

# The effectiveness of health education based on local wisdom of the people of Tulungagung Regency on maternal parenting in preventing stunting

Dita Apriana Dwi Astuti<sup>1</sup>, Eko Winarti<sup>1\*</sup>, Yudied Agung Mirasa<sup>1</sup>

## Abstract

**Purpose:** This study was to determine the effectiveness of Health Education Based on Local Wisdom of the People of Tulungagung Regency on Mother Parenting in Fulfilling Toddler Nutrition as an Effort to Prevent Stunting. **Methods:** This research uses a quasi-experimental approach. The research location is in Bandung District, Tulungagung Regency. The population is all mothers who have children under five (0-3 years) in Bandung District, Tulungagung Regency. The research sample consisted of 60 respondents which were divided into 30 treatment groups and 30 control groups, which were taken using cluster random sampling technique. Data was collected using a questionnaire that had been tested for validity and reliability before and after the education was implemented. Data analysis using a two-way ANOVA test. **Results:** There is an interaction of knowledge and parenting style variables together with time (pre-test and post-test) and group (intervention and control) when viewed from the p-value <0.05. The results of this analysis, the group of mothers who receive health education through the lecture method and local wisdom-based modules is related to the knowledge and parenting patterns of mothers. **Conclusion:** Health education interventions through the lecture method and local wisdom-based modules have been shown to have a significant effect on maternal parenting in stunting prevention.

**Keywords:** health education; local culture; nutritional parenting; stunting; toddler

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<sup>1</sup> Master of Public Health Program Study, Faculty of Health Science, Kadiri University

## \*Correspondence:

ekowinarti@unik-kediri.ac.id

## INTRODUCTION

The World Health Organization (WHO) 2012 declared that stunting in children under five is a world health target and made efforts to reduce the stunting rate by 40% by 2025 [1]. However, the problem of stunting in the world is still not resolved. In developing

countries, morbidity and mortality in children under five are influenced by nutritional status. Indonesia is included in 17 countries out of 117 countries that have a high prevalence of stunting (37.2%) in toddlers above the WHO limit, it is said to be a public health problem if stunting is  $\geq 20\%$  [2].

The health impact of stunting is failure to thrive (low birth weight, small, short, thin), barriers to

cognitive and motor development, and metabolic disorders as adults who are at risk of non-communicable diseases such as diabetes, obesity, stroke, and heart disease [3, 4].

Cases of stunting in Tulungagung Regency recorded 2,901 toddlers with stunted growth and development with a prevalence of 5.51%. There are 5 sub-districts that are recorded as having a high stunting rate, namely the Tanggunggunung, Sendang, Ngunut, Pagerwojo and Bandung sub-districts [5].

Stunting is caused by many influencing factors, namely: mother's occupation, parental height, income, number of household members, parenting style, exclusive breastfeeding [6], mother's education, mother's knowledge of nutrition, provision of MP-ASI, zinc adequacy and iron, history of infectious diseases and genetic factors [7].

One way to prevent and treat stunting can be implemented holistically, integratively, and community-based. This effort can be carried out by considering specific, sensitive, and integrated interventions for all related parties [8].

The feasibility study that has been conducted by researchers shows that there is still a high stunting rate in Tulungagung Regency, where there are 2,978 toddlers with stunted growth and development with a prevalence of 5.51%. Based on the profile of the Tulungagung District Health Office in 2021, a total of 1,721 toddlers were reported to be stunted [9].

In this research, the problem to be examined is how effective the effectiveness of Local Wisdom-Based Health Education in the Tulungagung Regency Community towards maternal parenting in fulfilling toddler nutrition as an effort to prevent stunting is?

The purpose of this study was to determine the effectiveness of health education based on local wisdom in the Tulungagung Regency community on maternal parenting in fulfilling toddler nutrition as an effort to prevent stunting.

## METHODS

This research was conducted through quasi-experimental research with a pretest-posttest non-equivalent control group design [10]. The population of this study is mothers who have children under five years old in Bandung district. The research was conducted in Bandung District, Tulungagung Regency, one of the sub-districts with a high stunting rate and received special attention from the

Tulungagung Regency Government. Most of the people in Bandung have a livelihood as farmers because it is located in a mountainous area near Popoh beach in Besuki District and Sine beach in Kalidawir District where the people of the two beaches are still thick with the culture and traditions carried out by fishermen. One of the traditions carried out is Labuh Sembanyo (an expression of gratitude for farmers because the fish catch is abundant). This shows that natural resources in the form of fresh fish can be utilized by the surrounding community in an effort to improve nutrition.

Determination of the number of samples by taking from a portion of the population using a cluster sampling technique. The sample size of this study was calculated using the mean difference test from Lameshow et al [11] so that the sample in the intervention and control groups of each group was 30 people [11]. This research has passed the ethical due diligence of the Health Research Ethics Committee of the Chakra Brahmanda Lentera Institute with No. 063.1/026/VII/EC/KEP/LCBL/2022.

Collecting data using observation techniques where researchers are involved with the activities of the observed group as a source of research data. Then there is an interview technique to strengthen the hypothesis with dialogue to obtain information. Then there are test techniques (pretest and posttest) aimed at the group being observed.

Data analysis used Stata software version 14 with a license from Gadjah Mada University (UGM). Before conducting research data analysis, normality, and homogeneity tests were carried out on all research variables in both the intervention and control groups. The normality test used the Skewness/Kurtosis test ( $n > 50$ ). The effect of health education using lecture methods and modules based on local wisdom on mothers' knowledge and upbringing was tested by Two Way ANOVA to see the interaction effect of these variables with time (pre-test versus post-test) and group (intervention versus control) as the main factors.

## RESULTS

### Characteristics of respondents

Characteristics of respondents in the study included the mother's age, toddler's age, toddler's height, toddler's weight, mother's education, mother's occupation, family income, and number of family members.

**Table 1. Distribution of the characteristics of the respondents**

Variable	Intervention	Control
Toddler age	32,6 ± 12,93	31,9 ± 14,25
Toddler height	90,1 ± 11,43	86,8 ± 11,98
Toddler weight	12,8 ± 3,24	11,7 ± 2,28
Mother's age	30,3 ± 6,67	31,8 ± 6,65
Mother's education		
High	12 [40,0]	10 [33,3]
Low	18 [60,0]	20 [66,7]
Mother's job		
Work	19 [63,3]	23 [76,7]
Not Working	11 [36,7]	7 [23,3]
Family income		
High	16 [53,3]	20 [66,7]
Low	14 [46,7]	10 [33,3]
Number of family member		
3 people	14 [46,7]	11 [36,6]
4 people	15 [50,0]	17 [56,7]
5 people	1 [3,3]	2 [6,7]

**Table 1** shows that the average age of children under five in the intervention group is higher than the control group. The mean height and weight of children under five were also higher in the intervention group than in the control group. In the variable maternal age, the average is higher in the control group than in the intervention. The mother's education level which was more dominant in the intervention and control groups was in a low category. For the employment status of mothers both the intervention and control groups were working mothers. Likewise, family income for the

**Table 2. Characteristics of research variables between the intervention and control groups (N=60)**  
**Intervention Variables**

Variable	Intervention (Mean ± SD)	Control (Mean ± SD)	p-value
Knowledge score	7,6 ± 1,92	7,76 ± 7.03	0.638
Parenting style score	25,4 ± 5,36	24,8 ± 4,87	0.326

intervention and control groups is more dominant in the high-income category. The variable number of family members for groups the intervention in categories 3 and 4 people were not much different, while the control group was more dominant in category 4 people.

**Table 2** shows that the mother's knowledge score in the control group is higher than in the intervention group. Furthermore, maternal parenting scores were not significantly different in the intervention and control groups.

**Normality test for knowledge variable data and mother's upbringing**

In this study, the data normality test was analyzed using Skewness/Kurtosis (n>50). The results of the normality test for knowledge and mother's upbringing variables. the pre-test and post-test data, the control and intervention groups showed a p-value > 0.05 (**Table 3**). This means that the data from these variables are normally distributed.

**Homogeneity test for variable data on mother's knowledge and upbringing**

Before choosing a statistical test to be used in this study, a homogeneity test was carried out to test whether the variance relationship of two or more data distributions was homogeneous or not. The results of the homogeneity test for knowledge variable data and mother's upbringing in the intervention and control groups showed a p-value > 0.05 (**Table 4**).

**Table 3. The results of the data normality test analysis**

Variable	Group								Difference p-value
	Intervention				Control				
	Pre-test	p-value	Post-test	p-value	Pre-test	p-value	Post-test	p-value	
Mother's knowledge	30	0,877	30	0,936	30	0,842	30	0,219	0,323
Parenting style	30	0,293	30	0,761	30	0,257	30	0,842	0,548

**Table 4. Test for homogeneity of knowledge and mother's upbringing data**

Variable	Intervention Mean [SD]	Control Mean [SD]	p-value
Mother's knowledge	7,6 [1,92]	7,8 [1,71]	0.410
Parenting style	25,4 [5,36]	24,8 [4,87]	0.765

**Table 5. Two-way ANOVA test of mother's knowledge and mother's upbringing by time and group**

Variable	SS	df	MS	F	P-value
Mother's knowledge					
Models	420,60	3	140,20	38,48	0,000
Time	64,53	1	64,53	17,71	0,000
Groups	276,03	1	276,03	75,77	0,000
Time - Group	80,03	1	80,03	21,97	0,000
Mother's parenting style					
Models	1320,63	3	440,21	20,93	0,000
Time	367,50	1	367,50	17,48	0,000
Groups	700,83	1	700,83	33,33	0,000
Time - group	252,30	1	252,30	12,00	0,001

#### Interaction analysis of mother's knowledge and mother's upbringing with time (pre-posttest) and group (intervention-control)

In this study, two-way ANOVA analysis was conducted to determine the interaction of mothers' knowledge and upbringing with time and group. **Table 5** shows that there is an interaction between the variables of mother's knowledge and upbringing towards time (pre-test and post-test) and group (intervention and control) when viewed from a p-value <0.05.

Based on time, there was a change in the value of the group of mothers who received health education through the lecture method and modules based on local wisdom, which increased their knowledge in preventing stunting better than the group who only received health education using the lecture method, as seen from the results of the p-value <0.05. Likewise, the variables of mother's parenting according to time showed that there was a change in value/better effect in preventing stunting in the group of mothers who received health education through the lecture method and modules based on local wisdom than the group of mothers who only received health education through the lecture method  $p < 0.05$ .

The results of this analysis, when viewed from the group, shows that the variables of knowledge and upbringing have a significant relationship with a p-value <0.05. This means that groups of mothers who

receive health education through lecture methods and modules based on local wisdom are related to the mother's knowledge and upbringing.

## DISCUSSION

Basically, there are many approaches to preventing stunting in Indonesia. Several flagship program efforts that have been published by the Indonesian government have a limited focus on care and intervention. Evidence shows that parents have an important role in the development of children. The analysis of the concept of parenting functions allows new insights to reach a consensus, promote the management of stunting cases, and reduce their number in Indonesia [12].

According to previous research, several factors cause stunting such as heredity, environment, and upbringing. These three factors require inter-agency cooperation in terms of prevention or prevention from the government and the community by establishing the Bu Gateng program the community also knows the pattern of health cultural events at the village level, so that it strengthens in supporting efforts to prevent stunting [13].

This study states that mothers who receive health education through lecture methods and modules based on local wisdom are related to mothers' knowledge and upbringing in stunting prevention. The results of this study are by the research conducted that counseling, demonstration, and screening methods increase mothers' understanding of stunting prevention and parenting management in fulfilling nutrition in toddlers [14].

The I-CARE model is proven to be able to increase public insight and understanding of stunting, causal factors, awareness, the need for prevention efforts, and the impact of stunting. Therefore, one of the efforts that can be made to prevent stunting is to increase public understanding of stunting through education [15].

This research also shows that there is a change in the value of the group of mothers who receive health education through the lecture method and modules based on local wisdom, which can increase mothers' knowledge in preventing stunting better than those who only receive health education using the lecture method.

The results of this study are different from research conducted in Cipadang Village, Gedong Tataan District, Pesawaran Regency, Lampung Province which states that the experience of mothers of toddlers, existing cultural habits still do not support improving the nutrition of pregnant women to prevent stunting [16]. In another study, it was concluded that there was

an increase in mothers' knowledge before and after being given stunting prevention health education [17].

Health education has proven to be quite effective in increasing mothers' knowledge so that it can help change mothers' parenting patterns in providing nutrition which has a good impact on weight gain in stunted toddlers [18].

Health education through lecture methods and modules based on local wisdom can provide knowledge about maternal parenting in fulfilling toddler nutrition as an effort to prevent stunting. This will increase mothers' knowledge in identifying parenting patterns in fulfilling toddler nutrition as an effort to prevent stunting.

Health education through lecture methods and modules based on local wisdom can be used as a reference for policy formulation, and implementation to improve maternal parenting in preventing stunting.

## CONCLUSION

Health education interventions through the lecture method and modules based on local wisdom have proven to have a significant effect on maternal parenting in preventing stunting. In the future, it is hoped that the results of this study can be used as 1) to become a reference for formulating educational policies for mothers in parenting to prevent stunting; 2) to become one of the references in making a model for providing health education to mothers; and 3) become one of the references in making modules for mothers in stunting prevention.

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