

Research Article



BREAKING THE CHAIN OF STUNTING EARLY THROUGH MATERNAL HEALTH CARE BASED ON LOCAL COASTAL WISDOM KENDARI CITY

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ABSTRACT

Background:

Stunting is a widespread health problem and needs to be a priority in achieving Indonesia's Golden Age. One cause is the low level of knowledge among pregnant women regarding the use of local foods. Therefore, it is necessary to break the chain of stunting early through education and regular health check-ups. Purpose: To determine the effect of local wisdom-based health assistance on knowledge, eating habits, and fetal heart rate (FHR) in pregnant women.

Methods: The study used a quasi-experimental design with a two-group pre-post test. The sample consisted of 21 pregnant women in the coastal area of Kendari City, divided into 21 intervention groups and 21 control groups. The intervention provided was health assistance (education and regular health check-ups). The instruments used were questionnaires and fetal Doppler. Data were analyzed using the Mann-Whitney test.

Results: Knowledge scores increased by an average of 15 before the intervention and 19 after the intervention. The control group's knowledge score before the intervention averaged 17 and 17 after the intervention. Eating habits in the intervention group averaged 289 before the intervention and 300 after the intervention. The control group's eating habits averaged 252 before the intervention and 264 after the intervention. Fetal heart rate in the intervention group increased from 133 before treatment to 143 after treatment. The control group's pre-test average was 137 and post-test average was 142. The Mann-Whitney test results showed a p-value of 0.000 < 0.05 (knowledge), a p-value of 0.006 (eating habits), and a p-value of 0.004 (fetal heart rate).

Conclusion: Local wisdom-based health assistance impacts knowledge and eating habits, as well as fetal heart rate.

Keywords: *Stunting, Pregnant Women, Knowledge, Eating Habits*

INTRODUCTION

Stunting is a trending health problem in Indonesia and can be detected when a child's height is not commensurate with the height of other children their age (1,2). The short-term impacts of stunting include suboptimal cognitive, motor, and verbal development and increased morbidity and mortality. Long-term impacts include stunted growth, the risk of degenerative diseases, decreased reproductive health, and low productivity and work capacity (3,4).

The global incidence of stunting has reached 148.1 million (22.3%) (WHO, 2025). One of the targets of the 2030 Sustainable Development Goals (SDGs) is stunting, which aims to end malnutrition and prevent stunting. However, three-quarters of children worldwide are stunted (5–7). Indonesia's target for stunting reduction by 2024 is 14%, but the stunting rate in 2024 remains high at 21.5% (8,9). Similarly, the prevalence of stunting in Southeast Sulawesi and Kendari City in 2023 remained in the top 10 at 27.7% and 28.3%, respectively (10,11). Stunting can occur before birth, as evidenced by the 2022 National Survey of Nutritional Health (SSGI), which found that 18.5% of babies were born with a height of less than 48 cm (12). Therefore, adequate nutrition during pregnancy is crucial for preventing stunting and achieving Indonesia's golden age in sustainable development.

Geographically, stunting sufferers in Kendari City reside in coastal areas, making access to local, high-protein foods easy, yet stunting prevalence remains high. Therefore, it is crucial to implement innovative maternal health support programs based on the local wisdom of coastal communities, specifically the culture of consuming foods high in animal protein, such as fish. Local maternal knowledge in improving nutritional

intake refers to traditional practices developed in a region and passed down through generations related to meeting maternal nutritional needs during pregnancy. These practices are typically based on experience, cultural values, customs, and local understanding. Health support can serve as a platform for disseminating information about nutrition and health during pregnancy, serving as an educational tool to broaden mothers' knowledge and skills regarding prenatal care and also focusing on nutritional support to prevent stunting.

Health education significantly influences knowledge (13,14). Lack of education can lead to many family members experiencing stunting (15,16). In addition, the health of pregnant women and fetal development are greatly influenced by the mother's understanding of consuming nutritious food (17,18), so that education is very important to increase the mother's knowledge in choosing the right food based on local wisdom to meet the nutritional needs of the fetus and mother during pregnancy (19–21). Pregnant women also need to consume foods high in iron during pregnancy, so education about foods high in iron and consuming Fe tablets is very important in increasing the nutritional intake and blood hemoglobin levels of pregnant women (22–25).

The main problem in this study is the high incidence of stunting in Kendari City. Kendari City is a coastal area with easy access to local protein sources, such as fish. However, the prevalence of stunting remains high. One cause is a lack of knowledge among pregnant women about the use of local foods. Furthermore, pregnant women in coastal areas are rarely exposed to stunting-related research, resulting in a lack of understanding of stunting prevention,

particularly regarding choosing the right food for the fetus and mother. Therefore, a possible solution is to use a nursing approach in the form of health assistance through education and regular health checks. This is expected to increase knowledge, habits of local food consumption, and maintain a normal fetal heart rate.

Breaking the chain of stunting is carried out early in pregnant women through health assistance. The implementation of this study will include intensive education on the importance of nutritious food based on local coastal foods, such as fish, and regular health checks for pregnant women, including vital signs such as blood pressure, temperature, pulse, respiratory rate, and weight. This assistance program is provided routinely and continuously to maintain the health status of pregnant women and prevent stunting. Health assistance by utilizing local food has never been carried out in the coastal areas of Kendari City, in addition to that, health assistance since pregnancy is still rarely found, therefore, this assistance is very important to be implemented in order to increase knowledge, local food consumption habits, blood hemoglobin levels, maintain fetal heart rate and vital signs of pregnancy as well as the weight of pregnant women in normal conditions. The aim of this study was to determine the effect of local wisdom-based health assistance on knowledge and habits of local food consumption and fetal heart rate in pregnant women in the coastal areas of Kendari City.

MATERIAL AND METHODS

This study used a quasi-experimental study with a two-group pre-post-test design, using two sample groups: the intervention group and the control group. The intervention group was observed before the

intervention, then observed again after the intervention. (27,28) The population of this study was all 114 pregnant women with chronic energy deficiency (CED) registered in the coastal area of Kendari City from January to March 2025.

The sample consisted of 42 pregnant women with CED obtained using cluster random sampling. (29) The intervention sample consisted of 21 pregnant women who received health assistance, while the control sample consisted of 21 pregnant women who did not receive health assistance, with matching based on maternal education. This study was conducted from July to August 2025 in the coastal area of Kendari City, within the working area of the Poasia Community Health Center. Data collection: Knowledge and habits of consuming local coastal foods were collected using a valid and reliable questionnaire. Fetal heart rate was measured using a digital fetal droplet device to detect fetal heart rate. The intervention provided was Intervention (health assistance) provided in the form of education on the importance of utilizing high-protein local foods given for 2 months with booklets and flyers and periodic health checks, namely checking the fetal heart rate and vital signs of pregnant women (blood pressure, temperature, pulse, respiration).

Data analysis used the Shapiro Wilk normality test and was analyzed using the Mann Whitney U test because the data was not normally distributed (p value <0.05) (26). This study has passed ethical testing from the health research ethics commission of the IAKMI Sultra Regional Executive with the Ethical Clearance number 140 / KEPK-IAKMI / VIII / 2025.

RESULTS

Respondent's Characteristics

The sample characteristics in this study included maternal age, gestational age, education, and occupation. Specifically, these are shown in Table 1 below:

Table 1. Characteristics of Mothers with Toddlers in Coastal Areas of Kendari City.

Variable	Characteristics of Mothers Who Have Toddlers			
	Intervention		Control	
	n (21)	%	n (21)	%
Mother's Age (Years)				
Median (Min-Max)	28 (17-41)		28 (22-41)	
Number of children				
Median (Min-Max)	2 (1-6)		2 (1-5)	
Gestational Age				
Median (Min-Max)	22 (16-28)		23 (5-40)	
Mother's Education				
Junior high school	2	9,5	2	9,5
Senior High School	9	42,9	9	42,9
Strata 1	10	47,6	10	47,6
Mother's Occupation				
Civil servant	3	14,3	5	23,8
Honorary employee	1	4,8	2	9,5
Self-employed	1	4,8	1	4,8
Housewife	16	76,2	13	61,9

Table 1 shows that of the 35 samples in the intervention group, the average age was 28 years, with the lowest age being 17 years and the highest age being 41 years. Similarly, in the control group, the average age was 28 years, with the lowest age being 22 years and the highest age being 41 years. Furthermore, the number of children in the intervention and control groups was 2, and the gestational age was in the second trimester, with 22 weeks in the intervention group and 23 weeks in the control group. Based on maternal education, the majority of mothers in both the intervention and control groups were bachelor's degree graduates (47.6%). Furthermore, the majority of mothers in both the intervention and control groups were unemployed, namely housewives (76.2% and 61.9% in the control group).

The Effect of Health Assistance on the Knowledge and Eating Habits of Pregnant Women

Table 2. The Effect of Local Wisdom-Based Health Assistance on the Knowledge and Eating Habits of Pregnant Women in the Coastal Area of Kendari City.

Variable	Intervention (n=21)		Control (n=21)		p value (Normalitas)
	Mean (Min-Max)	SD (Median)	Mean (Min-Max)	SD (Median)	
Knowledge					
Pre Test	15 (12-20)	2,2 (15)	17 (14-20)	1,62 (16)	
Post Test	19 (17-20)	0,8 (20)	17 (14-20)	1,77 (17)	
Selisih	10 (-15-39)	2,4 (4)	0,71 (6-)-2)	1,3 (0)	0,001
p value*	0,000				
Food Habits					
Pre Test	289 (190-460)	66,4 (280)	252 (145-425)	89,6 (240)	
Post Test	300 (210-465)	64 (285)	264 (145-490)	98,8 (240)	
Selisih	56 (0-242)	59 (45)	0,7 (-2-4)	1,4 (0)	0,000
p value*	0,006				
Fetal Heart Rate					
Pre Test	133 (115-150)	11,3 (130)	137 (110-156)	12,2 (136)	
Post Test	143 (130-156)	7,4 (140)	142 (120-155)	9,5 (145)	
Selisih	3,4 (-20-25)	9,9 (10)	5,3 (-20-25)	9 (5)	0,004
p value*	0,042				

* Mann-Whitney U-Test

Table 2 shows the results of a comparative analysis between the intervention and control groups regarding knowledge, eating habits, and fetal heart rate. For the knowledge variable, the intervention group averaged 15 before the intervention (pre-test) and 19 after the intervention (post-test). The median difference in knowledge scores in the intervention group was 10 points. Meanwhile, in the control group, the average knowledge score before the intervention was 17 and remained at 17 after the intervention. The median difference in knowledge scores in the control group was 0 points. The Shapiro-Wilk test for normality of the data on the difference in knowledge yielded a p-value of 0.000, indicating that the data were not normally distributed.

The Mann-Whitney U-Test results indicated a significant difference between the

intervention and control groups, indicating that local wisdom-based health assistance can improve the knowledge of pregnant women in the coastal areas of Kendari City. Eating habits in the intervention group, the eating habits score before the intervention had an average of 289 and after the intervention increased to an average of 300. In the control group, the eating habits score before the intervention averaged 252 and after the intervention became an average of 264. The normality test of the data on the difference in knowledge using the Shapiro Wilk test obtained a p value of 0.006, so the Mann Whitney test was carried out which showed that there was a significant difference between the intervention and control groups with a p value = 0.006 which means that local wisdom-based health assistance can improve eating habits in pregnant women in the coastal area of Kendari city.

Fetal Heart Rate in the intervention group, obtained an average before treatment of 133 and increased to 143 after treatment, with a median difference of 9, then in the control group, the average pre-test value was 137 and post-test 142 with a median difference of 9. The results of the Mann Whitney U test showed a significant difference with a p value = 0.004, which means that local wisdom-based health assistance can increase fetal heart rate in pregnant women in the coastal areas of Kendari City.

DISCUSSION

The study results show that local wisdom-based health assistance can improve the knowledge and dietary habits of pregnant women in the coastal areas of Kendari City. This is demonstrated by the significant differences between the intervention and

control groups, both in terms of knowledge and dietary habits. These findings confirm that a contextual and culturally appropriate intervention approach in coastal communities can positively impact maternal health.

The improvement in pregnant women's knowledge is influenced by information delivery methods that integrate local wisdom, such as the use of everyday language, symbols, and examples of practices familiar to coastal communities. Knowledge acquired contextually makes it easier for pregnant women to understand and remember health messages and reduces resistance to new information that may be perceived as countercultural. This aligns with health education theory, which states that learning will be more effective when tailored to the social and cultural backgrounds of students (27).

Furthermore, improvements in the eating habits of pregnant women are also clear evidence of the success of a local wisdom-based approach. By utilizing easily accessible local coastal foods, such as fish, seafood, and local vegetables, health mentoring not only provides information but also encourages practical implementation in daily life. Communities are more likely to adopt healthy eating patterns when they are based on locally available, affordable, and familiar food sources. This approach is also relevant to the principle of locally based food security, where the use of local resources is more sustainable (28). A local wisdom-based approach has been shown to connect modern health messages with existing traditional values, making them more easily accepted and practiced.

This finding is consistent with previous research by Kusumadewi et al. in 2025, which found that prenatal classes effectively

increased understanding of stunting prevention. In addition to providing education, this program encouraged pregnant women to be more aware of prenatal checkups, nutritious diets, and care during pregnancy (29). Similarly, Raflizar's research (2025) found that there was an influence of WEB-KPS-based family assistance on the knowledge and attitudes of pregnant women in preventing stunting (30). Likewise, Hernayanti et al.'s research (2025) conducted assistance by a family assistance team (TPK) on stunting prevention behavior and found an increase in the average score of stunting prevention behavior after assistance (31). Thus, local wisdom-based health assistance not only improves pregnant women's understanding of the importance of health and nutrition but also promotes real changes in eating habits, ultimately contributing to maternal and fetal health.

Research on fetal heart rate also showed an increase in fetal heart rate (FHR) in the group of pregnant women who received local wisdom-based health assistance compared to the control group. This change was demonstrated by a statistically significant difference. This suggests that intensive and contextual health assistance can contribute to the physiological stability of pregnant women, which indirectly impacts fetal well-being.

According to obstetric physiology theory, fetal heart rate is a vital indicator reflecting fetal oxygenation and well-being in the womb. Maternal conditions, including nutritional intake, stress, physical activity, and overall health status, can influence FHR variations (32). Effective health education can increase maternal knowledge, improve nutritional behavior, and reduce stress factors through self-confidence and social support obtained during mentoring (27).

Thus, local wisdom-based interventions not only impact maternal knowledge and eating habits, but also affect fetal physiology.

Previous research supports these findings. A 2019 study by Rohani et al. showed that maternal health education through a local cultural approach can improve regular nutritional intake, which impacts fetal health profiles, including fetal heart rate stability (33). Similarly, a study by Wahyuni et al. (2025) found that a local wisdom-based maternal mentoring program in coastal communities encouraged increased consumption of nutritious local foods (such as fish and sea vegetables), which is associated with fetal growth and fetal heart rate stability (34).

Furthermore, health communication theory emphasizes that health messages delivered through a cultural approach are more easily understood and accepted by the community (35,36).. This strengthens the intervention's effect because pregnant women perceive the messages as aligned with their values and customs. In the coastal context of Kendari City, the use of local language, symbols, and examples of food and health practices made mentoring more effective in reducing anxiety, increasing motivation, and maintaining maternal physiological balance. Therefore, it can be concluded that local wisdom-based health mentoring plays a crucial role in improving maternal knowledge and dietary habits, which ultimately has a positive impact on fetal well-being, including improving and stabilizing fetal heart rate.

CONCLUSION

Local wisdom-based health care has an impact on knowledge and eating habits, as well as fetal heart rate. This means that health care can improve pregnant women's

knowledge and eating habits and increase fetal heart rate. Future researchers are advised to examine other variables, such as maternal weight and nutritional status.

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