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Nutritional Status of Children Aged 24–59 Months in the Working Area of Public Health Centers in Palembang City

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ABSTRACT

Nutritional status of toddlers is an important indicator in determining public health levels. According to the 2024 data from the Palembang City Health Office, Puskesmas Kertapati recorded 34 cases of stunting, 17 cases of wasting, 41 cases of underweight, and 3 cases of overweight among children aged 24–59 months. These findings indicate that both undernutrition and overnutrition remain public health concerns. Several factors such as exclusive breastfeeding, recurrent infections, environmental sanitation, family size, maternal education, household income, and parental occupation are suspected to contribute to children's nutritional status. To describe the nutritional status of children aged 24–59 months in the working area of Puskesmas Kertapati, Palembang based on various influencing factors. This research used a descriptive quantitative method with a cross-sectional approach. A total of 78 children were selected using accidental sampling. Primary data were collected through structured interviews u sing questionnaires, and secondary data were obtained from anthropometric records at the health center. Data were analyzed descriptively to identify distributions of nutritional status and respondent characteristics. The study showed that most children were in the normal nutritional category, although cases of undernutrition and overnutrition were still found. Factors such as low maternal education, low household income, and inadequate sanitation conditions were linked to poor nutritional outcomes. Improving child nutrition requires comprehensive efforts through nutrition education, improved health service access, and community-based interventions in the working area of Puskesmas Kertapati Palembang.

Keywords: exclusive breastfeeding, nutritional status, sanitation, toddlers

BACKGROUND

Nutritional status among children under five is a critical indicator for assessing public health, as it reflects the balance between dietary intake and nutritional requirements to support growth, development, and energy reserves. Anthropometric measurements such as weight-for-age (W/A), height-for-age (H/A), and weight-for-height (W/H) are widely used to identify risks of malnutrition and growth impairment (Fernández-Lázaro & Seco-Calvo, 2023). These measurements not only capture immediate health outcomes but also provide early warning signals for potential long-term health challenges.

Children aged 0–59 months are considered a highly vulnerable group, as they undergo rapid physical and cognitive development. Nutritional deficiencies or excesses during this period may cause irreversible effects on physical growth, cognitive capacity, and overall

quality of life in later years (Pertiwi, 2024). Globally, in 2022, an estimated 22.3% of children under five were stunted, and 45 million suffered from wasting, with 13.7 million classified as severe wasting, thereby increasing their risk of mortality (World Health Organization, 2022).These figures highlight the urgent need for sustained interventions to reduce malnutrition in early childhood.

At the national level, Indonesia continues to face a double burden of malnutrition. The 2023 Indonesian Health Survey (SKI) reported stunting prevalence at 21.5%, undernutrition at 7.7%, and severe malnutrition at 3.1%. Regional disparities remain striking, with the highest prevalence of stunting recorded in Central Papua (38.4%) and the lowest in Bali (7.2%) (Kementerian Kesehatan Republik Indonesia, 2024), In South Sumatra Province, 3,387 low birth weight infants and 1,317 severe malnutrition cases were recorded in 2023. Specifically, in Palembang City, 295 low birth weight cases, 35 severe malnutrition cases, and 34 stunting cases among children aged 24–59 months were documented in the working area of Kertapati Health Center (Badan Pusat Statistik [BPS] Sumatera Selatan, 2023).

Previous studies have consistently shown that multiple factors influence the nutritional status of children under five. These include exclusive breastfeeding practices, recurrent infections, dietary diversity, maternal nutritional knowledge, parental education, household income, sanitation conditions, and broader socio-economic determinants (Armanda, 2023; Deshinta, 2023; Mutaqqin, 2021). Other findings suggest that birth length and spatial distribution of residence are also strongly associated with stunting risk, indicating that both biological and environmental factors are at play (Rahmawati, 2020; Ulhaq, 2020).

Given the persistently high prevalence of malnutrition and stunting in Palembang, research focusing on local contexts is critical. This study was conducted in the working area of Puskesmas X, representing regions with urgent needs for targeted interventions. The objective is to describe the nutritional status of children aged 24–59 months in relation to various influencing factors. The findings are expected to provide evidence-based insights to support the development of more effective local nutrition policies and community-based intervention strategies.

METHODS

This study employed a quantitative descriptive design with a cross-sectional approach, aiming to provide a snapshot of the nutritional status of children aged 24–59 months within the working area of Puskesmas X, Palembang City. A cross-sectional design was selected because it allows for simultaneous measurement of variables, providing current and comprehensive information on nutritional status and associated factors at a single point in time. The study site was chosen purposively due to its high prevalence of undernutrition and stunting as reported by the Palembang City Health Office. The study was conducted from March to May 2025, encompassing preparation, data collection, and data analysis phases. The study population included all children aged 24–59 months residing in the working area of Puskesmas X. Sampling was conducted using accidental sampling, which involved recruiting eligible respondents who were present during the data collection period. A total of 78 children met the inclusion criteria and were enrolled in the study. Inclusion criteria were: (1) children aged 24–59 months permanently residing in the study area and (2) availability of complete anthropometric records. Exclusion criteria included children with chronic medical conditions affecting nutritional status (e.g., congenital metabolic disorders) or cases where parents declined to participate in the interviews.

Data collection consisted of both primary and secondary sources. Primary data were obtained through structured interviews using a validated questionnaire administered to mothers or caregivers. The questionnaire covered sociodemographic characteristics, breastfeeding

practices, infection history, and household socioeconomic conditions. Secondary data were collected from anthropometric records available at the health center, including weight, height, and age, which were used to calculate nutritional indicators based on the WHO Growth Standards. Anthropometric measurements were taken using a calibrated digital scale and microtoise, following WHO protocols. The main dependent variable was the nutritional status of children, assessed using weight-for-age (W/A), height-for-age (H/A), and weight-for-height (W/H) indices, expressed in Z-scores. Independent variables included exclusive breastfeeding, recurrent infections, household size, maternal education, household income, parental occupation, and environmental sanitation. Data were analyzed descriptively, presenting categorical variables as frequencies and percentages, and numerical variables as means or medians. The study received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Palembang (Approval No. 0891/KEPK/Adm2/VI/2025).

RESULTS

This study involved a total of 78 children aged 24–59 months residing in the working area of Puskesmas Kertapati, Palembang City. Data were obtained through structured interviews with mothers and anthropometric records documented by the health center. The analysis revealed that the majority of children were classified under normal nutritional status. However, malnutrition and overnutrition remained public health concerns in the study area.

Table 1. Distribution of Characteristics and Nutritional Status of Children Aged 24–59 Months in the Working Area of Puskesmas Kertapati, Palembang City (n = 78)

Variable	Frequency (n)	Percentage (%)
Nutritional Status		
Severe malnutrition	6	7.7
Moderate undernutrition	5	6.4
Normal nutrition	49	62.8
At risk of overweight	6	7.7
Overweight	3	3.8
Obesity	9	11.5
Maternal Education		
Elementary school	5	6.4
Junior high school	10	12.8
Senior high school	38	48.7
Higher education	25	32.1
Household Income		
Below regional minimum wage	44	56.4
At/above regional minimum wage	34	43.6
Access to Clean Water		
Unimproved	1	1.3
Improved	77	98.7
Household Latrine		
Inadequate	29	37.2
Adequate	49	62.8
Waste Disposal Facility		

Variable	Frequency (n)	Percentage (%)
Inadequate	14	17.9
Adequate	64	82.1
Wastewater Drainage System		
Inadequate	46	59.0
Adequate	32	41.0
Exclusive Breastfeeding		
No	7	9.0
Yes	71	91.0
Household Size		
≤ 5 members	77	98.7
> 5 members	1	1.3
Parental Occupation		
Unemployed/housewife	19	24.4
Informal sector	35	44.9
Formal sector	24	30.8
Recurrent Infections		
No	68	87.2
Yes	10	12.8

Source: Primary data, Puskesmas Kertapati, Palembang City, 2025.

Out of 78 respondents, 49 children (62.8%) had normal nutritional status. Nonetheless, 11 children (14.1%) were found to be undernourished, consisting of 6 cases of severe malnutrition (7.7%) and 5 cases of mild undernutrition (6.4%). On the other hand, 18 children (23.1%) were categorized as having excess nutrition, including those at risk of overweight, overweight, and obesity. Specifically, 9 children (11.5%) were obese, 3 (3.8%) were overweight, and 6 (7.7%) were classified as at risk of overweight. These findings indicate that the double burden of malnutrition persists in the study area.

Sociodemographic characteristics of respondents also reflected diverse conditions. Most mothers had completed senior high school (48.7%) or higher education (32.1%), while a smaller proportion had only finished junior high school (12.8%) or elementary school (6.4%). More than half of the families (56.4%) reported household incomes below the regional minimum wage, suggesting that economic limitations may influence access to nutritious food and health services. In terms of occupation, 44.9% of parents worked in informal sectors, 30.8% in formal employment, while 24.4% were unemployed or housewives.

Environmental and behavioral factors also played a role in child nutrition. Although nearly all households (98.7%) had access to safe drinking water and most (82.1%) had proper waste disposal systems, 37.2% lacked adequate sanitation facilities, and more than half (59.0%) did not have a proper wastewater drainage system. Regarding infant feeding practices, 91.0% of mothers reported providing exclusive breastfeeding for the first six months, whereas 9.0% did not. Meanwhile, recurrent infections were reported in 12.8% of children, mostly in the form of diarrhea and acute respiratory infections. These findings suggest that while breastfeeding practices were relatively good, sanitation and infection prevention remain critical challenges affecting child nutritional outcomes.

DISCUSSION

The findings of this study demonstrate that the majority of children aged 24–59 months in the working area of Puskesmas Kertapati, Palembang City, had a normal nutritional status. However, a considerable proportion of children were classified as either undernourished or overnourished, indicating the presence of a double burden of malnutrition. This pattern aligns with recent national surveys showing that while the prevalence of undernutrition and stunting remains high, the incidence of overweight and obesity among Indonesian children is also increasing (Kemenkes, 2023). Such findings highlight the complexity of nutritional challenges in Indonesia, where undernutrition and overnutrition coexist within the same communities, and sometimes even within the same households.

The proportion of obese children in this study (11.5%) was higher than the national average of 4.3% (Kemenkes, 2023). (This suggests a shift in dietary patterns and lifestyle behaviors among children, including increased consumption of high-calorie processed foods, reduced intake of fruits and vegetables, and limited physical activity. Similar trends have been observed in other low- and middle-income countries undergoing nutritional transitions, where rapid urbanization and economic change contribute to higher risks of childhood overweight and obesity (Fernández-Lázaro & Seco-Calvo, 2023).These results reinforce the importance of addressing overnutrition alongside undernutrition in child health programs.

Undernutrition, particularly severe malnutrition and stunting, also remains a pressing concern in the study area. Children from families with low socioeconomic status and poor sanitation conditions were more likely to experience undernutrition. Previous studies have established that low household income limits the ability to provide diverse and nutritious diets, while poor sanitation increases the risk of recurrent infections that exacerbate malnutrition (Deshinta, 2023; Mutaqqin, 2021). In this study, more than half of the households reported incomes below the regional minimum wage, and a significant proportion lacked adequate sanitation facilities, emphasizing the interplay between economic and environmental determinants of child nutrition.

Maternal education was relatively high among respondents, with most mothers completing senior high school or higher education. However, this did not fully translate into optimal child nutrition. This finding is consistent with earlier research suggesting that higher education alone does not guarantee appropriate feeding practices or adequate child care unless accompanied by accessible and accurate nutrition information (Armanda, 2023). It suggests the need for ongoing community-based nutrition education, even in populations where maternal education levels are relatively high. Moreover, exclusive breastfeeding practices were encouragingly high (91.0%), yet a small proportion of mothers did not exclusively breastfeed, highlighting the continued need for breastfeeding promotion and support programs.

Another factor influencing child nutritional status was the occurrence of recurrent infections, reported in 12.8% of children, primarily diarrhea and respiratory infections. Repeated episodes of infection can impair nutrient absorption and suppress appetite, thereby increasing the risk of undernutrition and growth faltering (World Health Organization, 2022). This underscores the importance of integrating nutritional interventions with preventive health measures, such as immunization, improved sanitation, and parental awareness of hygiene practices.

Overall, the results of this study confirm that child nutrition is shaped by a multifactorial interaction of biological, social, economic, and environmental determinants. Addressing these challenges requires a comprehensive and multisectoral approach that combines nutrition education, poverty alleviation, sanitation improvements, and strengthened primary health services. By integrating these strategies, local health authorities and policymakers can more

effectively reduce both undernutrition and overnutrition, ensuring healthier growth and development for children in Palembang City and beyond.

CONCLUSION

This study demonstrated the persistence of a double burden of malnutrition among children aged 24–59 months in Palembang, with both undernutrition and overweight observed despite the majority being classified as normal. Nutritional disparities were strongly influenced by socioeconomic conditions, maternal education, environmental sanitation, breastfeeding practices, and recurrent infections, confirming that child nutrition is shaped by complex biological, social, and environmental determinants. The results highlight the need for integrated and multisectoral interventions to improve child nutrition at the community level. Strengthening health promotion programs, particularly those focused on breastfeeding and balanced diets, must be complemented by sanitation improvements and socioeconomic support for vulnerable families. Local health authorities should collaborate with education and social welfare sectors to design context-specific strategies, ensuring more effective prevention of both undernutrition and obesity. By addressing these determinants simultaneously, policy makers can reduce nutritional inequities and support healthier growth trajectories for Indonesian children.

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