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"From Rural to Urban, from Ocean to Island, and Molecular to Clinical"
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REFLECTION OF MATERNAL FEEDING PATTERNS ON TODDLERS TOWARDS STUNTING IN JEMBER AGROINDUSTRIAL COMMUNITY

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Abstract

Impairment in the golden period of children's growth and development, may result in unintelligent kids, short figure, physical and mental susceptability, which refer to the symptoms of stunting. Different socioeconomic factors, including parental feeding patterns, parent's or caretaker's knowledge, habit, etc, have been associated with this increasing malnutrition condition which also leads to the mechanisme of stunting. This research aims to discover how big the relevance of toddler mother's parental feeding patterns (knowledge, attitude, and eating habit) is towards the stunting prevalence in Jember agroindustrial community. This research's method uses questionnaires to ask respondents i.e mothers who have toddlers (children under five years old). Respondents were chosen through purposive sampling, namely the respondents who lived in the surrounding public health centre linked with University of Jember, which met the inclusion criteria. The data were then analized by using Spearman's test. The research showed that the majority (86%) of mother's had enough knowledge and most of them (82%) have fair attitude on maternal feeding patterns. It unfortunately also showed that knowledge and attitude on maternal feeding pattern were not related with the occurrence of stunting ($p>0.05$). A fair mother's knowledge and attitude on maternal feeding pattern may not be enough to prevent the occurrence of stunting on toddlers. Another possible cause is the genetic factor may have influenced in this result. It needs intensive prevention intervention in order to suppress the occurrence of stunting. Research should be done further to see consumption pattern that can identify unmet essential nutrition and exclude the genetic factor.

Keywords: stunting, maternal feeding pattern, agroindustrial community

1. Introduction

Different socioeconomic factors include parenting, parental or caregiver knowledge, customs etc. has been linked to an increase in the incidence of these nutritional disorders which can also lead to the onset of stunting, malnutrition and even indirectly lead to death in children. This has triggered many extensive studies and searches to find nutritional health promotion, prevention and therapy formulas through nutritional modification. According to Khumaidi [1], the pattern of habit of feeding children under five including diversification of food consumption is a good cause of nutritional status of children under five. So that the problem of food and nutrition as well as the low quality of food consumption can be found not only in the middle and lower economic strata but also in families who are economically capable but lack care in their parenting.

Sternin and Marsh [2] from the Save The Children Institute wrote about differences in behavior in the same low-income families but with different nutritional status of toddlers, namely mothers of well-fed toddlers providing additional

shrimp and crab food from the river as well as sweet potato leaves which is rich in protein. The adoption of adoption behavior from the experience has affected two-thirds of children in the Vietnam region to gain weight and after two years 85% of children no longer experience malnutrition. There are differences in the power of poor families from other poor families [3]. The ability of families to use the existing potential optimally in meeting the nutritional needs of children under five indicates that the contribution of appropriate technology training to the poor population is a necessity, especially to address the problem of malnutrition in children under five.

Data from the Jember Region Health Office in 2015 [4] showed that there were still many nutritional problems in Jember agroindustrial community, including: pregnant women who had nutritional anaemia, who suffered from chronic lack of energy, stunting (short children) and malnutrition. This requires intensive handling to overcome the nutritional status because achieving quality human resources is determined by the quality of nutritional status from diverse, balanced, safe and including halal food consumption. Efforts to improve the

quality of nutrition for food insecurity groups can be carried out with a holistic approach ranging from primordial prevention measures, primary, secondary to tertiary. Among them is the provision of nutrition knowledge and awareness (through devices, lectures and multimedia information), production, diversification, and consumption of nutritious foodstuffs.

Therefore, this research is needed as a preliminary study to map and analyse parenting styles and knowledge of parents or caregivers of malnourished and stunting children in the Jember agroindustrial community as a recommendation for right approach in the future.

2. Methods

This study used a cross-sectional analytic observational research design. The population of this study were under five years old children in Jember Regency, which amounted to 180,645 people based on the latest BPS update data 31st January 2018 [5]. The sample was chosen using purposive sampling in determining the district area based on the location of the public health centre linked with University of Jember, which met the inclusion criteria, so that a minimum of 30% of the population location was achieved.

The sample in this study were infants aged 0-59 months who met the following inclusion criteria: 1) Respondents who reside in the study area; 2) Parents or caregivers are willing to be respondents in this study. The exclusion criteria in this study were respondents who moved or resigned before the study ended. Primary data acquisition techniques were carried out by interviews and anthropometric measurements [6]. Secondary data were obtained from the public health centre linked with University of Jember and from the Jember District Health Office.

The questionnaire instrument consists of 20 questions on mother's knowledge assessment and 24 questions on maternal feeding pattern attitude assessment. There were also 18 questions structured interviews of mother's eating habits, as an additional information. The respondents' knowledge interval is as follows: (20-14) good knowledge, (13-7) fair knowledge and (6-0) less knowledge. While the attitude on maternal feeding pattern interval is as follows: (72-48) good feeding pattern, (47-24) fair feeding pattern and (23-0) less feeding pattern. The data were then analysed further by using Spearman's test on SPSS software. All method in this study had received the approval of the ethics committee of Medical Faculty, University of Jember.

3. Results and Discussion

3.1. Respondents Characteristics

Majority of the respondents were a family of one child under five years old with household

income less than 600.000 IDR/month (equal to 39.4 USD). According to one of the BPS poor household criteria [7] is when the source of income for the head of the household is: farmers with an area of 500 m², farm laborers, fishermen, construction workers, plantation workers and or other jobs with income below 600,000 IDR/month. Therefore, in Table 1, economic status was described as poor and not poor according to household income.

Table 1. Respondents Characteristics

| Characteristic | Non-Stunting | Short | Very Short | Total |
|---------------------------------------|--------------|-------|------------|-------|
| Child age: | | | | |
| < 24 months | 12 | 22 | 20 | 54 |
| 24-59 months | 11 | 63 | 35 | 99 |
| Number of family member: | | | | |
| 2 members | 0 | 2 | 2 | 4 |
| 3 members | 19 | 34 | 26 | 79 |
| 4 members | 16 | 21 | 15 | 52 |
| 5 members | 6 | 6 | 8 | 20 |
| 6 members | 0 | 3 | 4 | 7 |
| 7 members | 1 | 0 | 0 | 1 |
| Number of children under five: | | | | |
| 1 child | 36 | 65 | 51 | 152 |
| 2 children | 6 | 1 | 4 | 11 |
| Economic status: | | | | |
| Poor | 18 | 35 | 32 | 85 |
| Not poor | 20 | 29 | 23 | 72 |
| Unknown | 4 | 2 | 0 | 6 |
| Mother education: | | | | |
| Uneducated | 0 | 0 | 0 | 0 |
| Some elementary school | 2 | 3 | 8 | 13 |
| Completed elementary school | 22 | 29 | 21 | 72 |
| Completed junior high school | 9 | 20 | 17 | 46 |
| Completed senior high school | 6 | 9 | 6 | 21 |
| Completed college | 3 | 3 | 2 | 8 |
| Unknown | 0 | 2 | 1 | 3 |
| Father education: | | | | |
| Uneducated | 1 | 0 | 1 | 2 |
| Some elementary school | 4 | 0 | 5 | 9 |
| Completed elementary school | 18 | 31 | 23 | 72 |
| Completed junior high school | 7 | 21 | 13 | 41 |
| Completed senior high school | 7 | 6 | 8 | 21 |
| Completed college | 2 | 4 | 0 | 6 |
| Unknown | 3 | 4 | 5 | 12 |

Stunting problems occur more in toddlers age 24-59 months. This might happen because its manifestations are more visible at the age of 24-59 months even though the stunting caused occurs before the toddler reaching 24-59 months. Mother and father education were distributed equally among groups (Table 1) and this showed that education may not relate to stature status. Other studies also state

that there is no relation between mother's education level with stunting on toddler [8, 9].

3.2. Mother's Knowledge

Assessment of respondent knowledge about feeding pattern in this study was conducted by using questionnaires in the form of question with the answer in the form of multiple choice. Results of research on mother's knowledge can be seen in Table 2.

The result showed that most of all respondent knowledge in all categories was fair. This probably causing the Spearman's test had no significant different ($p=0.533$). The knowledge to be investigated in this study, was all information about the feeding pattern in under five because to ensure a person behaves well is not enough with education alone, needed a basic knowledge and understanding of why something must be done to arise motivation to willing to do [10].

A good or fair of mother's knowledge is not a guarantee to have a toddler with normal stature status. Mother who has good knowledge is expected to be able to apply possessed knowledge in her daily life. However, behavior not only influenced by the level of knowledge but it also influenced by other factors, such as socio-economic, socio-cultural, and the environment [11].

Table 2. Crosstabulation data inter-variables

| | Non-Stunting | Short | Very Short | Total |
|-------------------------|--------------|-------|------------|------------------------------|
| Knowledge: | | | | |
| Less | 6 | 7 | 6 | 19 (11.7%) |
| Fair | 34 | 58 | 48 | 140 (85.9%) |
| Good | 2 | 1 | 1 | 4 (2.5%) |
| Feeding Pattern: | | | | |
| Less | 0 | 0 | 0 | 0 (0%) |
| Fair | 34 | 54 | 45 | 133 (81.6%) |
| Good | 8 | 12 | 10 | 30 (18.4%) |

The largest number of wrong answers were on questions number 3, 14, 16 and 19. Many of the respondents do not know that sources of energy are carbohydrate, protein and fat. Also, about what vitamin will be lost when boiling too long on vegetable and about how to minimize the loss of vitamin on cooking process. Less to know also, about what mineral that help the growth of bones and teeth. This result showed that there were important materials that were not yet known. Therefore, the education about nutrition is recommended to be given [12].

3.3. Attitude on Maternal Feeding Pattern

Assessment of respondent attitude on maternal feeding pattern in this research is done by using questionnaire in the form of statement with answer of A (Always), O (Often), S (Sometime) and N (Never) with value of 0, 1, 2, 3 in negative statement at number 3, 9, 10, 12, 13, 18, 21 and 22 and value of 3, 2, 1, 0 in the positive statements at number 1, 2, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17, 19, 20, 23 and 24. Results of research on maternal feeding pattern can be seen in Table 2.

The result also showed that most of all respondent attitude in all categories was fair, with Spearman's test showed no significant result ($p=0.901$). But when we related knowledge and attitude it showed a significant result ($p=0.003$). An attitude has not been automatically manifested in an action [10]. Action is a rule that is carried out to make rules to overcome something or the act of a close relationship between attitudes and actions supported by the notion of attitude states that the attitude is a tendency to act. So that to prevent the occurrence of stunting is not enough just by fair and good knowledge and attitude of the respondents.

Based on the evaluation of respondents answered on maternal feeding pattern attitude questionnaire, almost all statements were responded positively, showed by good attitude (18,4%) and fair attitude (81,6%). However, when viewed in detail from each statement there were still respondents that responded negatively. Negative attitudes of 63.8% and 73.6% of the total 163 respondents shown in statements number 11 and 14 about serving food by giving decoration to foods and using cute eye-catching cutlery.

Maternal feeding pattern has a role in the incident of stunting in toddlers due to intake food for toddlers is fully regulated by her/his mother. Mothers with good attitude tend to be have toddlers with nutritional status better than mothers with fair or less attitude. However, in this study the mothers with good attitude don't necessarily have toddlers with stunting problems less than the mothers with fair or less attitude. This matter could be because even though attitude on maternal feeding pattern is good, in poor families there are limitations to meet daily needs so the attitude on maternal feeding pattern does not affect the occurrence of stunting.

3.4. Mother's Eating Habit

Structured interviews of mother's eating habits give information about daily consumption in the Jember agroindustrial family. Most of all of them eat (staple food, vegetable and side dishes) three times a day together with family members at the dining table. They get food mostly from market or shop and processing side dishes by frying (only a few by

boiling or grilling). A frequent and preferred foods consumed by respondents can be seen in Fig. 1.

What is interesting here, they don't think that eat fruit and drinking milk is that necessary for nutrition. It is showed by only a few respondents (about 14%) included fruit and milk as their daily food consumption. Based on preference, meat is more preferable than egg as an animal protein source but in fact they consume egg more than meat, equal to fish as the most favourite animal protein source (1-6 times per week). This is probably because the price of egg is more reasonable than the price of meat.

There were also some foods that respondents dislike the most such as bitter melon (52.1%) for vegetable, egg (28.8%) for animal protein and sapodilla (32.5%) for fruit. There were also some respondents that answered no fruit to be disliked, in contrast with the daily consumption statement that there was no fruit included in it. This perhaps also related to affordability of the family to consume foods. In the context of food choices, food consumption requires not only money expenditures for purchasing food but also time expenditures for purchasing, preparing, and consuming food and for cleaning up after preparation and consumption. Therefore, according to household production theory the full price of consumption is the sum of the direct and indirect prices for food, where the direct price is the purchase cost, and the indirect price is the value of the time requirements [13, 14].

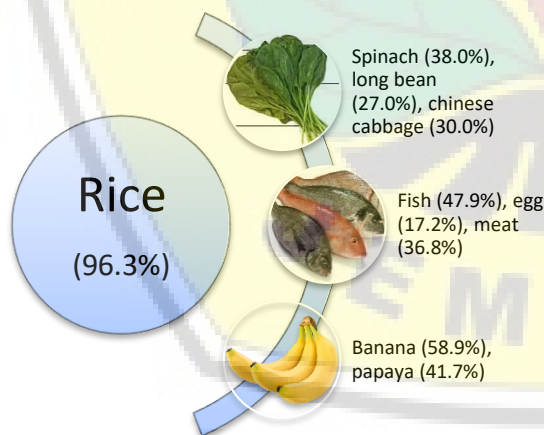


Fig. 1 Foods consume by respondents based on preference

The pattern of feeding habits in toddlers including the diversification of food consumption is a good causal of good nutritional status of children [1]. Food and nutritional problems and low quality of food consumption can be found not only in the middle and lower economic layers but also in

economically capable families who are less concern in the care of their toddlers. In addition to household level food availability, it could be that the stunting condition is influenced by other factors, such as a history of infectious diseases [9, 15].

Stunting is a picture of deprivation nutrition for toddlers in a relative long period of time. The height/age index describes toddlers past nutritional status. In general, there is no relationship between maternal education level, mother's nutrition knowledge level or attitude on maternal feeding pattern with stunting problems in toddlers. There are many factors that influence the occurrence of stunting problems beyond these factors, including the nutritional status of mothers when pregnant. Pregnant women who experience lack of nutrition will result in the fetus also experiencing nutritional deficiencies. Deficiency nutrients in pregnancy that occur continuously will give birth to children who experience lack of nutrition. This condition if it takes place in a period of a relatively long time will cause children experience failure in growth (stunting). In addition, short mothers are also at risk for giving birth to a short child.

4. Conclusion

Based on the result, we concluded that a fair mother's knowledge and maternal feeding pattern may not be enough to prevent the occurrence of stunting on toddlers. Another possible cause is the genetic factor may have influenced in this result. It needs intensive prevention intervention in order to suppress the occurrence of stunting. Research should be done further to see consumption pattern that can identify unmet essential nutrition and exclude the genetic factor that may interfere with the result.

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