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Optimizing the SAKTI application to raise reproductive-aged mothers' literacy levels about stunting

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ABSTRACT

Stunting is one of the main health issues faced in Indonesia, especially among children under five years old. Factors related to the mother that cause stunting include poor nutritional status during pregnancy, short maternal stature, and inadequate parenting practices, especially in terms of feeding behavior and practices for the child, as well as low access to healthcare services. Mothers with good nutritional knowledge can provide food with the right types and amounts to support the growth and development of toddlers. The lack of maternal knowledge about nutrition is likely due to the ineffectiveness of efforts to promote awareness about stunting prevention.This community service program aims to increase public understanding of stunting. The method used is Focus Group Discussion (FGD). The results of the activity show an increase in community knowledge about stunting based on the pre-test and post-test results. These findings indicate that the intervention in the form of education based on the SAKTI application within the community is effective in reducing the risk of stunting. This program is expected to become a model that can be replicated in other villages with similar conditions.

1. INTRODUCTION

Stunting is a condition where growth is hindered due to malnutrition and health disorders. Stunting is the result of chronic or repeated malnutrition during pregnancy and early childhood[1]. Children who experience stunting may never reach their maximum height or full cognitive potential. Children who experience stunting not only have lower incomes as adults due to facing fewer difficulties in school, but also have a higher risk of being overweight and obese compared to children of normal height. Childhood stunting reflects stunting in children under the age of 5 due to chronic malnutrition, which causes the child to be too short for their age[2].

Data on the prevalence of stunted children collected by the World Health Organization (WHO) shows that Indonesia ranks as the third country with the highest prevalence in the Southeast Asia Regional (SEAR). The World Health Organization or WHO (2021) stated that the global prevalence of stunting reached 22% or 149.2 million cases in 2020. By 2022, the stunting rate in Indonesia had decreased by 2.8%, amounting to 21.6 million cases, down from 37.6 million cases in 2018. South Sumatra ranks third among the provinces in Indonesia with a decrease in stunting cases reaching 18.6 million in 2022[3].

The causes of stunting can generally be

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divided into two categories: direct and indirect causes. The direct causes are the insufficient amount of food consumed and the presence of infections suffered. Indirect causes include inadequate parenting, lack of environmental cleanliness, cultural practices that do not align with health, inaccessible healthcare services, and insufficient food availability[4]. Another indirect cause is the family's socio-economic conditions, which include the family's income, the parents' education level, the number of family members, and the mother's knowledge about nutrition[1].

Many factors are associated with the occurrence of stunting. One of the risk factors affecting the incidence of stunting in toddlers is the nutritional status of the mother during pregnancy. The high rate of malnutrition among pregnant women contributes to the high prevalence of stunting in Indonesia, which is estimated to affect 350,000 infants each year[5]. Pregnant women with poor nutritional status will more easily feel weak, tired, lethargic, and have decreased appetite, resulting in insufficient nutrient intake. When their appetite decreases, pregnant women are more likely to experience anemia. Pregnant women who experience anemia result in reduced oxygen supply to body cells and the brain.

Iron deficiency can affect linear growth because iron is a type 2 nutrient needed in the growth and development process of children as a key ingredient in tissue formation. Iron can also increase Insulin-like Growth Factor (IGF), which will accelerate bone growth. That is why if a pregnant woman experiences iron deficiency anemia, which results in a decrease in IGF concentration, it can lead to suboptimal nutrient transport from the mother to the fetus, causing the growth and development of the fetus to be suboptimal as well. In this case, IGF functions to deliver growth hormones that play a role in a growth-promoting factor. If this occurs during the third trimester, the risk of premature birth or low birth weight (LBW) is 3.7 times greater compared to pregnant women in the third trimester without IGF[5].

Other maternal factors include poor nutritional status during pregnancy, short maternal stature, and inadequate parenting, especially in terms of behavior and feeding practices for the child [6]. Mothers who had poor nutrition during their teenage years, even during pregnancy, which leads to low birth weight infants, and breastfeeding with exclusive breastfeeding will greatly affect physical growth. Other factors that cause stunting include infections in the mother, teenage pregnancies, short birth intervals, infections in toddlers such as diarrhea, economic conditions, family occupation, and livelihood. This situation further complicates the management of growth disorders, ultimately increasing the risk of stunting. In addition, limited access to healthcare services, including sanitation and clean water, is one of the factors that significantly affect children's growth[7].

Mothers with good nutritional knowledge can provide food with the right types and amounts to support the growth and development of toddlers, so knowledge is an internal factor that influences behavior change. The lack of maternal knowledge about nutrition is likely due to the ineffectiveness of efforts to promote knowledge about stunting prevention. Health promotion efforts can be carried out through counseling using a media. The purpose of this counseling is to determine the influence of health promotion media in increasing mothers' knowledge about stunting, so that it is hoped that the community can start

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adopting a healthy lifestyle as an effort to prevent stunting.

Considering the significant impact caused by various women's health issues in the community of Teluk Kecapi Village, based on the analysis of the conducted study, it is necessary to take concrete steps to improve women's welfare through direct stunting prevention counseling. Based on the analysis results, educational media was conducted using the SAKTI application, an innovative application created with Glideapp that displays information for stunting prevention. The application contains knowledge about stunting, including its definition, risk factors, signs, impacts, prevention, and management, as well as recommended recipes that can be made into meals for toddlers. The service team collaborates with the community through the involvement of cadres and community leaders to implement a stunting prevention counseling program for women in Teluk Kecapi Village. This activity is expected to help improve the health status of women in the Pemulutan District, Teluk Kecapi Village.

2. METHODE

This community service activity is an outreach program for pregnant and breastfeeding mothers aimed at providing women with knowledge about the importance of early stunting prevention using the SAKTI application, conducted in Teluk Kecapi Village. This activity is also expected to be a first step towards increasing knowledge and early prevention of stunting. The target audience for this activity is pregnant women and mothers with toddlers. This counseling activity was conducted on October 5, 2024.

The method used in this community service is a Focus Group Discussion (FGD) with pregnant women about prevention and how to assess or conduct early detection of stunting in toddlers using data collection techniques with the aim of determining the necessity or otherwise of this prevention counseling activity. This activity was conducted by grouping pregnant and breastfeeding mothers, guided by facilitators from the community service team. Then it was started with a brainstorming session about stunting by the community service team. After the brainstorming session, the activity continued with distributing the Sakti application software to the FGD members. The service team ensured that all the mothers installed the SAKTI application on their Android devices. After it was felt that everyone had installed it, the introduction of the SAKTI application and an explanation of its contents followed. This service team consists of six people, and each team member ensures two FGD members to help them understand the contents of the SAKTI application.To avoid confusion at home, the team also prepared material explanations for the participants using leaflets and explained the features and how to use the SAKTI application. The final stage of the intervention is the question and answer session.The evaluation conducted on this activity is a process evaluation and an impact evaluation. Part of the process evaluation is seen from the analysis of pre-test and post-test data to determine whether there is a change in understanding about the prevention and methods of assessing or early detection of stunting in toddlers. The impact evaluation analysis, seen from the increase in knowledge, was also conducted through interviews with village officials and local midwives regarding the outreach event in Teluk Kecapi Village and participants one month after the activity. The target participants were 30 people, who would be divided into at least 3 FGD sessions.

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3. RESULTS AND DISCUSSION

The empowerment activities that have been carried out using the SAKTI application in Indonesian language among the community of Teluk Kecapi Village. The community felt happy participating in the training because they practiced using the application directly, not just listening to a seminar. The respondents of this activity are women of childbearing age between 25 and 41 years old and mothers with toddlers, totaling 34 people. Group 1 consists of 12 people, while groups 2 and 3 each consist of 11 people. The respondents' average education level is Senior High School. In addition, the SAKTI application has been installed by village officials and village midwives, making it easier for them to disseminate this application. Because this application does not require an internet signal to download it.

Figure 1. Initial page of the SAKTI application media

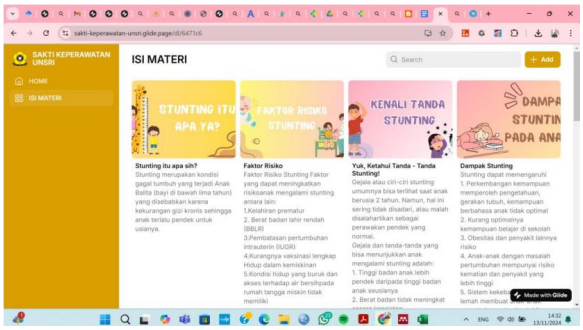
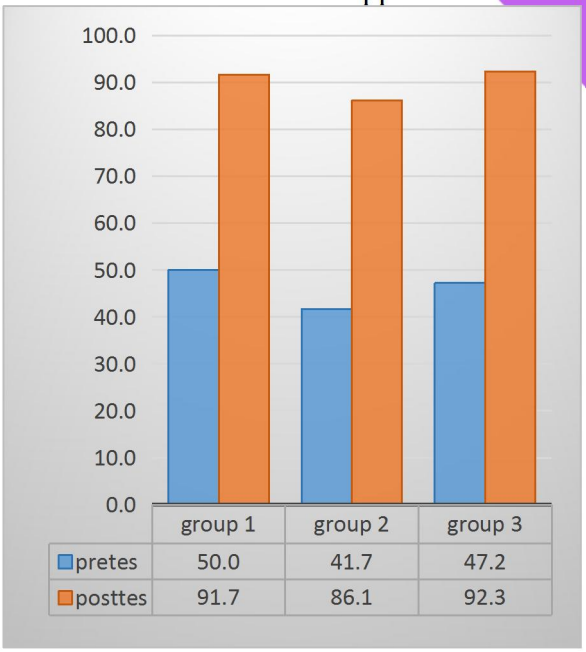


Figure 2. The content section of the SAKTI application

Community empowerment activities using the SAKTI application improved respondents' knowledge about stunting, as shown in the following pretest and post-test graphs.

Graph 1: Pre-test and post-test graph of the Teluk Kecapi community before being educated with the SAKTI Application



	group 1	group 2	group 3
pretes	50.0	41.7	47.2
posttes	91.7	86.1	92.3

The average pre-test score of group 1 showed the highest value at 50, while the highest post-test score was group 3 with a value of 92.3. This indicates an improvement in understanding after the health education intervention was conducted. Interviews conducted with midwives and village officials about the SAKTI application have committed to disseminating it to the entire community in the village of Teluk Kecapi. On the side of the FGD participants, they said that all of them have already disseminated this application to their families and neighbors.

The use of FGD is deemed appropriate because, based on previous research, group guidance is conducted when the problems faced by several students are relatively similar or interconnected, and they are willing to be served in a group setting[8]. In this service, the focus is on preventing

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stunting, targeting pregnant and breastfeeding mothers who play the same role in caring for their children later. The use of FGD can also better focus on the issues because the topics that develop are group topics, and the number of FGD members is limited, making it more controlled in providing health education.

Figure 3. Implementation of FGD Group 1

Figure 4. Documentation of community empowerment with the SAKTI application

This result is in line with the previous community service, which showed an increase in pregnant women's understanding of prevention, assessment methods, and early detection of stunting in toddlers[9]. This community empowerment activity is in line with the previous health counseling activities, where the students of MA Permata gained a better understanding of stunting and its relation to reproductive health, as well as ways to prevent stunting[10].

The provision of education regarding stunting is more engaging and interactive because it uses the SAKTI Application and accompanying media, namely Leaflets. The use of the SAKTI Application in providing stunting information is in line with previous research that explains the impact on groups educated using the Stunting Prevention Application (Ceting)[11]. Previous research also showed that after education, there was a significant increase in mothers' knowledge and positive attitudes regarding child nutrition[12]. The combination of media also shows that the selection and use of innovative educational media have a positive impact on community knowledge. This is in line with previous literature studies that efforts to increase knowledge among pregnant and breastfeeding mothers about toddler stunting can be carried out through print and electronic media, and a combination of media can enhance information absorption[13].

4. CONCLUSION

The results show that there is an influence between health education with the SAKTI Application and accompanying media, namely leaflets, on the knowledge of the Teluk Kecapi village community. This health education program is expected to be continuously developed and implemented in various communities to enhance public understanding and knowledge regarding the importance of stunting prevention as part of efforts to prevent stunting in pregnant and breastfeeding mothers. The SAKTI application has also become a commitment of midwives and village officials to disseminate it to the entire community during every posyandu session.

5. ACKNOWLEDGMENTS

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