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Posyandu Service Utilization as a Dominant Risk Factor for Under-Five Faltering Growth in the Area of Pringsurat Community Health Center

Pemanfaatan Pelayanan Posyandu sebagai Faktor Risiko Dominan Kejadian Gagal Tumbuh pada Balita di Wilayah Puskesmas Pringsurat

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ABSTRACT

Background: Faltering growth is a precursor to nutritional problems, yet government efforts often fail to address region-specific causes. The agricultural area of Pringsurat Community Health Center has the highest incidence of faltering growth in Temanggung Regency.
Objectives: This study aimed to analyze the risk factors for faltering growth in children under five in the area of Pringsurat Community Health Center.
Methods: This study employed a case-control design involving 104 children (52 with growth failure and 52 without). Subjects were randomly selected from integrated service posts (*posyandu*) in villages with the highest cases of growth failure within the research area. Growth failure was defined by a stagnant weight-for-age z-score (WAZ) across three weight measurements. Data on growth failure were collected through weight measurements, while data on factors associated with growth failure were obtained from interviews and the Maternal and Child Health (MCH) book records. Statistical analysis was performed using chi-squared and logistic regression tests.
Results: The majority of the subjects were female, aged 24-59 months, had normal birth weight, had a history of infections, utilized *posyandu* services, received good parenting, and consumed insufficient energy but adequate protein. The main risk factor for failure to thrive was *posyandu* service underutilization (OR=2.564; 95% CI [1.163-5.654]; p-value=0.019). Factors such as parenting practices, a history of infection, birth weight, gender, and protein consumption were not statistically significant.
Conclusions: *Posyandu* service underutilization is the predominant risk factor for growth failure among children under five in the area of Pringsurat Community Health Center.

INTRODUCTION

Faltering growth among Indonesian children hinders human resource development and demands immediate attention[1]. This condition is a precursor to various forms of malnutrition, including underweight, wasting, and stunting[2]. Data from the Indonesian Health Profile in 2021 and 2022 indicate a 1% rise in the prevalence of underweight children under five, increasing from 5.2% to 6.2%[3,4].

Faltering growth refers to a deviation from normal growth patterns in children under five[5], marked by insufficient weight gain or stagnation across multiple weight measurements[6]. This condition is often associated with malnutrition, which initially manifests as wasting (low body weight) and, if untreated, can progress to stunting (impaired height growth)[7]. Faltering growth is mainly caused by inadequate nutritional intake and infectious diseases. Indirect factors such as suboptimal parenting practices, restricted access to nutritious food, inadequate healthcare services, and unsanitary living conditions[8] significantly impact growth. Additional factors, including genetic predispositions, hormonal effects, age, and gender, also play a role[2].

Faltering growth is also prevalent among infants born with low birth weight (LBW), who face challenges in achieving normal growth development[9]. Children with a history of LBW typically grow and develop more slowly than those born with normal weight[10]. LBW infants often experience intrauterine growth restrictions that begin during pregnancy and persist after birth. Consequently, their slower growth and development hinder them from reaching the appropriate growth milestones for their age[11].

The Indonesian government implements various strategies to prevent faltering growth in children, one of which is regular growth monitoring through integrated service posts (*posyandu*)[12,13]. Routine monitoring plays a vital role in identifying faltering growth at an early stage. However, children who do not regularly visit or utilize

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posyandu services may miss opportunities for timely growth monitoring[14].

The infancy and toddler stages are crucial periods for growth and development, and disruptions during these stages are challenging to rectify later. Therefore, consistent growth monitoring is essential to detect and address growth issues early, ensuring that toddlers maintain optimal development[15]. Data from the Indonesian Health Profile indicate a 6.8% decline in the percentage of toddlers monitored for growth and development from 81.8% in 2021 to 78.3% in 2022[4].

One of the activities provided at *posyandu* is nutrition counseling, which focuses on improving maternal caregiving practices[16]. Strengthening awareness, commitment, and knowledge regarding proper child-rearing and nutrition is critical, especially since inadequate caregiving practices remain prevalent in Indonesia. A 2018 study by Evy Noorhasanah and Nur Isna revealed that 55.7% of mothers with toddlers still practiced inadequate caregiving[17]. Inadequate caregiving, particularly in feeding practices, can lead to growth disturbances[18], resulting in malnutrition, weight loss, and faltering growth[19].

Children suffering from malnutrition tend to have weaker immune systems, making them more prone to infectious diseases[17]. When they get sick, their food intake decreases, nutrient absorption is disrupted, and nutrients are lost, which affects their growth and nutritional status[20]. Despite advancements in healthcare, infectious diseases such as diarrhea and respiratory infections remain major causes of infant and child mortality in Indonesia, posing a serious challenge to public health efforts[21].

Temanggung Regency is one of the regions facing child growth issues, with 1,355 toddlers affected as of October 2023. The area of Pringsurat Community Health Center reported the highest number of cases, with 227 affected toddlers. A preliminary study in Pingit Village, which has the highest incidence of growth failure in Pringsurat Subdistrict, showed that 76 out of 298 children (25.5%) weighed in December demonstrated signs of growth failure.

Although the government has made significant efforts, issues related to the growth and development of toddlers in Indonesia remain a major challenge. A primary limitation in the implementation of policies and interventions is the uniform approach applied across all regions, without considering region-specific characteristics. With its vast and diverse geography, Indonesia has regional differences, including the factors contributing to child growth issues[22]. Therefore, research that analyzes the causes of growth failure based on regional characteristics is essential, particularly in the area of Pringsurat Community Health Center, which is a central agricultural region. The results of such studies are expected to support the formulation of policies tailored to address the root causes in the region.

Although similar studies have been conducted, few have specifically included factors such as the utilization of *posyandu* services (including the services provided), parenting practices, a history of infection, and birth weight in relation to growth failure. Therefore, this study aims to analyze the risk factors for growth failure among children under five in the area of Pringsurat Community Health Center, incorporating these variables as key considerations.

METHODS

This study employed a case-control design, where the case group consisted of children with growth failure, while the control group consisted of children with normal growth. This study was conducted specifically in the area of Pringsurat Community Health Center. Data were collected from January to July 2024. The study population included all children aged 0-59 months in Pringsurat Subdistrict. The sample size was calculated using the Sample Size 2.0 software with the formula for comparing two proportions:

$$N=\frac{\{z1-\propto/2\sqrt{2\bar{P}(1-\bar{P})}+z1-6\sqrt{P1(1-P1)+P2(1-P2)}\}^2}{(P1-P2)^2}$$

For the calculations, a z1-α/2 value of 1.96 was used for a 95% confidence level, and a z1-β value of 0.84 was used for 80% power. The values for P1 and P2 were obtained from a previous study on faltering growth in Bandar Lampung[23], where P1 was 0.53 and P2 was 0.25. Based on these calculations, the minimum required sample size was 47, with an additional 10% for potential dropouts, resulting in a total of 52 toddlers. With an equal ratio, the total sample size for this study was 104, with 52 children in the case group and 52 in the control group.

In this study, subjects were selected using a random sampling technique from each designated *posyandu*, without employing matching techniques. The subjects were selected from seven villages within the area of Pringsurat Community Health Center: Nglorog, Pagergunung, Pingit, Klepu, Ngipik, Soborejo, and Wonokerso. The number of subjects from each village was determined proportionally based on the number of recorded cases of growth failure in each village. Subjects were chosen from the seven *posyandu* with the highest number of growth failure cases in each village: Posyandu Nglorog 1 (Nglorog Village), Klumpit (Pagergunung Village), Pingit (Pingit Village), Krajan (Klepu Village), Gedipan (Ngipik Village), Ngadiroso 2 (Wonokerso Village), and Temanggung (Soborejo Village).

Primary data were collected through interviews using a questionnaire covering questions on subject characteristics, *posyandu* service utilization, parenting practices, and a history of infection. The questions were directed to the mothers or caregivers of the toddlers. Data on the toddlers' food consumption were collected using a 24-hour food recall method, conducted twice: once on a weekday and once on a weekend, to provide a representative picture of the toddlers' eating patterns in the selected locations. Secondary data included weight measurements taken in January and February 2024, along with the toddlers' birth weights obtained from their Maternal and Child Health (MCH) book records. The primary data on the toddlers' weight in March were collected through direct weight measurement using digital or baby scales. The MCH book also provided information on the toddlers' history of *posyandu* visits.

Variables were categorized based on the results of the Kolmogorov-Smirnov normality test. If the data showed a non-normal distribution, categorization was based on the median value. If the data distribution was

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normal, the cut-off point for categorization was based on the mean value. The normality test indicated that the *posyandu* service utilization and parenting practices had a non-normal distribution. Therefore, these variables were categorized as "low" if the score was below the median, and "good" if the score was equal to or above the median.

The toddlers' ages were categorized into two groups: 0-23 months and 24-59 months. Gender was categorized into female and male. History of infection was categorized as "yes" if the child had diarrhea and/or upper respiratory tract infections (URTI) in the past three months, and "no" if there had been no episodes of diarrhea or URTI in this period. Birth weight was categorized as low birth weight (LBW) if it was less than 2,500 grams, and normal if it was 2,500 grams or more. Food consumption was categorized according to the Ministry of Health guidelines in 1999: "insufficient" if the adequacy rate was less than 80% for energy and less than 90% for protein, and "sufficient" if the adequacy rate was 80% or more for energy and 90% or more for protein.

A toddler was considered to experience growth failure if their weight-for-age z-score (WAZ) showed no increase or remained stagnant over three consecutive weight measurements within three months. A toddler was considered to have normal growth if their WAZ increased over the same three consecutive weight measurements within three months[6].

Data were analyzed using bivariate analysis to identify relationships between variables and growth failure, with a significance level of 5%. Additionally, multiple logistic regression analysis was performed to determine the dominant risk factors for growth failure. This study received ethical approval from the Health Research Ethics Committee of Diponegoro University under certificate number 173/EA/KEPK-FKM/2024 on March 28, 2024.

RESULTS AND DISCUSSIONS

The characteristics of the subjects include the individual characteristics of the toddlers, family characteristics (mother and father), and the utilization of *posyandu* services. The individual characteristics of the toddlers include age, gender, a history of infection, birth weight, energy consumption, and protein consumption. Family characteristics include age, highest education level, occupation, and parenting practices by the parents. All characteristics of the subjects are presented in Table 1.

Table 1 provides a general overview of the characteristics of the subjects in this study. In general, the individual characteristics of children under five in both the growth failure and non-growth failure groups showed similar patterns. For instance, most toddlers were in the 24-59 months age range, were female, had a history of infection in the past three months, had normal birth weight, and had energy and protein consumption that was categorized as either insufficient or sufficient. Statistical analysis showed that age, gender, a history of infection, birth weight, energy consumption, and protein consumption were not significantly associated with growth failure in children under five (p-value≥0.05).

Family characteristics also showed similar patterns in both groups, with most parents (both mothers and fathers) being in the productive age range (20-35 years), having low education levels (<9 years), mothers being mainly housewives, fathers mostly employed, and parenting practices generally categorized as good. Statistical analysis found no significant relationships between family characteristics, including parents' age, education, occupation, and parenting practices, and growth failure in toddlers (p-value≥0.05).

Regarding *posyandu* service utilization, toddlers in the growth failure group tended to make use of *posyandu* services more than those in the non-growth failure group. A significant difference was observed in *posyandu* service utilization between the two groups, with toddlers from families with lower *posyandu* service utilization more likely to experience growth failure (p-value=0.019).

Table 1. Characteristics of the Subjects

Characteristic	Growth Failure	Non-Growth Failure	p-value
Children			
Age			
0-23 months	13 (43.3%)	17 (56.7%)	0.387[a]
24-59 months	39 (52.7%)	35 (47.3%)	
Gender			
Male	25 (51%)	24 (49%)	0.844[a]
Female	27 (49.1%)	28 (50.9%)	
History of Infection			
Yes	33 (47.8%)	36 (52.2%)	0.534[a]
No	19 (54.3%)	16 (45.7%)	
Birth Weight			
Low birth weight (LBW)	10 (50%)	10 (50%)	1.0[a]
Normal	42 (50%)	42 (50%)	
Energy Consumption			
Insufficient	32 (49.2%)	33 (50.8%)	0.839[a]

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Characteristic	Growth Failure	Non-Growth Failure	p-value
Sufficient	20 (51.3%)	19 (48.7%)	
Protein Consumption			
Insufficient	6 (40%)	9 (60%)	0.402[a]
Sufficient	46 (51.7%)	43 (48.3%)	
Family			
Mother's Age			
Non-productive (<20 & >35 years)	8 (42.1%)	11 (57.9%)	0.446[a]
Productive (20-35 years)	44 (51.8%)	41 (48.2%)	
Mother's Education			
Primary (≤9 years)	28 (48.3%)	30 (51.7%)	0.693[a]
Advanced (>9 years)	24 (52.2%)	22 (47.8%)	
Mother's Occupation			
Housewife	45 (48.4%)	48 (51.6%)	0.339[a]
Employed	7 (63.6%)	4 (36.4%)	
Father's Age			
Non-productive (<25&>40 years)	14 (51.95%)	13 (48.1%)	0.823[a]
Productive (25-40 years)	38 (49.4%)	39 (50.6%)	
Father's Education			
Primary (≤9 years)	29 (46.8%)	33 (53.2%)	1.0[a]
Advanced (>9 years)	23 (54.8%)	19 (45.2%)	
Father's Occupation			
Unemployed	1 (50%)	1 (50%)	0.843[a]
Employed	51 (50%)	51 (50%)	
Parenting Practices			
Insufficient	22 (48.9%)	23 (51.1%)	0.019[a]*
Good	30 (50.8%)	29 (49.2%)	
Posyandu Service Utilization			
Insufficient	31 (62%)	19 (38%)	0.019[a]*
Good	21 (38.9%)	33 (61.1%)	

LBW = Low birth weight; [a]Chi-Squared test; *p-value<0.05

The results of the analysis examining the relationship between *posyandu* service utilization, parenting practices, a history of infection, birth weight, nutritional intake, age, and gender with the occurrence of faltering growth in children, along with the odds ratio (OR) and confidence interval (CI) values, are presented in Table 2 for bivariate analysis and in Table 3 for multivariate analysis.

Table 2. *Posyandu* service utilization, parenting practices, history of infection, birth weight, and food consumption as risk factors for faltering growth in children

Variable	Odds Ratio (OR)	95% CI	p-value
Posyandu Service Utilization			
Insufficient	2.564	1.163-5.654	0.019[b]*
Good	Ref		
Parenting Practices			
Insufficient	0.925	0.426-2.009	0.843[b]
Good	Ref		
History of Infection			
Yes	0.772	0.341-1.745	0.534[b]
No	Ref		
Birth Weight			
Low Birth Weight (LBW)	1.0	0.377-2.652	1.0[b]
Normal	Ref		
Energy Consumption			
Insufficient	0.921	0.416-2.038	0.839[b]

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Variable	Odds Ratio (OR)	95% CI	p-value
Sufficient	Ref		
Protein Consumption			
Insufficient	0.623	0.205-1.898	0.402[b]
Sufficient	Ref		
Child's Age			
0-23 months	0.686	0.292-1.612	0.387[b]
24-59 months			
Child's Gender			
Male	1.080	0.500-2.334	0.844[b]
Female	Ref		

Ref = Reference; [b]Chi-squared test; *p-value<0.05

Table 3. Dominant factors of faltering growth in children

Variable	S.E.	OR	95% CI	p-value	R-Squared
Posyandu Service Utilization:					
Insufficient	0.403	2.564	1.163-5.654	0.020[c]*	0.07
Good	Ref				

Ref = Reference; SE = Standard Error; CI=Confidence Interval; [c]multiple logistic regression; *p-value<0,05

As shown in Table 2, insufficient *posyandu* service utilization was a key risk factor for faltering growth among children under five in the study area. Bivariate analysis revealed a significant relationship between insufficient *posyandu* service utilization and faltering growth, with an OR of 2.564 (95% CI [1.163-5.654]; p-value=0.019). Multivariate analysis confirmed this finding, with the same OR of 2.564 (p-value=0.020). Children with faltering growth were less likely to utilize *posyandu* services, and those who made regular use of *posyandu* services were 2.5 times less likely to experience faltering growth. Multivariate analysis further revealed that *insufficient posyandu* service utilization accounted for 7% of the risk of faltering growth, with 93% attributed to other factors. *Posyandu* provides monthly growth monitoring for children. Regular visits, defined as attending at least eight times annually, help detect and address growth issues early[14]. Children who miss these visits may experience delays in the detection of growth problems[15]. *Posyandu* also offers nutrition counseling, assisting caregivers in providing better care and supporting healthy child development[27].

A study in Malang found a relationship between maternal involvement in *posyandu* visits and child growth (p-value =0.023)[28]. Similarly, a study in Grobogan showed that regular *posyandu* visits were associated with better weight gain in toddlers (p-value=0.019), with regular visitors more likely to have normal weight gain[14]. Another study in Palembang found an association between *posyandu* utilization and stunting (p-value=0.157), with toddlers who missed *posyandu* visits being 3.5-5.2 times more likely to experience stunting[13]. Additionally, a study in Yogyakarta found that fewer *posyandu* visits increased the risk of stunting by 3.1 times[13]. However, a study in Kulon Progo showed no significant relationship between *posyandu* visits and the nutritional status of toddlers[30].

Table 2 shows that insufficient parenting was not a significant risk factor for faltering growth among children under five (OR=0.925; 95% CI [0.426-2.009]; p-value=0.843). Parenting reflects the way parents interact with their children[31], and good parenting supports healthy growth[32]. However, its influence on stunting is indirect[8], affecting factors such as history of infection and nutrition[33]. This study found a higher proportion of toddlers with good parenting, suggesting that poor parenting did not always lead to stunting and that good parenting alone was insufficient to prevent it.

A study in Bojonegoro found no significant relationship between parenting and stunting or wasting, with p-values of 0.719 and 0.928, respectively[34]. Similarly, a study in Pancoran Mas showed no significant relationship between feeding (p-value=0.467) or hygiene practices (p-value=0.220) and the nutritional status of children under five[35]. These findings indicate that while parenting is important, other factors may have a more significant impact on growth and nutrition. In contrast, a study in Banyuwangi revealed that feeding and health-related parenting practices were significantly associated with undernutrition[36], possibly due to regional differences in social, cultural, or health policies.

Table 2 shows that a history of infection was not significantly associated with growth failure among children under five (OR=0.772; 95% CI [0.341-1.745]; p-value=0.534). This suggests that mild infections experienced by the toddlers in this study had minimal impact on their nutritional status and growth. Most infections were minor and managed at home by the mothers, preventing severe consequences. When necessary, the toddlers were taken to healthcare facilities for appropriate treatment. These results are consistent with a study in Garut, which also found no significant relationship between a history of infection and malnutrition among children under five (p-value=0.817)[38]. However, these findings contrast with a study in the area of Purnama Community Health Center, where a significant association between a history of infection and underweight in children aged 24-59 months was found (p-value=0.023)[39].

According to Table 2, low birth weight (LBW) was not a risk factor for faltering growth among children under five (OR=1.0; 95% CI [0.377-2.652]; p-value=1.0). This indicates that being born with LBW did not

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necessarily lead to faltering growth[40] . Infants with LBW can achieve catch-up growth with proper nutrition and care, typically until the age of two years. With adequate nutrition and care, LBW babies can achieve normal development, even if they were born underweight. However, without sufficient support, their growth may be delayed[41].

Infants with LBW require higher nutritional intake than those with normal birth weight, making exclusive breastfeeding vital as it promotes physical growth, reduces the risk of infections and food intolerance, and aids in catch-up growth, ensuring optimal development[41]. This study found that the majority of the toddlers received exclusive breastfeeding until the age of six months, preventing stunting in LBW toddlers. These results are consistent with a study in Surabaya, which observed no significant correlation between birth weight and stunting (p-value=1)[42]. However, these findings contrast with a study in Semarang, which observed a significant relationship between LBW and stunting in toddlers aged 6-24 months (p-value=0.001). The study found that LBW babies were 10.22 times more likely to experience stunting compared to those with normal birth weight. This suggests that factors such as exclusive breastfeeding, parenting practices, and nutritional care can significantly affect growth outcomes in toddlers, regardless of their birth weight [8].

Energy plays a crucial role in supporting growth, metabolism, and physical activity in toddlers[43]. However, as shown in Table 2, the analysis revealed that insufficient energy intake was not a risk factor for stunting in toddlers (OR=0.921; 95% CI [0.416-2.038]; p-value=0.839). This suggests that toddlers with insufficient energy intake do not necessarily experience stunting, and vice versa. Nutritional status is influenced not only by food intake but also by individual metabolic differences[44], which explains why excessive food consumption might not lead to weight gain in some individuals because their bodies process food more rapidly, converting it into energy rather than storing it as fat[45].

Enzymes play a role in metabolism, and genetic variations among individuals influence the activity and capacity of these enzymes, resulting in differences in metabolic processes[46]. These findings are consistent with a study in Bandar Lampung, which found no significant relationship between energy intake and nutritional status of toddlers (p-value=0.758)[47]. However, these findings contrast with a study in Semarang, which found a correlation between energy adequacy and stunting in toddlers aged 6-24 months. In the study, toddlers with insufficient energy intake had a 9.5 times higher risk of faltering growth[8].

Table 2 shows that insufficient protein intake was not a significant risk factor for stunting in toddlers (OR=0.623; 95% CI [0.205-1.898]; p-value=0.402). Protein is essential for growth, the development of body structures such as muscles, bones, and skin, and the replacement of old body tissue[43]. The 24-hour food recall interview revealed that most toddlers over the age of two years began receiving less attention from their mothers regarding food intake. In this study, most stunted toddlers were two years old or older. At this age, many toddlers were given plant-based protein sources such as tempeh and tofu, without animal protein sources.

The analysis of nutritional contributions from various food sources revealed that tempeh was the primary source of protein for toddlers, accounting for 9% of their total protein intake. However, animal protein is of higher nutritional value than plant protein, as it contains essential nutrients that support growth and development by building body cells[48]. While the quantity of protein intake was sufficient, the quality was still lacking. These results are consistent with a study on toddlers in Manado, which also found no significant relationship between protein intake and nutritional status (p-value=0.123)[49]. However, these findings contrast with a study in Semarang, which showed a significant relationship between protein intake and stunting in children aged 6-24 months (p-value=0.006)[8].

Based on Table 2, stunting was more common among children aged 24-59 months than those aged 0-23 months. The 0-23 months age group did not emerge as a significant risk factor for stunting (OR=0.686; 95% CI [0.292-1.612]; p-value=0.387). This finding contrasts with the theory that 0-23 months is a crucial growth period. This study indicated that few toddlers in this age range experienced stunting, likely because many were still breastfed. Exclusive breastfeeding, especially in the first 6-8 months, helps prevent malnutrition and infections, thereby promoting healthy growth and development[50]. This finding is consistent with a study in Sukabumi, which also found no significant association between age and stunting (p-value=0.432)[51].

Table 2 also shows that male gender was not a risk factor for stunting in toddlers (OR=1.080; 95% CI [0.50-2.334]; p-value=0.844). Gender does not directly affect the nutritional needs required for growth[52]. This result is consistent with a study in Bangka Selatan, which found no relationship between gender and stunting in children aged 6-59 months (p-value=0.874)[53]. This study challenges theories suggesting that gender influences growth, as other studies suggest that boys may be more susceptible to growth problems due to their faster growth rate, which, if not supported by adequate nutrition, can lead to greater nutritional risks[54]. The findings of this study also differ from a study in Halmahera, which indicated that female gender was a risk factor for faltering growth in children aged 2-12 months (p-value=0.04)[55].

This study has limitations concerning the data used. Data on the weight of toddlers for the first and second measurements were obtained from *posyandu* records in the Maternal and Child Health (MCH) book, while the third one was measured directly by the researchers. To reduce potential data errors, the researchers used the same scale as the one used at *posyandu*. Furthermore, challenges arose in collecting data on the toddlers' food consumption due to the mother's memory during the 24-hour food recall interview and the conversion of portion sizes or household measurement (URT) into food weight (grams). To enhance data accuracy, the researchers used photos of the food during the interviews, repeated data collection twice, and applied local food conversion standards for URT to weight. Despite these limitations, this study has several strengths. It combines primary data

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(direct measurements by the researchers) and secondary data (weight measurements by *posyandu*), offering a more comprehensive understanding of toddlers' conditions. Additionally, focusing on using *posyandu* services provides valuable insights into the risk factors for stunting, making it relevant for developing public health policies and interventions.

CONCLUSIONS

This study suggests that low utilization of *posyandu* services is a major risk factor for stunting in toddlers aged 0-59 months in the area of Pringsurat Community Health Center. On the other hand, factors such as inadequate parenting, a history of infection, low birth weight (LBW), insufficient energy and protein intake, male gender, and the 0-23 months age group were not found to be significant risk factors for stunting. Therefore, it is important to enhance community education on the benefits of *posyandu* services to increase the frequency of maternal and child visits, thereby ensuring that toddler growth is properly monitored. Community health centers or the Health Office can carry out these educational initiatives. Through this effort, it is expected that maternal awareness and knowledge of the importance of *posyandu* visits will improve, leading to optimal monitoring of toddler growth and preventing stunting.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

The authors declare that there are no conflicts of interest associated with this study. This study was fully funded by the authors' personal resources.

AUTHOR CONTRIBUTIONS

DAP: conceptualization, methodology, formal analysis, writing-original draft; S & SF: conceptualization, supervision, writing-review and editing.

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