NUTRITION *FLIPBOOK* -BASED EDUCATION ON PREGNANT WOMEN'S ATTITUDES TO PREVENT *STUNTING*

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Abstract

Background : Nutrition for 1,000 lives First will filled since child in content until child 2 years old . Negative attitude so inhibitor Because Mother pregnant No know nutrition . *Flipbook* : information media interesting *audio and visual* . **Objectives** : For know effectiveness education based *flipbook* 1,000 days of nutrition First life to attitude Mother pregnant in prevention *stunting* . **Method** : Type of research quantitative , design *quasi- experiment* t design *two group pre post test design* . Population: 50 pregnant women undergoing *antenatal care at the Medan Denai Community Health Center from January to March 2025. The sample is an inclusion of gestational age <32 weeks, willing to be respondents as many as 40 people. Total sampling technique* : A sample of 40 pregnant women was divided into 2 groups: treatment and control using simple random *sampling* . Research location: Medan Denai Community Health Center. Time: June-September 2025. Pre and post data analysis: *Wilcoxon test* , for comparison of treatment and control after education using the Mann Whitney test . **Results** : Treatment: before min- max 13-28 mean 20.90, after min -max 30-35 mean 32.40. Wilcoxon test 0.000. Group control before min- max 12-26 mean 18.45 after min- max 14-27 mean 20.35 Wilcoxon test 0.001. Comparison after the second Mann test group Whitney significant value 0.000 < 0.05 then change attitude group treatment more tall than group control . **Conclusion** . Education based *flipbook* effective to change attitude Mother pregnant become positive in prevention *stunting* .

Keywords : Education , *flipbook* nutrition , attitude , mother pregnant , *stunting*

INTRODUCTION

Stunting is a condition of growth failure due to chronic malnutrition and repeated infections, especially in toddlers. This indicates that the child's height is not appropriate for his age. (Goals 2024) The first 1,000 days of life are a very important period in child development, where this period is also called the *golden period* because this is the beginning of growth and development that will affect the child until adulthood . According to WHO, *stunting* can occur due to poor nutrition in pregnant women until childhood (Goals 2024) . To prevent *stunting* , a nutrition movement was carried out in the first 1,000 days of life. This movement was adopted

from the *Scaling Up-Nutrition (SUN) Movement* . A movement directly coordinated by the UN. This movement was carried out in Indonesia with the National Movement to Accelerate Nutrition Improvement in the Framework of the First 1,000 Days of Life based on Presidential Decree number 42 of 2013 concerning the National Movement to Accelerate Nutrition Improvement (Rahayu et al. 2020) .

The WHO stated that the 2025 target would be a 40% reduction in *stunting incidence* worldwide for children aged 5 years through a good nutrition movement in the first 1,000 days of life (Weise and WHO 2023) . This is supported by previous research that *stunting* can be prevented through breastfeeding, immunization, diet, and health checks (Kurniatin and Zakiyya 2023) .

In carrying out this program, it certainly requires support from the mother as the child's closest caregiver. The mother's attitude towards nutrition in the first 1,000 days of life is very influential in changing the mother's behavior in implementing nutrition in the first 1,000 days of life. Previous research stated that there is a relationship between attitudes and maternal behavior in preventing *stunting* , this is because mothers as parents have many factors that influence the mother's attitude in providing nutrition in the first 1,000 days of life, namely parental income in fulfilling the first nutrition of life, culture and support for the mother's behavior in fulfilling it (Tendean et al. 2025) .

From other studies, it can also be seen that the mother's knowledge and age can influence the mother's attitude in fulfilling nutrition in the first 1,000 days of life, because with a mature age, the mother will be more mature in experience about implementing nutrition in the first 1,000 days of life and it will be easier to apply it to the baby she is carrying until the age of the first 1,000 days of life. This suggests that maternal attitudes can change positively when pregnant women have experience with nutrition during the first 1,000 days of life, then they will carry out these behaviors in fulfilling the nutritional needs of the first 1,000 days of life (Mirayanti and Sari 2024) .

Many things can be done to change the attitudes of pregnant women to be positive towards nutrition during the first 1,000 days of life, such as providing education using *flipcharts* , as conducted by previous researchers, which occurred in the attitudes of pregnant women to want to positively fulfill the nutrition of the child they are carrying until the end of the first 1,000 days of life (Puspita 2020) . Innovation is needed in providing education to make it easier to absorb information so that it can change attitudes in pregnant women. This is in accordance with research by Utami et al. in 2023.

Education, according to the Big Indonesian Dictionary, is the process of changing the attitudes and behavior of individuals or groups in an effort to mature themselves through training, teaching, educational processes, and methods. *A flipbook* is an educational medium containing information in the form of interesting writing accompanied by colorful images and even videos that can be attached, making it easier for pregnant women to understand *stunting* and how to fulfill nutritional needs in the first 1,000 days of life, while also knowing how to overcome

obstacles in fulfilling nutritional needs in the first 1,000 days of life. Previous research has stated that *flipbooks* can increase reading interest in pregnant women in preventing *stunting.* (Wimajaya et al. 2022) . In the 21st century, education using *flipbook media* is essential for changing the attitudes of pregnant women regarding nutritional needs during the first 1,000 days of life. Its audio-visual and electronic orientation overcomes the limitations of other media. *Flipbooks* can be read, listened to, and viewed through electronic digital devices via links shared with pregnant women (Purnomo, Agustini, and Sudatha 2024) . This is reinforced by previous research that found that assisting pregnant women using *flipbooks* effectively increases their knowledge in *stunting prevention efforts.* (Kurniatin and Zakiyya 2023) .

From a survey conducted by researchers on pregnant women in the Medan Denai Health Center work area on June 16, 2025, that out of 10 pregnant women <32 weeks, 6 people stated that they still had a negative attitude in fulfilling the nutrition of the first 1,000 days of life. 3 pregnant women expressed doubt because they could not be sure whether they still had enough costs until the first 1,000 days of life in fulfilling the nutritional needs of the first 1,000 days of life. 3 other pregnant women stated that the negative attitude was because they did not know how the nutrition of the first 1,000 days of life was both in terms of the amount of nutrition, nutritional composition and how to overcome challenges if in the situation of pregnant women who vomit during pregnancy, mothers who cannot breastfeed and fussy children who do not want to eat. Based on this, researchers are interested in conducting research "The effectiveness of *flipbook- based education* on nutrition in the first 1,000 days of life on the attitudes of pregnant women in preventing *stunting* at the Medan Denai Health Center UPT in 2025 .

METHOD

This was a quantitative with a quasi-experpasimental design with a *two-group pre-post test design.* The population of this study was all pregnant women who came for pregnancy check-ups to the Medan Denai Community Health Center with a gestational age of <32 weeks and were willing to be research respondents totaling 40 people. The sample was all pregnant women who came to the UPT Puskesmas with a gestational age of <32 weeks and were willing to participate in the study totaling 40 people (*total sampling*).

The sample was divided into 2 groups taken *randomly by simple random* . 1 group as a treatment of 20 respondents with a pre- and post-test attitude measurement study after receiving nutrition *flipbook education* for the first 1,000 days of life and 1 group of 20 respondents as a control with pre- and post-test attitude measurements given education without using nutrition *flipbook* for the first 1,000 days of life. Research Place: The study was conducted in the Working area of the Medan Denai Community Health Center.

Research Time: The research was conducted from June to September 2025. Data collection was carried out using 7 questionnaires with a score of 1 strongly disagree, 2 disagree, 3 doubt, 4 agree and 5 strongly agree. Likert scale and 1

question with a score of 1 min1-35. After the data was collected, pre and post test data analysis was carried out and a comparison test was carried out between the treatment and control groups using Mann Whitney .

RESULTS AND DISCUSSION

The results of the univariate research in this study are the characteristics of respondents, attitude scores in the control and treatment groups as shown in tables 1 and 2 as follows

Table 1. Frequency Distribution of Respondent Characteristics by Group

Variables	Group			
	Treatment		Control	
	f	%	f	%
Age				
No Risk (20-35 years)	16	80	13	65
At risk (<20 and >35 years)	4	20	7	35
Total	**20**	**100**	**20**	**100**
Pregnant				
First Pregnant	7	35	5	25
Multi Pregnant	12	60	14	70
Grande Multipara	7	35	5	25
Total	**20**	**100**	**20**	**100**
Education				
SD	1	5	0	0
SMP	2	10	0	0
SENIOR HIGH SCHOOL	14	70	18	90
College	3	15	3	10
Total	**20**	**100**	**20**	**100**

It can be seen from table 1 that both groups have the same majority of ages that are not at risk during pregnancy, namely the treatment group of non-risk ages (20-35 years) as many as 16 people (80%) and the minority at risk (<20 and > 35 years as many as 4 people (20%), while in the control group the majority of non-risk ages are as many as 13 people (65%) and the minority at risk are as many as 7 people (35%). Judging from the gravida, both groups of respondents are also the majority of multiparas where the treatment group is the majority of multiparas as many as 12 people, the majority of elementary school as many as 51 people (60%) and the minority of grande multiparas as many as 1 person (5%), while the control group is the majority of multiparas as many as 14 people as many as 70% while the minority of grandeparas as many as 1 person (5%). When viewed from the education aspect, both groups are also the majority of high school where the treatment group is the majority of high school as many as 14 people (70%) and 1 person (5%) while in the control group as many as 18 people (90%) and college minority of 2 people (10%).

Table 2 Frequency Distribution of Attitudes Before and After Based on Control and Treatment Groups

Variables	n	Score		Mean	Standard Deviation
		Min	Max		
Treatment					
Before	20	13	28	20.90	5,200
after	20	30	35	32.40	1,698
Control					
Before	20	12	26	18.45	5.104
after	20	14	27	20.35	4.923

Based on table 2 obtained results study that attitudes towards groups treatment before and after There is difference Where before get education use *flipbook* 1,000 days of nutrition life First obtained min- max value 13-28 mean 20.90 while after get education use *flipbook* 1,000 days of nutrition First life found min- max 30-35 mean 32.40. In the group control can also be seen that There is difference score attitude from before and after get education without *flipbook* 1,000 days of nutrition namely min -max 12-26 mean 18.45 while after get education without use *flipbook* min- max 14-27 mean 20.35.

Bivariate Variables

In the bivariate test 2 tests were carried out , namely using attitude tests before and after between group treatment and control and then Re-testing was conducted on the group treatment and control You 're welcome after . In the treatment after get education use *flipbook* while in the group control after get education without use *flipbook* . Before done testing before and after paired mean difference test was conducted so normality test of data was carried out before and after both group use shapiriwilk because the data is only 20 (<50 respondents) in each group . Seen in table 2

Table 2 Chest Normality Test in Treatment and Control Groups Before and After

group	Group	Sig.	Data Distribution	Analysis Test
Treatment	Before	0.032	Abnormal	Wilcoxon test
	After	0.000		
Control	Before	0.004	Abnormal	Wilcoxon test
	After	0.007		

In table 2 we can seen that the results of the data normality test between before and after get education *flipbook* 1,000 days of nutrition First life it turns out before significant value 0.032 and after

0.000 then data distribution is not normally distributed , then the data will be tested for paired mean differences using the Wilcoxon test. In the group control can also be seen that before get education without *flipbook* 0.004 and after get education without *flipbook significant* value 0.007 then the data is not normally distributed and will using the Wilcoxon test.

Table 3. Mean Difference Test of Treatment and Control Group Attitudes Before and After Education Using/Without Nutrition *Flipbooks* for the First 1,000 Days of Life at the Medan Denai Community Health Center in 2025

Variables	n	Score		Mean	Standard Deviation	P value
		Min	Max			
Treatment						
Before	20	13	28	20.90	5,200	0.000
after	20	30	35	32.40	1,698	
Control						
Before	20	12	26	18.45	5.104	0.001
sesudah	20	14	27	20.35	4.923	

In table 3 it is found that mark significant on both group You're welcome There is difference namely in the group treatment obtained before get education use *flipbook* min- max 13-28 mean 20.90 while after education use *flipbook* 1,000 days of nutrition First life min- max 30-35 mean 32.40 with The Wilcoxon test results showed a significant value of 0.000 in the group control obtained before get education without *flipbook* score min- max attitude 12-26 mean 18.45 while after get education without use *flipbook* obtained score attitude min- max 14-27 mean 20.35 and the Wilcoxon test results have a significant value of 0.001 . The Wilcoxon test results in the group treatment and control both p value <0.05 then You're welcome There is difference .

For know comparison between group treatment and control after get education with or or without *flipbook* . Before tested mean difference between two groups so normality test was carried out using Shapiro Wilk. The results of the data normality test turned out to be the result No normally distributed then the data is tested use man Whitney .

Table 4. Test of Mean Differences in Attitudes in Treatment and Control at the Medan Denai Community Health Center UPT in 2025

Group	n	Score		Mean Rank	P. Value
		Min	Max		
Treatment	20	30	35	30.50	0.000
Control	20	14	27	10.50	
Total	**40**				

From table 4 we can see seen that comparison from group treatment after get *flipbook* min- max 30-35 mean 30.5 while in the group control after get education without *flipbook* min- max 14-27 mean 10.50 with Mann test results Whitney significant value 0.000 < 0.05. So there is group mean difference

From the results study can seen between before and after seen in the group treat between before and after education using 1,000- day nutrition *flipbook* First life There is differences and in groups control between before and after get education without *flipbook* 1,000 days of nutrition First life still There is differences , however If compared to between group treatment with group control after get education use 1,000 days of nutrition First life with without use *flipbook* 1,000 days of nutrition First day First life it turns out obtained improvement score attitudes towards groups treatment . This is state attitude Mother pregnant more tall after get education use *flipbook* 1,000 days of nutrition First life compared to Mother pregnant women who get education without use *flipbook* .

Research result This in accordance with study others in Kupang by Yurissetiowati in 2023 that There is connection attitude towards mother pregnant to 1,000 days of nutrition life the baby she is carrying (Yurissetiowati and Baso 2023) . According to tendean et al. 2025 stated that there is connection attitude in prevention *stunting* (Tendean et al. 2025) . In the study other state that There is connection attitude Mother with incident *stunting* (Mirayanti and Sari 2024) . In this case This that attitude Mother is very decisive in events *stunting* in children . Educational media can make attitude Mother become the more positive to want to or agree For prevent occurrence *stunting* . Through the media Mother get information about stunting, its causes and consequences as well as method prevent it so Mother will more understand about *stunting* and will more agree For prevent happened *stunting* (Puspita 2020) . *Flipbook* media is a media that contains material about *stunting* and causes as well as impact *stunting* . In addition *flipbook* also contains information about 1,000 days of nutrition life First Good with 1,000 days life That since child in content until child 2 years old , flipbook also contains information about need calories .

CONCLUSION AND SUGGESTION

From the results study This obtained that There is difference between group treatment with control attitude Mother pregnant , after comparative test was conducted it turns out attitude Mother pregnant get education 1,000 days of nutrition First life more tall compared group Mother pregnant can education nutrition without use *flipbook* nutrition . Suggestion: So that the Medan Denai Community Health Center UPT can using *flipbook* media in education Mother pregnant For change attitude Mother pregnant become positive in stunting prevention .

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