

**IMPROVING MOTHER KNOWLEDGE ABOUT STUNTING BY MOBILE BASE  
NUTRITION EDUCATION**Vilda Ana Veria Setyawati<sup>1</sup>, Arif Kurniadi<sup>2</sup> and Slamet Isworo\*<sup>3</sup><sup>1</sup>Department of Public Health, Dian Nuswantoro University.<sup>2</sup>Department of Health Information Management, Dian Nuswantoro University.<sup>3</sup>Department of Health Environment, Dian Nuswantoro University.**\*Corresponding Author: Slamet Isworo**

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**ABSTRACT**

The high prevalence of stunting is a national problem that is immediately addressed by all parties. The problem encountered was that most mothers did not understand stunting in detail. The purpose of this study is to examine the effectiveness of mobile-based nutrition education to improve maternal knowledge about stunting. The study was conducted on 28 mothers who fulfilled inclusion with a quasi-experimental design, one group pre-post test. The intervention was given in the form of mobile-based nutrition education on stunting. This application is the result of previous research with research and development design. Mother's knowledge was measured using a questionnaire containing 15 questions. Data analysis used paired t test and Wilcoxon. Results The demographic characteristics of the study respondents showed the highest percentage of status as housewives (57.1%), college graduates (57.1%), no housemaids (78.6%), high percentage join often maternal and child health center (67.7%). In general, the percentage of low levels decreased (39.29% to 21.43%), medium levels increased (57.14% to 71.43%), and high levels increased (3.57 to 7.14%). The conclusion that can be drawn, there is an increase in the average knowledge about stunting in mothers after obtaining the mobile-based nutrition education intervention.

**KEYWORD:** Stunting, nutrition education, mobile, knowledge, mother.**INTRODUCTION**

Stunting is a malnutrition disease characterized by lower growth in sufferers than other children of the same age and sex. One of the keys to the success of stunting prevention is by increasing a mother's understanding of her child's growth. The myth that develops in the community is also a factor causing stunting to not immediately decline in prevalence. Stunting children are considered inherited inheritance, whereas hereditary factors contribute only around 10-15%. The increase in stunting is carried out by many parties. Among them are the ministry of health, the ministry of communication and information, the ministry of interior, several non-governmental organizations. However, this was not yet comprehensive. The results of the initial survey prove that 5 out of 10 mothers do not understand the condition of their child's TB / U whether they are included in the stunting group or not. When compared with malnutrition, diarrhea, and other infectious diseases, the impact of stunting is not bad. But it should be a concern, stunting children can only be fixed at a certain point, namely toddlers and at puberty. Stunting reduction has been done in several other countries. Research conducted in South Asia in 2016, the reduction in stunting was done through improving nutritional status, nutrition education, and

empowering women. The result is effective in reducing the rate of stunting in newborns. Nutrition education is carried out through a community and counseling by health workers.<sup>[1]</sup>

The era of technology that is growing very rapidly is marked by the existence of smart phones supporting the development of knowledge transfer. The study used a nutritional education application that had been produced in previous studies to improve maternal knowledge about stunting.

**MATERIAL AND METHODS****Study setting and participant**

The research design chosen was quasi-experimental, one group pre post test design. This research is an advanced study which was preceded by previous research. Previous research was conducted to make nutrition education applications. Then proceed with research that tests the effectiveness of applications in mothers of children under five. Data collection locations in Pedurungan City of Semarang were 28 mothers during February and March 2019. Participants involved fulfilled the inclusion criteria, namely having babies / toddlers, having an Android cellphone, aged less than 35 years.

### Variables, instruments, and measurements

The research variables observed were knowledge before and after intervention. The intervention is in the form of an application that has been installed on a mobile phone with android specifications. Measurements were taken to obtain characteristic data covering age, education, employment, and ownership of household assistants. As well as knowledge data before and after getting nutrition

education interventions. The instrument used is the application of nutrition education and questionnaires. The research questionnaire instrument consisted of 18 true and false statements to assess knowledge. The questionnaire is divided into several sections; part 1 - demographic information (age, education, socioeconomic status), part 2- attendance at the posyandu, part 3-question knowledge about stunting.

The application used as an instrument for the treatment of research is as follows.



### Statistics analysis

Demographic data were tested descriptively. The normality test for knowledge scores before and after intervention using Saphiro Wilk, and found normally distributed data ( $p > 0.05$ ). Based on these results, the different test mean score of knowledge using paired t test. Whereas to test the scores of each knowledge questionnaire statement using the Wilcoxon test. Statistical analysis using SPSS software.

### Overall knowledge assessment

Each statement has 1 correct answer. Each correct answer is given a score of 1 and a wrong answer 0. An overall composite score was created, by adding the individual scores of each question. The highest score was 15, and the lowest possible score was 0. Knowledge levels consist of low, medium, and high levels. The low level includes an overall score of 7 or less, the medium level 8-11, and the high level 12-15. Percentage for the level of knowledge obtained for both pre and post test.

## RESULT AND DISCUSSION

### Description of study participants

Demographic characteristics of the study respondents showed the highest percentage of status as housewives (57.1%), college graduates (57.1%), no housemaids (78.6%) (part 1 questionnaire). The second part of the

questionnaire showed that the high percentage of the often maternal and child health center (67.7%).

This study analyzes the level of knowledge with participants' demographic data (table 1). The percentage increase occurs at the medium level for all three education categories. However, the highest percentage was for mothers who were educated with tertiary education (40.7% to 44.4%) (table 1). Mothers who are highly educated have a positive impact on childcare. Research in Burkina Faso shows that mothers with maternal education levels are associated with toddler growth seen from WHZ and HAZ. Mothers who have more than 11 years of education have children with better nutritional status than those who have only received education for 6 years or less.<sup>[2]</sup>

Based on the ownership of household assistants, the percentage of the highest increase in knowledge level at the medium level is for mothers who have household assistants (50% to 64.3%) (table 1).

Mothers have a vital task in a family. Not only does it carry out the parenting function, but also ensures that all household affairs run normally. With the presence of household assistants, mothers have more time to explore stunting knowledge through socialization in the community or using gadgets. Of course this increases the

knowledge of mothers related to stunting. Research conducted in Qatar about the closeness of servants and their children affected children's grammar and behavior. In addition, it was also stated that mothers who are too entrusting their children to their helpers will lose their lack of attention from their mothers and make children dependent on helpers. Not all helpers are able to provide proper care according to the stage of child development. This is because maid jobs are chosen without educational conditions.<sup>[3]</sup> Research in Dubai about the priority proportion of servant duties, only 8% chose child care as the main job compared to homework. This means that 92% of helpers prioritize homework. Attention to the employer's child is not given.<sup>[4]</sup>

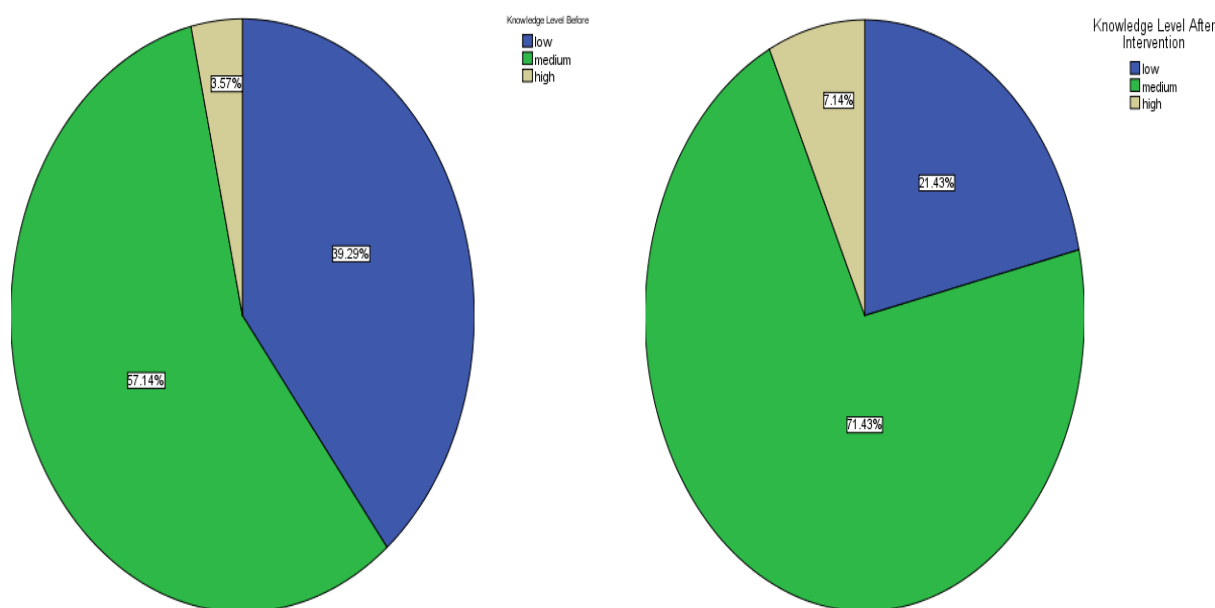
In the presence of Mother and Child Health Center, the highest increase in medium level knowledge is for

mothers who come frequently (42.9% to 50%) (table 1). POSYANDU is family basic social service activities in the aspects of monitoring growth and development of children. One of the programs at center is health education from health workers. If the mother often joins this program, her health knowledge will increase and be up to date.

Households with the highest status at the medium level were compared to working mothers (32.1% to 42.9%) (table 1). The majority of respondents who were mothers were college graduates. But they decided not to continue their careers after getting married and having children. Working women will spend 8-9 hours outside the home. The status of housewives gives mothers more time to take care of their families, where monitoring the growth of children is included.

**Table 1. Demographic variables and stunting knowledge changes among study participants.**

Level	Test	Education Level (%)			Housemaid (%)		POSYANDU Presence (%)			Occupation (%)	
		JHS	SHS	University	With	Without	Sometimes	Often	Always	Housewife	Worker
Low	Pre test	11,1	14,8	14,8	28,6	10,7	3,6	25	10,7	21,4	17,9
	Post test	3,7	7,4	11,1	14,3	7,1	3,6	14,3	3,6	7,1	14,3
Medium	Pre test	3,7	11,1	40,7	50	7,1	10,7	42,9	3,6	32,1	25
	Post test	7,4	18,5	44,4	64,3	7,1	10,7	50	10,7	42,9	28,6
High	Pre test	0	0	3,7	0	3,6	3,6	0	0	0	3,6
	Post test	3,7	0	3,7	0	7,1	3,6	3,6	0	3,6	3,6



**Gambar 1: Comparison percentage knowledge level pre-post test.**

The percentage of each pre test and post test knowledge level is shown in the figure above: low (blue), medium (green), and high (gray). In general, the percentage of low levels decreased (39.29% to 21.43%), medium levels increased (57.14% to 71.43%), and high levels increased (3.57 to 7.14%).

Question about mother stunting knowledge. There is a significant difference between the values before and after the intervention ( $p < 0.0001$ ) from the results of the paired t test. The average value has increased from 8.07 to 9.1. Of the 15 questions tested for differences in scores, significant differences (Wilcoxon test) ( $p < 0.05$ ) were found in question number 2,4,8,10,115 n (table 2).

**Table 2: Topic-specific correct answers by the study participants.**

No	Question	Pre test (%)	Post test (%)	p
1	The success of the growth and development of a child in the future depends only on what has been eaten since the time of birth	28.6	32.1	0,74
2	The definition of the growth process can be seen and measured in plain view according to the age stage	21.4	35.7	0,046
3	Children are able to write and draw, even if it's something abstract, it can be said that he reaches the stage of growth	78.6	78.6	1
4	Genetic is the main reason for a child experiencing growth disorders, for example stunting	39.3	17.9	0,03
5	Stunting and malnutrition have the same short-term impact on a toddler's life	50	35.7	0,21
6	Children who are stunting and malnourished are definitely protected from obesity when they are adults	10.7	10.7	1
7	Girls and single women, need to do a extreme diet even though the diet is without the supervision of a nutritionist / doctor. Because of their health conditions at that time did not have a relationship with a child who would later be born	21.4	25	0,71
8	Nutritious food is needed by a child to grow and develop. Even since the child is 2 months old, the child may be given food. This is referred to as the ASUH aspect	78.6	53.6	0,008
9	Toddlers must get most of the vegetables at each meal	85.7	82.1	0,32
10	The comfort of a child is obtained if he is in a loving environment. This is called the ASAH aspect	85.7	71.4	0,046
11	Parents are required to teach their children to be able to carry out daily activities independently, such as speaking, toilet training, wearing clothes, and others. This is often called the ASIH aspect	85.7	71.4	0,046
12	Child growth monitoring should be done every month to prevent children from experiencing growth failure. Which is marked by a decrease in body weight in KMS	100	96.4	0,32
13	Boys and girls have the same growth pattern so that at the same age the ideal height of boys and girls is the same	32.1	17.9	0,1
14	An obligation for parents to provide a height gauge to prevent stunting	17.9	85.7	0,66
15	Short children are not a health problem if their offspring do have such stature.	57.1	39.3	0,09

\*\*Using wilcoxon signed rank test

The main objective of this education is to improve knowledge to strengthen practices related to prevention and monitoring of stunting in children so that there are no short Indonesians in the future. In other words, improving the quality of future generations since they were still in growth. Delay in understanding stunting when a child has passed the growth period leaves a feeling of remorse that cannot be repaired.<sup>[5]</sup>

The government has launched a cross-sector stunting treatment program since 2018. The program starts with stunting in 100 districts / cities in Indonesia with a high prevalence of stunting. The national program for handling stunting in 2019 is the establishment of a secretariat for the acceleration of stunting prevention for the vice presidential secretariat funded by a foreign grant number TF-0A7565.

Stunting is a complex nutritional problem that occurs due to lack of nutrients for growth for a long time. Stunting

children can look normal and active, so the mother feels there is no nutritional problem with her child. Stunting is actually a health problem that has existed since the problem of malnutrition. But the result is different, malnutrition can be at risk of death because it is accompanied by infectious diseases. Whereas stunting does not cause death but the awareness of the late mother when her child is stunting cannot be easily corrected.

## CONCLUSION

The conclusion that can be drawn, there is an increase in the average knowledge about stunting in mothers after obtaining the mobile-based nutrition education intervention. Demographic characteristics of the study respondents showed the highest percentage of status as housewives (57.1%), college graduates (57.1%), no housemaids (78.6%), high percentage join often maternal and child health centers (67.7%). In general, the percentage of low levels decreased (39.29% to 21.43%),

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