



## **ANALYSIS OF PERIANESTHESIA PATIENT COMMUNICATION NEEDS AS A BASIS FOR DEVELOPING SEKALA CHATBOT SERVICES**

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### **ABSTRACT**

Anesthesia is a crucial part of any surgical procedure, involving multiple communication processes between healthcare professionals and patients. Unfortunately, many patients report remaining confused even after surgery. Some patients felt the information they received was too brief, used difficult-to-understand medical terms, or was only provided once during the pre-operative period. This study aims to determine the communication needs of perianesthesia patients as a basis for developing the SEKALA chatbot service. The research design used was a correlational analytic study with a cross-sectional approach. The sample in this study was 217 respondents using a purposive sampling technique. Data collection used a standardized questionnaire with a Cronbach's Alpha value of 0.80. Bivariate analysis using the chi-square test was conducted to examine the relationship between communication needs and readiness to use the SEKALA chatbot. The level of pre-anesthesia patient communication needs was high. Most patients experienced moderate communication difficulties. The level of patient readiness to use the SEKALA chatbot was high. There was a significant relationship between the level of patient communication needs and readiness to use the SEKALA chatbot ( $p < 0.001$ ). The SEKALA Chatbot digital service has the potential to be an innovative solution to support perianesthesia communication.

**Keywords:** communication; patient; perianesthesia; sekala chatbot

### **INTRODUCTION**

Perianesthesia care is an integral part of perioperative care, encompassing the pre-anesthetic, intra-anesthetic, and post-anesthetic phases. In each phase, effective communication between healthcare professionals and patients plays a crucial role in ensuring patient safety, improving the quality of care, and building trust in the anesthetic procedure. Good communication enables patients to receive clear information about the anesthetic procedure, its benefits and risks, pre-operative preparation, and post-anesthetic care. Furthermore, effective communication can help reduce patient anxiety, improve compliance with medical instructions, and support informed consent (Juliansyah, 2024).

Anesthesia is a crucial part of any surgical procedure, involving multiple communication processes between healthcare professionals and patients. This process begins with the pre-anesthesia phase (education and informed consent), continues through the intra-anesthesia phase (communication with the medical team), and ends with the post-anesthesia phase (recovery and further education) (Novianti, 2024). These three phases are known as the perianesthetic phase and are highly susceptible to patient uncertainty and anxiety. Effective communication during this phase has been shown to play a crucial role in reducing anxiety levels, increasing patient understanding, and encouraging adherence to postoperative instruction (Putra et al., 2025).

Unfortunately, many patients report remaining confused even after surgery. Some feel the information they received was too brief, used difficult-to-understand medical terms, or was only presented once during the pre-operative period. As a result, when complaints arise after returning home or following a post-operative checkup, patients are unsure who to contact or through which medium. This uncertainty can increase the risk of delays in managing post-operative complications, reduce the quality of recovery, and increase the number of preventable readmissions (Chen et al., 2025).

On the other hand, current advances in communication technology provide significant opportunities to meet patients' information needs more quickly, conveniently, and personally. One emerging innovation is the use of WhatsApp-based chatbots, which allow patients to automatically access basic medical information, recovery guidance, and education 24/7. Chatbots have proven effective in various aspects of healthcare, from health promotion and early symptom detection to patient support during treatment (Stancati, 2024).

Through this research, researchers aimed to analyze the communication needs of perianesthesia patients, which will form the basis for designing a chatbot system called SEKALA (Direct and Adaptive Anesthesia Communication Education System). This chatbot is designed to provide education and answer common questions about anesthesia automatically via WhatsApp. Before development, a thorough understanding of the type of information patients need, the barriers they face in communicating, and the extent to which they accept and are interested in using chatbots as a means of medical communication is necessary. This study aims to determine the communication needs of perianesthesia patients as a basis for developing the SEKALA chatbot service.

## **METHOD**

This study employed a cross-sectional correlational design to analyse the communication needs of peri-anesthesia patients as the basis for developing the SEKALA chatbot service. The study was conducted at Sanjiwani Regional Hospital, Gianyar, Bali, Indonesia. The study population comprised adult surgical patients undergoing elective procedures under anesthesia and their accompanying family members. A purposive sampling technique was used to recruit 217 respondents who met the study criteria. The inclusion criteria were: (1) aged 18 years or older; (2) scheduled to undergo elective surgery under general or regional anesthesia; (3) accompanied by at least one family member involved in perioperative care; (4) able to communicate effectively in Indonesian; (5) willing to participate by providing written informed consent; and (6) owning and actively using the WhatsApp application. Respondents were excluded if they had cognitive impairment, severe hearing or speech disorders, psychiatric conditions affecting communication, or incomplete questionnaire responses.

Data were collected using a structured and standardized questionnaire developed from a review of the literature on peri-anesthesia communication and digital health services. The questionnaire consisted of respondents' demographic characteristics, communication needs during the peri-anesthesia period, and readiness to use the SEKALA chatbot as a digital communication medium. Prior to the main study, the instrument underwent content validation by experts in anesthesia nursing, perioperative care, and health informatics. A pilot test involving 30 respondents demonstrated satisfactory psychometric properties, with all questionnaire items achieving acceptable validity (Corrected Item–Total Correlation  $\geq 0.30$ ) and an overall Cronbach's Alpha coefficient of 0.80, indicating good internal consistency.

Data collection was carried out after obtaining ethical approval from the institutional ethics committee and permission from Sanjiwani Regional Hospital. Eligible respondents were identified in the surgical ward and pre-anesthesia clinic. The researcher explained the study objectives, procedures, benefits, and participants' rights before obtaining written informed consent. Respondents then completed the self-administered questionnaire, which required approximately 30 minutes to complete. Confidentiality and anonymity were maintained throughout the research process.

Data were analysed using IBM SPSS Statistics. Descriptive statistics were used to summarize respondents' demographic characteristics and communication needs. Continuous variables were presented as means and standard deviations, whereas categorical variables were expressed as frequencies and percentages. Bivariate analysis using the chi-square test was performed to determine the association between patients' communication needs and their readiness to use the

SEKALA chatbot. Variables with a p-value < 0.25 in the bivariate analysis were entered into a multivariable binary logistic regression model to identify independent predictors of readiness to use the chatbot. Statistical significance was established at  $p < 0.05$ , and the strength of associations was reported using adjusted odds ratios (AORs) with 95% confidence intervals (95% CIs).

## RESULT

Table 1.  
General Characteristics of Anesthesiologists (n=217)

| Characteristics    | f   | %    |
|--------------------|-----|------|
| Gender             |     |      |
| Male               | 105 | 48,4 |
| Female             | 112 | 51,6 |
| Education          |     |      |
| Elementary School  | 14  | 6,5  |
| Junior High School | 7   | 3,2  |
| High School        | 91  | 41,9 |
| Diploma 3          | 7   | 3,2  |
| Bachelor's Degree  | 91  | 41,9 |
| Master's Degree    | 7   | 3,2  |
| Surgical History   |     |      |
| Never              | 119 | 54,8 |
| Ever               | 98  | 45,2 |
| Age                |     |      |
| < 35 Years         | 105 | 48,4 |
| > 35 Years         | 112 | 51,6 |

Based on Table 1, the majority of respondents were female (112 respondents) (51.6%), the majority had a high school or bachelor's degree (91 respondents) (41.9%), the majority had never undergone surgery (119 respondents) (54.8%), and the majority were over 35 years old (112 respondents) (51.6%).

Table 2.  
Level of Communication Needs (n=217)

| Communication Need Level | f   | %    |
|--------------------------|-----|------|
| Good                     | 133 | 61,3 |
| Poor                     | 84  | 38,7 |

Based on table 2, the majority of respondents have a high level of communication needs, namely 133 people (61.3%).

Table 3.  
Level of Communication Barriers (n=217)

| Level of Communication Barriers | f  | %    |
|---------------------------------|----|------|
| Low                             | 70 | 32,3 |
| Fair                            | 77 | 35,5 |
| High                            | 70 | 32,3 |

Based on table 3, the majority of respondents (77 respondents) reported moderate communication challenges.

Table 4.  
Readiness Level to Use Chatbot Services (n=217)

| Readiness Level | f   | %    |
|-----------------|-----|------|
| High            | 140 | 64,5 |
| Low             | 77  | 35,5 |

Based on Table 4, the majority of respondents (140 respondents, 64.5%) have a high level of readiness to use chatbot services as an information source.

Table 5.

Relationship between Communication Needs and Readiness to Use Chatbots (SCALE) (n=217)

| Readiness Factors | Level of Need |           | p-value |
|-------------------|---------------|-----------|---------|
|                   | Low (%)       | High (%)  |         |
| Low               |               |           |         |
| High              | 42 (19,4)     | 35 (16,1) | <0,001  |
| Readiness Factors | 42 (19,4)     | 98 (45,2) |         |

Table 5 shows that the level of need significantly correlates with respondents' readiness to use the SEKALA chatbot ( $p < 0.001$ ). The majority of respondents (45.2%) had a high level of need and a high level of readiness.

## DISCUSSION

In this study, the majority of respondents were female (51.6%), had a high school or bachelor's degree (41.9%), were aged over 35 years (51.6%), and most had never undergone surgery before (54.8%). These results align with previous findings showing that women tend to be more active in seeking health information and are more concerned about pre-procedural medical communication than men (Kurniawati et al., 2020). Higher education, especially a bachelor's degree, influences the ability to understand health information, making patients more receptive to digital education (Putri et al., 2021). Those aged over 35 years represent a group of adults who generally have more healthcare experience, so their readiness to accept new technology may be influenced by their level of digital literacy.

More than half of the respondents were older than 35 years. This age group represents mature adults who often have greater responsibility for managing their own health and family healthcare decisions. Although increasing age has traditionally been associated with lower digital technology adoption, recent evidence suggests that smartphone ownership and messaging application use among middle-aged adults have increased substantially (Cheng et al., 2024). Consequently, age alone is no longer considered a major barrier to the implementation of mobile health interventions, particularly when the technology is simple, intuitive, and based on widely used applications such as WhatsApp. This finding supports the feasibility of implementing the SEKALA chatbot through a familiar communication platform that minimizes technological barriers (Ho et al., 2025).

This study also showed that the majority of respondents had a high level of communication needs (61.3%). This indicates that pre-anesthesia patients require clear, accurate, and structured information regarding anesthetic procedures, side effects, pre-operative preparation, and post-operative recovery. This high level of communication needs aligns with research by (Singh et al., 2025) confirmed that comprehensive preoperative patient education can reduce anxiety, increase satisfaction, and support adherence to medical procedures. The high need for communication also highlights the importance of providing ubiquitous communication channels, making chatbots a potential solution to meet patients' ongoing information needs.

The majority of respondents (35.5%) perceived communication barriers as moderate. These barriers may include limited consultation time with healthcare professionals, limited understanding of medical information, or difficulty remembering verbal information provided during consultations. This aligns with a study by Liu et al. (2021), which found that preoperative patients often experience difficulty accessing adequate medical information, necessitating additional, more flexible communication channels. The majority of patients were willing to use the SEKALA chatbot service as an information channel (64.5%). This indicates a high level of patient acceptance of digital media, particularly for educational and informative health communications.

The identification of substantial communication needs provides a strong rationale for developing the SEKALA chatbot as a digital communication platform for peri-anesthesia patients. Unlike printed

educational leaflets or one-time verbal counselling, chatbots can deliver standardized information continuously, provide immediate responses to frequently asked questions, and remain accessible 24 hours a day (Wang et al., 2025). Artificial intelligence-based chatbots also have the potential to personalize educational content according to the patient's stage of care, thereby improving the relevance of information and enhancing patient engagement (Ghosh et al., 2026).

Research by Almunawar et al. (2020) showed that patients with adequate digital literacy and high information needs tended to be more willing to accept chatbot services as an alternative or complement to communication with healthcare professionals. This readiness factor is also influenced by ease of use, accessibility, and trust in data security within digital platforms. Therefore, a user-friendly, interactive, and informative chatbot design will increase the effectiveness of chatbot implementation in pre-anesthesia care. This study shows that the level of patient communication needs is significantly related to readiness to use the SEKALA Chatbot ( $p < 0.001$ ). The majority of patients who have a high level of communication needs also show high readiness to use chatbots (45.2%). These results support health communication theory which states that high information needs encourage individuals to look for alternative media to fulfill these needs. In a digital context, patients who have high communication needs are more encouraged to utilize technology such as chatbots to obtain complete and easily accessible information. In addition, these findings are in line with the study by Fadhil et al. (2021) which shows that acceptance of digital technology in health increases along with the level of patient information needs. In other words, chatbots not only act as information provider tools, but also as interactive media that can improve patient education experiences, reduce anxiety, and support compliance with preoperative procedures.

## CONCLUSION

The majority of respondents in this study were women aged  $>35$  years with a high school or bachelor's degree, and most had never undergone surgery before. These characteristics indicate a patient group with relatively high awareness and interest in health information and readiness to receive digital education. The level of pre-anesthesia patient communication needs was high (61.3%), indicating the importance of providing clear, accurate, and easy-to-understand medical information regarding anesthesia procedures and surgical stages. Most patients experienced moderate communication difficulties (35.5%), primarily due to limited consultation time and difficulty remembering verbally conveyed medical information. The level of patient readiness to use the SEKALA Chatbot was high (64.5%), indicating positive acceptance of digital media as a means of communication and health education. There was a significant relationship between the level of patient communication needs and readiness to use the SEKALA Chatbot ( $p < 0.001$ ). Patients with high communication needs tended to be more ready to utilize chatbots to obtain health information. The results of this study confirm that chatbots have great potential as an additional communication medium in pre-anesthesia care, with benefits in improving patient understanding, reducing anxiety, and increasing compliance with medical procedures.

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