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Nutritional Status Correlated with the Development of Toddlers Aged 24-60 Months



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Abstract

Nutritional status is one of the physical variables that affects a child's growth and development. Considering that children are still in the process of growing and developing, it is crucial that their nutritional demands are addressed to the fullest extent possible. The purpose of this study was to determine how nutritional status and the development of toddlers aged 24 and 60 months related one another. Cross-sectional study was employed as the methodology of the study. 20 toddlers was served as the sample, which was collected through complete sampling at the Posyandu in Kuningan Village, Kanigoro District, and Blitar Regency. The Spearman Rank correlation test was used to examine the data. The study's findings indicated a correlation between nutritional status and toddlers' development aged of 24 and 60 months. Good category of nutritional status of the Toddlers showed good development results appropriate to their age. The recommendation of this research is for parents to pay more attention to nutritional intake and provide stimulation according to their toddler's development so that disorder in the developmental stage will not be occurred.

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INTRODUCTION

According to the Indonesian Ministry of Health and WHO, nutritional status is a condition caused by a balance between the intake of nutrients from food and the nutritional needs required by the body for metabolism. Nutritional status is a measure of success in providing nutrition for children as indicated by the child's weight and height. Nutritional status is also defined as health status resulting from a balance between nutritional needs and input (Thamaria, 2017). All physical growth and development requirements must be adequately satisfied to promote optimal growth and development. Nutritional status is one of the physical variables that affects a child's growth and development. Given that children are still in the process of growing and developing, it is crucial that their nutritional demands are addressed to the fullest extent possible. Children's development will be slowed down by a lack of nutrient-rich meals (Soetjningsih, 1995). Optimal nutrition is very important for normal growth and physical and intellectual development of babies, children and all age groups. A normal or healthy body weight is the result of good nutrition, and the body is also more resistant to infectious diseases, more productive at work, and protected against chronic illnesses and early mortality.

Riskesdas 2007, 2010, 2013 revealed that Indonesia still had a problem of malnutrition. The trend in the prevalence of wasting in children under five was from 13.6% to 13.3% and decreased by 12.1%. Meanwhile, the prevalence of stunting in children under five is 36.8%, 35.6%, 37.2%. The prevalence of underweight is 18.4%, 17.9% and 19.6% respectively. The prevalence of underweight among school children and teenagers based on Riskesdas 2010 is 28.5% (Ministry of Health of the Republic of Indonesia, 2014). Insufficient nutrition during the child's growth and development period will have a major impact on the child's weight and height as well as brain development. Therefore, the government, through various Community Health Center work programs, continues to strive for programs to improve children's nutritional status.

Nutritional status itself is a measure of success in fulfilling nutrition for children (Supariasa, 2001).

The government has also done a large number of research to find out how well-nourished youngsters are. One of the MDGs and the Strategic Plan (Renstra) of the East Java Provincial Health Service's indicators of malnutrition prevalence is body weight according to age (BB/U), specifically from very underweight and underweight (BB). According to the 2012 PSG findings, East Java was able to achieve numbers that were lower than the MDGs target (15.5%) and Strategic Plan (15.1%), namely 12.6% (10.3% Underweight and Very Underweight 2.3%; (<http://www.profil.kesehatan.jawa.timur.depkes.go.id>)).

After performing a survey and direct interviews with posyandu cadres in the Kuningan Kanigoro village, it was confirmed that in the last six months, numerous toddlers had not gained increase in weight and were at developmental stages in which not match with their age. After taking into account the previously mentioned background, the researchers interested in examining the correlation between nutritional status and the development of toddlers aged of 24 and 60 months in the Kuningan Kanigoro village, Blitar district.

METHODS

Cross-sectional quantitative research was used as the method in this study. In this study, early detection of child growth and development (DDTK) and nutritional status were both assessed. 20 toddlers were chosen as the study's population. The sample was all 20 toddlers taken by total sampling technique. The Posyandu in Kuningan Village, Kanigoro District, and Blitar was served as the place of the research. The study was conducted on March 18, 2022. The data collection method included early detection of child growth and development (DDTK) using KPSP and the KIA book (looking at the results of weighing). The researchers used the Spearman Rank correlation test to analyze the data once it had been collected.

RESULTS

1. General Data

Table 1: Frequency Distribution of Nutritional Status related to the Development of Toddlers 24-60 Months at the Posyandu in Kuningan Village, Kec. Kanigoro district, Blitar, March 18, 2022.

No.	Characteristics	<i>f</i>	%
1.	Age		
	24-36 months	9	45
	37-48 months	8	40
	49-60 months	3	15
2.	Number of siblings		
	1	8	40
	2	10	50
	>2	2	10
3.	Gender		
	Female	10	50
	Male	10	50
4.	Parents' Occupation		
	Private worker	7	35
	Housewife	11	55
	Entrepreneur	2	10
5.	Salary		
	< Rp 500.000	4	20
	Rp 500.000 – Rp 1.000.000	9	45
	> Rp 1.000.000	7	35
Total		20	100

Table 1 shows that all respondents (toddlers) have the same ratio (50%) in terms of gender. The highest frequency of age is 24-36 months old. All of the respondents have siblings. The highest frequency of parents' occupation is housewife. The highest frequency of the salary is Rp.500.000-Rp.1.000.000.

2. Specific Data

Table 2: Frequency Distribution of Nutritional Status of Toddlers 24-60 months in Posyandu Kuningan Village, District. Kanigoro district. Blitar March 18 2022

Nutritional status	Frequency	Percentage (%)
Overnutrition	2	10
Good nutrition	7	35
Moderate nutrition	3	15
Malnourished	8	40
Undernutrition	0	0
Total	20	100

From table 2 it can be seen that of all respondents (toddlers), almost half (40%) were in the malnourished category. The second category is well nourished with 35 percent. There is no undernutrition category occurred to the respondents.

Table 3: Frequency Distribution of the Development of Toddlers 24-60 months in Posyandu Kuningan Village, District. Kanigoro district. Blitar March 18 2022

Developmental Status	Frequency	Percentage (%)
Appropriate	10	50
Doubtful	7	35
Deviant	3	15
Total	20	100

Table 3 shows that half (50%) of the respondents (toddlers) are in the appropriate category. 35% of the respondents are in the category of doubtful. Only a few respondents are in the category of deviant.

3. The Correlation of Nutritional Status and the Development of Toddlers 24-60 Months

Table 4: Cross Tabulation Analysis of the Correlation of Nutritional Status and the Development of Toddlers 24-60 Months at the Posyandu in Kuningan Village, District. Kanigoro district. Blitar March 18 2022

Status Gizi	Developmental Status			Total
	Appropriate	Doubtful	Deviant	
Overnutrition	0 (0%)	2 (10%)	0 (0%)	2 (10%)
Well nourished	7 (35%)	0 (0%)	0 (0%)	7 (35%)
Fair nutrition	3 (15%)	0 (0%)	0 (0%)	3 (15%)
Malnourished	0 (0%)	5 (25%)	3 (15%)	8 (40%)
Undernutrition	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Overnutrition	10 (50%)	7 (35%)	3 (15%)	20 (100%)

Spearman rank test: p value = 0,005, r = 0,603

Table 4 reveals that the nutritional status of toddlers is in the category of malnutrition and has questionable development of 25% and deviant development of 15%. Based on the Spearman rank test statistical test, p value = 0.005, so the p value = 0.005 < 0.05. The calculated r value = 0.603 and r table = 0.450, so that r calculated > r table means this shows that there is a correlation between nutritional status and toddler development.

DISCUSSION

1. Nutritional Status

According to the findings, two toddlers (10%) were in the over-nutrition group, seven toddlers (35%) were in the good nutrition category, three toddlers (15%) were in the moderate nutrition category, and eight toddlers (40%) were in the malnourished category. Nutritional status is a manifestation of nutrition in the form of certain factors or an expression of a state of balance in the form of certain variables. Family income, family position in terms of birth spacing, degree of education, and understanding are all factors that influence nutritional status (Supariasa et al, 2001: 177).

From the data obtained, parental income shows that almost half (45%) of parents of toddlers have an income of between Rp. 500,000–1,000,000,-. The ability of families with limited income and the high price of food means that families are less able to meet the nutritional needs that toddlers need. Very limited income means that parents are unable to provide highly nutritious food to meet their children's needs. Parents or families who have a high economic status or income will practice a more consumptive lifestyle because they are able to provide for everything they

need when compared to families of a lower economic class. Fulfilling family nutrition is closely related to family lifestyle (Paath, 2004: 114). This is in line with research (Leny et al, 2017) which explains that of the 35 respondents he studied, 45.7% (16 respondents) had an income of >1,000,000. The nutritional status of their children was found in 4 respondents (11.4%) category over nutrition, as many as 25 respondents (71.5%) were in the good nutrition category, 5 respondents (14.3%) were in the malnutrition category, and 1 respondent (2.9%) was in the poor nutrition category. This was also supported by the findings of a study conducted by (Ethyca Sari, 2017), which discovered that out of 44 respondents, with an income of only 2-3 million per month, there were 27 (61.4%) respondents with a distribution of 17 (38.7%) respondents in the toddler nutritional status category, and 10 (22.7%) respondents in the toddler nutritional status category were poor. This is also relevant to the results of research from (Gusrianti, 2019) which states that there is a significant correlation between income level and toddler status ($p=0.043$). As a result, the quantity of income determines the dietary demands of the family's children. Toddlers are at a stage of rapid growth and development, which necessitates adequate nourishment to sustain their

growth and development. So, the higher the family income, the more likely it is that parents, particularly moms with toddlers, will be able to offer extremely nutritious food and nourishment for their toddlers.

Based on the research results shown in table 1, it was found that half of the respondents (50%) had 2 siblings. Families with several children and births that are very close together will cause more problems. Younger children often get insufficient food rations because they are inferior to their older siblings who eat faster and with larger portions. The number of siblings in this case can influence parents in balancing food rations for their children. This was supported by the results of research conducted by (Ethyca Sari, 2017) which showed that the majority of respondents had 2-3 children, namely 30 people (68.2%) with 19 people (43.2%) whose nutritional status was good and 11 people (25%) the nutritional status of toddlers is poor. Aside from these factors, parental education helps children's nutritional health. This demonstrates that families' knowledge of their children's nutritional needs affects the implementation of daily feeding patterns (Supariasa et al, 2001: 177).

2. Toddler's Development

Based on the research results, it showed that 10 toddlers (50%) were in the appropriate category, 7 toddlers (35%) were doubtful, and 3 toddlers (15%) were in the category of deviant. The results of the assessment of toddler development in the category according to the KPSP meant that the parenting style carried out by mothers were good because most of them always stimulate the development of their children. The appropriate KPSP assessment results were due to the mother's experience and work. This was in line with the results of research conducted by (Syarifa at al. 2021) which found that children under five in the malnourished category (59.2%) had mothers who did not work or housewife (IRT) as much as 55.3% and a low family income of 72.4 %.

According to the findings of the study, half (50%) of the respondents (toddlers) had two siblings. According to Notoatmodjo's idea, experience is a good source of information. As a result, personal experience can be used to develop information. This is accomplished by repeating the experience obtained in problem solving (Notoadmodjo, 2012: 13). The experience of stimulating the development of the first kid serves as a resource for moms when stimulating the development of future children. Thus, prior experience affects the mother's actions and

perceptions when it comes to stimulating her toddlers.

Table 1 presents research findings indicating that 11 out of the 55 parents of toddlers are housewives. A person with a job will know more than a person without one since a worker will learn more and have more experience. One might acquire experience and knowledge in the workplace both directly and indirectly. Compared to housewives who work to take care of household duties, working mothers will have greater access to information (Soetjningsih, 1995: 10).

The assessment of maternal stimulation for children in the category according to the KPSP is due to the results of answers that are in accordance with the child's ability to make fine movements, gross movements, speech and language as well as socialization and independence. This shows that the mother really pays attention to the child's development by providing stimulation to the child according to the stages. Meanwhile, the assessment of some children is still not in accordance with the KPSP or is doubtful due to mothers not being able to stimulate their children's development according to the stages so that their children grow and develop as they are without any stimulation from parents. Children will tend to only be able to carry out one of the assessment criteria, such as being able to perform fine and gross movements but not being able to carry out socialization and independence or only one motor development.

3. The Correlation of Nutritional Status and Development of toddlers 24 - 60 months

Table 4 revealed that 10% or the two toddlers were in the over-nutritional status category had developmentally problematic outcomes. This was attributed to the parents' incorrect practices of giving their children more food than their bodies required. Toddlers who are malnourished typically store surplus energy as fat in their tissues. Furthermore, fat is inert tissue that doesn't actively take part in the bodily functions. Consequently, children who are malnourished are unable to explore their physical surroundings for extended periods of time or grow weary rapidly, whereas those who are well-nourished are able to do so for longer (Sediaoctama, 2010: 27).

From table 4, it shows that 40% (8 toddlers) in the category of poor nutritional status fall into the doubtful development category at 25%, and in the deviant category at 15%. One of the factors behind this incident was that most of the respondents'

(toddlers') mothers' parents were housewives (Housewives). Apart from that, the factor of low family income also influences children's eating patterns to meet the nutritional needs of toddlers. Food plays an important role in children's growth and development, where children's needs are different from adults because children's food is needed for growth which is influenced by the family's food security. Family food security includes food availability and fair distribution within the family (Soetjiningsih, 1995: 6). This is consistent with research findings from Syarifa et al. (2021), which indicated that 72.4% of families with children under five who fell into the malnourished category (59.2%) also had poor family incomes.

Based on the Spearman rank test statistical test, it was revealed that p value = 0.005, so the p value = $0.005 < 0.05$. The calculated r value = 0.603 and r table = 0.450, so that r calculated $>$ r table meant that there was a correlation between nutritional status and the development of toddlers. This is consistent with the findings of a study conducted by (Leny et al, 2017), who found that statistical test data analysis using Spearman Rank yielded t count $>$ t table, namely $3.647 > 1.960$, indicating that there is a relationship between nutritional status and toddler development at the age of 1 to 3 years. This was also relevant to research from (Wulan, 2015) which stated that children in the good nutritional status category had appropriate growth and development of 91.3%, while children in the poor nutritional status category had appropriate growth and development of 12.5%.

The existence of a correlation between nutritional status and toddler development suggests that nutrition is a critical aspect in toddler development. Food intake is one factor that might alter a person's nutritional status. This was in line with research results (Indraswari, 2020) which stated that the nutritional status and developmental status of toddlers had a p -value of 0.001, which indicated a significant relationship between these two variables. The contingency coefficient results showed a result of 0.586, which meant there was a fairly strong correlation between nutritional status and the developmental status of toddlers ($0.40 < C < 0.60$ Cmax).

CONCLUSION

From this research it can be concluded that toddlers aged 24–60 months in Posyandu, Kuningan Village, Kanigoro District, Blitar Regency, 40% was in the under-nutrition status category, and 50% had appropriate developmental stage according to the

KPSP. The results of data analysis using Spearman Rank test obtained p value = 0.005 and $r = 0.603$ so it could be stated that nutritional status was correlated to the development of toddlers aged 24-60 months at the Posyandu in Kuningan Village, Kanigoro District, Blitar Regency.

SUGGESTION

It is expected that there will be good cooperation between service providers (health workers) and both parents in order to build a quality generation by offering health education for parents who are concerned in order to raise nutritional needs and stimulate child development.

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CONFLICTS OF INTEREST

The authors have no conflict of interest in publishing the article.

AUTOR CONTRIBUTIONS

All authors fully contribute to research activities starting from drafting activities, tabulating data management, writing drafts of manuscripts and analysis. Each author makes a positive contribution to this activity from start to finish, including publishing articles in this journal.

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