The Relationship of Mother's Education Level, Accuracy of Supplementary Feeding (MP ASI) With Nutritional Status of Tolls Aged 6-24 Months

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ABSTRACT

Giving the right MP-ASI affects the growth, development and intelligence of children. Inaccuracy in giving MP-ASI has an impact on children's nutritional status problems such as undernutrition and overnutrition to obesity. This study aims to determine the relationship between maternal education and the accuracy of complementary feeding (MP ASI) with the nutritional status of children under five. This research is a quantitative analytic observational study with a cross sectional design. The research sample was 74 children aged 6-24 months, obtained by accidental sampling technique, data analysis using Chi-Square test, and Fisher's alternative test. The results showed that the relationship between the mother's education level and the nutritional status of children under five was obtained with a p-value of 0.111 (p-value <0.05). The relationship between the accuracy of giving complementary feeding and the nutritional status of children under five was obtained p-value 0.038 (p-values <0.05). we conclude that there is no relationship between the mother's level of education and the accuracy of giving complementary feeding with the nutritional status of children under five. There is a relationship between the accuracy of giving MP ASI with the nutritional status of toddlers.
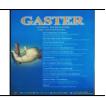
INTRODUCTION

Children under the age of five years (toddlers) are at a golden age, namely active individuals with rapid growth and development, so nutritional needs must be met and balanced (Sulistianingsih, 2019). At this time, they are very vulnerable to health and nutrition problems. Nutrition plays a vital role in achieving optimal child development (Purba et al., 2019). Less or more nutritional status can harm children, including experiencing protein-energy deficiency, iron nutritional anemia, disorders due to *iodine deficiency* (IDA) and lack of vitamin A, susceptibility to infectious diseases, low levels of

intelligence, decreased physical abilities, impaired physical growth, and development. Mental retardation, *stunting,* blindness, and death (Alamsyah et al., 2017; Utami et al., 2018). Overnutrition status also impacts the growth and development of children. They are at high risk of obesity in adulthood and have the potential to experience various causes of disease and death (Pratiwi & Hamdiyah, 2019).

The number of *stunting cases* in Indonesia in 2013 was 37.2%, then decreased in 2018 to 30.8%. The number of malnutrition and malnutrition cases in Indonesia in 2013 reached 19.6%, then reduced to 17.7% in 2018 (Kemenkes RI, 2018). The incidence of malnutrition in Central Java in 2018 reached 13.68% and 3.7% (Dinkes Jawa Tengah, 2019). Based on the number of cases of malnutrition status in Temanggung Regency in 2018 reached 10.83%, then the poor nutritional quality was recorded as much as 1.77%. Meanwhile, exclusive breastfeeding in Temanggung Regency in 2018 was 84.0%. The lowest percentage of exclusive breastfeeding in the Kedu District was 64.5%.

Several interrelated factors influence nutritional problems in children. Factors that can affect nutritional status, in general, are food consumption that does not meet the needs so that the body lacks nutrients, mother's knowledge about nutrition for toddlers, parental education, health conditions, exclusive breastfeeding, socio-economic conditions, family income, family consumption, and health services (Aldriana et al., 2020).

Daily behavior and lifestyle, especially health and nutrition (Prassadianratry, 2015). The higher parents' education, especially mothers, the higher their knowledge, skills, and abilities. This illustrates that the function of education can improve welfare because parents who are highly educated will avoid ignorance and poverty. Therefore, parental education, parental occupation, and parental income are continuous things that affect the nutritional status of children (Kurniasari & Nurhayati, 2017).

The nutritional status of toddlers can also be influenced by the accuracy of giving complementary foods to breast milk (MP-ASI). Complementary foods for breast milk (MP-ASI) are referred to as replacement foods from breast milk to foods that are carried out gradually, both in terms of texture, frequency of administration, number of servings, types of snacks to be given according to the child's age, and balanced nutrition (Ikatan

Dokter Anak Indonesia, 2018). The MP-ASI must meet the child's energy, protein, and micronutrient needs and be given consistently according to the child's hunger or satiety signal (Ikatan Dokter Anak Indonesia, 2018). The introduction and provision of complementary foods to breast milk should be made gradually from liquid, semi-solid, and solid foods because they must be adapted to the digestive ability of infants or children (Utami et al., 2018). The accuracy of giving MP-ASI that is not good can affect the growth and development of toddlers, which can lead to problems with less nutritional status, more nutritional status, and obesity. Inappropriate dietary intake will also cause the baby to be malnourished, increasing morbidity and mortality (Fitriana et al., 2016).

Based on a preliminary study conducted on ten mothers of children under five in the village of Gondang wayang, it was found that five mothers with education graduated from junior high school. One mother gave complementary feeding at the age of 5 months by giving one biscuit 1-2 times a day without being given a snack with nutritional status. Normal and one mother passed MP-ASI at the age of 6 months by giving MP-ASI 3 times a day as much as 1/2 small cup with

a toddler-aged eight months with normal nutritional status. Three mothers who finished education up to senior high school (SMA), one mother gave complementary feeding at the age of 4 months by giving instant baby porridge. She gave rice with fried catfish as a side dish for ten months with a frequency of 2-3 times a day with normal nutritional status. One mother passed MP-ASI at the age of 6 months by giving bananas until the age of 9 months, given 2-3 times a day with nutritional status at risk of over nutrition. Two people finished their undergraduate education, and one mother gave formula milk before the age of 6 months with normal nutritional status. Based on the high incidence and causal factors above, the authors are interested in researching the relationship between maternal education and the appropriate age for complementary feeding (MP ASI) with the nutritional status of children under five so that children's nutritional needs can be met properly and prevent undernutrition and over nutrition.

METHODS AND MATERIALS
Research design and respondents

This research is a quantitative observational analytic study with a *cross-sectional approach.* This study was conducted in May – June 2021 in Gondang

Wayang Village, Temanggung Regency, Central Java Province, the working area of the Puskesmas Kedu Subdistrict, Temanggung Regency, with as many as 90 toddlers. The sample size was calculated using the Slovin formula with an error rate (d=5%) so that the sample obtained was 74 children under five. Sampling was carried out by *accidental sampling* with the following inclusion criteria: 1) children aged 6 – 24 months, 2) mothers were willing to be interviewed, 3) children were healthy, did not have congenital diseases such as heart defects, acute conditions such as fever, diarrhea. In the previous two weeks. Parents in the study filled out and provided informed consent before conducting the study. This research was conducted by the process that has obtained a research permit with No. 942.2 /FIKES/PL/VI/2021

Variable Measurement

Data on child characteristics and family demographics include child's age, gender, child nutritional status, mother's education, mother's occupation, and the accuracy of breastfeeding. Data collection was done by using interviews. Measurement of weight using a portable digital scale, the baby's length was measured using the baby's long supine board. Measurement of the accuracy of complementary feeding (MPASI) using a questionnaire. Measurement of nutritional status using z-score. Underweight was defined as body weight for age z-score less than two standard deviations (SD) below the mean, thin for length z-score less than 2 SD below average, and stunting as length for age less than 2.

Data Analysis

The data was processed through the stages of editing, coding, entry, and analysis using spss version 26 (international business machines corporation, armonk, new york, usa). To determine the relationship between the mother's education level and the nutritional status of children under five, the *fisher alternative was analyzed.* The chi-square test with a 95% confidence level was conducted to analyze the relationship between the accuracy of complementary feeding and the nutritional status of children under five.

RESULTS AND DISCUSSION

Characteristics of Respondents

The socio-demographic data of the respondents are listed in Table 1. These results indicate that about half of the respondents are male toddlers (55.4 %) of

whom are aged 12-23 months (59.5%), with the majority of them having normal nutritional status (66.2%). Family socio-demographic data, the majority of mother's education level is basic education level (SD, SMP, SMA) (97.3%) and work as a housewife (95.9%). Most of the mother's income is less than the district minimum wage (UMK) (95.9 %), and the accuracy of breastfeeding is in the poor category (59.5%).

The results of the analysis of the relationship between a mother's education level and the nutritional status of children under five can be seen in Table 2. *Fisher's*

alternative statistical test obtained a *p-value* as big as 0.111 (p< *0.05)*. These results indicate no significant relationship between the mother's last education and the nutritional status of children under five.

The results of the analysis of the relationship between the accuracy of complementary feeding and the nutritional status of toddlers can be seen in table 3. The results of the *Chi-Square statistical test* obtained a *p-value of* 0.038 (p> 0.05). These results indicate that there is a relationship between the accuracy of giving MP-ASI with the nutritional status of children under five.

Table 1. Results Characteristics Of Respondents

Characteristics of respondents	n	%
Toddler Gender:		
Man	41	55.4
Woman	33	44.6
Toddler Age		
6 – 7 months	30	40.5
12 – 23 months	44	59.5
Toddler Nutritional Status:		
Normal	49	66.2
More nutritional risk	25	33.8
Mother's education level		
Basic (school)	72	97.3
College (Diploma/Bachelor)	2	2.7
Mother's Occupation:		
Housewife	71	95.9
entrepreneur	2	2.7
Government employees	1	1.4
Mother's Income:		
Rp. 1,885,000[a]	71	95.9
> Rp. 1,885,000	3	4.1
The Accuracy of Giving MP-ASI:		

Well	30	40.5
Not good	44	59.5

Note: [a]District Minimum Wage, Central Java

Table 2. Descriptive Analysis of Mother's Education Level with Toddler Nutritional

Characteristics	Toddler Nutritional Status						P-value
	Good nutrition (normal)		More nutritional risk		Total		
	(f)	(%)	(f)	(%)	(f)	(%)	
Mother's Education Level							0.111
Base	49	(68.1)	23	(31.9)	72	(100)	
Tall	0	(0)	2	(100)	2	(100)	
Total	49	(66.2)	25	(33.8)	74	(100)	

The level of education of the mother is often associated with the ability and ease of the mother in receiving health information, especially nutrition during pregnancy, and is associated with the incidence of nutritional problems in children. In this case, mothers with basic education mostly have children with *stunting,* as well as mothers with advanced education also have children with stunting (Dewi & Mu, 2020).

The results of the analysis of the relationship between a mother's education level and the nutritional status of children under five based on *Fisher's* alternative statistical test obtained a *p-value* as big as 0.111 ($p < 0.05$). The results of this study are in line with the results of research conducted, which stated that there was no relationship between maternal education level and the incidence of stunting in children aged 1-3 years in the Work Area of the Donor 1 Health Center, Banyumas Regency (Dewi & Mu, 2020). Likewise, the results of research conducted said the same thing, that there was no relationship between maternal education and the nutritional status of toddlers aged 6-59 months in the working area of the Bantimurung Health Center (Wahyuningsih et al., 2020). This is because many factors can affect the nutritional status of children under five, such as food availability, consumption patterns, infectious diseases, child care patterns, and the participation of community leaders. In contrast to the results of research conducted, it was stated that there was a significant relationship between the level of mother's education and the nutritional status of children under five, with a *p-value of* 0.034 (Numaliza &

Herlina, 2018). This happens because the nutritional status of children under five is not only influenced by the level of education of the mother, but many factors can influence such as food availability, consumption patterns, infectious diseases, the mother's activities in parenting, and the participation of community leaders (Wahyuningsih et al., 2020).

Table 3. Descriptive Analysis of the Accuracy of Giving Complementary Breastfeeding (MP-ASI) with Toddler Nutritional Status

Characteristics	Good nutrition (normal)		More nutritional risk		Total		P-value
	(f)	(%)	(f)	(%)	(f)	(%)	
The Accuracy of Giving MP-ASI							0.038*
Well	24	(80)	6	(20)	30	(100)	
Not good	25	(57)	19	(43)	44	(100)	
Total	49	(66)	25	(34)	74	(100)	

The level of education of the mother is often associated with the ability and ease of the mother in receiving health information, especially nutrition during pregnancy, and is associated with the incidence of nutritional problems in children. In this case, mothers with basic education mostly have children with *stunting,* as well as mothers with advanced education also have children with stunting (Dewi & Mu, 2020).

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The level of education of parents, especially mothers who have been taken, will certainly provide different treatment for each child. Although it cannot be concluded that the level of education cannot be a benchmark in educating children because there are some mothers with higher education who have many opportunities to work, so they cannot fully take care of their children (Saputro, 2014).

The results of the analysis of the relationship between the accuracy of giving MP-ASI with the nutritional status of toddlers aged 6-24 obtained a *p-value of* 0.038 (p < 0.05). The results of this study are in line with research conducted that there is a significant relationship between

the practice of giving complementary feeding and the nutritional status of children under two with a *p-value of* 0.000 (Nurhayati, 2018). The results of this study are corroborated by the results of research conducted, that most of the respondents whose complementary feeding was lacking but had good nutritional status (Hamsilni, Waode, Zainuddin, 2019). This can happen because of other factors that trigger it, such as the frequency of giving MP-ASI that is good and the provision of variations of MP-ASI that can meet the nutritional status of the children of the research respondents, and vice versa. There are some respondents whose status of giving MP-ASI is good. But the nutritional status is problematic, and it also happens because the variants of giving MP-ASI and the frequency of giving MP-ASI are also not good (Hamsilni, Waode, Zainuddin, 2019). In contrast to the results of research conducted, it is stated that there is no relationship between complementary feeding and nutritional status at the age of 6-12 months, with a p-value = 0.96 (Shobah & Rokhaidah, 2021). This is because the high rate of inaccuracy in giving complementary feeding is influenced by many factors. One of the factors that cause problems is the

inaccuracy of giving MP-ASI, namely the composition of MP-ASI

The problem of nutritional status in children is caused by poor parenting, especially in the practice of giving complementary foods to breast milk. MP-ASI is given at the age of 6 months while continuing breastfeeding for up to 24 months. Good complimentary food meets the requirements on time, is nutritionally balanced, is safe, and is given in the right way. Giving MP-ASI that is not appropriate will affect the metabolism of fat, carbohydrates, and protein which has an impact on overweight and the emergence of degenerative diseases in adulthood. Giving MP-ASI that is not good and inappropriate can affect nutritional intake so that children experience less nutritional status or more nutritional status. The introduction and provision of MP-ASI should be made gradually from liquid, semi-solid, and solid foods (Nurhayati, 2018).
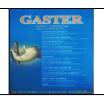
From the results of filling out the questionnaire regarding the accuracy of giving MP-ASI in the poor category, as many as 44 mothers (59.5 %), and the good ones, as many as 30 mothers (40.5%). The results of the category of the accuracy of giving MP-ASI the highest that is not good as many as 44 mothers

(59.5 %). This is evidenced by the majority of respondents aged 12-24 months. As many as 48 mothers with the highest score filled out the wrong questionnaire in question 2 regarding the frequency of giving complementary feeding, and the results said that of the 48 mothers who answered incorrectly, as many as 37 people (77.1 %) and question number 4 regarding the number of servings of complementary feeding, showed that of the 48 mothers who answered incorrectly as many as 43 people (89.5%). The results showed that of the 44 respondents who gave MP-ASI less well, more children under five were at risk of overnutrition (43%) than those who gave good MP-ASI; of the 30 respondents, only (20%) were at risk of overnutrition.

Based on the results of this study, it was found that some of the respondents whose complementary feeding was not good but had good (normal) nutritional status. This can occur because of other factors that trigger, such as frequency, the texture is given, balanced nutritional content, and a good portion of complementary feeding and given according to the age of the child. Thus, it can be concluded that there is a relationship between the accuracy of giving MP-ASI with the nutritional status of children under five.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the research and discussion above, it can be concluded that no there is a relationship between the level of a mother's education and the nutritional status of children under five, but there is a relationship between the accuracy of giving MP-ASI with the nutritional status of children aged 6-24 months

Results of this study are expected to be a reference in improving services at the posyandu and can provide input to cadres in providing counselling regarding the accuracy of giving good complementary feeding to the nutritional status of toddlers. additional information about the behaviour of the accuracy of giving MP-ASI to the nutritional status of toddlers and further research can be carried out using different variables and places

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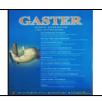
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