

## Analisis Faktor-Faktor yang Memengaruhi Pemenuhan Kebutuhan Gizi pada Balita yang Mengalami Kekurangan Gizi

### *Analysis of factors that affect the fulfillment of nutritional needs in undernourished toddlers*

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#### Abstract

*Introduction: Malnutrition is a condition in which the body lacks adequate nutrients due to a lack of intake of energy, protein, and micronutrients over a long period of time. Objective: This study aims to analyze the factors that affect the fulfillment of nutritional needs in undernourished toddlers in Probolinggo Regency. Methods: This study used a cross-sectional method with a total sampling technique. The number of research samples was 30 respondents which included all undernourished toddlers aged 5 years and above. Data collection was carried out using questionnaires, while data analysis used chi-square test and ordinal logistic regression analysis. Results: Research analysis of the chi-square bivariate test showed significance values of 0.007 (<0.05) for the Parenting variable, as well as 0.021 (<0.05) and 0.046 (<0.05) for Socioeconomic Status, indicating that the three variables affect nutritional fulfillment. Multivariate data analysis showed a lower level of significance for the Sanitation variable than the other variables, with a significance value of 0.171. This shows which variable is the most dominant influencing nutritional fulfillment based on ordinal logistic regression analysis. Conclusion: Variable variables affect the occurrence of stunting, but parents are expected to increase the knowledge and awareness of parents, especially mothers, about the importance of balanced nutrition and how to achieve it. This is very important to encourage behavioral changes in child feeding, so that it can prevent and overcome malnutrition in toddlers.*

**Keywords:** Parenting, Socio-Economic, Sanitation, Fulfillment of Nutritional Needs.

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#### 1. INTRODUCTION

Malnutrition is a condition when the body does not have enough nutrients due to a lack of energy, protein, and micronutrient intake in the long term. If the child's weight does not match his age at 3 months continuously, then this is considered malnutrition or malnutrition. Nutrition issues are one of the priorities included in the Sustainable Development Goals (SDG's), especially for goal number two. The goal is to hope that by 2030 Indonesia will be free from all types of malnutrition. However, in reality, until now there are still many nutritional problems in Indonesia and even the prevalence still exceeds the national target that has been set, the prevalence of Nutritional Status of Toddlers in Probolinggo Regency reaches 9.5% of malnutrition. The factors underlying nutritional problems for toddlers are very diverse, ranging from parenting, socio-economy, sanitation, infectious diseases, and most importantly the lack of nutritional intake. Nutritional problems that occur in toddlers can have various adverse impacts on the development of the child. Nutrition is one of the main determining factors for the quality of human resources. Poor nutrition not only increases the rate of illness and mortality but also decreases productivity, inhibiting the growth of brain cells resulting in ignorance and retardation.[1]

Therefore, the literature review used includes:

Fulfilling the Nutritional Needs of Toddlers

Fulfilling nutritional needs is the process of fulfilling the nutrients needed by children to maintain body functions, growth, development, and health. The nutritional needs of toddlers are not only determined by the amount of food consumed, but also the quality and diversity of food, frequency of feeding, the ability of children to consume food, and the behavior of caregivers in providing food. According to Nugroho, S., & Sudibyo, N. A. (2024) At the age of 6–24 months, children's nutritional needs increase so that breast milk needs to be supplemented with complementary foods for breast milk. Furthermore, at the age of 24–59 months, children begin to have food preferences and are more active in choosing foods that they like. Therefore, the role of parents or caregivers is important in directing children to obtain diverse and nutritious balanced [3]

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#### Parenting as a Factor in Fulfilling Nutrition

Parenting is one of the important factors that determine the fulfillment of the nutritional needs of toddlers. Parents or caregivers have a role in choosing food, determining the time and frequency of meals, regulating portions, providing food variations, and responding to children's eating behavior. Improper parenting can cause children to not get adequate food intake. This condition can occur when parents pay less attention to the meal schedule, provide less diverse foods, provide too often interlude foods with low nutritional value, or are unable to overcome children's picky food behavior. The results of the research by Nurida and Maritasari (2022) listed in the research journal mapping show that there is a relationship between parenting and the incidence of malnutrition in toddlers with a p-value of 0.007 and an OR of 2.9. These findings show that parenting patterns in feeding are one of the aspects that need to be considered in an effort to prevent nutritional problems. [4]

#### Socio-Economic and Nutritional Fulfillment

Family socioeconomic conditions are related to the family's ability to provide quality food needs. Family income can determine the purchasing power of food that contains protein, vitamins, minerals, and other nutrients. Families with economic limitations can experience difficulties in providing a variety of food consistently. Research by Gowasa, Demitri, and Jairani (2024) listed in the journal mapping found a relationship between family income and the incidence of malnutrition with a p-value of 0.001 and an OR of 11.667. Meanwhile, Nurida and Maritasari (2022) [4] found a relationship between maternal employment status and the incidence of malnutrition with a p-value of 0.005 as well as the relationship between family opinion and the incidence of malnutrition with a p-value of 0.010. [5]

#### Environmental Sanitation and Nutrient Fulfillment

Sanitation is an environmental factor that can affect the health and nutritional status of toddlers. Inadequate sanitation, such as limited access to clean water, poor toilet conditions, and poor environmental cleanliness, can increase the risk of infectious diseases. Research by Nurida and Maritasari (2022) shows a relationship between environmental sanitation and the incidence of malnutrition in toddlers with a p-value of 0.002 and an OR of 3.4. These findings are in line with Nuradhiani's (2023) literature review, which includes personal hygiene and inadequate environmental sanitation as indirect factors related to malnutrition problems. [6]

#### Food Intake and Nutritional Needs

Food intake is a direct factor in meeting nutritional needs. Children who do not get enough energy and protein are at risk of developing growth disorders and nutritional problems. Research by Ummunisa, M. (2023) on toddlers in the working area of the Puri Health Center, Mojokerto Regency, showed that there was a relationship between food intake and infectious diseases and the incidence of malnutrition, each with a p-value of 0.000. The study showed that the fulfillment of nutritional needs cannot be separated from the quality of food intake and the health condition of children. Research by Salma, Haniarti, and Nurhaeda (2021) also showed that feeding high nutrition based on tempeh and cauliflower provided a difference in weight between the experimental group and the control group with a p-value of 0.030. This gives an idea that intervention on food quality can be one of the approaches in handling nutritional problems. [7,8]

#### Mother's Knowledge in Nutritional Fulfillment

Knowledge of mothers or caregivers is a factor that can affect feeding practices. Knowledge about the type of food, nutritional needs, frequency of meals, food variations, and how to process and give food can support more appropriate feeding practices. Gowasa et al. (2024) reported that there was a relationship between maternal knowledge and the incidence of malnutrition with a p-value of 0.018 and an OR of 4.333. Meanwhile, Wulandari, et al (2024). through a literature study emphasized the importance of maternal knowledge about nutritional needs in the first 1,000 days of life. [9].

## 2. METHOD

The type of research used is Correlation Analytics with a Cross Sectional approach that aims to reveal the correlative relationships between variables (Sofya et al., 2024). In this case, it is "Analysis of Factors Affecting the Fulfillment of Nutritional Needs in Toddlers Experiencing Malnutrition in Probolinggo Regency". An

approach (Cross-sectional Method) that aims to find out the relationship or correlation between independent variables and bound variables so that they can answer the hypothesis that has been formulated (Haris et al., 2024). Sample All toddlers who experienced malnutrition aged 1-5 years amounted to 30 respondents The sampling technique used is Total sampling using logistic regression analysis data analysis. This research has also received a certificate of ethical worthiness. With no. 007/KEPK-UNHASA/II/2025. Ethical clearance stated through attachment form agreement and letter permission research. [10,11]

### 3. RESULTS

**Table 1** Characteristics of Respondents Based on Parenting, Socio-Economic, Sanitation and Fulfillment of Nutritional Needs

| Variable                                | Category      | F         | (%)          |
|-----------------------------------------|---------------|-----------|--------------|
| <b>Parenting Style</b>                  | Democratic    | 5         | 16.7         |
|                                         | Authoritarian | 11        | 36.7         |
|                                         | Permissive    | 14        | 46.7         |
|                                         | <b>Total</b>  | <b>30</b> | <b>100.0</b> |
| <b>Socio-Economic Status</b>            | High          | 7         | 23.3         |
|                                         | Medium        | 11        | 36.7         |
|                                         | Low           | 12        | 40.0         |
|                                         | <b>Total</b>  | <b>30</b> | <b>100.0</b> |
| <b>Sanitation</b>                       | Good          | 14        | 46.7         |
|                                         | Poor          | 16        | 53.3         |
|                                         | <b>Total</b>  | <b>30</b> | <b>100.0</b> |
| <b>Fulfillment of Nutritional Needs</b> | Good          | 9         | 30.0         |
|                                         | Poor          | 21        | 70.0         |
|                                         | <b>Total</b>  | <b>30</b> | <b>100.0</b> |

**Table 2** Parenting with Nutritional Needs Fulfilled

| Variable               | Category      | Good n (%)       | Poor n (%)       | Total n (%)       |
|------------------------|---------------|------------------|------------------|-------------------|
| <b>Parenting Style</b> | Democratic    | 1 (3.3)          | 4 (13.3)         | 5 (16.7)          |
|                        | Authoritarian | 0 (0.0)          | 11 (36.7)        | 11 (36.7)         |
|                        | Permissive    | 8 (26.7)         | 6 (20.0)         | 14 (46.7)         |
| <b>Total</b>           |               | <b>9 (30.0)</b>  | <b>21 (70.0)</b> | <b>30 (100.0)</b> |
| <b>p-value</b>         |               | <b>0.007</b>     |                  |                   |
| <b>Significance</b>    |               | <b>&lt; 0.05</b> |                  |                   |

Based on table 2 The results of the statistical test using the Chi square test were obtained as a result of Permissive Parenting as many as 14 Respondents (46.7%), Authoritarian as many as 11 respondents (36.7%) and Democratic as many as 5 Respondents (16.7%). Fulfillment of Poor Nutritional Needs as many as 21 respondents (70.0%) and Poor as many as 9 respondents (30.0%). With a significance p value of  $0.007 < 0.05$ , the independent variable of Parenting is concluded that there is a relationship between Parenting and Fulfilling Nutritional Needs.

**Table 3** Socio-Economic with Nutritional Needs Fulfilled

| Variable                     | Category | Good n (%)       | Poor n (%)       | Total n (%)       |
|------------------------------|----------|------------------|------------------|-------------------|
| <b>Socio-Economic Status</b> | High     | 1 (3.3)          | 6 (20.0)         | 7 (23.3)          |
|                              | Medium   | 1 (3.3)          | 10 (33.3)        | 11 (36.7)         |
|                              | Low      | 7 (23.3)         | 5 (16.7)         | 12 (40.0)         |
| <b>Total</b>                 |          | <b>9 (30.0)</b>  | <b>21 (70.0)</b> | <b>30 (100.0)</b> |
| <b>p-value</b>               |          | <b>0.021</b>     |                  |                   |
| <b>Significance</b>          |          | <b>&lt; 0.05</b> |                  |                   |

Based on table 3 of the results of the statistical test using the Chi square test, the results were obtained that Low Socio-Economic was 12 Respondents (40.0%), Medium was 11 respondents (36.7%) and High was 7 Respondents (23.3%). Fulfillment of Poor Nutritional Needs as many as 21 respondents (70.0%) and Poor as many as 9 respondents (30.0%). With a significance p value of  $0.021 < 0.05$ , the independent variable of Socio-Economics is concluded that there is a socioeconomic relationship with the Fulfillment of Nutritional Needs.

**Table 4** Sanitation with Nutritional Needs Fulfilled

| Variable     | Category | Good n (%) | Poor n (%) | Total n (%) |
|--------------|----------|------------|------------|-------------|
| Sanitation   | Good     | 2 (6.7)    | 13 (43.3)  | 15 (50.0)   |
|              | Poor     | 7 (23.3)   | 8 (26.7)   | 15 (50.0)   |
| Total        |          | 9 (30.0)   | 21 (70.0)  | 30 (100.0)  |
| p-value      |          | 0.046      |            |             |
| Significance |          | < 0.05     |            |             |

Based on table 4 of the results of the statistical test using the Chi square test, the results were obtained that the Sanitation was Good and Bad for 15 Respondents (50.0%). Fulfillment of Poor Nutritional Needs as many as 21 respondents (70.0%) and Poor as many as 9 respondents (30.0%). With a significance p value of  $0.046 < 0.05$ , the independent variable of Sanitation is concluded that there is a relationship between Sanitation and the Fulfillment of Nutritional Needs.

**Table 5** Ordinal Logistic Regression Test Results

| Parameter Estimates |                                 |          |            |       |    |      |                         |             |
|---------------------|---------------------------------|----------|------------|-------|----|------|-------------------------|-------------|
|                     |                                 | Estimate | Std. Error | Wald  | df | Sig. | 95% Confidence Interval |             |
|                     |                                 |          |            |       |    |      | Lower Bound             | Upper Bound |
| Threshold           | [PemenuhanKebutuhanNutrisi = 1] | -7.033   | 2.820      | 6.220 | 1  | .013 | -12.560                 | -1.506      |
| Location            | PolaAsuh                        | -1.140   | 1.361      | .701  | 1  | .403 | -3.807                  | 1.528       |
|                     | SosialEkonomi                   | -.500    | 1.118      | .200  | 1  | .655 | -2.691                  | 1.691       |
|                     | Sanitasi                        | -1.361   | .993       | 1.878 | 1  | .171 | -3.308                  | .586        |

Link function: Logit.

Based on Table 5 of the results of the analysis test, it can be seen that Sanitation has a significance of being smaller than the value of other variables with a value of Sig. 0.171, which means that the results of the analysis test are stated using ordinal logistic regression to find out the most dominant variable that affects the Results of Fulfilling Nutritional Needs obtained by the Sanitation variable.

#### 4. DISCUSSION

Based on table 5 Results of statistical tests using the Chi square test, the results were obtained that the significance value of p value was  $0.046 < 0.05$ , then the independent variable of Sanitation was concluded that there was a relationship between Sanitation and the Fulfillment of Nutritional Needs. Good and bad sanitation totaled 15 Respondents (50.0%). From the research that has been carried out, it leads to the Bad and Good category because some respondents already have the provision of clean water, environmental sanitation (such as proper toilets and good waste management), and personal hygiene (including hand washing), but there are some respondents who are underprivileged and have poor sanitation. (Puspitasari et al., 2024) Meanwhile, several factors included in meeting poor nutritional needs are due to lack of knowledge about balanced nutrition, limited access to nutritious food, or health conditions that affect the absorption of nutrients in toddlers. (Maulidya, I., & Diana, R. R. 2024) [12,17]

Parenting that does not pay attention to the principles of balanced nutrition often causes feeding that is not in accordance with the physiological needs of the child (Faradila & Petrika, 2024)[11]. The imbalance of information and knowledge about proper complementary feeding practices for breastfeeding (MP-ASI) is also the cause of suboptimal early childhood nutrition fulfillment (Susilowati et al., 2025)[12]. Factors that cause malnutrition such as non-exclusive breastfeeding nutrition, pain in babies, lack of nutritional intake in babies, low maternal education and household socioeconomic status (Akbar, 2025). The economic status of the family will affect the family's ability to meet food needs that are good enough in terms of quantity, quality, and safety (Simatuak at al 2023). [13,14,15,20]

The researcher's opinion says that the results of Parenting, Socio-Economic and Sanitation have an influence on meeting the nutritional needs of toddlers who experience malnutrition (Jansen, S.2025). It is concluded that the factors that affect the fulfillment of nutritional needs in toddlers who experience malnutrition are very complex and interrelated. In general, these factors can be divided into direct and indirect factors, as well as internal and

external factors (Risqa, A., & Arsan, J. 2024). Seen in terms of improper parenting, such as lack of stimulation, lack of attention, and lack of adequate feeding, it can affect children's growth and development and nutritional status. As well as the socio-economic of the elderly in terms of poverty causes limited access to nutritious food, poor sanitation, and health services and an unclean environment and poor sanitation can increase the risk of infection and worsen malnutrition conditions (Damayanti, 2024). The results of the analysis test can be found that Sanitation has a significance of being smaller than the value of other variables with a value of Sig. 0.171, which means that the results of the analysis test are stated using ordinal logistic regression to find out the most dominant variable that affects the Results of Fulfilling Nutritional Needs obtained by the Sanitation variable. [16,18,19]

## 5. CONCLUSION

Based on the objectives and results of the research "Analysis of Factors Affecting the Fulfillment of Nutritional Needs in Undernourished Toddlers in Probolinggo Regency". The most dominant factor that affects the Results of Fulfilling Nutritional Needs is obtained by the Sanitation variable.

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