Meta Analysis Article

The Relationship of Sex, Maternal Education and Exclusive Breast Milk Consumption with Stunting Events in Toddlers

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ABSTRACT

Stunting is a condition of child's height growth is impaired. One in four toddlers experience stunting, characterized by stunted growth. Prevalence of stunting in toddlers nationally remains high at 36.8%. It has not reached WHO target, which is below 20%. Government has determined stunting as one of the priority programs, namely the Healthy Indonesia Program with Family Approach to reduce the incidence of stunting in toddlers. Therefore, a meta-analysis study analyzes the relationship between sex, mother's education and exclusive breastfeeding consumption with the incidence of stunting in toddlers by applying PRISMA protocol. The results was no relationship between sex and the incidence of stunting in toddlers with OR value of 1.087 (95% CI 0.960 - 1.231), there was a relationship between mother's education and the incidence of stunting in toddlers with OR value of 1.850 (95% CI 1.550 - 2.208), and there is a relationship between exclusive breastfeeding and the incidence of stunting in toodlers with OR value of 1.657 (95% CI 1.004 – 2.737) and shows no publication bias with funnel plot symmetry. So it can be concluded that there is no relationship between sex and the incidence of stunting, and there is a relationship between maternal education and exclusive breastfeeding consumption with stunting in toddlers.

Keywords: Stunting, breastfeeding, nutrition

INTRODUCTION

Stunting (short) is nutritional status based on the index of body length for age (PB/U) or height for age (TB/U). Stunting toddlers are toddlers with nutritional status based on length or height according to age compared to the 2005 World Health Organization-Multicentre Growth Reference Study (WHO-MGRS) standard, Z-Score value less than -2 standard deviations (SD).[1]

The problem of short toddlers illustrates the existence of chronic nutritional problems influenced by the condition of the mother or future mother, fetal period, infancy or toddlerhood, including diseases suffered during infancy. Specific (direct) nutrition interventions are generally carried out in the health sector but only contribute 30% while 70% are the contribution of sensitive nutrition interventions (indirect) that involve various sectors such as food security, availability of clean water and sanitation, poverty alleviation, education, social and so on.[1] Globally, one in four children under 5 years of age is stunted, which is characterized by stunted growth.

Globally in 2017 as many as 22,2% or around 150.8 million children under five in the world experienced stunting, this figure has decreased in 2018 which is 21,9% (149 million) children under five and continues to decline in 2019 which is 21,3% (144 million) children under five. More than half of children under five are stunted in Asia, the least proportion is in East Asia at 4,5%. The results of the Study on the Nutritional Status of Indonesian Toddlers (SSGBI) in 2019 showed the prevalence rate of stunting under five in 2013 was 37,2%, decreased by 6,4% in 2018 which was 30,8% and continued to decline by 3,1% in 2019, namely 27,67%. The prevalence of stunting in Indonesia is still above 20%, meaning that it has not reached the WHO target, which is below 20%.[2]

Stunting is one of the targets of the Sustainable Development Goals (SDGs) included in the second sustainable development goal, namely eliminating hunger

and other forms of malnutrition by 2030 and achieving food security. The target set is to reduce the stunting rate to 40% by 2025.[3] In order to achieve this, the government has set stunting as one of the priority programs. Based on the Regulation of the Minister of Health Number 39 of 2016 concerning Guidelines for the Implementation of the Healthy Indonesia Program with a Family Approach.[4]

The prevalence of stunting was found to be higher in boys than girls. At the growth and development stage, there are differences in the speed of growth and development patterns in sex which result in a tendency for stunting to occur. However, the effect of gender on the incidence of stunting is still controversial.[5] According to the results of research conducted by Badriyah (2019), it is stated that male and female toddlers have the same possibility of experiencing stunting.[6] The results of the analysis showed that there was a significant relationship between gender and stunting ($p<0.05$), boys at risk of stunting 1.18 (1.07-1.29) times compared to girls. Meanwhile, according to research by Rachmawati (2019), gender is not associated with stunting ($p>0.05$). There are many differences in the results of research on maternal education that is significantly related to the nutritional status of children and also stunting is influenced by nutritional fulfillment in early life, one of which is through exclusive breastfeeding.[7]

Based on the description above, it can be seen that there are differences in results between one study and another. There are many studies that have been carried out to determine the risk factors related to stunting in toddlers, so a study was conducted to analyze and prove that there is a tendency of the relationship between sex, mother's education and exclusive breastfeeding consumption with the incidence of stunting in toddlers, especially in the analysis of related journals. year 2019-2020.

METHOD

The design used in this study is a meta-analysis. The method used by researchers to conduct quantitative testing is based on research journals that have been published in reputable and accredited international and national scientific journals.

Journal selection criteria include inclusion and exclusion. Inclusion criteria include Journal containing OR Value and Pvalue, Reputable international journal (indexed by Scopus in Scimago Journal Ranks), Accredited national journal (indexed by Sinta 1 to Sinta 4), Latest journal (2 years earlier), Minimum number of journals is 10 journals, Using databases including PubMed and Google Scholar, Journals can be accessed and downloaded, In the form of PDF files and free of charge, and Research journal using cross-sectional research method.

Exclusion criteria include International and national research journals that are not related to research problems and Journals other than Indonesian and English.

The population is the whole object of research or also called the universe. The population in this study are national and international journals related to the research title, namely the relationship of sex, mother's education and exclusive breastfeeding consumption with the incidence of stunting in toddlers.

The sample is the object under study and is considered to represent the population.[8] The samples in this study were national and international journals related to the title of the study, namely the relationship between sex, mother's education and exclusive breastfeeding consumption with the incidence of stunting in toddlers and met the inclusion criteria that have been set. The sample in this study used a purposive sampling technique.

The research variables carried out in this study are:

1. Independent variable
   The independent variables in this study were gender, mother's education and consumption of exclusive breastfeeding.
2. Dependent variable

The dependent variable in this study is stunting.

In meta-analysis research, it is known that there is an effect size. Effect size is the difference in the incidence of effects between the experimental group and the control group in the meta-analysis, which is a combination of the effect sizes of each study carried out using statistical techniques.

Identification of research questions is a question that is used as the basis for conducting a review. So we need an appropriate question analysis technique. So the SPIDER method was chosen to formulate research questions because SPIDER focuses less on intervention but focuses on research design and samples rather than population. Here's the SPIDER formulation.

After searching for articles, 24 research journals were obtained that had been assessed for eligibility (quality) using the Critical Appraisal Checklist for Analytical Cross Sectional Studies from JBI in table 3.2 above, in general, journals had a score of 62.5% - 100% (5-8 points) and all journals that had a score of 50% or more

could be used and included in the meta-analysis study.[10]

The statistical test used by researchers to analyze journals in this meta-analysis study is the JASP application version 0.14.1 because it is free and can be used continuously without usage limits. Journal analysis was carried out using a semi-manual method using Microsoft Excel, namely formulating the OR value so that the Effect Size, variance and Standard Error values could be found. Next, journal analysis uses the JASP version 0.14.1 application to test heterogeneity, Summery Effect, Forest Plot, and Funnel Plot which serves to see publication bias.

RESULT AND DISCUSSION

Applying the concept of Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA), the first step is to search for journals in two databases, namely PubMed for reputable international journals indexed by Scopus in the Scimago Journal Rank and Google Scholar for accredited national journals indexed by Sinta 1-4. The total number of journals that have been identified by entering keywords in the database is 1,456 journals.

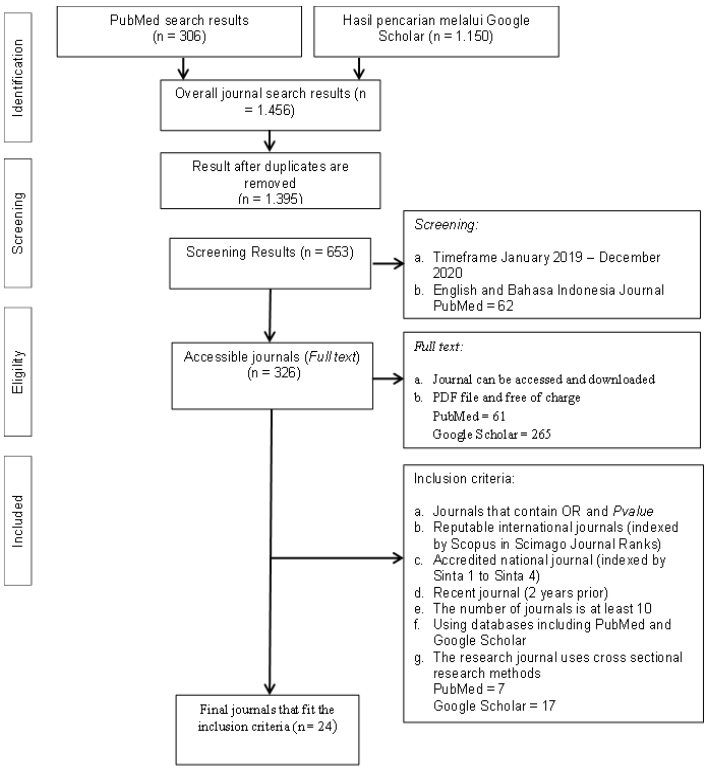

Figure 1. Protocol with the PRISMA concept (Moher et.al., 2009)

The next stage is that 1,456 journals are saved into the Zotero application via the extension menu > Zotero Connector so that 61 duplications are identified, leaving 1,395 journals. Then a screening was carried out covering a time span of 2 years (2019-2020), English and Indonesian journals produced 653 journals. Furthermore, screening of journals that can be accessed (full text) includes journals that can be accessed and downloaded, in the form of PDF files and free of charge so that the remaining journals are 326 journals. The next stage of the 326 journals was filtered by reading the journal as a whole. At this stage it will be seen the purpose of the study, whether the variables used are in accordance with the research variables. In addition, the inclusion and exclusion process was also carried out, so that the articles that matched the inclusion criteria were 24 journals (7 international journals and 17 national journals) where there were 11 journals related to gender on stunting, 10 journals related to maternal education on stunting and 14 journals related to exclusive breastfeeding for stunting.

Based on the systematic review stages that have been carried out using SPIDER above, in this meta-analysis study there are 4 (36%) related journals and 7 (64%) unrelated journals for gender variables. There are 5 (50%) related journals and 5 (50%) unrelated journals for the mother's education variable. And, there were 10 (71%) correlated and 4 (29%) unrelated journals for the exclusive breastfeeding variable.

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Table 1. Statistica; Results of Summery Effect in The Study of Gender With Stunting in Toddlers

Estimation	Standar Eror	Z	p	95% Confidence interval	
				Bottom	Top
0.083	0.064	1.313	0.189	-0.041	0.208

Description: Estimation = Summery Effect Values
z = Weighted mean divided by standard error
p = Probability (Opportunity)

The results of the analysis using the random effect model show the p value > 0.05, namely p = 0.189, it can be concluded that there is no relationship between gender and the incidence of stunting in toddlers.

The heterogeneity that occurs in this meta-analysis of sex variables is due to confounding variables that affect the results of research in journals 1, 2, 4, 5, 8, 9, and 10, namely the history of infectious disease, low birth weight, socioeconomic and anemia variables. In the journal that has been analyzed the confounding variables are related to the incidence of stunting in toddlers.

The results of the analysis of the entire study show that there is no relationship between gender and the incidence of stunting in children under five. This is evidenced by the value of p> 0.05, namely p = 0.189 and the value of OR = 1.087, 95% CI 0.960 - 1.231. Based on 11 journals that have been analyzed in this meta-analysis research, there are 4 journals which state that there is a relationship between gender and stunting in toddlers and 7 journals which state that there is no relationship between gender and stunting in toddlers.

In the 11 studies combined in the meta-analysis of the relationship between gender and stunting in toddlers, all of these studies used the same research method, namely cross-sectional studies. Based on the results of the heterogeneity test, the effect size of each study is heterogeneous so that the statistical test for summary effect that is suitable is the random effect model.

The heterogeneity that occurs in meta-analysis research on the gender variable is due to the presence of confounding variables that affect the results of research in journals 1, 2, 4, 5, 8, 9, and 10 (can be seen in table 4.2), namely variables of infectious disease history, LBW, socioeconomics and anemia. In the journals that have been analyzed, these confounding variables are associated with the incidence of stunting in toddlers.

Of the 11 studies used in this meta-analysis, Siswati (2020) and Titaley, et al (2019) have the best research quality because they have large research samples (n = 13,248 and n = 24,657) and also have a small variance value, resulting in a large weight with a narrow confidence interval. This is in accordance with the theory expressed by Dahlan (2012) that the weight in a study is directly proportional to the research sample (research subject). Weight is influenced by data variation, where weight is inversely proportional to data variation. Research that has a lot of variation has a small weight compared to small data variations.[11]

The results of the analysis of the entire study showed that there was no association between gender and the incidence of stunting in toddlers. This is evidenced by the p value> 0.05, namely p = 0.189 and OR value = 1.087, 95% CI 0.960 - 1.231. Based on 11 journals that have been analyzed in this meta-analysis study, there are 4 journals stating that there is a relationship between gender and stunting in toddlers and 7 journals stating that there is no relationship between gender and stunting in toddlers.

In this meta-analysis study, there are journals that state that there is a relationship between gender and stunting. Male toddlers tend to experience more stunting than women because the nutritional needs of male toddlers are less fulfilled for their daily activities. Meanwhile, journals that state that there is no relationship between gender and stunting because men and women have the same risk opportunities for stunting.

The results of this meta-analysis study indicate that there is no relationship between gender and the incidence of stunting in toddlers. In the same theory put forward by Teshome (2008) states that this condition can occur due to differences in eating practices provided by parents in an effort to fulfill family nutrition.

The results of this meta-analysis study state that there is no relationship between gender and the incidence of stunting in toddlers in line with Julianti's research (2020) which states that there is no relationship between the gender of children aged 12-59 months with stunting. Both men and women have the same possibility of being stunted.[12] In Tsaralatifah (2020) said that there was no relationship between male and female gender and the incidence of stunting.[13] According to research

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conducted by Rachmawati (2019) states that gender is not associated with the incidence of stunting (p> 0.05). In Siswati's research (2020) obtained the results that there was no relationship between gender and the incidence of stunting in toddlers with a p value> 0.05, namely p = 0.180.[7]

In line with research conducted by Sutriyawan (2020) which proves that there is no relationship between gender and the incidence of stunting. The absence of this relationship is likely due to the fact that the respondents in the study were almost the same between male and female gender. The study believes that male toddlers are actually more prone to stunting because they are usually more active than female toddlers. Male toddlers play outside more often, such as running around, so they are more exposed to dirty environments and spend more energy but their energy intake is limited. Gender determines the amount of nutritional needs for a person so there is a link between nutritional status and gender. The difference in nutritional needs is influenced by differences in body composition between men and women. So that the amount of intake that must be consumed is more.[14]

Based on the results of research conducted by Malako, et al (2019), gender is not associated with the incidence of stunting in toddlers with a p value = 0.33.[15] In Nuraeni (2020) states that there is no significant relationship between gender and the incidence of stunting in the work area of the Kadipaten Health Center, Majalengka Regency in 2019 but the prevalence of children suffering from stunting is more in boys than girls, several reasons including the growth of gross motor boys is more rapid and diverse, so it requires a lot of energy.[16]

Based on the analysis conducted by the researchers, this meta-analysis study and several studies above have similar results, namely that there is no relationship between gender and the incidence of stunting in toddlers. Both male and female have the same possibility of being stunted. Recommendations in terms of fulfilling family nutritional needs such as feeding practices given by parents to male and female toddlers do not need to be differentiated. The problem of stunting is influenced by parents' low access to food in terms of quantity, nutritional quality and food diversity. Ideal eating practices given by parents to their children according to the term "my plate" with balanced nutrition need to be introduced and familiarized in everyday life. For children in the growth period, increasing protein sources is highly recommended in addition to continuing to familiarize eating fruits and vegetables. In one meal, half the plate is filled with vegetables and fruit, the other half is filled with protein sources both vegetable and animal with a greater proportion than carbohydrates. If the food intake provided is not in accordance with nutritional needs, it will hinder the growth and development of children so that if this continues for a long time it will cause stunting.

Table 2. Statistical Results of The Summery Effect on The Education Study of Mothers With Stunting In Toddlers

Estimation	Standard Error	Z	P	95% Trust Interval	
				Under	Above
0.615	0.090	6.820	< .001	0.438	0.792

Description: Estimation = Summery effect value
Z = Weighted average value divided by standard error
p = Probability

The results of the analysis of 10 studies related to the relationship between maternal education and stunting in children under five showed that all of these studies used the same research method, namely a cross-sectional study. Based on the results of the heterogeneity test, it shows that the effect size value of each study is the same or does not vary (homogeneous) so that the statistical test for the suitable summary effect is the fixed effect model. Of the 10 studies used in this meta-analysis, Rachmawati's research (2019) has the best research quality because it has a large research sample (n = 840) and also has a small variance value (0.028) resulting in a large weight with a confidence interval. narrow one.[9] This is in accordance with the theory expressed by Dahlan (2012) that the weight in a study is directly proportional to the research sample (research subject). The weight is influenced by the variation of the data, where the weight is inversely proportional to the variation of the data. Research that has a lot of variation will have a small weight compared to small data variations.[17]

The results of the analysis of the entire study indicate that there is a significant relationship between maternal education and the incidence of stunting in children under five with p < 0.05, namely p < 0.001 and OR =

1.850 with a 95% confidence interval (CI 1.550 – 2.208) so it can be concluded that Mothers with low education have a 1.8 times greater risk of having stunting children compared to mothers with high education.

In the maternal education variable, there are journals stating that there is a relationship with stunting because highly educated mothers tend to be better at choosing the type of food because they understand that nutritional intake in toddlers is very important for growth and mothers who have good knowledge are followed by attitudes, skills and willingness and practices that bring improvements in toddler nutrition. Meanwhile, the journal states that there is no relationship between maternal education and stunting because mothers with higher education will have more knowledge but will not be in line if their parenting is not good.

The results of this meta-analysis study indicate that there is a significant relationship between maternal education and the incidence of stunting in toddlers in accordance with UNICEF theory (1998) which states that education is one of the factors causing stunting. The higher the education, the better the level of family food security, the better the childcare patterns and the more the family utilizes available health services.

The theory is also supported by Suharjo (2007), which states that education level can affect health status because education affects the quality of childcare. A higher level of education will make it easier for a person or community to absorb information and implement it in everyday life, especially in terms of health. Formal education forms values for a person, especially in accepting new things. This theory is also proven by the 5 journals in this study which show the results that there is a relationship between maternal education and stunting in toddlers.

According to Rahmawati's research (2020) which states that there is a significant relationship between maternal education and the incidence of stunting. The study found that maternal education is a variable that is significantly associated with the incidence of stunting among children under five in poor families. Low-educated mothers have a tendency to have stunted children 7.2 times compared to mothers with higher education. In addition, mothers have an important role in shaping children's eating habits, starting from the selection of food ingredients, preparation, processing, and serving and feeding to toddlers. Highly educated mothers tend to be better in choosing the type of food because they understand that nutrient intake in toddlers is very important for growth. Mothers who have good knowledge must be followed by attitudes, skills, and willingness, as well as practices that bring improvements in toddler nutrition. In addition, highly educated mothers are more likely to have access to information about nutrition and health. The review found that low caregiver education, especially maternal education, was strongly associated with stunting and that maternal education was the best predictor of parenting status.

Research by Anggraini (2019) states that there is a relationship between maternal education and the incidence of stunting. Children born to highly educated mothers reduce the risk of stunting. an educated mother has a higher concern for nutritional status compared to uneducated mothers. Mothers have more attention to the nutritional status of themselves and all family members and are able to make their own decisions on problems related to family nutritional status. This study is in line with research conducted by Khoiriah (2020) which states that maternal education has a significant effect on the occurrence of stunting in toddlers. The level of maternal education is closely related to nutritional knowledge and fulfillment of family nutrition, especially children because mothers with low education will find it difficult to absorb nutritional information so that they can be at risk of having stunted toddlers. If the mother's education is low as a result the mother is unable to choose to serve food for the family to meet balanced nutritional requirements based on the results of the study above the odds ratio shows a considerable value of 5,000, meaning that mothers with low education levels have a 5 times greater risk of having stunted toddlers than mothers with high education. The level of fetal nutritional intake must be understood by pregnant women, besides that low maternal education makes knowledge about balanced nutritional intake during pregnancy cannot be understood quickly, although counseling about balanced nutrition for mothers and toddlers in the womb is routinely given when posyandu activities are carried out. The lack of maternal awareness and responsiveness to the fulfillment of nutrition during childbirth is a special concern, because the assistance of the health office with pregnant women cannot necessarily be fully monitored.[18]

The results of Nurmalasari's research (2020) state that there is a significant relationship between maternal education level and the incidence of stunting with an OR value = 3.313 (95% CI 1.878-5.848) which means that low maternal education has a 3.3 times higher risk of stunting compared to mothers with higher education. Education is a planned

effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, as well as skills needed by themselves, society, nation and state. Generally, mothers with higher education have broader knowledge about child care practices and are able to maintain and care for their environment to keep it clean. Parents, especially mothers who get higher education, can perform better child care than parents with low education. The level of education, especially the mother's education level, has an influence on the health of her family, one of which is the nutritional status of family members. Maternal education also affects parenting patterns in children, because mothers are the first and main caregivers for children's health, food managers in the family and have a big role in improving the nutritional status of family members.[19]

The incidence of stunting in toddlers is more common among mothers with low education. This is because in the community there is still a growing thought that education is not important and related to support from the family to pursue higher education which is still not optimal. Indirectly, the mother's level of education will affect the mother's ability and knowledge about health care, especially in understanding nutrition knowledge.

This also causes a lack of ability of mothers in choosing foods with low prices with balanced nutritional value and quality because foods that have good nutritional value and quality do not have to be obtained from expensive foods, many foods with low prices have good quality and nutritional value needed by the body.[19] In line with research conducted by Nuraeni (2020) states that there is a significant relationship between the educational status of mothers of toddlers and the incidence of stunting. The level of education affects a person in receiving information related to nutrition, especially mothers. Mothers will more easily receive nutritional information with a better education level than with a less education level. This fact is a provision for mothers to take care of their toddlers in their daily lives so that they can prevent stunting.[16]

Based on some of the above studies, the results show the same results as the results of this meta-analysis study, namely that there is a relationship between maternal education and the incidence of stunting in toddlers. The higher the mother's education, the better the level of family food security, the better the childcare patterns and the more the family utilizes available health services. The mother's level of education also determines whether or not it is easy for a mother to understand nutrition-related knowledge. Education is needed so that a mother is more responsive to nutritional problems in the family and is expected to take appropriate action as soon as possible. Recommendations for revitalizing *posyandu* through nutritional status monitoring programs, especially in nutrition counseling for mothers of children under five years old to increase nutrition-related health information so that mothers can solve nutrition problems in their families. Mothers with higher education can solve nutritional problems in the family and tend to receive health-related information more easily than mothers with low education. Where parenting patterns are mostly carried out by mothers, maternal education is very influential on the nutritional status of their toddlers.

Table 3. Statistical Results of The Summery Effect in The Study of Exclusive Breastfeeding With Stunting in Toddlers

Estimation	Standard Error	Z	p	95% Trust Interval	
				Under	Above
0.505	0.256	1.974	0.048	0.004	1.007

Description: Estimation = Summery effect value
Z = Weighted average value divided by standard error
P = Probability

The results of the analysis in 14 studies which were combined in a meta-analysis related to the relationship between exclusive breastfeeding and stunting in children under five, showed that all of these studies used the same research method, namely a cross-sectional study. Based on the results of the heterogeneity test, it shows that the effect size of each study is heterogeneous so that the statistical test for the suitable summary effect is the random effect model.

The heterogeneity that occurs in this meta-analysis of the exclusive breastfeeding variable is due to the presence of confounding variables that affect the results of research in journals 1, 3, 4, 6, 7, 8, 9, 10, 12 and 14 (can be seen in table 4.4), namely the variable history of infectious disease and LBW. In the journal that has been analyzed the confounding variables are related to the incidence of stunting

in toddlers.

The results of the analysis of the entire study show that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers with p value < 0.05, namely p = 0.04 and OR = 1.657 with a 95% confidence interval (CI 1.004 – 2.737) so it can be concluded that toddlers who are not exclusively breastfed are 1.6 times more likely to suffer from stunting compared to toddlers who are exclusively breastfed.

Then, in the exclusive breastfeeding variable, there are journals stating that there is a relationship with stunting because exclusive breastfeeding is the best and complex food to reduce the risk of growth and development failure in infants and toddlers who do not get exclusive breastfeeding have a 4.78 times risk of stunting compared to toddlers who get exclusive breastfeeding. Meanwhile, journals that state that there is no relationship between exclusive breastfeeding and stunting because it is easy for mothers to get formula milk and complementary foods to meet the nutritional needs of their toddlers.

The results of this meta-analysis study state that there is an association between exclusive breastfeeding and the incidence of stunting in toddlers. This is following the theory of Davidson and Birch (2001) which states that exclusive breastfeeding is one of the factors causing stunting. The history of exclusive breastfeeding plays a very important role in the fulfillment of toddler nutrition. Consumption of breast milk also increases the baby's immunity, thus reducing the risk of infectious diseases.[20]

This theory is also supported by Roesli (2005) who states that exclusive breastfeeding as a nutrient to increase endurance, intelligence and breastfeeding can increase the bond of affection between mother and baby. Exclusive breastfeeding as a single food to meet the needs of infant growth until the age of 6 months and can increase endurance. This is in line with Government Regulation No. 33 of 2012 that exclusive breastfeeding is breast milk given to babies from birth for 6 months without adding or replacing it with food or drink (Ministry of Health, 2016). Some of these theories are also proven by 10 journals in this study which show the results that there is a relationship between exclusive breastfeeding and stunting in toddlers.[21]

According to research conducted by Julianti (2020), there is a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers (p <0.001).[12] In line with the results of research related to nutritional status, developmental level, and psychological function of preschool children, it shows that there is a relationship between exclusive breastfeeding history and the incidence of stunting with the results of calculations using the chi square test obtained p = 0.007.[22] Furthermore, according to the calculation of bivariate analysis, the result of p = 0.038 means that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers.[23] The results of research conducted by Uwiringiyimana (2019) state that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers.

The results of Windasari's research (2020) state that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. This study shows that the success of exclusive breastfeeding has a positive impact on the growth and development of toddlers. Toddlers who did not get exclusive breastfeeding for the first 6 months were higher in the stunting toddler group (88.2%) compared to the normal toddler group (61.8%). Babies who do not get enough breast milk have poor nutritional intake and can cause malnutrition, one of which can cause stunting. One of the benefits of breast milk is that it supports the growth of babies, especially height because breast milk calcium is more efficiently absorbed than breast milk substitutes or formula milk. Therefore, babies who are exclusively breastfed tend to have a higher height and fit the growth curve compared to babies who are given formula milk.[24]

In line with research conducted by Hasandi (2019) states that there is a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers with an OR value = 25.000 so that it can be interpreted that children who are not exclusively breastfed are at risk of 25 times experiencing stunting compared to children who are given exclusive breastfeeding. To continue its growth, a baby needs adequate energy and nutrient intake so that it can ensure growth and development takes place as optimally as possible. Infants who are not exclusively breastfed are at higher risk of infection because breast milk contains a variety of natural protective substances that can be well absorbed by the baby's intestines. The low coverage of exclusive breastfeeding is due to the community's habit of trying/giving food/drinks other than breast milk as soon as the child cries/cries even though they are still 0-6 months old with the assumption that the baby will feel full and will calm down, there are even babies who are immediately given complementary foods as soon as they are born because they cry. Other reasons some respondents did not give exclusive

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breastfeeding to their children included because at birth the milk had not come out, the nipple was injured and they felt that the baby was not full if only given breast milk.[25]

Research by Nugraheni (2020) states that children aged 6-24 months who are not exclusively breastfed have a risk of stunting 1.282 times compared to children who are exclusively breastfed so that exclusive breastfeeding history is a factor associated with stunting. Exclusive breastfeeding is given for 6 months without any additional food and can be continued until the baby is 2 years old. Breast milk can reduce infant mortality. The content of breast milk which is rich in nutrients can minimize the risk of infants developing infectious diseases, infectious diseases can increase malnutrition, so that if it occurs in the long term it can interfere with the absorption of nutrients, so that it can increase the risk of stunting in children under five. The content of nutrients in breast milk includes energy which has a very large contribution from protein, carbohydrates and fat. Nutrients such as vitamin A, vitamin D, vitamin B6, calcium, iron and zinc are nutrients in breast milk that are needed by children.[26] Furthermore, the results of research by Badriyah (2019) show that exclusive breastfeeding is associated with stunting. Breastfeeding is sufficient as the only source of nutrition for infants up to 6 months of age provided that the mother's diet and fat stores are adequate and the breast milk given is successfully transferred into the baby's body. Undernourished mothers have lower fat reserves and thus lower ability to produce breast milk. In addition, undernourished mothers have significantly lower protein and energy composition and volume of breast milk compared to well-nourished mothers.[6]

In line with research conducted by Sastria (2019) states that there is a significant relationship between exclusive breastfeeding factors and the incidence of stunting in toddlers with the chi squared test obtained a p value = 0.001. Exclusive breastfeeding is very beneficial for mothers and babies because breast milk is a natural food that is good for babies, practical, economical, easy to digest, has an ideal composition of nutrients according to the needs and digestive abilities of babies and breast milk supports baby growth, especially height because breast milk calcium is more efficiently absorbed than milk substitutes. According to Sumartini, et al (2019) stated that there is a relationship between exclusive breastfeeding history and the incidence of stunting in toddlers.[27]

Based on some of the above studies, the results of this meta-analysis show that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. Stunting is closely related to exclusive breastfeeding, the incidence of stunting is lower in toddlers who are exclusively breastfed than in toddlers who are not exclusively breastfed. Recommendations to revive the revitalization of posyandu through maternal health programs. During the examination, pregnant women can also consult regarding the preparation of exclusive breastfeeding for their babies. Breast milk is an important nutrient needed for infant growth and development. The process of breastfeeding without any additional food starts from the baby's age of 0-6 months. It is necessary for mothers and expectant mothers to know about exclusive breastfeeding for their baby's growth and development. Babies who get exclusive breastfeeding have better immunity so they rarely suffer from certain diseases. Meanwhile, babies who are not exclusively breastfed are usually more prone to infectious diseases which makes the energy for growth diverted to the body's fight against infection so that nutrients are difficult to be absorbed by the body which results in inhibition of growth.

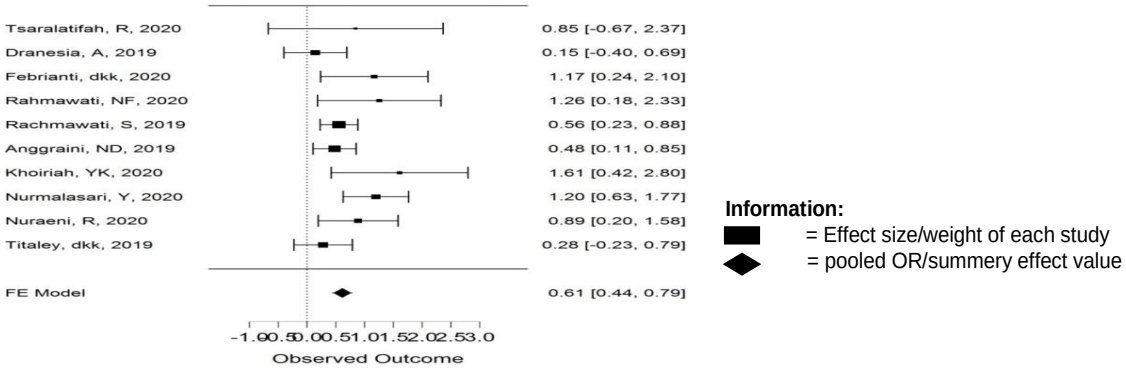

Figure 2. Forest plot research on the relationship between mother's education and stunting in toddlers

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The forest plot shows that the effect size of the analyzed studies is between 0.15 to 1.61 and the estimate value is 0.615. From the results of calculations using the fixed effect model, it can be concluded that there is a significant relationship between mother's education and the incidence of stunting in toddlers. This is evidenced by the value of p < 0.05, namely p < 0.001 so that it can be concluded that mothers with low education are 1,8 times more likely to have stunting children than mothers with high education. The correlation value is in the low category with an OR value of 1.850 (criteria according to Cohen 1988) with a confidence interval in the range of 1.550 to 2.208.

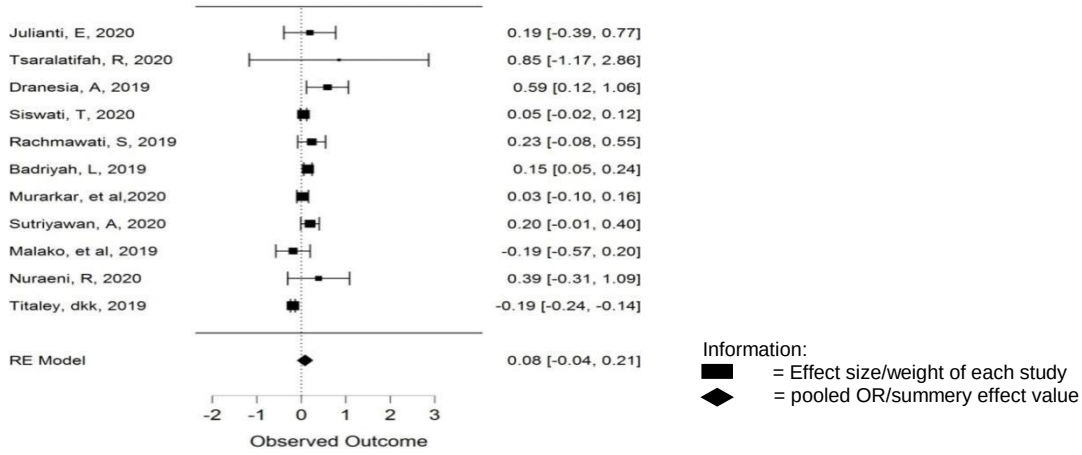

Figure 3. Forest plot on the study of the relationship between sex and stunting in toddlers

Forest plot shows that the effect size of the analyzed studies is between -0.19 to 0.85 and the estimate value is 0.083. From the results of calculations using the random effect model, it can be concluded that there is no relationship between gender and the incidence of stunting in toddlers. This is evidenced by the p value> 0.05, namely p = 0.189. The correlation value is in the low category with an OR value of 1.087 (criteria according to Cohen 1988) with a confidence interval in the range of 0.960 to 1.231.

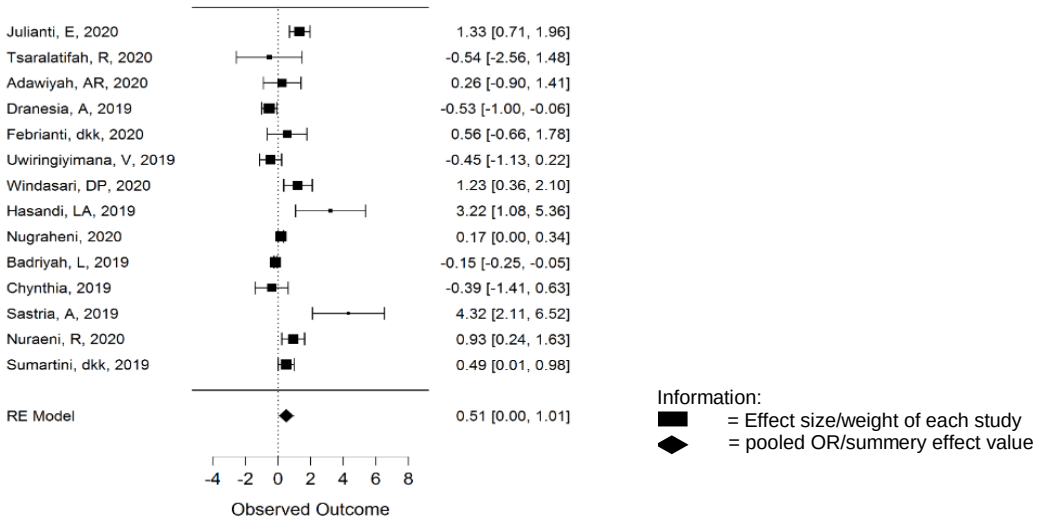

Figure 4. Forest plot on the study of the relationship between exclusive breastfeeding and stunting in toddlers

The forest plot shows that the effect size of the analyzed studies is between -0.54 to 4.32 and the estimate value is 0.505. From the results of calculations using the random effect model, it can be concluded that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. This is evidenced by the p value < 0.05, namely p = 0.04 so it can be concluded that infants who are not exclusively breastfed have a 1.6 times

greater risk of suffering from stunting compared to infants who are exclusively breastfed. The correlation value is in the low category with an OR value of 1.657 (criteria according to Cohen 1988) with a confidence interval in the range of 1.004 to 2.737.

CONCLUSION

Conclusion of this research are There is no relationship between gender and the incidence of stunting in toddlers with a p value > 0.05, namely p = 0.189 and an OR value of 1.087 (95% CI 0.960 - 1.231); There is a relationship between mother's education and the incidence of stunting in toddlers with a p value < 0.05, namely p < 0.001 and an OR value of 1.850 (95% CI 1.550 – 2.208); There is a relationship between the consumption of exclusive breastfeeding with the incidence of stunting in toddlers with a p value < 0.05, namely p = 0.048 and an OR value of 1.657 (95% CI 1.004 – 2.737).

There are 24 research journals that can be included in this meta-analysis, including 11 research journals related to gender variables, 10 research journals related to maternal education variables, and 14 research journals for exclusive breastfeeding variables. The results of the heterogeneity test showed that the study data used were homogeneous on the mother's education variable so that the statistical test used to calculate the summery effect was a fixed effect model and heterogeneous on the variables of sex and exclusive breastfeeding so that the statistical test used to calculate the summery effect was a random effect model.

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