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Food Safety: Mother's Knowledge And Motivation In An Effort To Prevent Stunting Incidents

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ABSTRACT: Parents need to know the importance and role of sufficient food, quality food and food whose safety is guaranteed for grow and development their children. Providing training on food safety could improves mothers' knowledge and motivation, improves skills in selecting and sorting food for children. The aim of this study to identify improved knowledge and motivation of mothers in an efforts to prevent stunting in children through blended learning-based food safety training. This research used a quasi-experimental method with types pre-post test without control group. Data collected technique using purposive sampling from June until September 2023 in Sungai Ana Village and Baning Kota Village, Sintang District using a questionnaire and training was carried out on food safety. In this study, a sample of 41 respondents was analyzed using paired t-test. The results showed that there was a significant difference in mothers knowledge pre and post the food safety training with p-value < 0.05, but there was no significant difference in mothers motivation pre and post the food safety training with p-value > 0.05. Mothers are expected to able to preparing the food themselves, provide food according to age and stage of feeding, maintain the quality of the food provided, and ensure that the food provided is fee from biological, chemical, and physical contamination that can distrub, harm, and endanger health. In this study, food safety training based on blended learning improved mothers' knowledge in an efforts to prevent stunting in children.

Keywords: Food safety training, Stunting, Blended Learning, Mother

INTRODUCTION

To have healthy children, it is necessary to fulfill their growth and development needs. One way to fulfill these needs is the food consumed as well as providing stimulus related to development. (Lestari 2020) stated that the purpose of food safety is to maintaining food and drinks is not contaminated and reduces the potential diseases due to food hazards. By consuming good, healthy and safe food, it is hoped that children can grow and develop according to their age, and avoid disease and other health problems now and in the future.

Children who are not fulfilled with adequate nutrition easy to fall ill, especially if the child is stunted. (Schmidt's, 2014) research states that stunting sufferers are easily sick, has poor posture,

and have low productivity in times of adulthood. Providing unhealthy, unsafe and non-nutritious food can cause disease which can make worsen stunting.

The highest prevalence of stunting is at the age of 24-59 months (Fikadu et al., 2014). Stunting that occurs in toddlers is the due to of wrong feeding patterns. This can be in the form of: not getting exclusive breastfeeding, complementary food too early or too late, the nutrition is incomplete, unhygienic and unbalanced. (Izwardy's, 2018) research states that the causes of malnutrition and stunting is low access to food in terms of quantity and quality of nutrition, poor parenting on behavior and feeding practices for babies and children and low access to health services including access to sanitation and clean water.

Stunting is closely related to healthy, safe and nutritious food. This is included in one of the strategies in the 5 pillars of national stunting prevention, namely food and nutrition security, which includes food safety and fulfilling family food and nutrition (Satriawan, 2018). In West Kalimantan there is 41.7% of proportion of a variety foods consumption in children aged 6-23 months (Kemenkes RI, 2018). Feeding that lacks diversity can increase the risk of micronutrient deficiencies, possibly having detrimental effects on children's physical and cognitive development (WHO and UNICEF, 2021).

The (World Health Organization, 2014) stated that one of the cause of stunting is inadequate complementary food factors, which are divided into three, namely low food quality, inadequate feeding methods, and food and drink safety. Food and drink safety is include contaminated food and drink, poor hygiene, unsafe food storage and preparation. By providing healthy, safe and nutritionally food is a form of preventing stunting.

In research of (Anggerainy et al., 2023) stated that mothers can play a role in preventing eating disorders and can increase the fulfillment of nutritional needs for children. It was also stated that mothers can encourage, improve, and empower family competence in making decisions regarding the fulfillment of baby nutrition, and the right time for weaning a baby under two years old. This shows that quality and safe food can be producted from household kitchens managed by mothers to support family health, including children's health.

(Fitri et al., 2022) research stated that from 15 articles they found that effective program for preventing stunting is nutrition education for influential parties (cadre, children's mother, pregnant women, and mother to be), establishing a study group for children's other, and suplementary feeding for children. Providing education regarding stunting prevention can be done in various ways. In research of (Wijayanti and Fauziah, 2019) it was stated that Infant and Young Child Feeding training carried out on Posyandu cadres could increase cadres' knowledge of how to provide counseling to the community so that they could provide consultation to stunting program targets properly. This consultation activity with cadres can improve the parenting patterns of mothers of toddlers, especially in terms of feeding their children appropriately and correctly in accordance with balanced nutrition guidelines and with this training, it can prevent and reduce stunting rates and improve the nutritional status of toddlers.

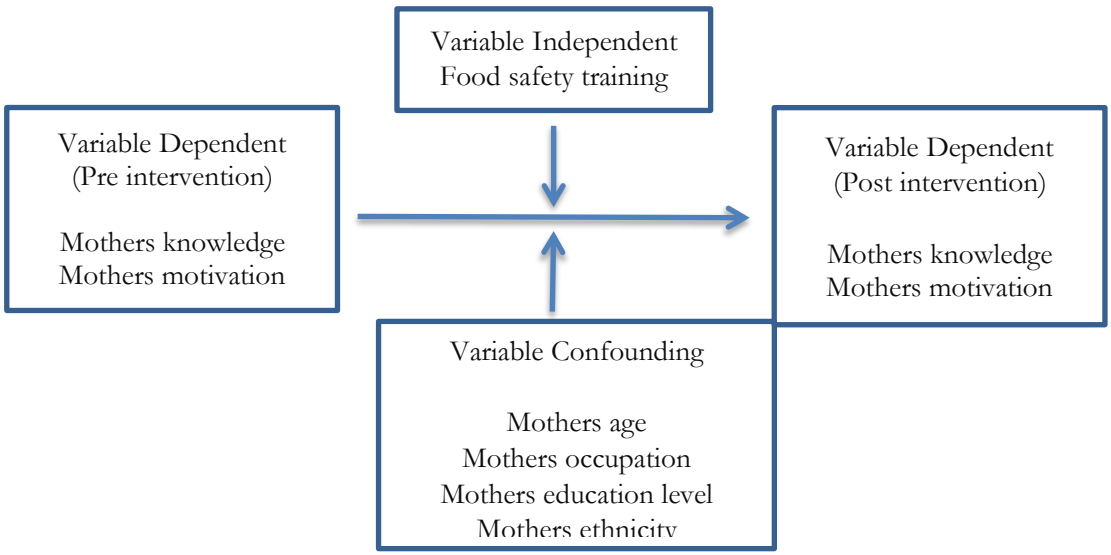
Food safety training contains education about nutrition that is safe and healthy for comsumption. Education related to food safety needs to be given to mothers. This education is packaged in the

form of blended learning-based training. This blended learning-based food safety training is a mean of sharing knowledge and skills for mothers in an effort to prevent stunting. The blended learning method was chosen as a learning method that can combine two or more methods and strategies in learning to achieve learning objectives. In blended learning, participants can learn online, offline, and learn independently. Participants are given the opportunity to develop their abilities, either through lecture methods or demonstrations. Education is one of the medium that can bridge changes in a person's knowledge, behavior and motivation.

Therefore, as an effort to prevent stunting, this food safety training needs to be carried out as a specific intervention in providing overview that mothers have an important role in providing food to children and families with the aim of ensuring that mothers can choose and sort food that is good and appropriate to give to their children. By handling food well, it is hoped that children will be free from dangerous food ingredients. For this reason, mothers need to have skills in implementing food safety in an effort to prevent stunting in children.

The aims of this study to identify improved knowledge and motivation of mothers in an efforts to prevent stunting in children through blended learning-based food safety training.
Research questions:
a. Is there a significant difference from the knowlegde of mother pre and post being given food safety training?
b. Is there a significant difference from mothers motivation pre and post being given food safety training?

Conceptual Framework:



Ha: There is a significant difference from maternal knowlegde and motivation pre and post being given food safety training

METHOD

Quantitaive research with approch *quasy*-eksperimental research design with the type of *pre-post test without control group* used in this study. Population was all of mothers have baby under two years old who registered at Posyandu Sungai Ana Village in June until September 2023. Sample obtained with the technique of *purposive* sampling. Specially for experiment and comparative research, it takes 15-30 respondent, each group (Borg et al., 2007). The mothers who met the inclusion criteria at the relevant dates and were willing to participate in the study constituted the sample (n=41). The inclusion criteria for the study were mothers who have baby under two years old have been registered at Posyandu Sungai Ana Village in June until September 2023. The exclusion criteria were mothers who have baby under two years old, have congenital birth disoreders, and not agreed to be part of the study. Data were collected from June to September 2023 in Sungai Ana Village and Baning Kota Village in Sintang Distric, Sintang Regency. Respondens in this study were mothers who have baby under two yeaas old information from Sungai Ana Village midwives. Data related to mothers knowledge and motivation was taken using a questionnaire to extent of mother knowledge and motivation regarding food safety. Further more, the mothers were given training after the pre-test, and their knowledge and motivation were measured again after training was given. After completion of data collection, data was analyzed by using a computer software program statistical package for social science (SPSS). Univariate analysis examined the variables of education level, occupation, ethnicity and age. The first step is data analysis to descibe the data on each variable obtained from the study result, which are presented in the from of frequency distribution table. For bivariate analysis, the statistical test was used with a p-value of 0.05. If the results of the calculation of the p-value < p-value (0.05) then Ho is rejected and Ha is accepted, meaning that there is significant difference. Adependent t-test was employed to analyze paired sample, and independent t-test was performed to analyze unpaired sample.

RESULT AND DISCUSSION

Table 1. Distribution of Respondent Characteristics June – September 2023 (n=41)

Variable	Frequency	Percent (%)
Mother's Education Level		
Primary level	21	51,3
High level	14	34,1
Profession	6	14,6
Mother's Occupation		
Unworking	36	87,8
Working	5	12,2
Ethnicity		
Chinese	1	2,4
Dayak	4	9,8
Java	4	9,8
Malay	31	75,6
Sundanese	1	2,4

Primary Data, 2023

Based on table 1, it is found that majority of respondents have a primary level of education, namely 21 repondents (51.3%). The majority of respondents did not work (maternal occupation are as housewives), namely 36 respondents (87.8%). The largest ethnic of respondents is the Malay tribe, namely 31 respondents (75.6%).

Table 2. Age of Mothers, June – September 2023 (n=41)

Variabel	Mean	SD	Min-max
Age (in years)	28,8	6,98	18-42

Primary Data, 2023

Table 2 describes that age of respondents. Respondents were an average of 28,8 years old with a standard deviation 6.98. The youngest respondents were 18 years old and the oldest were 42 years old.

Table 3. Frequency Distribution of Mothers' Knowledge Pre- and Post-Intervention (Training), June – September 2023 (n = 41)

Variable	Measurement	Categori	Frequency	Percent (%)
Mother's Knowledge	Pre-Intervention	Good	30	73,2
		Moderate	10	22,4
		Less	1	2,4
	Post-Intervention	Good	40	97,6
		Moderate	1	2,4
		Less	-	-

Primary Data, 2023

Table 3 describes that mothers' knowledge pre-intervention was carried out, there were 73.2% of mothers' knowledge was good, 22.4% of mothers' knowledge was moderate and 2.4% of mothers' knowledge was less. Meanwhile, post-intervention, mothers' knowledge was good at 97.6%, mothers' knowledge was moderate at 2.4%, and there were no mothers with less knowledge. This means that there is an improved mothers level of knowlegde post-intervention.

Table 4. Frequency Distribution of Mother's Motivation Pre- and Post-Intervention (Training), June – September 2023 (n = 41)

Variable	Measurement	Categori	Frequency	Percent (%)
Mother's Motivation	Pre-Intervention	Good	35	85,4
		Moderate	6	14,6
		Less	0	0
	Post-Intervention	Good	34	82,9
		Moderate	7	17,1
		Less	0	0

Primary Data, 2023

Table 4 describes that the mothers' motivation pre-intervention was carried out, there were 85.4% good mothers' motivation and 14.6% mothers with sufficient motivation. Meanwhile, post-intervention, mothers with sufficient motivation were 17.1% and mothers with good motivation were 82.9%. This means that there is reduction of mothers motivation post-intervention.

Table 5. Comparison of mother's knowledge pre- and post-intervention. June – September 2023 (n =41)

Mother's Knowledge	Mean	Standard Deviation	Standard Error Mean	P value
Pre-Intervention	11,24	1,908	0,298	0,001
Post-Intervention	13,68	1,128	0,176	

Primary Data, 2023
*Significant at alpha < 0.05

Table 5 describes the paired T-test and obtained p-value = 0.001 < 0.05 so it can be concluded that there is a significant difference in the level of mother's knowledge pre- and post- intervention with training.

Table 6. Comparison of the Mother's Motivation Pre- and Post- Intervention (Training), June – September 2023 (n =41)

Mother's Motivation	Mean	Standard Deviation	Standard Error Mean	P value
Pre-Intervention	48,32	4,881	0,762	0,433
Post-Intervention	49,12	5,120	0,800	

Primary Data, 2023
*Significant at alpha < 0.05

Table 6 describes the paired T-test and obtained p-value = 0.433 > 0.05 so it can be concluded that there is no a significant difference in mothers motivation pre- and post-intervention with training.

In this study, 51.3% of maternal education was at primary level, 34.1% of maternal education was at high level, and 6% of mothers had professional education. The result of this study show that the majority of mothers have primary level of education. Generally, someone with a high level of education has a high level of knowledge or has a higher level of knowledge than someone with primary level education. However, someone who has low education does not necessarily mean they have low knowledge (Zongrone et al., 2018). In this study all mothers had the ability to read and understand the material provided.

With good education status, it will make it easier to provide new knowledge to mother. Directly, mother's behavior is influenced by the mother's level of education and knowledge. This factor is one of the reasons mothers to manage sufficient food, quality food and food whose safety is guaranteed for their children and families. Based on the research results of (Rahim and Russiska, 2019) that the mother's educational background is a significant predictor and contribution to the risk of stunting in toddlers aged 24-59 months in Kuningan Regency. This was also conveyed based on the results of research by (Pebrianti et al., 2023) that mother's education is related to understanding and accuracy of access to information as well as the frequency of exposure to knowledge and information about efforts to handle stunting at the household level.

The results of this study showed that 36 mothers did not work (87.8%) and 5 mothers worked (12.2%). Mothers who don't work or as a housewife have more and more time to spend with their

children in their daily lives. So that mothers have many opportunities to learn and get the right knowledge and information regarding sufficient food, quality food and food whose safety is guaranted. Beside that, mothers also have greater opportunities to be creative in processing food ingredients and selecting menus that will be given to children and families for consumption.

In this study, the youngest mother was 18 years old and the oldest was 42 years old. In terms of learning, the younger you are, the easier it is to understand the material provided. There were no significant obstacles in implementing the training activities provided. Each mother receives a training module that can be re-read at home. In (Kusumawardani et al., 2022) research stated that the mother's age influences knowledge and experince in caring for children. Mothers who are too young ar less than 20 years old tent to have less knowledge and experience in caring for children, so generally these mothers will care for children based on previous parental experience. The young age factor also tends to make mothers pay more attention to themselves than to the interests of their children so that the quality and quantity of chil care is inadequate. Meanwhile, mothers of mature age tent to accept their role as mothers wholeheartedly (Russell, et al, 2016)

This study shows that there is a significant difference in the mother's level of knowledge pre- and post-intervention with a value of $p = 0.001$. According to (BKKBN, 2021) one of the factors that influence the occurrence of stunting is parenting practices which are influenced by parents' lack of knowledge about nutritional health before and during pregnancy and after giving birth and factors that influence the incidence of stunting are mother's knowledge, exclusive breastfeeding and basic sanitation (Sutriyawan, & Nadhira, 2020). Mothers can act as one of the human resources who have an important role in the family. Mothers coud be the main pioneer in preventing stunting in their family. For this reason, mothers need to gain knowledge and knowledge about food safety in their efforts prevent stunting in children in their families.

Infant and baby under two years old do not know which food are best and what they consumable. They need parent guidance, especially mothers in determining food that can not disrupt they health. Food safety training is one method for families, especially mothers, to increase knowledge, motivation to learn and skills regarding food safety. Food safety is a sensitive intervention, namely an intervention that indirectly influences the incidence of stunting (BKKBN, 2021). (Fitri et al, 2022) showed that 10 of the 15 articles reviewed stated that nutrition education had a positive effect on stunting prevention. From the results of the study, it was found that several nutritional interventions or program were carried out to prevent stunting, namely nutrition education through training, counseling and counseling for mothers, women of childbearing age or prospectives brides and cadres, forming study groups for mothers of toddlers, and providing additional food to toddlers.

To provided food whose safety is guaranted, families, especially mothers, need to recognize this food. Safe food is food that is free from contamination, be it biological, chemical and physical contamination. Food that is safe from danger or biological contamination is food that is clean, not stale, the packaging is not damaged, the taste, color and smell are not distorted. Food that is safe from danger or chemical contamination is food that is not burnt, does not contain dangerous ingredients (borax, formalin, textile dyes), is not wrapped in used paper/newspaper, does not use excess food additives (does not taste bitter or sour, unnaturally bitter). Meanwhile, food that is safe from physical harm is food that does not contain visible foreign objects such as hair, gravel or

insects. This means that risks to health can arise because of the food itself and /or because of the product process.

After mothers recognize safe foods, they are expected to be able to:

1. buy food or groceries in a clean place: protected from sunlight, dust, rain, wind; there are no insects or pets around, there are hand washing facilities, eating utensils are always clean, the water for washing utensils is clean and always changed, the food served is covered to protect it from contamination
2. Buy from a healthy and clean seller: the seller wears a mask, the cloth used is clean, the seller handles food with gloves, the seller wears an apron.
3. Choose food that has been cooked: avoid consuming food that looks undercooked, choose food with soup that is served hot
4. Buy food that is displayed, stored and served well: the storage container is clean, if you choose it yourself, use tools such as spoons or tongs, don't buy food that has been handled by other people.
5. Consume food correctly: fruit and vegetables must be washed thoroughly first, don't buy food that is stale and slimy, buy drinks that should be cold but stay cold, buy food that is still hot or warm

Furthermore, mothers must pay close attention to food labels, maintain cleanliness (hands and environment), and process food safely.

In this research, intervention was carried out in the form of food safety training. In this training, education was provided to mothers regarding the application of food safety, stunting, assessing nutritional status in infant and young child, and anthropometric examinations in infant and young child. According to (Angraini et al., 2020) which stated that mothers' knowledge and attitudes increased after being given education about nutrition using flipcharts, so they could prevent stunting in their children. Mother's knowledge really needs to be improved. Knowledge about food safety is something that mothers need to have, related to efforts to prevent stunting. Therefore, this training is felt to be very useful for mothers. The results of the research by (Andriani et al., 2017) shows that there were differences in the knowledge, attitudes and motivation of mothers of toddlers before and after receiving intervention, namely the Mother Smart Grounding (MSG) program.

Mothers who are exposed to information about food safety will also have good behavior in selecting, sorting, preparing and consuming healthy and safe food which will influence their children's eating patterns. Therefore, mothers who have received food safety training will have more informative knowledge compared to mothers who have not been exposed to information about food safety. This is in line with research by (Suryagustina et al., 2018) which states the same thing that health education regarding stunting prevention will have an impact on mothers' knowledge, and mothers who have minimal information regarding stunting prevention will also have less knowledge regarding stunting prevention. The research results of (Arini et al., 2017) stated that there were difference in knowledge before and after the activuty, both in the group that received complementary feeding counseling and training and the group that only received counseling. The improve in knowledge was better in the group that was given counseling and training.

This study shows that there is no significant difference in mother's motivation pre- and post-intervention with a p value = 0.433. However, in this study the mother's motivation was in the adequate and good range. This motivation gives mothers the enthusiasm to follow the training material provided. This is different from the research of (Andriani et al., 2017) where in this research it was found that the motivation score was significantly significant (p = 0.000) between pre- and post-intervention through the Mother Smart Grounding (MSG) program for mothers regarding stunting prevention in the region Puuwatu Community Health Center work in 2017.

CONCLUSION

There is a significant difference in mother's knowledge pre- and post- food safety training with a p value <0.05. Meanwhile, the mother's motivation shows that there is no significant difference between pre- and post the food safety training with a p value > 0.05. Mothers can maintain good habits and methods in choosing, sorting, and to preparing the food to maintain food safety. This is form of application of the knowledge they have to apply it in maintaining optimal child growth and development.

Mothers are expected to able to preparing the food themselves, provide food according to age and stage of feeding, maintain the quality of the food provided, and ensure that the food provided is fee from biological, chemical, and physical contamination that can disrupt, harm, and endanger health. In this study, food safety training based on blended learning improved mothers' knowledge in efforts to prevent stunting in children.

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