ICU

Knowledge	Anxiety Level				Total		*p-value*	POR (CI 95%)
	Not		Anxious					
	n	%	n	%	n	%		
Good	20	30	2	3	22	100		
Poor	-	-	45	67	45	100	0.000	10.00
Total	20	30	47	70	67	100		

Based on Table 1, 20 people (30%) experienced no anxiety and had good knowledge, while 45 respondents (67%) experienced anxiety and had poor knowledge, outnumbering those with good knowledge. The results of data analysis using the Chi-Square Test obtained a p-value (0.000) < α (0.05), thus rejecting H0. It was concluded that there is a relationship between knowledge and education and the anxiety levels of family members treated in the ICU. Further analysis obtained a Prevalence Odds Ratio (POR) value of 10.00, meaning that respondents with poor knowledge and anxiety were 10 times more likely to experience anxiety than respondents with good knowledge and no anxiety.

Table 2. Relationship between Education and Anxiety Levels of Family Members Treated in the ICU

Education	Anxiety Level				Total		*p-value*	POR (CI 95%)
	Not		Not					
	n	%	n	%	n	%		
High	6	55	5	46	11	100		
Low	13	26	37	74	50	100	0.000	5.00
Total	19	31	42	69	67	100		

Based on Table 1, 13 people (26%) experienced anxiety and had low education, more than those with high education. Meanwhile, 37 people (74%) experienced anxiety and had low education, more than those with high education. The results of data analysis using the Chi-Square Test obtained a p-value (0.000) < α (0.05), thus rejecting H0. It was concluded that there is a relationship between knowledge and education and the anxiety levels of family members treated in the ICU. Further analysis obtained a Prevalence Odds Ratio (POR) value of 5.00, indicating that respondents with higher education were five times less likely to experience anxiety than respondents with lower education.

Discussion

Knowledge reflects the end result of cognitive processes: the accumulation of information, understanding, and skills organized and stored in long-term memory. In health

research, knowledge is often operationalized as a subject's understanding of specific information relevant to a particular condition, prevention, or treatment.

Data analysis using the Chi-Square Test yielded a p-value (0.000) < α (0.05), thus rejecting H0. It was concluded that there is a relationship between knowledge and education and the anxiety levels of family members admitted to the ICU. Further analysis yielded a Prevalence Odds Ratio (POR) of 10.00, meaning that respondents with poor knowledge and anxiety were 10 times more likely to experience anxiety than those with good knowledge and no anxiety.

According to the researchers' assumptions, family anxiety is viewed as a stress response to an uncertain threat. Knowledge serves as the primary tool for families to conduct cognitive appraisals of the crisis situation. Families with poor knowledge tend to perceive the ICU environment, full of invasive equipment and the critical condition of the patient, as uncontrollable and extremely dangerous. This lack of understanding creates an information gap and increases uncertainty, which is a strong predictor of anxiety. Conversely, good knowledge allows families to interpret the situation more rationally (for example, knowing that a ventilator is helpful, not an absolute indication of severity), thereby alleviating feelings of helplessness. Therefore, lack of knowledge diminishes adaptive coping skills and reinforces risk perception, which logically explains why the likelihood of anxiety in this group is drastically increased (10-fold), in line with the POR value you found.

Education is a conscious and planned effort to create a learning environment and process so that students actively develop their potential to possess spiritual and religious strength, self-control, personality, intelligence, noble character, and the skills needed for themselves, society, the nation, and the state.

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According to the researchers' assumptions, formal education is a key predictor of health literacy, namely a person's ability to process and understand complex health information. Families with lower education tend to have limited health literacy, making it difficult for them to understand medical terminology, the function of invasive equipment, and the prognosis provided by the medical team. Difficulty processing this vital information directly creates high levels of uncertainty and hinders them from developing problem-focused coping strategies. Furthermore, education level can also influence sociocultural dynamics, where individuals with low education may feel intimidated or lack the confidence to actively interact and seek clarification from medical staff. The combination of these cognitive processing limitations and communication barriers collectively increases the perception of threat and loss of control, ultimately leading to a substantial increase in anxiety, which was shown to be fivefold greater as indicated by the POR values in your study.

Conclusion

There is a significant relationship between knowledge level and education level with the anxiety level of family members of patients treated in the Intensive Care Unit (ICU) at RSBT Pangkalpinang in 2025.

Conflict of Interest

No declare.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper. This research was conducted independently without any financial, commercial, or personal relationships that could be construed as a potential conflict of interest. All processes, including study design, data collection, analysis, and manuscript preparation, were carried out objectively and without external influence.

Ethical consideration

Not applicable.

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