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EARLY DETECTION OF PREGNANT WOMEN WITH STUNTING INCIDENTS BASED ON THE EARLY DETECTION INFORMATION SYSTEM, HIGH RISK, ISLANDS MATERNAL REFERRAL SYSTEM (SIDILAN)

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ABSTRACT
One of the nutritional issues that toddlers face in today's society is the prevalence of short toddlers, often known as stunting. South Asia accounted for the biggest percentage of Asia's 83.6 million stunted toddlers (58.7%), while Central Asia had the lowest percentage (0.9%). The urgency of this research is the high number of stunting cases in Indonesia, where various risk factors for stunting since pregnancy are one of the focus problems that need to be considered. This study aims to determine the risk of stunting early in pregnant women through the SIDILAN early detection application. FGD and preliminary research are the first steps in the process, after which an application feasibility test is conducted. small sample user trials, followed by a quasi-experiment (pre-test post-test approach) to conduct further study. Pregnant Women with Stunting Incidents: An Early Detection Application Based on the High-Risk Early Detection Information System for Pregnant Women Referral System for the Islands (SDILAN) is an effective early detection tool for stunting in pregnant women, as shown by the p value = 0.000 from table 3 above which is smaller. Application SDILAN is thought to be more successful for monitoring and planning pregnant women because it can be completed anywhere and offers direct guidance from medical professionals. In the area of maternity and child health technology, this is also consistent with the medium-term development goals, which place an emphasis on early identification to deliver high-quality services to lower morbidity and mortality.

Keywords: application; healthworkers; pregnant women; stunting

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INTRODUCTION

Between 2005 and 2017, the average percentage of Indonesian toddlers who were stunted was 36.4% (Dewey, 2016). The Maternal Mortality Rate (MMR) and Stunting indicators are considered to have fallen short of the designated targets based on the findings of a review conducted by Bappenas on the achievement of the RPJMN target indicators in the health sector. In 2024, the MMR is predicted to be 244 per 100,000 KH. The anticipated prevalence of stunted toddlers in 2024 will be 16.1%, which is still far from the aim of 14%, and this number is still far from the target of 183 per 100,000 KH. Furthermore, 24% of Indonesians still suffer from stunting (Kasmita et al., 2023). It's common knowledge that the first 1000 days of life are the best time to maximize growth and avoid stunting. It's equally crucial to make sure you're getting enough nourishment before getting pregnant. When a toddler is stunted, they are shorter than average for their age (Akbar et al., 2023). Body length or height that deviates more than minus two standard deviations from the WHO child growth standards median is used to diagnose this disease. An rise in mortality and morbidity rates is one of the short- to long-term impacts of stunting. Along with raising the risk of infection and non-

communicable diseases, stunting can also affect a child's poor development and learning capacity. These dangers have an impact on the child's future (Fitri et al., 2024).
Because stunting in children must be prevented from the beginning of pregnancy, the government continues to prioritize preventing stunting in pregnant women. During their toddler years, children that have growth issues while still in the womb are susceptible to stunting. Stunting must therefore be prevented at a young age, even during pregnancy (Ernawati et al., 2024). Meeting nutritional needs from pregnancy onward is one of the measures the Republic of Indonesia's Ministry of Health has put in place to prevent stunting. Because the Ministry of Health's Millennium Challenge Health Institute study advises pregnant women to always eat wholesome food and supplements, this action is comparatively effective. In order to support the growth of the fetus, the mother's nutritional needs will rise throughout pregnancy. Pregnant women have 13% higher energy needs than non-pregnant women, and their protein needs are 54% higher during pregnancy and lactation (Bwalya et al., 2015).

The issue identified in this study is the high prevalence of stunting in Indonesia, where a number of risk factors for stunting after pregnancy have emerged as important issues that require attention. According to a number of hypotheses and studies, pregnant women's age, arm circumference, hemoglobin levels, parity, birth interval, height, weight, and body mass index are risk factors for stunting during pregnancy. In an attempt to stop stunting in the future, it is believed that using technology to detect stunting early on will provide an option to doing early detection and giving pregnant women the right advice. Using a web-based tool to detect pregnant women's risk of stunting early is one way to avoid stunting. The goal of this study is to produce media detection products in the form of applications that are intended to identify stunting risks for children. The development research refers to the Borg and Gell research methodology. The first stage uses FGD and preliminary studies. Furthermore, a feasibility test of the application and a trial of the application to users on a small scale are carried out. Finally, research is conducted using Quasi Experiment (pre-test post-test design).

METHOD

This research has gone through the ethical testing stage by the Health Research Ethics Commission of the Ministry of Health of the Ministry of Health in Pangkalpinang No. 11/EC/KEPK-PKP/VIII/2024. From May to October 2024, the study was carried out in the Tanjung Pinang and South Bangka Regencies. Thirty pregnant women participated in the operational product field testing study. During the respondent stage, the respondent installs the program and analyzes its contents after having their knowledge assessed (pretest). Following their review of the application, respondents were provided with a post-test questionnaire, which they completed on their own. If the respondent's reaction to the model's practicality falls between 81 and 100%, the data analysis utilizing the practicality test is considered good (Riduwan 2010). Effectiveness will be evaluated during the operational field testing stage; if the p value is less than 0.05, it is considered effective; if it is greater than 0.05, it is considered ineffective.

RESULTS

Practicality Test Results

The purpose of the Practicality Test is to ascertain the developed product's practical capabilities. The goal of this study is to raise the standard of midwifery care. Therefore, in order to determine whether the application has been built, a practicability test is essential to this research. An ideal score of between 1-150 points will be achieved by measuring the degree of service practicality using a questionnaire consisting of 30 questions with a score

range of 1-5. These questions are connected to utility, ease of use, ease of learning, and satisfaction. Thirty pregnant ladies made up the respondents. The descriptive findings of the practicability test data used in this study are shown in the table below:

Table 1.
Practicality Test of Using the Early Detection Application for Pregnant Women with Stunting Events Based on the Early Detection Information System, High Risk, Archipelago Maternal Referral System (SDILAN)

Practicality test	f	%
Good	27	90
Deficient	3	10

Based on the results of the practicability test, it was found that the majority of respondents stated that the use of this application was good, 27 people (90%).

The Normalcy Test

Because there were only 30 samples (n <50) in this study, the researcher used Shapiro-Wilk to perform a data normalcy test before beginning bivariate analysis.

Table 2.
Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN) Normality Test of Early Detection Application for Pregnant Women with Stunting Incidents

	Statistic	*P value*
Pre Test	0,844	0,000
Post Test	0,469	0,000

The significant value of p<0.05, which indicates that the data does not exhibit a normal distribution, as described in Table 2 above. The researcher then does statistical analysis using the Wilcoxon test because the data is not regularly distributed.

Using the Wilcoxon test to analyze the findings of the Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN)-based Early Detection Application for Pregnant Women with Stunting Incidents.

Table 3.
Based on the Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN), the efficacy of using an early detection application for pregnant women with stunting incidents

Efektivitas	N	Mean	∑ Mean	SD	*P value*
Pre Test	30	66.03	78	7.724	.000
Post test	30	144.03		6.457	

The Early Detection Application for Pregnant Women with Stunting Incidents Based on the Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN) is an effective early detection tool for stunting in pregnant women, as indicated by the p value = 0.000 from table 3 above, which is less than the α value = 0.05.

DISCUSSION

Healthcare Application Developers are IT professionals responsible for creating software solutions that help improve the quality of healthcare services. These include applications for hospitals, clinics, physician practices, laboratories, as well as patient-facing healthcare applications such as telemedicine and personal health management (Dasho et al., 2022).

Information technology (IT) applications in healthcare provide physicians with health-related information and tools, such as clinical decision support systems. This software is expected to reduce the potential for medical errors in any healthcare facility and improve the quality of patient care (Dittrich et al., 2023).

The Early Detection Application for Pregnant Women with Stunting Incidents Based on the Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN) is an effective early detection tool for stunting in pregnant women, as indicated by the p value = 0.000 from table 3 above, which is less than the α value = 0.05. The effectiveness of mobile health applications (mHealth), which are generally accessible, inexpensive, and can promote healthy behavior, is further confirmed by research findings. This also demonstrates how mHealth applications function, whereby information from multiple sources is integrated into a smartphone application to offer direction and counsel to patients, healthcare providers, and healthy individuals (Dittrich et al., 2023).

Mobile phone apps are multipurpose and have sophisticated functionality. There are certain health-related smartphone apps that could be helpful in a number of clinical settings. According to (Iribarren et al., 2021), the success rate of these applications varies depending on how easy they are to learn and utilize. Obstetrics-related applications are a significant component of health service applications, which effectively contribute to the provision of suitable maternal and pediatric health services. Maternal death rates are significantly higher in underdeveloped nations, despite initiatives to enhance maternal and child health in these areas (Perry et al., 2017).

The warning signals that women encounter during pregnancy, childbirth, and the postpartum period are known as pregnancy danger indicators (Shamanewadi et al., 2020). Women and medical professionals should be aware of these warning indicators in order to rule out significant consequences and begin treatment right away. One of the primary reasons of maternal death is ignorance of pregnancy danger indicators (Dessu, Gedamu, and Tamiso 2020). Pregnant Women with Stunting Incidents: An Early Detection Application Because it can be completed anywhere and receives real-time suggestions from medicalprofessionals, the Early Detection Information System, High Risk, Maternal Referral System for the Islands (SDILAN) is thought to be more effective for monitoring and planning expectant mothers. This is also consistent with the medium-range development goal, which emphasizes early identification to offer high-quality services to lower morbidity and death in mother and child health technology.

CONCLUSION

The Early Detection Application for Pregnant Women with Stunting Incidents Based on the Early Detection Information System, High Risk, Maternal Referral System of the Islands (SDILAN) is an effective early detection tool for stunting in pregnant women, as indicated by the p value = 0.000 from table 3 above, which is less than the α value = 0.05. Pregnant Women with Stunting Incidents: An Early Detection Application Because it can be completed anywhere and receives real-time suggestions from medical professionals, the Early Detection Information System, High Risk, Maternal Referral System for the Islands (SDILAN) is thought to be more effective for monitoring and planning expectant mothers. This is also consistent with the medium-range development goal, which emphasizes early identification to offer high-quality services to lower morbidity and death in mother and child health technology.

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