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# SATISFACTION OF MIDWIVES WITH THE USE OF THE MIDWIFERY EMERGENCY GUIDE APPLICATION IN THE ISLANDS (SI-PK3) AS AN INNOVATION FOR MANAGING MATERNAL EMERGENCY CASES IN THE KEPULAUAN RIAU PROVINCE IN 2023

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| Article Info | ABSTRACT |
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| | *One of the initiatives to reduce MMR is to have health staff who are competent in emergency management, given the hurdles and challenges that exist on the islands. Island referral paths typically use both land and maritime routes. This study attempted to assess respondents' satisfaction with the trial usage of si-PK3 as a midwife guide in addressing maternal crises on the islands. This research was quantitative research. Respondents were given one month to utilize the PK3 application. After one month, respondents were given a questionnaire measuring their happiness with the program using the End User Computing happiness (EUCS) approach. As a whole, the level of user satisfaction with the PK3 Application is 3.14, which was at level 4 (satisfied), indicating that the PK3 Application was generally regarded as satisfactory*<br> |

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## 1. INTRODUCTION

The key indication of maternal health project success is the maternal mortality rate (MMR). This indicator also measures public health because it is sensitive to improvements in health care, both in terms of accessibility and quality (Kemenkes RI, 2021). Several efforts have been tried to lower MMR. The government and the society must ensure that every mother has access to quality health services (Lestary, dkk, 2018). The management of obstetric problems is an essential component of maternal health care. In this scenario, how emergencies are handled during labor can determine whether moms and babies survive. Delivery at health care facilities aims to prevent difficulties and address maternal and newborn emergencies. An analysis of maternal deaths conducted in 2012 showed that maternal deaths are closely related to birth attendants and delivery facilities (Kemenkes RI, dkk, 2018).

Any intervention to improve access to health services must address a variety of factors, including the strengthening of the referral system. Each health care facility in the district/city is supposed to develop a referral pathway for health services that is tailored to the health facility's capacity, the availability of a transportation network, and the geographical circumstances of the area. One of the key programs in the action plan to expedite MMR reduction is to ensure the implementation of effective referrals in cases of problems. Currently, the referral system that has been regulated by the government at various levels has not been able to be implemented properly due to constraints in terms of geographical areas and facilities and infrastructure in the area (Lestary, dkk, 2018; Susiloningtyas, 2020).

Midwives are the front-line providers of care to pregnant women, postpartum mothers, and newborns. Midwives operate not only in hospitals and health care facilities, but also in the community and are at the forefront of service delivery. Midwives frequently encounter emergency situations that endanger the lives of mothers and newborns while providing services. One of the measures to reduce MMR is to have health staff that are capable of addressing

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emergencies despite the constraints and challenges that exist on the islands. Referral pathways by land and sea are common on the islands. Emergency patients' conditions complicate referrals. As a result, an innovation is required to facilitate technological implementation in the field. The technological innovation developed in this research is an android application called the Obstetric Emergency Guidelines Application in the Islands (si-PK3). Si-PK3 is intended to help midwives manage obstetrical crises. The purpose of this study is to assess respondents' satisfaction with the experimental use of si-PK3 as a midwife guide for dealing with maternal crises on the islands.

## 2. LITERATURE REVIEW

Obstetric emergencies are life-threatening health complications that occur during pregnancy, labor, or after birth. Many diseases and abnormalities can occur during pregnancy, endangering both the mother and the baby's safety. Maternal emergencies can happen at any point throughout pregnancy, labor, or the postpartum period. Maternal emergencies during the first-IV stage of labour include amniotic embolism, shoulder dystocia, labor with abnormality (breech), prolonged partus, preeclampsia, uterine atony, placental retention, birth canal rupture, postpartum haemorrhage (primary), and obstetric shock (Setyarini & Suprapti, 2016). According to the findings of the interview with Ekasafitri et al (2019), the criteria for referral of maternal emergency cases were blocked partus, premature membrane rupture, breech presentation, transverse placement, hemorrhage, and hypertension. This is in line with the Ministry of Health of the Republic of Indonesia in 2013 which says that pregnancy conditions that need to be referred are bleeding, preeclampsia, eclampsia, premature rupture of membranes, fetal distress, malpresentation, partus stuck or other emergency conditions that threaten the lives of mothers and babies.

Maternal emergencies can range from simple to extensive care. Basic Obstetric Neonatal Emergence Care (PONED) is an inpatient health facility that can provide emergency obstetric and neonatal care or difficulties. When a Puskesmas serving as an intermediate referral facility is unable to provide medical referral services for obstetric and neonatal cases, the patient must be forwarded to a referral hospital (PONEK), which is first stabilized by the Puskesmas PONED. A 24-hour PONEK hospital is a facility that offers complete and integrated maternal and neonatal emergency care. PONEK institutions have professionals with the capacity and sufficient supporting facilities and equipment to provide basic and comprehensive obstetric and neonatal emergency treatment (Ministry of Health, 2013). PONEK referral hospitals must be accessible to the community in less than one hour, in order to provide emergency treatment according to standardised standards.

Referral is the transfer of responsibility from one health service to another. The health service referral system is the provision of health services that regulates the delegation of tasks and responsibilities for health services in a reciprocal manner both vertically and horizontally which must be implemented by participants in health insurance or social health insurance, and all health facilities. Individual health services consist of 3 (three) levels, namely (Mappaware, 2018): 1. first-level health services; 2. second-level health services; and 3. third-level health services.

The archipelago is known for its referral flows by land and water. It is a process that requires ambulance readiness, complete equipment, escorts, and medications to ensure the patient's safe transit to the referral hospital. Local governments have a vital role in supporting health care services. The results of an evaluation conducted by Zaenab (2012) of the Riau Islands referral system, Puskesmas and RSUD faced problems and challenges in supporting the maternal referral system due to limited resources (facilities and equipment), a lack of teamwork between referral levels, incomplete referral SOPs, weak information systems, and by-pass referral pathways (Zaenab, 2013).

To overcome the limitation of the islands' referral system, a technological innovation is required to assist midwives in handling maternal emergencies. Android is a linux-based mobile operating system that consists of an operating system, middleware, and apps. Android is an open platform that enables developers to create custom applications (Safaat, 2012).

## 3. METHODS

This research was quantitative research. Respondents were given one month to utilize the PK3 application. After one month, respondents were given a questionnaire regarding their happiness with the application using the End User Computing happiness (EUCS) technique, which measures satisfaction with an information system based on content, format, accuracy, timeliness, and simplicity of use. User happiness is critical to the system's success and has an impact on its actual benefits. Doll et al. (1998) prepared question items for EUCS research, which are adopted and utilized as recommendations for creating questionnaires for respondents. The population in this study were all midwives from the Riau Islands region. For Infinite Population, which is commonly referred to as an infinite population, namely a population that cannot be known with certainty, then according to Maholtra (2009), the size of the sample taken can be determined by multiplying the number of variables by 5. The calculation yielded a minimum sample size of 25 respondents. This study used a random sampling technique. Furthermore, the data obtained were

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analyzed univariately based on the variable dimensions of respondent satisfaction. Measurement of questionnaire data used a Likert scale, namely Very Satisfied (4), Satisfied (3), Dissatisfied (2) and Very Dissatisfied (1).

## 4. FINDING AND DISCUSSION

After using the program for a month, 25 midwife responders were given a questionnaire to assess their satisfaction with it. Furthermore, the researcher transformed the satisfied and dissatisfied statements on the user questionnaire into five indications, as indicated in the table below:

**Table 1. Scale of Respondents' Satisfaction Level with PK3 Application**

| Level | Score | Satisfaction Level |
|---|---|---|
| 1 | 0 – 1,49 | Very Dissatisfied |
| 2 | 1,5 – 2,49 | Not Satisfied |
| 3 | 2,5 – 2,99 | Fair |
| 4 | 3,0 – 3,49 | Satisfied |
| 5 | 3,5 - 4 | Very Satisfied |

Based on the findings of univariate data processing, the respondents' answers to the content variable were 3.4, implying that the respondents' degree of satisfaction with the PK3 Application is degree 4, which indicates contentment. In the accuracy variable, the overall average answer is 2.9, indicating that respondents' satisfaction with the PK3 Application is Level 3, which implies sufficient. In the format variable, the total average answer is 3.1, implying that respondents' satisfaction with the PK3 Application is at Level 4, indicating contentment. The total average answer in the ease of use variable is 3.3, indicating that respondents' satisfaction with the PK3 Application is Level 4 (satisfied). The Timeliness variable yields a score of 3.0, indicating that respondents' satisfaction with the PK3 Application is Level 3 (adequate). Overall, the degree of user satisfaction is 3.14, which is level 4 (satisfied), indicating that the PK3 Application is satisfactory in terms of respondents' perceptions.

This study analyzed how the five EUCS variables—content, accuracy, format, simplicity of use, and timeliness—affected user satisfaction. According to Pratama et al. (2012), information system user satisfaction is defined as a person's sense of joy or disappointment when comparing his impression of a product's performance or results to his expectations. If the users were pleased, the PK3 application was approved. User happiness is a good indicator of how well the PK3 application was developed.

The following is an explanation of each measurement using the End User Computing Satisfaction method (Pujana, dkk, 2023):

1. Content Variable

This variable measure users' satisfaction with system content. The information generated by the system, as well as the functions and models provided to system users, make up a significant portion of the system content. In addition, this variable determines whether the system generates information in response to user requests. User satisfaction grows as the modules and information system become more complete. According to the research findings, respondents are satisfied with the content variable. The PK3 application was reviewed by experts in midwifery and information technology before being tested on respondents. This application is also equipped with usage guidelines.

2. Accuracy Variable

This variable assesses user satisfaction with the accuracy of information received by the system and processed into information. When the system is set up, it should be tested to ensure that it produces the same output as the input, as well as to determine what else needs to be done. Respondents provided sufficient scores for this variable. The application processes the input information or data effectively, producing results that meet the respondents' expectations. Every link clicked by the respondent will take them to the appropriate page.

3. Format Variable

This variable focuses on the testing and evaluation of a specific system, the format of data or information used by the system, and other factors that influence the user's ability to use the system and increase its effectiveness. According to the research findings, respondents were satisfied with this variable. This can be interpreted as respondents believing that the application display design has appealing colors, an easy-to-use layout, and a menu structure that respondents understand.

4. Ease of Use Variable

This variable considers user input in relation to the system or user input, such as data, the process of collecting data, organizing data, and analyzing the information obtained. This variable received a satisfied rating, indicating that respondents found the application easy to use and accessible.

5. Timeliness Variable

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This variable measure user satisfaction with the system's timeliness in presenting or providing the information they require. A real-time system processes each request or user input immediately and displays the results quickly without requiring a long wait time. In this variable, respondents provided a fair value. This can be interpreted as indicating that respondents' time required to obtain information from the PK3 Application is sufficient. Furthermore, the novelty of the information in the PK3 Application is deemed sufficient because this application is offline and therefore cannot update the information provided on a regular basis.

## 5. CONCLUSION

Based on the research findings, the overall level of user satisfaction of the PK3 Application is at an average value of 3.14 which is at level 4 (satisfied), indicating that according to the perceptions of respondents in general, the PK3 Application is satisfactory. In the future, the PK3 application will be able to connect directly with the Referral Hospital contact, making the PK3 application online / cloud-based and allowing the information provided to be regularly updated**.**

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