

# The Relationship Between Feeding Patterns, Parental Knowledge, and Compliance with Visits to the Integrated Health Post (Posyandu) and the Nutritional Status of Toddlers at the Integrated Health Post (Posyandu) in Parungmulya Village in 2025

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## ABSTRACT

**Background & Objective:** Nutritional status issues can have serious impacts on children's growth and development, both physically and cognitively. This study aims to determine the relationship between feeding patterns, parental knowledge, and adherence to visits to the integrated health post (Posyandu) with the nutritional status of toddlers at the Integrated Health Post (Posyandu) in Parungmulya Village in 2025. **Method:** This study used a cross-sectional approach. The sample size was 82 respondents. The research instruments were questionnaires and anthropometric measurements with BB/U indicators. Data analysis used Chi-Square. **Result:** The results showed that most respondents had appropriate feeding patterns (70.7%), good parental knowledge (59.8%), adherence to visiting the integrated health post (52.4%), and toddler nutritional status in the normal weight category (74.4%). **Conclusion:** There was a significant relationship between feeding patterns and toddler nutritional status with (p-value 0.000), between parental knowledge and toddler nutritional status with (p-value 0.000), and between attendance at integrated health post (Posyandu) visits with toddler nutritional status with (p-value 0.022). The results of this study are expected to be a reference for improving education and interventions to maintain optimal toddler nutritional status.

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## Introduction

Malnutrition is a global health issue that significantly impacts individuals' quality of life and the socio-economic development of a country. The country with the highest malnutrition rate in the world is Somalia, where an estimated 51.3% of the population suffers from some level of malnutrition, making it a persistent and serious problem in the country. In addition, Haiti, a small island in the Caribbean, ranks second with 50.4% of its population affected by malnutrition, indicating that nearly half of its citizens experience some form of undernutrition. Madagascar is also known to have a very high malnutrition rate, ranking third with approximately 39.7% of its population affected, which has led to significant problems in the country (World Population Review, 2023).

According to data from the Food and Agriculture Organization (FAO), in 2021 the number of undernourished people globally reached 767 million, with the majority – around 425 million – living in Asia. From 2019 to 2021, the countries in Asia with the highest malnutrition problems, according to FAO, were: Indonesia, ranking first with 17.7 million people (6.5% of the national population); followed by Thailand with 6.7 million people (8.8% of the national population); and the Philippines with 5.7 million people (5.2% of the national population). However, when viewed by percentage, the Southeast Asian country with the highest prevalence of malnutrition is Timor-Leste, with 300 thousand people (26.2% of the national population), while Indonesia ranks third (Ahdiat, 2022).

Infants (children under 1 year old) and toddlers (children aged 1–5 years) are the next generation who will carry on the nation's development. Efforts to improve nutritional status play a crucial role in creating a healthy and high-quality future generation. With optimal nutrition, toddlers can be protected from various diseases and possess intelligence with competitive potential. Indonesia continues to face various nutritional challenges, including malnutrition (underweight, severe malnutrition, stunted growth), overweight, and other nutrition-related health problems such as anemia, vitamin A deficiency, and iodine deficiency disorders.

The 2022 Indonesian Nutrition Status Survey reported the prevalence of stunting in Indonesia at 21.6%, severe malnutrition at 7.7%, underweight at 17.1%, and overweight at 3.5% (Supardi, 2023). Based on the weight-for-age (W/A) index for children under five (0–59 months) in Indonesia, there are five provinces with the highest rates of severe malnutrition. The province with the highest prevalence is Central Papua at 8.5%, followed by East Nusa Tenggara at 6.8%, Maluku at 6.7%, Southwest Papua at 6.7%, and Central Sulawesi at 5.9%. Meanwhile, in West Java Province, the prevalence of severe malnutrition among toddlers is 2.4% (Health Development Policy Agency & Ministry of Health, Republic of Indonesia, 2023).

According to the West Java Provincial Health Office, the average prevalence of underweight toddlers based on the weight-for-age (W/A) index by district/city coverage shows the highest prevalence in Cirebon City at 11.26%, followed by Cirebon Regency at 9.43%, and Sumedang Regency at 9.20%. The lowest prevalence of underweight toddlers is found in Bekasi Regency at 1.89%, and in Karawang Regency at 2.53%.

Meanwhile, the prevalence of stunted toddlers based on the height-for-age (H/A) index by district/city coverage shows the highest rate in Cirebon City at 12.12%, followed by Garut Regency at 9.62%, and Cimahi City at 9.42%. The lowest prevalence is found in Bekasi Regency, at 1.29%.

The prevalence of wasted toddlers based on the weight-for-height (W/H) index in West Java, by district/city coverage, shows the highest prevalence in Bekasi Regency at 13.55%, followed by Cirebon City at 6.38%, and Banjar City at 6.27%. Meanwhile, the lowest prevalence is found in Purwakarta Regency, at 1.21% (West Java Provincial Health Office, 2023).

Based on the nutritional monitoring of toddlers conducted by the Karawang District Health Office, efforts to identify nutritional problems among the population—particularly toddlers—were carried out by assessing their nutritional status in accordance with Ministry of Health Regulation No. 2 of 2020 concerning child anthropometric measurement standards. The assessment of toddlers' nutritional status was conducted using three main indicators: weight-for-age (W/A), height-for-age (H/A), and weight-for-height (W/H).

According to the sectoral statistics of Karawang Regency in 2022, five community health centers (Puskesmas) were recorded as having the highest number of toddlers suffering from severe malnutrition. The Wanakerta Health Center had the highest number with 18 toddlers, followed by Ciampel Health Center and Karawang Health Center, each with 13 toddlers. Meanwhile, Adiarsa Health Center and Cibuaya Health Center each reported 10 toddlers with severe malnutrition (Karawang District Health Office, 2022).

Based on data obtained from the Nutrition Unit of Ciampel Community Health Center on September 17, the nutritional status of toddlers according to the weight-for-age (W/A) indicator showed that there were 48 toddlers classified as severely underweight, 338 toddlers as underweight, 2,562 toddlers with normal weight, and 251 toddlers at risk of being overweight. Within the Ciampel Health Center's working area, which covers seven villages, the data on nutritional status showed the following distribution of toddlers with severely low weight: Mulyasejati Village had the highest number with 14 toddlers, followed by Parungmulya Village with 9 toddlers, Mulyasari Village with 8 toddlers, Kutamekar Village with 6 toddlers, Kutapohaci Village with 5 toddlers, Kutangara Village with 4 toddlers, and the lowest was Tegalega Village with 2 toddlers suffering from severe undernutrition (Nutrition Unit, Ciampel Community Health Center, 2024).

Parungmulya Village is one of the villages within the working area of the Ciampel Community Health Center, and it has the second highest prevalence of nutritional problems among toddlers in the region. Nutritional status data for toddlers in this village show that there are 63 underweight toddlers, 9 severely underweight toddlers, 369 toddlers with normal weight, and 35 toddlers at risk of being overweight. Based on an interview with one of the Posyandu cadres in Nusa Indah 4, it was revealed that community participation in Posyandu activities remains low. This was evident during the most recent Posyandu activity held in Nusa Indah 4 on December 4, 2024, where only 50% of the total number of toddlers in the area attended the event.

The Posyandu cadre stated that toddler attendance at Posyandu sessions tends to increase when there are specific health programs offered, such as the distribution of vitamin A, compared to regular Posyandu visits. One of the main factors contributing to low attendance is the distance between the Posyandu and the toddlers' homes, as well as difficult access roads, which are still unpaved, rocky, and uphill. Additionally, the lack of parental attention or family support, along with limited knowledge about the importance of bringing toddlers to Posyandu, are also significant factors leading to low toddler attendance at these health services.

The Posyandu cadre also stated that some parents of toddlers already possess good nutritional knowledge and understand proper feeding practices for young children, while others still lack awareness in these areas. The cadre further explained that efforts to improve the nutritional status of toddlers have been made through the provision of supplementary feeding (PMT), which aims to address undernutrition among toddlers in the area. However, cases of undernutrition still remain in the village despite these interventions.

Nutritional status refers to the condition of the body influenced by food intake and the utilization of nutrients within the body. There are three categories of nutritional status: undernutrition, overnutrition, and adequate or balanced nutrition. Two main factors influence a person's nutritional status: dietary patterns and overall health conditions, including the presence of bacteria, viruses, or infections. Historically, the term "nutrition" refers to bodily health, encompassing energy supply, the formation and maintenance of body tissues, and the regulation of various biological processes occurring in the body. Furthermore, in a broader sense, nutrition is also related to economic aspects, as it can affect brain development, learning ability, and work productivity (Amirullah, 2020).

There are two approaches to assessing nutritional status: direct and indirect assessments. Direct assessment includes methods such as anthropometric measurements, clinical examinations, biochemical tests, and biophysical evaluations of the body. Meanwhile, indirect assessment consists of dietary surveys, vital sign monitoring, and the evaluation of environmental factors that may influence nutritional status. With these various assessment methods, health workers or midwives, as well as parents, can identify whether a toddler's nutritional status falls into the category of normal nutrition, undernutrition, or severe malnutrition (Mardalena, 2021).

In the field of nutrition science, malnutrition refers to a nutritional status that can result from either excess or deficiency of nutrients. It is a pathological condition caused by an imbalance, deficiency, or excess of one or more nutrients. There are several types of malnutrition, including: under-nutrition (insufficient food intake), specific deficiency (lack of particular nutrients), over-nutrition (excessive intake of nutrients beyond the body's needs), and imbalance (nutrient disproportion). Therefore, malnutrition is not limited to undernutrition alone (Mardalena, 2021).

The findings of a study by Armanda et al. (2023) revealed that a majority of mothers at the Sidodadi Village Posyandu had good nutritional knowledge (80.7%), while 19.3% of them had fair or poor knowledge. Mothers with good nutritional knowledge tended to have toddlers with a good nutritional status, whereas those with limited knowledge were more likely to have children with overnutrition, undernutrition, or malnutrition. The study showed a significant relationship between maternal knowledge and the nutritional status of toddlers in Sidodadi Village, Madiun Regency, with a p-value of 0.018 ( $p < 0.05$ ).

Another study by Anjela et al. (2020) found a significant relationship between maternal knowledge of balanced meals and toddler nutritional status ( $p$ -value = 0.035  $< 0.05$ ), indicating that better knowledge was associated with better nutritional outcomes. However, maternal behavior in food preparation showed no significant relationship with toddler nutritional status ( $p$ -value = 0.702  $> 0.05$ ). Based on these findings, it is recommended that health workers and the Ministry of Health intensify nutrition education programs for mothers with toddlers, particularly on the

importance of balanced nutrition and appropriate complementary feeding, to encourage parents to focus on providing nutritionally balanced diets for their children.

Another study by Rosliana (2020) also indicated that undernutrition problems are largely caused by poor economic conditions, low levels of parental education, and limited parental knowledge about nutrition and the health conditions of their toddlers. The study, which involved 43 toddlers aged 12–24 months at Telatau Posyandu, found that 25.6% of the children were experiencing undernutrition. The findings also revealed a significant relationship between parenting patterns and maternal knowledge with the nutritional status of toddlers ( $p = 0.000$ ), while the comorbid disease variable showed no significant relationship with the toddlers' nutritional status ( $p = 1.000$ ).

Another study conducted by Susanti (2023) described the feeding patterns of toddlers at the Karangjati Posyandu. Out of 47 samples, 29 samples (61.7%) were categorized as having good feeding practices. Furthermore, from the same group, 37 samples (78.22%) were found to have toddlers with a good nutritional status. The results of the study showed a  $p$ -value of 0.002 ( $< 0.05$ ), indicating a significant correlation between feeding patterns and toddler nutritional status. Therefore, it is recommended that parents improve their children's dietary intake to fulfill their nutritional needs, and pay close attention to both the quality and quantity of food provided to their toddlers.

Another study by Apriliani & Samidah (2023) showed that, out of 91 samples, 73.6% of toddlers in the Hulu Palik Community Health Center area were active in attending Posyandu, and 70.3% of them were categorized as having normal nutritional status. This indicates a significant correlation between the frequency of Posyandu visits and the nutritional status of toddlers, with a  $p$ -value of 0.00. Therefore, it is recommended that parents increase their participation by regularly bringing their toddlers to Posyandu in order to consistently monitor their children's nutritional status.

The potential impact of poor or severely poor nutritional status in toddlers can be detrimental to their quality of life, as it may hinder their developmental potential and physical growth. Other consequences include a weakened immune system, impaired brain development, and, in more severe cases, it may even lead to death. Typically, the risk of mortality in toddlers with poor nutrition is up to twelve times higher than that of toddlers with normal nutritional status. Given the numerous adverse effects of poor or inadequate nutrition in toddlers, it is crucial for mothers to understand how undernutrition affects their child's nutritional status. With this awareness, mothers are expected to recognize the importance of early nutritional intervention by actively bringing their toddlers to Posyandu or healthcare services to monitor and manage their children's nutritional status (UNICEF Indonesia, 2023).

Posyandu (Integrated Health Service Post) is a vital health service program aimed at addressing issues of undernutrition, malnutrition, and overnutrition in toddlers. Typically organized at the village level, Posyandu provides health services to pregnant women, breastfeeding mothers, toddlers, and the surrounding community. One of the key benefits of Posyandu is its role in delivering health information and services to both parents and children—such as education on balanced nutrition, exclusive breastfeeding, proper complementary feeding (MPASI), disease control, and the early detection of developmental disorders and growth problems in

toddlers, in order to prevent and treat nutritional deficiencies early. Additionally, Posyandu facilitates immunization for toddlers (Susanto et al., 2023).

Parental activeness in bringing their toddlers to Posyandu is an example of utilizing community health services. This is reflected in the ratio of D/S, where D represents the number of children who visit Posyandu within a specific time period, and S denotes the total number of children in the area. The coverage of child weighing (D/S) serves as an important indicator linked to the coverage of child nutrition services, basic health services such as immunization, and the prevalence of undernutrition. A higher coverage of vitamin A supplementation often correlates with greater immunization coverage among toddlers (Susanto et al., 2023).

Nurses play a crucial role in providing nursing care aimed at preventing and managing undernutrition and malnutrition in toddlers. Their responsibilities include conducting assessments—such as monitoring body weight and height, and performing regular monthly evaluations—formulating nursing diagnoses, providing interventions, implementing care plans, and evaluating outcomes. At Posyandu, nurses act as coordinators in the prevention of undernutrition in toddlers by planning and organizing targeted health activities.

Another role of nurses is as educators in supporting malnutrition prevention efforts by educating parents about the importance of improving nutrition and ensuring appropriate food intake for toddlers. Collaboration between nurses and other healthcare professionals is crucial to optimizing the nutritional health of toddlers and providing high-quality healthcare services (Fatmawati et al., 2022).

Based on the observed phenomena and the numerous nutritional problems occurring in the surrounding environment, this research was conducted at the Posyandu in Parungmulya Village. Supported by available data, the researcher was interested in conducting an in-depth analysis of the factors that influence the nutritional status of toddlers at the Posyandu in Parungmulya Village. The sample of this study consisted of mothers with toddlers aged 12–59 months who attended the Posyandu in that area. The researcher was therefore motivated to carry out a study entitled "The Relationship Between Feeding Patterns, Parental Knowledge, and Compliance with Posyandu Visits and the Nutritional Status of Toddlers at the Posyandu in Parungmulya Village in 2025.

## **Objective**

This study aims to analyze the effectiveness of monetary policy through the credit channel in influencing inflation in Indonesia by comparing conditions before and during the Covid-19 pandemic. The main focus of this research is to examine the extent to which the credit channel, as part of the monetary policy transmission mechanism, can function optimally in controlling inflation across two different periods—under normal conditions and during economic pressure caused by the pandemic.

## **Method**

The research design used in this study is a cross-sectional design, which aims to examine the correlation dynamics between risk factors and outcomes through observation and simultaneous data collection at a single point in time (point-time approach). This means that each research subject is observed only once, and measurements are taken for the subject's characteristics or variables at the time of

assessment. Cross-sectional studies, also referred to as transversal studies, are commonly used in epidemiological research (Vionalita, 2020).

The instruments used in this study are as follows: the variable of maternal knowledge about nutrition was measured using a questionnaire that had been tested for validity and reliability by Laila (2022); the feeding pattern variable was assessed using a questionnaire validated and tested for reliability by Prakhasita (2018); and the compliance variable regarding Posyandu visits was obtained from the number of visits recorded over the past six months, as documented in the attendance book maintained by Posyandu cadres. Meanwhile, the nutritional status variable was determined through anthropometric measurements based on the weight-for-age (W/A) index. The statistical analysis was conducted using the Chi-square test.

## Results

### Analisis Univariat

#### 1. Respondent Characteristics (Toddlers)

The demographic data in this study were collected from a total of 82 respondents (toddlers aged 12–59 months). The characteristics of the toddler respondents based on gender and age are presented in the following table:

TABLE 1. Characteristics of Toddlers Based on Gender

| Gender       | Frequency | Percentage (%) |
|--------------|-----------|----------------|
| Male         | 44        | 53.7%          |
| Female       | 38        | 46.3%          |
| <b>Total</b> | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of toddlers' characteristics by sex above, it can be seen that the majority of toddlers at the Posyandu in Parungmulya Village are male, totaling 44 toddlers (53.7%) out of the total 82 respondents.

TABLE 2. Toddler Characteristics Based on Age (Months)

| Toddler Age (Months) | Frequency | Percentage (%) |
|----------------------|-----------|----------------|
| 12-20                | 17        | 20.7%          |
| 21-30                | 19        | 23.2%          |
| 31-40                | 16        | 19.5%          |
| 41-59                | 30        | 36.6%          |
| <b>Total</b>         | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of toddler characteristics by age above, it shows that the majority of toddlers at Posyandu Desa Parungmulya are aged 41–59 months, totaling 30 toddlers (36.6%) out of a total of 82 respondents.

#### 2. Characteristics of Respondents (Mothers of Toddlers)

The demographic data in this study were collected from 82 respondents (mothers with toddlers aged 12–59 months). The breakdown of the mothers' characteristics based on age, last education level, occupation, and monthly family income can be seen in the following table:

TABLE 3. Characteristics of Mothers of Toddlers Based on Age

| Mother's Age (Years) | Frequency | Percentage (%) |
|----------------------|-----------|----------------|
| 16-29                | 37        | 45.1%          |
| 30-39                | 36        | 43.9%          |
| 40-49                | 9         | 11.0%          |
| <b>Total</b>         | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of respondent characteristics (mothers of toddlers) by age, it shows that the majority of mothers at the Posyandu in Parungmulya Village are aged 16–29 years, totaling 37 respondents (45.1%) out of the total 82 mothers of toddlers included in the study.

**TABLE 4.** Characteristics of Mothers of Toddlers Based on Last Education

| Maternal Education       | Frequency | Percentage (%) |
|--------------------------|-----------|----------------|
| Completed                | 13        | 15.9%          |
| Elementary School        |           |                |
| Junior High School       | 38        | 46.3%          |
| Senior High              | 29        | 35.4%          |
| School/Vocational School |           |                |
| Higher Education         | 2         | 2.4%           |
| <b>Total</b>             | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of the characteristics of mothers of toddlers by their last level of education, it can be seen that the majority of mothers at the Posyandu in Parungmulya Village had completed junior high school as their highest level of education. A total of 38 respondents, or 46.3% of the 82 mothers surveyed, fell into this category, indicating that most mothers in this community have a moderate level of formal education.

**TABLE 5.** Characteristics of Toddler Mothers Based on Occupation

| Mother's Occupation | Frequency | Percentage (%) |
|---------------------|-----------|----------------|
| Not Working         | 71        | 86.6%          |
| Working             | 11        | 13.4%          |
| <b>Total</b>        | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of toddler mothers' characteristics by occupation, it is known that the majority of respondents at the Posyandu in Parungmulya Village were not employed or identified as housewives. This is shown by a total of 71 respondents (86.6%) out of 82 mothers of toddlers surveyed. This finding indicates that most mothers spend their time at home caring for their families and children, which may indirectly influence their parenting patterns, access to health information, and participation in Posyandu activities and other child health programs.

**TABLE 6.** Frequency Distribution of Toddler Feeding Patterns at the Integrated Health Post (Posyandu) in Parungmulya Village

| Family Income (Monthly) | Frequency | Percentage (%) |
|-------------------------|-----------|----------------|
| < 1.000.000             | 13        | 15.9%          |
| 1.000.000 - 2.499.999   | 8         | 9.8%           |
| 2.500.000 - 3.999.999   | 21        | 25.6%          |
| 4.000.000 - 5.000.000   | 33        | 40.2%          |
| > 5.000.000             | 7         | 8.5%           |
| <b>Total</b>            | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of respondents' characteristics by monthly family income at the Posyandu in Parungmulya Village, it shows that the majority of respondents had a monthly income ranging from 4,000,000 to 5,000,000 IDR, totaling 33 respondents (40.2%) out of the 82 respondents surveyed.

### 3. Feeding Patterns

TABLE 7. Frequency Distribution of Toddler Feeding Patterns at the Integrated Health Post (Posyandu) in Parungmulya Village

| Feeding Patterns for Toddlers | Frequency | Percentage (%) |
|-------------------------------|-----------|----------------|
| Incorrect                     | 24        | 29.3%          |
| Correct                       | 58        | 70.7%          |
| <b>Total</b>                  | <b>82</b> | <b>100%</b>    |

Based on the results of the feeding pattern frequency distribution table above, it shows that the majority of respondents practiced appropriate feeding patterns, with a total of 58 respondents (70.7%) out of the overall 82 respondents in this study.

TABLE 8. Frequency Distribution of Mothers' Knowledge Regarding Toddler Nutrition

| Mothers' Knowledge | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| Poor               | 33        | 40.2%          |
| Good               | 49        | 59.8%          |
| <b>Total</b>       | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of mothers' knowledge regarding toddler nutrition, it can be seen that the majority of respondents demonstrated a good level of knowledge, with 49 out of 82 mothers (59.8%) falling into this category. This indicates that more than half of the mothers surveyed possess adequate understanding of essential nutritional concepts for toddlers, such as the importance of balanced meals, appropriate portion sizes, and the role of specific nutrients in supporting child growth and development. The high percentage of mothers with good knowledge suggests a positive trend in awareness and education efforts related to child nutrition, which may contribute to better health outcomes for toddlers. However, it also implies that there is still a significant portion of mothers who may need further support and education to enhance their understanding and practices in feeding their children.

### 4. Compliance with Posyandu Visits

TABLE 9. Distribution of Frequency of Compliance with Posyandu Visits in Parungmulya Village

| Compliance with Visits | Frequency | Percentage (%) |
|------------------------|-----------|----------------|
| Disobedient            | 39        | 47.6%          |
| Obedient               | 43        | 52.4%          |
| <b>Total</b>           | <b>82</b> | <b>100%</b>    |

Based on the frequency distribution table of posyandu visit compliance above, it can be seen that the majority of respondents complied with posyandu visits within the past six months, totaling 43 respondents (52.4%) out of the total 82 respondents in this study. This indicates that more than half of the mothers regularly brought their toddlers to the posyandu, which reflects a relatively good level of awareness and participation in community-based child health services. Regular attendance at posyandu is essential for monitoring child growth and ensuring timely access to nutritional counseling, immunizations, and early detection of health problems.

### 5. Nutritional Status of Toddlers Based on the Index (BB/U)

TABLE 10. Nutritional Status of Toddlers Based on the Index (BB/U)

| Nutritional Status | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| Underweight        | 21        | 25.6%          |

|               |           |             |
|---------------|-----------|-------------|
| Normal Weight | 61        | 74.4%       |
| <b>Total</b>  | <b>82</b> | <b>100%</b> |

Based on the frequency distribution table of toddlers' nutritional status above, it shows that the majority of respondents (toddlers) had a normal weight, totaling 61 toddlers (74.4%) out of the total 82 respondents in this study. This indicates that most toddlers in Posyandu Desa Parungmulya are within the appropriate weight range for their age, reflecting generally adequate nutritional conditions.

### Bivariate Analysis

#### 1. The Relationship between Feeding Patterns and Toddler Nutritional Status

**TABLE 11.** The Relationship Between Feeding Patterns and the Nutritional Status of Toddlers at the Integrated Health Post (Posyandu) in Parungmulya Village

| Feeding Pattern | Nutritional Status of Toddlers |              |               |              |           |             | P-Value          |
|-----------------|--------------------------------|--------------|---------------|--------------|-----------|-------------|------------------|
|                 | Underweight                    |              | Normal Weight |              | Total     |             | OR<br>(CI : 95%) |
|                 | N                              | %            | N             | %            | N         | %           |                  |
| Inappropriate   | 13                             | 15.9%        | 11            | 13.4%        | 24        | 29.3%       | 7.386<br>0.000   |
| Appropriate     | 8                              | 9.7%         | 50            | 61.0%        | 58        | 70.7%       | (2.468-          |
| <b>Total</b>    | <b>21</b>                      | <b>25.6%</b> | <b>61</b>     | <b>74.4%</b> | <b>82</b> | <b>100%</b> | <b>22.106)</b>   |

According to the statistical test results shown in the table above, the majority of respondents with underweight toddlers had inappropriate feeding patterns, accounting for 13 respondents (15.9%). Conversely, most respondents whose toddlers had normal weight practiced appropriate feeding patterns, totaling 50 respondents (61%) out of 82 participants. The analysis yielded a p-value of 0.000 ( $p < 0.05$ ), indicating a statistically significant relationship between feeding patterns and toddlers' nutritional status at the Posyandu in Parungmulya Village. Furthermore, the Odds Ratio (OR) was 7.386 with a 95% Confidence Interval (CI) of 2.468-22.106, suggesting that toddlers who received appropriate feeding were more than seven times as likely to have normal nutritional status.

#### 2. The Relationship Between Parental Knowledge and Toddler Nutritional Status at the Integrated Health Post (Posyandu) in Parungmulya Village

**TABLE 12.** The Relationship Between Parental Knowledge and Toddler Nutritional Status at the Integrated Health Post (Posyandu) in Parungmulya Village

| Parental Knowledge | Nutritional Status of Toddlers |              |               |              |           |             | P-Value          |
|--------------------|--------------------------------|--------------|---------------|--------------|-----------|-------------|------------------|
|                    | Underweight                    |              | Normal Weight |              | Total     |             | OR<br>(CI : 95%) |
|                    | N                              | %            | N             | %            | N         | %           |                  |
| Poor               | 17                             | 20.7%        | 16            | 19.5%        | 33        | 40.2%       | 11.953<br>0.000  |
| Good               | 4                              | 4.9%         | 45            | 54.9%        | 49        | 59.8%       | (3.495-          |
| <b>Total</b>       | <b>21</b>                      | <b>25.6%</b> | <b>61</b>     | <b>74.4%</b> | <b>82</b> | <b>100%</b> | <b>40.876)</b>   |

Based on the statistical test results presented in the table above, it was found that the majority of respondents with underweight nutritional status had low levels of

knowledge, totaling 17 respondents (20.7%). Conversely, the majority of respondents whose children had normal nutritional status demonstrated good knowledge levels, totaling 45 respondents (54.9%) out of the 82 respondents surveyed. The analysis yielded a p-value of 0.000 ( $p < 0.05$ ), indicating a significant relationship between parental knowledge and toddlers' nutritional status. These findings suggest that the better the parents' knowledge, the greater the likelihood that their children will have a normal nutritional status. Furthermore, the Odds Ratio (OR) was 11.953 with a 95% Confidence Interval (CI: 3.495–40.876), indicating that toddlers raised by parents with poor knowledge were 11.953 times more likely to experience nutritional problems compared to those raised by knowledgeable parents. Thus, it can be concluded that parental knowledge is a highly influential factor in determining toddlers' nutritional status, highlighting the importance of educational interventions at the community level – particularly through the active role of the Posyandu.

### 3. The Relationship between Compliance with Posyandu Visits and Toddler Nutritional Status

**TABLE 13.** The Relationship between Compliance with Posyandu Visits and the Nutritional Status of Toddlers at the Posyandu in Parungmulya Village

| Compliance<br>with Posyandu<br>Visits | Nutritional Status of Toddlers |              |           |              |           |                               |
|---------------------------------------|--------------------------------|--------------|-----------|--------------|-----------|-------------------------------|
|                                       | Underweight                    |              | Normal    |              | Total     | OR<br>(CI : 95%)              |
|                                       | Weight                         | N<br>%       | N<br>%    | N<br>%       |           |                               |
| Disobedient                           | 15                             | 18.3%        | 24        | 29.3%        | 39        | 47.6%<br>3.854<br>0.022       |
| Obedient                              | 6                              | 7.3%         | 37        | 45.1%        | 43        | 52.4%<br>(1.313-<br>11.317)   |
| <b>Total</b>                          | <b>21</b>                      | <b>25.6%</b> | <b>61</b> | <b>74.4%</b> | <b>82</b> | <b>100%</b><br><b>11.317)</b> |

Based on the statistical test results presented in the table above, it was found that the majority of respondents with underweight toddlers had not complied with posyandu visits within the past six months, totaling 15 respondents (18.3%). In contrast, the majority of respondents with toddlers of normal weight had complied with posyandu visits during the same period, totaling 37 respondents (45.1%) out of the total 82 respondents. The analysis yielded a p-value of 0.022 ( $p < 0.05$ ), indicating a significant relationship between posyandu visit compliance and toddlers' nutritional status at the Posyandu in Parungmulya Village. The Odds Ratio (OR) was 3.854 with a 95% Confidence Interval (CI: 1.313–11.317), suggesting that toddlers whose caregivers complied with posyandu visits were nearly four times more likely to have normal nutritional status compared to those who did not.

## Discussion

### Analisis Univariat

#### 1. Characteristics of Toddlers

##### Gender of Toddler

The results of the frequency distribution of respondents' (toddlers') characteristics based on sex show that male toddlers were more prevalent, with a total of 44 (53.7%) out of the total 82 respondents in this study. This finding is consistent

with the study conducted by Tabah et al. (2019), which also showed that the majority of toddlers were male, accounting for 29 out of 56 respondents (51.8%). Biologically, male children tend to have higher energy needs compared to females, especially during periods of rapid growth and physical development. Therefore, if their nutritional intake is insufficient, boys are at greater risk of undernutrition than girls. Their greater nutritional demands to support growth and development make them more vulnerable to nutritional problems when adequate intake is not met (Moore, 2024).

#### Toddler Age

The frequency distribution results of toddlers' characteristics based on age show that the majority of toddlers at the Posyandu in Parungmulya Village were aged 41–59 months, totaling 30 toddlers (36.6%) out of the total 82 respondents in this study. This finding is in line with the study conducted by Tabah et al. (2019), which also reported that most toddlers fell within the age range of 42–59 months, with 44 toddlers (78.6%) out of 56 respondents. This age group is considered vulnerable to nutritional problems as it is a period of rapid growth. During this stage, adequate nutritional intake is crucial, as it directly affects the development of nerve fibers and brain growth, which ultimately determines the child's future health and cognitive capacity.

## 2. Characteristics of Mothers of Toddlers

#### Mother's Age

The frequency distribution results of the characteristics of mothers of toddlers based on age show that the majority of mothers at the Posyandu in Parungmulya Village were aged 16–29 years, totaling 37 respondents (45.1%) out of the total 82 respondents in this study. This finding aligns with a study conducted by Zaidah et al. (2024), which reported that most mothers of toddlers were aged 20–30 years, totaling 192 individuals (67.8%). This age range falls within the category of early reproductive age. Young mothers often have limited experience and knowledge regarding childcare and children's nutritional needs, which may affect the nutritional status of their children. Moreover, as age increases, mothers tend to gain better understanding and experience in child-rearing and nutrition. However, if a mother is either too young or too old, her ability to adapt and access nutritional information may decrease, potentially leading to negative impacts on the toddler's nutritional status.

#### Mother's Last Education

The frequency distribution results of the characteristics of mothers of toddlers based on their last education level show that the majority of mothers at the Posyandu in Parungmulya Village had a junior high school (SMP) education, totaling 38 respondents (46.3%) out of the total 82 respondents in this study. This finding is consistent with the study conducted by Zaidah et al. (2024), which also showed that most mothers of toddlers had completed junior high school, totaling 132 individuals (48.8%). The level of education influences a mother's knowledge about nutrition and her ability to fulfill her child's nutritional needs. Mothers with higher education generally possess better skills in managing household resources, including maintaining children's health and allocating expenditures to ensure access to nutritious and balanced meals for the family.

#### Mother's Job

The frequency distribution results of the characteristics of mothers of toddlers based on their employment status show that the majority of mothers at the Posyandu

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in Parungmulya Village were unemployed, totaling 71 respondents (86.6%) out of the total 82 respondents in this study. This finding is consistent with the study conducted by Agustiawan and Pitoyo (2020), which also indicated that most respondents were unemployed mothers, totaling 21 respondents (70.0%). Unemployed mothers tend to have more opportunities to regularly attend posyandu activities, allowing them to receive continuous health education, monitor their children's nutritional status, growth, and development, and access other important information. In contrast, working mothers may have limited time to attend posyandu sessions, which can restrict their access to nutrition-related information and services, potentially impacting their children's nutritional status.

#### Monthly family income

The frequency distribution results of the characteristics of mothers of toddlers based on monthly family income show that the majority of respondents at the Posyandu in Parungmulya Village had a monthly household income in the range of IDR 4,000,000–5,000,000, totaling 33 respondents (40.2%) out of the total 82 participants in this study. This finding aligns with the study by Zaidah et al. (2024), which reported that most respondents had a monthly income above IDR 2,000,000, totaling 145 respondents (51.2%). Income level plays a crucial role in determining the quality and quantity of food consumed. Higher income enables families to afford nutritious and diverse foods, including fruits, vegetables, and other essential sources of nutrients. Conversely, lower income often limits the ability to meet nutritional needs. Therefore, family income is closely associated with children's nutritional status (Kasumayanti, 2020).

### Analysis Bivariat

#### 1. The Relationship between Feeding Patterns and Toddler Nutritional Status

The research results showed a p-value of 0.000, indicating a significant relationship between feeding patterns and the nutritional status of toddlers at the Posyandu in Parungmulya Village. The analysis also revealed an Odds Ratio (OR) of 7.386 with a 95% Confidence Interval (CI) of 2.468–22.106, suggesting that toddlers who receive inappropriate feeding patterns are 7.386 times more likely to experience underweight compared to those who receive appropriate feeding.

These findings are consistent with a study conducted by Aryani & Syapitri (2021), which also found a significant relationship between feeding patterns and the nutritional status of toddlers in Bagan Percut Hamlet, Deli Serdang Regency. That study reported a p-value of 0.037 and a correlation coefficient ( $r$ ) of 0.069, indicating a strong correlation. The positive value of  $r$  implies that the more appropriate the feeding pattern, the better the nutritional status of the toddler, and vice versa.

Another study by Lestari & Prihardja (2025) also supports this, showing a p-value of 0.001 and an OR of 12.500 (CI 95%: 2.483–62.926), indicating a significant association between feeding patterns and nutritional status at the Cikeusal Health Center. Toddlers with inappropriate feeding patterns were 12.5 times more likely to be undernourished compared to those with appropriate feeding patterns.

Further support comes from Hasibuan et al. (2020), whose study found a p-value of 0.001, confirming a significant relationship between feeding patterns and toddler nutritional status in Sidorejo Urban Village, Medan Tebung District. The study involved 43 mothers of toddlers, using a descriptive analytic design with a cross-sectional approach and total sampling method. Data collection methods included

questionnaires and anthropometric measurements (weight-for-age), with statistical analysis performed using the Chi-Square test.

However, this finding contrasts with the study by Nurfauziah et al. (2023), which found no significant relationship between feeding patterns and nutritional status ( $p$ -value =  $0.354 > 0.05$ ) in Ciladaeun Village, Lebak, Banten. The lack of association was likely due to other dominant factors such as maternal age and employment status. In that study, most mothers were unemployed, giving them more time to care for and monitor their children's feeding practices. Additionally, the majority of mothers already understood and implemented proper feeding practices, leading to minimal variation among respondents and no significant differences in nutritional outcomes.

## 2. The Relationship Between Parental Knowledge and Toddler Nutritional Status

The research findings revealed a  $p$ -value of 0.000, indicating a significant relationship between maternal knowledge and the nutritional status of toddlers at the Posyandu in Parungmulya Village. The Odds Ratio was 11.953 (CI 95%: 3.495–40.876), meaning that toddlers raised by mothers with poor nutritional knowledge were 11.953 times more likely to be underweight compared to those raised by mothers with good nutritional knowledge.

This result is consistent with the study conducted by Sitanggang & Wardana (2021), which reported a  $p$ -value of 0.003, indicating a significant relationship between parental knowledge and toddlers' nutritional status in Pondok Aren Subdistrict. The Odds Ratio was 12.250 (CI 95%: 2.5–58.9), suggesting that toddlers cared for by mothers with poor knowledge had a 12.250 times greater likelihood of experiencing poor nutritional status compared to those with knowledgeable mothers.

Another study by Hanim (2020) also found a  $p$ -value of 0.000, signifying a significant relationship between parental knowledge and toddler nutritional status at the Sidomulyo Public Health Center in Pekanbaru City. The OR was 9.360, indicating that respondents with poor knowledge were 9.360 times more likely to have toddlers with poor nutritional status than those with good knowledge.

Statistical analysis by Fitriyah & Firdaus (2024) further showed a significant relationship between maternal knowledge and toddlers' nutritional status at PPT Anggrek 3, Siwalanka Subdistrict, Surabaya City, with a  $p$ -value of 0.019. The strength of the correlation between maternal knowledge and nutritional status was moderate, with a positive correlation value of 0.324. This implies that the better a mother's knowledge, the better her child's nutritional status, and vice versa.

However, these findings contrast with the study by Gani et al. (2022), which reported a  $p$ -value of 0.739 ( $>0.05$ ), indicating no significant relationship between parental knowledge and toddlers' nutritional status in Benu Subdistrict, Kendari City. The lack of association may be due to mothers possessing good knowledge but being unable to apply it in meeting their children's daily nutritional needs, possibly due to limited time or economic constraints. As a result, their children may receive inadequate attention to their nutritional requirements.

## 3. The Relationship between Compliance with Posyandu Visits and Toddler Nutritional Status

The results of the study showed a  $p$ -value of 0.022, indicating a significant relationship between posyandu visit compliance and the nutritional status of toddlers at the Posyandu in Parungmulya Village. The Odds Ratio in this study was 3.854 (CI

95%: 1.313–11.317), meaning that mothers who were non-compliant in taking their toddlers to posyandu had 3.854 times greater odds of having underweight toddlers compared to those who consistently attended posyandu visits every month.

This finding is consistent with the study by Zakiya et al. (2025), which reported a p-value of 0.000, indicating a significant relationship between posyandu visit compliance and toddler nutritional status in Beduri Village, Ponorogo Subdistrict, Ponorogo Regency. The correlation coefficient was 0.614, suggesting a positive direction and a moderately strong correlation between the variables.

Similarly, the study conducted by Agustiawan & Pitoyo (2020) also found a p-value of 0.000, with a correlation coefficient of 0.905, indicating a significant, very strong, and positively directed relationship between the frequency of posyandu visits and toddlers' nutritional status at Posyandu Asri RW 4. Active attendance at posyandu has a major impact on monitoring nutritional status, as mothers who frequently attend gain up-to-date health information useful in shaping healthy lifestyle practices for their children.

This result is also in line with the research by Farantika & Indrawati (2022), which showed that compliance with posyandu visits had a significant relationship with toddlers' nutritional status at Posyandu in Klampisan Geneng Village, Ngawi Regency, with a p-value of 0.000.

However, this study contradicts the findings of Permatasari et al. (2020), which reported a p-value of 0.469, indicating no significant relationship between posyandu visit compliance and toddlers' nutritional status at Citeureup Public Health Center, Cimahi City. The lack of association in that study may be attributed to mothers of undernourished children being more active in attending posyandu to receive monitoring and counseling from health workers. Conversely, mothers who perceive their children as healthy tend to visit less frequently, assuming no further care is necessary. As a result, visit frequency may not fully reflect the overall nutritional condition of the toddlers.

## Conclusion

Based on the results of research conducted on 82 respondents (mothers and toddlers) at the Parungmulya Village Integrated Health Post (Posyandu), it can be concluded that the majority of toddlers are male, namely 44 children (53.7%), and most are in the age group of 41–59 months as many as 30 children (36.6%). Meanwhile, the characteristics of mothers of toddlers show that the majority are in the young age range, namely 16–29 years, as many as 37 people (45.1%). In terms of the last education, most mothers have a junior high school education level as many as 38 respondents (46.3%). Based on employment status, the majority of mothers are unemployed or have the status of housewives as many as 71 people (86.6%), and have a monthly family income ranging from Rp4,000,000–Rp5,000,000 as many as 33 respondents (40.2%).

Regarding parenting patterns and children's nutritional status, it was found that most mothers implemented appropriate feeding patterns (70.7%), had good nutritional knowledge (59.8%), and demonstrated compliance in visits to integrated health posts (Posyandu) (52.4%). The nutritional status of toddlers based on the weight-for-age (BW/A) index showed that most children were in the normal weight category, namely 61 toddlers (74.4%).

From the results of the correlation test, it was found that there was a significant relationship between feeding patterns and the nutritional status of toddlers, with a p-value = 0.000 and an OR value = 7.386 (CI 95%: 2.468–22.106), which indicates that children who receive inappropriate eating patterns have a 7 times greater risk of experiencing malnutrition compared to children with appropriate eating patterns. In addition, parental knowledge about nutrition also has a significant relationship with the nutritional status of toddlers, with a p-value = 0.000 and OR = 11.953 (CI 95%: 3.495–40.876), indicating that toddlers with parents who have low nutritional knowledge have an 11 times greater risk of experiencing nutritional problems. Similarly, compliance with visits to the integrated health post (posyandu) was significantly associated with the nutritional status of toddlers, with a p-value = 0.022 and OR = 3.854 (CI 95%: 1.313–11.317), which indicated that toddlers who were rarely taken to the integrated health post (posyandu) were at almost 4 times greater risk of experiencing nutritional problems than those who were regularly visited.

Overall, the results of this study emphasize the importance of mothers' roles in various aspects related to meeting children's nutritional needs, particularly in feeding practices, nutritional knowledge, and active involvement in integrated health service posts (Posyandu). These three factors have been shown to significantly contribute to the nutritional status of toddlers. Mothers with good nutritional knowledge tend to be able to implement dietary patterns that meet their children's growth and development needs, such as providing balanced, nutritious, and age-appropriate foods. Furthermore, involvement in Posyandu activities allows mothers to obtain the latest health information, regularly monitor their children's growth, and receive direct guidance from health workers. Therefore, interventions that emphasize increasing mothers' capacity and knowledge, as well as strengthening the role of Posyandu as a means of educating and monitoring toddler health, are important strategies in efforts to prevent nutritional problems at the community level.

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### **Suggestion**

#### **1. Theoretical Suggestions**

- a) For Nursing Education: This research is expected to be a reference in community nursing learning, especially regarding the role of nurses in health promotion,

increasing participation in integrated health posts (posyandu), and education on children's nutritional status.

b) For Further Research: This can be used as a basis for developing more effective intervention strategies by adding other variables such as family support or cultural factors. Mixed methods are also recommended for deeper understanding.

## 2. Practical Advice

- a) For Parents of Toddlers: It is hoped that this will increase awareness of the importance of a healthy diet, nutritional knowledge, and compliance with integrated health service posts (Posyandu).
- b) For Researchers: It can serve as a basis for designing community-based health education programs and expanding research to other areas.
- c) For Community Health Centers: It can serve as a reference for designing nutrition programs, improving health promotion, and innovating Posyandu services to make them more attractive and effective.
- d) For the Health Office: It can be considered in formulating policies for improving toddler nutrition, training cadres, and strengthening health promotion at the village level.
- e) For the Parungmulya Village Government: The results of this study are expected to encourage improved access to Posyandu and the addition of Posyandus in strategic locations to increase community participation.

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