



The correlation of antenatal care and nutrition parenting with stunting incidence in toddlers age 24-59 months

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ABSTRAK

Latar Belakang: Prevalensi balita stunting di Indonesia sebesar 21,6%. Faktor penyebab stunting antara lain karena kurangnya pemahaman orangtua dalam pemenuhan gizi sebelum dan saat hamil terutama pada masa 1000 HPK. Salah satu upaya meminimalisir terjadinya stunting adalah melakukan pemeriksaan Antenatal Care (ANC) pada masa kehamilan. Rangkaian kegiatan pemeriksaan ANC yang berpengaruh terhadap stunting adalah kelengkapan frekuensi kunjungan dan layanan 10T. Pola asuh orangtua terutama ibu dianggap penting dalam penentuan status gizi dan tumbuh kembang anak. Aspek pola asuh ibu yang berpengaruh terhadap kejadian stunting adalah praktik pemberian makan yang meliputi pemberian ASI Eksklusif dan MP-ASI.

Tujuan: Menganalisis hubungan antara ANC dan pola asuh gizi dengan kejadian stunting pada balita usia 24-59 bulan.

Metode: Penelitian analitik observasional dengan desain cross-sectional. Penelitian ini dilakukan pada 111 balita usia 24-59 bulan yang dipilih melalui Simple Random Sampling, selama kurun waktu Januari-Maret 2023 di wilayah kerja Puskesmas Jelbuk Kabupaten Jember yang prevalensi balita stunting mencapai angka 34,4%. Penelitian ini dilakukan dengan observasi metode wawancara, pengukuran berat badan dan tinggi badan secara langsung, kuesioner, formulir dan food recall 2x24 jam. Hasil penelitian dianalisis menggunakan uji chi-square. Penelitian ini telah lolos uji etik penelitian kesehatan dengan nomor sertifikat No.63/KEPK/FKM-UNEJ/VI/2021.

Hasil: Sebagian besar balita dalam penelitian ini memiliki status gizi (TB/U) dalam kategori stunting (66.7%). Balita stunting banyak terjadi pada balita perempuan dengan rentang usia 21-30 bulan. Balita stunting banyak terjadi pada ibu dengan usia 21-25 tahun, berpendidikan dasar, tingkat pengetahuan gizi kurang, tidak bekerja, jumlah anggota keluarga kecil, dan pendapatan keluarga > UMK. Tidak terdapat hubungan bermakna ($p > 0,05$) antara ANC ($p = 0,544$) dan pola asuh gizi ($p = 1,000$) dengan kejadian stunting balita usia 24-59 bulan di wilayah kerja Puskesmas Jelbuk Kabupaten Jember.

Kesimpulan: Tidak terdapat hubungan bermakna antara ANC dan pola asuh gizi dengan kejadian stunting balita usia 24-59 bulan di wilayah kerja Puskesmas Jelbuk Kabupaten Jember.

KATA KUNCI: stunting; ANC; pola asuh gizi



ABSTRACT

Background: The prevalence of stunting under five in Indonesia is 21,6%. Factors causing stunting include malnutrition before and during pregnancy, especially at 1000 HPK. One of the efforts to minimize stunting is to carry out pregnancy ANC. The series of ANC examinations that affect stunting is the completeness of the frequency of visits and 10T services. Parenting style is important in determining the nutritional status of children. Aspects of maternal parenting that influence stunting are the practice of exclusive breastfeeding and complementary breastfeeding.

Objectives: To analyze the relationship between the completeness of the frequency of visits and ANC 10T services and nutritional care patterns with the incidence of stunting in children aged 24-59 months.

Methods: Observational analytic study with cross-sectional design. A sample of 111 toddlers aged 24-59 months were selected by Simple Random Sampling, starting from January to March 2023 in the working area of the Jelbuk Health Center, Jember Regency, where the stunting prevalence was 34.4%. Data were collected by observation of interview methods, direct measurement of weight and height, questionnaires, formulas and 2x24-hour food recalls. The results were analyzed using the chi-square test. This research has passed the health research ethics test with certificate number No.63/KEPK/FKM-UNEJ/VI/2021.

Results: Most of the toddlers in this study had nutritional status (Height/Age) in the stunting category (66.7%) occurs in female infants aged 21-30 months, mothers aged 21-25 years, basic education, lack of nutrition knowledge, not working, small number of family members, and income family > UMK. There was no significant relationship ($p>0.05$) between ANC ($p=0.544$) and nutritional care ($p=1.000$) with the incidence of stunting in children aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency.

Conclusions: There is no significant relationship between ANC and nutritional care with the incidence of stunting in children aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency

KEYWORD: stunting; ANC; nutritional parenting

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INTRODUCTION

Stunting is a challenge in health development efforts in Indonesia. Indonesia's Nutrition Status Survey (SSGI) (2022) states that the prevalence of stunting toddlers was 21.6%. Asia and Africa are regions with a prevalence of stunting under-fives of more than 30%, where more than half (53%) of stunted-fives live in Asia and more than two-fifths (41%) live in Africa. Asia is the region with the highest prevalence of stunting under five in the world (79 million) where South Asia ranks first (54.3%) and is followed by Southeast Asia (15.3%) (1).

Source of SSGI in 2022 reported that the prevalence of stunting under five in East Java Province was 19,2%. East Java has 38 regencies/cities, of which 16 regencies/cities are stunting red zones and are categorized as loci (locations of focus). Jember Regency is one of the

districts/cities in East Java which is included in the 2020 locus, with the prevalence of stunting under five children reaching almost. Jelbuk District is one of the sub-districts with a high prevalence of stunting under five, which is 34.9% SSGI in 2022.

The high rate of stunting is caused by a lack of understanding by parents in fulfilling nutrition before and during pregnancy, especially during the first 1000 days of life. One of the efforts to minimize the occurrence of stunting is to carry out antenatal care (ANC) examinations during pregnancy. ANC checks are carried out at least six times during pregnancy and have 10 minimum standard care known as 10T (weight and measure height, measure blood pressure, measure fundus height of the uterus, measure Mid-upper arm circumference, complete immunization of Tetanus toxoid, giving blood supplement tablets of at least

90 tablets during pregnancy, laboratory tests, calculating fetal heart rate, determining fetal presentation, and case management). 10T services for ANC that affect stunting include administering blood supplement tablets and measuring mid-upper arm circumference (18).

The incidence of stunting can be prevented by fulfilling nutrition for pregnant women, which means pregnant women must get enough food and get iron supplementation tablets (2). Iron deficiency anaemia can affect the occurrence of zinc (Zn) deficiency because the interaction of Fe and Zn has an impact on the inhibition of height growth so that children are born short (35). MUAC (Mid Upper Arm Circumference) measurements are carried out to detect mothers with Chronic Energy Deficiency (KEK). KEK causes a lack of reserves of nutrients needed by the fetus in the womb which functions to provide the physiological needs of pregnancy because energy is the main source for maintaining various body functions such as circulation and protein synthesis (2).

Stunting can not only occur due to a lack of nutritional intake (either for the mother or baby) during pregnancy but can also occur due to the parenting style of the parents when the child is born into the world. Parenting styles, especially mothers, are considered important in determining the nutritional status and development of children in the future. Mother's parenting style is related to nutrition parenting or child eating parenting patterns. Aspects of maternal parenting that influence the incidence of stunting are feeding practices which include exclusive breastfeeding and complementary breastfeeding (16). Exclusive breastfeeding is a very appropriate food for children aged 0-6 months because it contains all the essential nutrients for growth and immunity so that it can become a shield or stunting protection (3). Toddlers who are not given exclusive breastfeeding have a risk of 3.7 times greater than toddlers who are given exclusive breastfeeding (4). The provision of complementary food for ASI (MP-ASI) can also affect the nutritional status and growth and development of children. MP-ASI should start when the baby is six months old, but if breast milk is not sufficient, MP-ASI can be given at four months (17 weeks) while paying attention to the baby's readiness to accept solid food and do it hygienically (5).

MATERIALS AND METHODS

This research is an observational analytic study with a cross-sectional design. The population in this study was 503 toddlers. Using the Simple Random Sampling technique, a sample of 111 toddlers aged 24-59 months was obtained. The criteria of the research subjects were physically and mentally healthy mothers and toddlers; mothers can communicate well; and be willing to be interviewed. This research was conducted from January to March 2023 in the working area of the Jelbuk Health Center, Jember Regency. The variables in this study consisted of the dependent variable, namely stunting, and the independent variable, namely ANC, which included the completeness of the frequency of visits and the completeness of 10T services and the pattern of nutritional care, which included exclusive breastfeeding and MP-ASI. Data collection techniques in this study were interviews to find out independent variables (mother's last education, number of families, family income, and others), observations, and measurements using research instruments in the form of questionnaires, questionnaires, 2x24 hour food recall forms, and microtoice. Data analysis in this study used univariate analysis and bivariate analysis with chi-square test. This research has passed a health research ethics review at the Faculty of Public Health, University of Jember with certificate No.63/KEPK/FKM-UNEJ/VI/2021..

RESULTS AND DISCUSSIONS

Based on **Table 1**, most toddlers were stunted (66.7%), aged 24-31 months (18.0%), and girls (33.3%). Toddlers are a group that is vulnerable to malnutrition which can result in a decrease in body immunity which can make children susceptible to disease (7). The toddler period is the golden age, where growth and development in this period take place very quickly. Age affects the fulfilment of nutritional needs and plays an important role in determining nutritional status.

Children aged 2-5 years who are still in a period of rapid growth and are active in activities, their nutritional needs also increase (8). Children aged 1-3 years are often referred to as a group of passive consumers whose lives are very dependent on adults, including when meeting

nutritional needs and when they enter the age of 4 years are referred to as active consumers whose dependence on adults has begun to decrease (9). Research conducted by (10) states that children aged 24 months when declared stunted will receive special attention to catch up with growth

delays and it is hoped that later at the age of 5 years their growth will return to normal. Another research conducted by (11) stated that children aged 25-36 months had a risk of 3.86 times being stunted compared to children aged 6-12 months.

Table 1. Characteristics of respondent

Variable	Stunting Incident		p-value
	Stunting (n=74) n (%)	Normal (n=37) n (%)	
Characteristic of Children			
Age			
24-31 months	20 (18.0)	6 (5.4)	0.679
31-38 months	18 (16.2)	8 (7.2)	
38-45 months	9 (8.1)	5 (4.5)	
45-52 months	14 (12.6)	10 (9.0)	
52-59 months	13 (11.7)	8 (7.2)	
Gender			
Boy	37 (33.3)	18 (16.2)	1.000
Girl	37 (33.3)	19 (17.1)	
Characteristic of Maternal			
Age			
≤ 20 years	4 (3.6)	1 (0.9)	0.960
21-25 years	27 (24.3)	13 (11.7)	
26-30 years	13 (11.7)	6 (5.4)	
31-35 years	17 (15.3)	10 (9.0)	
≥ 36 years	13 (11.7)	7 (6.3)	
Education			
Elementary	58 (52.3)	27 (24.3)	0.198
Intermediate	15 (13.5)	7 (6.3)	
High	1 (0.9)	3 (2.7)	
Nutrition Knowledge			
Bad	74 (66.7)	37 (33.3)	
Occupation			
Housewife	53 (47.7)	23 (20.7)	0.427
Worker	21 (18.9)	14 (12.6)	
Family Member			
Small	50 (45.0)	27 (24.3)	0.716
Medium	24 (21.6)	10 (9.0)	
Family Income			
< UMK	67 (60.4)	32 (28.8)	0.517
> UMK	7 (6.3)	5 (4.5)	

Gender is one of the determining factors for nutritional needs. Men and women differ biologically and psychologically (12). Boys and girls have different nutritional needs due to differences in hormonal characteristics or differences in muscles which affect metabolism in the body so their nutritional needs are different (13). Inadequate food intake and occurring long enough can cause increased growth disorders. The results of statistical tests using the Chi-square test showed that age and gender did not have a

significant relationship with the incidence of stunting in toddlers aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency.

Based on **Table 1** most of the mothers were aged 21-25 years (24.3%), had basic education (52.3%), had knowledge of malnutrition (66.7%), did not work or were housewives (47.7%), had a small number of family members (45.0%), and family income < MSE (60.4%). Mother's age affects the mother's psychological readiness to

have and raise children. Women who marry early are mentally not ready to face or go through pregnancy and childbirth which have an impact on the growth and development of their next offspring (14). Women who marry early are included in the group of young women where nutrition in this period is a factor that supports the health and survival of mothers, fetal development, and early childhood. Adolescent girls who are malnourished are at risk of experiencing Chronic Energy Deficiency (CED) which can have an impact on the incidence of Low Birth Weight (LBW) which is one of the factors for stunting (15).

Parental education, especially for mothers, influences children's health including nutritional health problems because mothers have an important role in the family and mothers are considered to understand more and spend more time with their children (16). Mother's education level influences mother's absorption in receiving and understanding nutrition information, meaning that mothers with low education levels do not know food with good nutritional quality for their children (17). Parents with higher education can increase their knowledge and skills in caring for and providing good nutrition for their children. Prevention of stunting can be done by strengthening family knowledge, especially mothers about the importance of 1000 HPK so that increased knowledge about 1000 HPK can increase mother's awareness of fulfilling good nutrition for children to prevent children from experiencing malnutrition (18).

Nutritional problems are included in non-communicable diseases or Non-Communicable Diseases (PTM), which means understanding nutrition is one way to overcome PTM. Nutritional knowledge has an important role in determining food intake. The level of one's nutritional knowledge influences the behaviour of choosing food which has an impact on nutritional intake (19). Nutritional knowledge can be realized by providing nutritional information. Receiving nutritional information cannot be separated from the mother's ability to absorb information.

Work is a way for someone to earn income that can be used to meet their needs. The economic status of the family can be seen from the work done which will affect the fulfillment of family

needs, including fulfilling family food and health care (19). Working mothers tend to know information related to good food for their children compared to mothers who do not work, where mothers who do not work have a 5 times greater risk of having stunted children than working mothers (20). Stunted children often occur in parents, especially mothers who do not work. Working parents will have a steady income that can increase the purchasing power of family food with good nutrition (21).

The number of family members affects the quality and quantity of family nutrition. The large number of family members is not beneficial for children, because those who are still small will not be able to compete with adults in getting good nutrition. The factor that causes stunting in children with small family members is that the mother, as the person who is considered responsible for the food needs of the family, cannot provide good nutrition to her toddler (22).

Indonesia Statistics Agency (BPS) defines household income or family income as income or wages received by family members, either from the head of the household or other members, which do not only come from the work they do. Income is one indicator that determines economic status. Income will determine the type and variety of food purchased which affects nutritional status. Infants and toddlers are groups that are sensitive to the quality of family food, where the quality and quantity of family food are determined by income. Low-income results in a lack of ability to buy good food, so toddlers from underprivileged families tend to experience malnutrition such as stunting (23). The result researched by (24) stated that low-income families had a 6 times greater risk of having stunted children compared to high-income families.

Statistical test results using the Chi-square test showed that the mother's age (0.960), mother's education level (0.198), mother's nutrition knowledge level, mother's employment status (0.427), number of family members (0.716), and family income (0.517) were not found significant relationship with the incidence of stunting in children aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency.

Table 2. Characteristics of ANC criteria on maternal

Variable	Stunting Incident		Total (n=111) n (%)	p-value
	Stunting (n=74) n (%)	Normal (n=37) n (%)		
Visits frequencies				
Unstandardized	30 (27.0)	18 (16.2)	48 (43.2)	0.542
Standardized	44 (39.6)	19 (17.1)	63 (56.8)	
Fe tablets consume				
Unstandardized	32 (28.8)	18 (16.2)	50 (45.0)	0.736
Standardized	42 (37.8)	19 (17.1)	61 (55.0)	
Service of 10T				
Unstandardized	32 (28.8)	19 (17.1)	51 (45.9)	0.544
Standardized	42 (37.8)	18 (16.2)	60 (54.1)	
ANC				
Unwell	32 (28.8)	19 (17.1)	51 (45.9)	0.544
Well	42 (37.8)	18 (16.2)	60 (54.1)	

Based on **Table 2**, many mothers had made ANC visits according to standards (39.6%), consumption of Fe tablets according to standards (37.8%), and a minimum standard of care of 10T according to standards for having stunted toddlers. This research is in line with research conducted by (26) which states that children with mothers who have ANC visits according to the standard have a risk of 3.25 times becoming stunted. The latest ANC guidelines by the Ministry of Health of the Republic of Indonesia (2020) state that a minimum of 6 times ANC visits during pregnancy, with details of 2 times at T1, 1 time at T2, and 3 times at T3 (normal pregnancy) where at least 2 times are examined by a doctor during pregnancy. visit 1 at T1 and visit 5 at T3. ANC visits show the quantity of ANC, where the quantity of ANC is the number of times the mother visits. The quantity of ANC during pregnancy affects the incidence of stunting due to several factors, one of which is the place of examination. (25) explained that the factors that affect the quantity of ANC include mothers who are still unsure about their pregnancy, there is no support from the husband/family to make ANC visits in the early trimester, and the lack of information that ANC examinations are very important. In addition, there are predisposing factors such as age at pregnancy, level of education, and employment status.

Anemia is a risk factor for bleeding which can be a cause of maternal death. One of the factors that influence the occurrence of anemia during pregnancy is the consumption of Fe tablets. This research is in line with research conducted by

(26). Consumption of Fe tablets shows the quality of ANC, where the quality of ANC is the examination that the mother does/the service that the mother gets during pregnancy. The quality of ANC influences the incidence of stunting due to several factors, including medical equipment and personnel. Most of the Fe contained in the body will be conjugated into ferrous and ferrous. Lack of Fe in the body can lead to an imbalance of Fe in the body. (25) explained that there were factors that influenced the adherence of pregnant women to consuming Fe tablets, including the mother's ignorance of the importance and benefits of Fe consumption during pregnancy and the mother's feeling that she could not stand the side effects caused by consuming Fe tablets. Minister of Health Regulation No. 97 of 2014 stipulates that the ANC examination must be 10T (weight, height, blood pressure measurement, uterine fundal height, MUAC (Mid-upper arm circumference) measurement, administration of immunization (Tetanus toxoid)/complete TT, administration of iron supplement tablets (Fe) at least 90 tablets during pregnancy, laboratory tests, calculate fetal heart rate (FHR), determine fetal presentation, and case management).

10T is an examination that must be given to pregnant women as an effort for early detection and prevention and more action can be taken if problems or disorders are found (27). Implementation of ANC services that can reduce or prevent stunting include health counselling, maternal nutrition during pregnancy and exclusive breastfeeding, measurement of MUAC, and case management. This research is in line with

research conducted by (26). Minimum standard care of 10T indicates the quality of ANC. The quality of ANC influences the incidence of stunting due to several factors, including medical equipment and personnel. Equipment and health workers affect the consumption of Fe tablets because if the tools and health workers do not have good qualifications it can lead to bias/errors in handling (26).

The results of statistical tests using the Chi-square test showed that the frequency of ANC visits (0.542), consumption of Fe tablets (0.736), and standard care at least 10T (0.544) had no significant relationship with the incidence of stunting in children aged 24-59 months in the working area of the Jelbuk Health Center Jember Regency. The results of statistical tests using Chi-Square also showed that ANC (0.544) did not have a significant relationship with the incidence of stunting in toddlers aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency. In this study, pregnant women had a good history of ANC. Mothers routinely make $\geq 6x$ ANC examination visits, consume ≥ 90 tablets of Fe tablets, and receive standard care of at least 10T during the complete pregnancy.

However, there are still mothers who do not make x ANC visits according to the trimester of pregnancy, so they do not get complete standard care of at least 10T. The mother checks her pregnancy when she is old enough to enter the 3rd trimester, which results in the mother not knowing the condition of her baby at a young gestational age (trimester 1). Mothers who did not visit during their pregnancy at a young age resulted in nutritional fulfilment during the 1000 HPK period not being optimal. Kominfo RI (2018) stated that the fulfilment of nutrition during the 1000 HPK period was not optimal due to low levels of education and poverty.

In line with this, in this study mothers had a low level of education and family income was less than the UMR which could be said to be included in the category of poor families. The Ministry of Health of the Republic of Indonesia (2023) explains that not carrying out ANC examinations according to gestational age can harm pregnant women, including not getting proper treatment for danger signs of pregnancy, not knowing the possibility of pregnancy complications, and increasing the mortality rate and risk of morbidity when maternity).

Table 3. Characteristics of nutritional parenting on toddlers

Variable	Stunting Incident		Total (n=111)	p-value
	Stunting (n=74)	Normal (n=37)		
	n (%)	n (%)	n (%)	
Exclusive breastfeeding				
No	19 (63.3)	11 (36.7)	30 (27.0)	0.821
Yes	55 (67.0)	26 (32.1)	81 (73.0)	
Age of complementary feeding				
Unstandardized	19 (63.3)	11 (36.7)	30 (27.0)	0.821
Standardized	55 (67.0)	26 (32.1)	81 (73.0)	
Type of complementary feeding				
Unstandardized	67 (60.4)	32 (28.8)	99 (89.2)	0.746
Standardized	7 (6.3)	5 (4.5)	12 (10.8)	
Portion of complementary food				
Unstandardized	69 (67.6)	33 (32.4)	102 (91.9)	1.000
Standardized	5 (55.6)	4 (44.4)	9 (8.1)	
Nutritional parenting				
Unwell	62 (61.3)	31 (38.7)	93 (83.8)	1.000
Well	12 (68.8)	6 (31.3)	18 (16.2)	

Based on **Table 3**, many mothers gave exclusive breastfeeding from the age of 0-6

months according to standards (67%), giving complementary feeding according to age, namely

≥ 6 months (67%), the type of complementary feeding (CF) given was not according to standards (60, 4%), and the portion of CF given was not according to standard (67.6%). Breast milk is the most appropriate food to be given to newborns because apart from having complete, easily digestible and easily absorbed nutrients, it contains colostrum which is rich in IgA antibodies for local protection on the surface of the digestive tract (35). Breast milk contains lactose, AA-DHA, Fe, Zn, selenium and iodine which are the main ingredients for the formation of brain nerve cells. Breast milk will change over time. Shortly after giving birth, breast milk contains colostrum which provides immunity. This research is in line with research conducted by (29) which states that stunting toddlers are given exclusive breastfeeding because the frequency of exclusive breastfeeding is less, causing children to lack nutrition. In addition, this research is also in line with research conducted by (30) which stated that stunting toddlers with exclusive breastfeeding was due to not being given IMD shortly after 1 hour after birth. Factors that influence children to become stunted when they are exclusively breastfed are babies who do not have IMD when they are born.

CF is food or drink given to children who are 6-24 months old as additional nutrition besides breast milk (19). This research is in line with research conducted by (31) and (32) who CF stated that giving F with the wrong type and portion had a 2.2 times greater risk of having a stunted child. The frequency and quality of food CF given to infants is influenced by the knowledge and understanding of the mother and the condition of the food at home. Complementary feeding should be started when the baby is six months old, but if breast milk is not sufficient, complementary feeding can be given at four months (17 weeks) while paying attention to the child's readiness to accept solid food and do it hygienically (5). Giving CF too early can cause children to experience stunting, but this can be prevented by giving the right CF. The type of CF given is beneficial for training the baby's oromotor abilities (basic eating ability). The development of the nervous and oromotor systems increases, making the baby able to suck, bite and chew.

The results of statistical tests using the Chi-square test showed that exclusive breastfeeding (0.821), age at which CF was given (0.821), type of CF (0.746), and portion of MP-ASI (1.000) did not have a significant relationship with the incidence of toddler stunting aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency. The results of statistical tests using Chi-square also showed that there was no significant relationship between Nutrition Parenting (1,000) and the incidence of stunting under five aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency. In this study, mothers with stunted children had undernourished parenting styles. Mothers give exclusive breastfeeding to babies at the age of 0-6 months, but there are still mothers who give formula milk at the age of 0-6 months. This happens because the milk doesn't come out or you feel sorry when the child keeps crying. Mothers give CF at the age of ≥ 6 months, but the type and portion of CF given are not according to their age. Mothers give CF to children depending on what is available at home and mothers think that it is important that their children eat without paying attention to the nutritional/nutritional content of the food consumed by the child. In addition, they also provide CF or food according to the wishes of the child, without knowing the nutritional content. In addition, the mother's nutritional care pattern is related to the level of education and knowledge level of the mother's nutrition. In this study, mothers had a basic education level and a lack of knowledge about nutrition, which affected the acceptance of information on nutritional intake for toddlers.

Based on Table 4, the level of energy consumption of macronutrients is included in the normal category (21.6%), the level of consumption of protein macronutrients is included in the more category (57.7%), the level of consumption of micronutrients Fe and Zn is included in the less category (66.7%). Macro-nutrients and micro-nutrients are needed in the process of growth and development of toddlers. Macro nutrients such as energy and protein, as well as micronutrients such as iron and zinc, are needed to prevent stunting in toddlers.

Table 5. Consumption level of macro and micro nutrition in toddlers

Variable	Stunting Incident		Total (n=111) n (%)
	Stunting (n=74) n (%)	Normal (n=37) n (%)	
Energy			
Weight deficit	20 (18.0)	18 (26.2)	38 (34.2)
Moderate deficit	10 (9.0)	1 (0.9)	11 (9.9)
Mild deficit	5 (4.5)	4 (3.6)	9 (8.1)
Normal	24 (21.6)	7 (6.3)	31 (27.9)
More	15 (13.5)	7 (6.3)	22 (19.8)
Protein			
Weight deficit	1 (0.9)	0 (0.0)	1 (0.9)
Moderate deficit	1 (0.9)	1 (0.9)	2 (2.8)
Mild deficit	0 (0.0)	3 (2.7)	3 (3.7)
Normal	8 (7.2)	7 (6.3)	15 (13.5)
More	64 (57.7)	26 (23.4)	90 (81.1)
Iron			
Less (< 70%)	74 (66.7)	37 (33.3)	111 (100)
Zinc			
Less (< 70%)	74 (66.7)	37 (33.3)	111 (100)

Humans need energy to support their survival, including toddlers. (33) stated that a person's daily needs vary according to age, sex, body size, level of health, and other factors. Excess and lack of energy can occur in all age groups, including toddlers. Toddlers with more energy consumption levels can affect the performance of body functions. Toddlers with low levels of energy consumption can affect the function and structure of the brain which can affect their cognitive growth and development. Protein is the largest part of the body after water. One-fifth of the body is protein which is spread to various cells/parts of the body. (34) explained that excess protein in children can cause acidosis, dehydration, diarrhoea, and fever. Protein deficiency in children can cause stunting and mental retardation. Iron is the most abundant micro-mineral in the body of humans and animals (35). Iron deficiency has a negative effect on brain function, especially on the function of the neurotransmitter system which affects concentration, memory, and learning abilities.

Stunted toddlers with iron deficiency will have difficulty learning and can easily get infections because their immune systems are weak (35). Zinc has an essential role in many body functions. (13) explained that Zn deficiency can cause inhibition of cell division, growth, and tissue repair, disrupt the digestive system, and cause diarrhoea and an impaired immune system.)

CONCLUSIONS AND RECOMMENDATIONS

The ANC of stunting mothers under five is in the good category, with the frequency of visits according to the standard, consumption of Fe tablets according to the standard, and standard care of at least 10T according to the standard and there is no significant relationship with the incidence of stunting in children aged 24-59 months in the working area of the Jelbuk Health Center, Jember Regency.

The nutritional care pattern for stunting toddlers is in the less category, with breastfeeding for 6 months, the right age for giving MP-ASI, the type of MP-ASI giving is not right, and the portion

of MP-ASI is not right and there is no significant relationship with the incidence of stunting for toddlers. 24-59 months in the working area of the Jelbuk Health Center, Jember Regency.

Based on the research results, it is hoped that cooperation between health agencies and the community will be optimized. An educational understanding related to nutrition is needed to prevent stunting. Provision of nutrients with good nutrition can be done by being active in preparing foods that contain protein such as tempeh and Zn such as nuts.

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