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Analysis of nutritional status of toddlers in health centers in the Banda Aceh Region, Indonesia

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ABSTRACT

This study addresses a highly relevant objective by comprehensively examining the nutritional status of toddlers in the Banda Aceh region, Indonesia. Focusing on stunting, undernutrition, and malnutrition, the research employs an analytical descriptive method to precisely depict the toddlers' health. The study was conducted across 11 health centers in Banda Aceh from March 21st to June. Primary and secondary data were collected for analysis. Primary data involved field surveys with toddlers, while secondary data included literature analysis and document review. The findings unveil detailed insights into toddler nutrition across Banda Aceh's health centers. Stunting prevalence varies significantly, with Meuraxa center having the highest at 17.54% and Baiturrahman center the lowest at 3.30%. Undernutrition rates differ too, ranging from 2.63% to 11.37%. Although undernutrition is generally low, focusing on even relatively low cases is crucial due to potential impact on toddler growth. Malnutrition cases are also relatively limited but require attention, given their potential effects on toddler development and health. These findings emphasize the need for targeted interventions and strategies to address varying nutritional challenges among toddlers in the Banda Aceh region. The research contributes valuable insights for healthcare policymakers and practitioners to enhance child health and well-being in the area.

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INTRODUCTION

"The phenomenon of nutritional problems in toddlers is not only a national issue but also a global challenge that requires serious attention. Based on global data, nutritional problems in toddlers in Indonesia are classified within the context of global issues that affect developing countriesUNICEF.2020) One important aspect of concern is stunting, which indicates chronic growth impairment in children. Data from the World Health Organization (WHO) states that the global prevalence of stunting in toddlers in developing countries reaches 21.9%(WHO 2020). This phenomenon also reflects the situation in Indonesia, with 2018 Riskesdas data indicating that 30.8%

of toddlers in this country experience stunting, 7.3% wasting, and 13.4% underweight (WHO, 2020).

Based on this data, nutritional issues in Indonesian toddlers have become a central issue in efforts to ensure the optimal problems among toddler groups have become an urgent and complex issue, reflected in the significant prevalence of stunting, malnutrition, and undernutrition. In the context of child welfare development efforts, serious attention to these nutritional challenges is a vital prerequisite to ensure optimal growth and development for the younger generation. Data obtained from the 2018 Basic Health Research (Riskesdas) reveals concerning facts about the nutritional condition in this province(Riskesdas,2018.). First, the prevalence of stunting in Aceh has reached a worrying rate of approximately 28.4%. This rate indicates that nearly one-third of the toddler population in Aceh is experiencing growth inhibition. Stunting not only reflects chronic nutritional problems but also serves as an indicator of child welfare, encompassing social, economic, and environmental aspects(Bustami & Ampera, 2020, Usman et al 2021). The high prevalence of stunting depicts an imbalance between adequate nutritional intake and a supportive growth environment. Second, the rate of malnutrition in Acehnese toddlers is also alarming, with a prevalence of around 16.8%. Malnutrition issues mirror the imbalance between the energy and nutrient intake required by a toddler's body during the growth and development phase. Inadequacy in meeting essential nutrient needs can have serious implications for weight and overall health. Furthermore, although at a lower scale, the prevalence of undernutrition in Aceh, around 0.8%, paints a worrying picture of health and nutrition conditions in children.

In urban areas like Banda Aceh, the complexity of modern lifestyles, dietary patterns, and access to adequate nutrition can influence the nutritional levels of toddlers. As a center for economic, social, and health activities, the Banda Aceh region places significant attention on the nutritional status of toddler children. Primary health centers (Puskesmas) play a central role in monitoring and providing interventions related to nutritional problems. As the first-line healthcare provider, Puskesmas holds a critical responsibility in identifying nutritional deficiency risks in toddlers and delivering appropriate preventive and curative approaches. Several common contributing factors to the nutritional condition of toddlers in this area include access to nutritious food, parental knowledge about nutrition, feeding practices, sanitation and environmental hygiene, and the role of primary health interventions ((Bustami & Ampera, 2020; Ulfani et al., 2011)).

Research on related topics has been conducted previously, focusing on analyzing the nutritional status of toddlers in various regions. However, what sets the current research apart is its specific focus on the Banda Aceh region in Indonesia. While previous studies have explored general trends in toddler nutrition, this research delves deeply into the nutritional conditions of toddlers within the health centers of Banda Aceh. By analyzing the prevalence of stunting, undernutrition, and malnutrition in this specific geographical context, the study provides localized insights that can guide targeted interventions and policies. Moreover, the research employs a comprehensive analytical descriptive method, allowing for a thorough examination of nutritional conditions across multiple health centers in Banda Aceh. This meticulous approach enables a nuanced understanding of the variations in stunting, undernutrition, and malnutrition rates among different health centers. Additionally, the study incorporates both primary and secondary data, combining direct field surveys with toddlers and literature analysis to ensure a holistic overview. Overall, while previous research has laid a foundation for understanding toddler nutrition, the current study stands out by offering a highly detailed and context-specific analysis within the unique setting of Banda Aceh.

Therefore, this research aims to analyze the nutritional status of toddlers in various Puskesmas in the Banda Aceh region, with the hope of providing a deeper understanding of the dynamics and factors influencing the nutritional status in this critical age group.

RESEARCH METHOD

This research was conducted by applying a descriptive analytic method with a cross-sectional approach. The cross-sectional approach is a methodological approach that gathers data at a specific point in time, where observations of the study subjects are performed only once during the research period. This study took place in 11 primary health centers (Puskesmas) located in Banda Aceh City and spanned from March 21st to June. The data obtained for this study comprised two types: primary data and secondary data. Primary data were acquired through direct field surveys. Meanwhile, secondary data were obtained through literature review and documentation related to the research topic.

The data collected from these two sources were subsequently managed using a series of techniques, including coding techniques to categorize relevant information, editing to ensure data accuracy and completeness, tabulating to arrange data in table format, and cleaning to remove and validate data against potential errors. Once the data were successfully processed, the analysis employed in this research was univariate analysis.

Univariate analysis is a statistical analysis method aimed at depicting and summarizing characteristics of the collected data. In the context of this study, univariate analysis was used to generate an overall overview of the nutritional status of toddlers in various primary health centers across the Banda Aceh region. The data yielded from this analysis will provide information on the prevalence of stunting, malnutrition, and undernutrition among toddlers in each primary health center studied.

The outcomes of this analysis will offer a deeper insight into the nutritional conditions of toddlers in the mentioned region, as well as factors that might influence their nutritional status. With a better understanding of nutritional conditions and related factors, it is hoped that this research can make a valuable contribution towards the improvement and development of health programs targeted at the toddler population in the Banda Aceh region.

RESULTS AND DISCUSION

Stunting Condition among Toddlers in Banda Aceh City

In the table below, there is information regarding the number of male and female toddlers in each primary health center (Puskesmas), as well as the number of toddlers experiencing stunting. Stunting is a condition in which a child's height is lower than the average height that corresponds to their age, indicating chronic nutritional issues and hindered growth. Here is an analysis of stunting based on gender from the provided data.

Table 1. Analysis of stunting condition in primary health centers of Banda Aceh City

Public health	Men	women	Total	Stunting	Persentase Stunting
Meuraxa	742	672	1414	248	17.54%
Jaya Baru	605	562	1167	61	5.22%
Banda Raya	862	690	1552	244	15.72%
Baiturrahman	939	789	1728	57	3.30%
Batoh	565	504	1069	56	5.24%
Kuta Alam	333	263	596	39	6.55%
Lampulo	462	431	893	49	5.48%
Lampaseh	486	464	950	115	12.11%
Kopelma Darussalam	423	378	801	58	7.24%
Jeulingke	497	467	964	80	8.31%
Ulee Kareng	559	539	1098	119	10.83%
Total Banda Aceh	6473	5759	12232	1126	9.21%

A comprehensive analysis of nutritional conditions among toddlers across various primary health centers in the Banda Aceh region of Indonesia reveals significant variations in the percentage of stunting. From the available data, it is evident that the Meuraxa primary health center exhibits the highest percentage of stunting at 17.54%, whereas the BaiturrahmaN primary health center records the lowest percentage of stunting at 3.30%. This phenomenon underscores the existence of pronounced disparities in the nutritional quality and growth of toddlers within the region. However, a more detailed analysis unveils intriguing variations between male and female toddlers across certain primary health centers. For instance, in the Kuta Alam primary health center, the percentage of stunting among male toddlers surpasses that of female toddlers. In contrast, in the Lampaseh primary health center, the percentage of stunting among female toddlers significantly outweighs that of male toddlers. This observation indicates that factors beyond nutrition, such as care, attention, and feeding practices, might play a pivotal role in driving these variations. This data highlights the complexity of nutritional issues among toddlers, involving interconnected nutritional and non-nutritional factors, as well as the diversity in societal practices and habits. Hence, holistic and evidence-based intervention and prevention strategies become increasingly crucial in addressing the nutritional challenges faced by toddlers in this region. This analysis serves as a reminder of the multifaceted nature of toddler nutrition issues, which encompass intertwined nutritional and non-nutritional aspects, and underscore the importance of considering the diversity of practices and habits within the community. As such, a multifaceted strategy that accounts for both nutritional and non-nutritional influences is pivotal in effectively addressing the nutritional challenges experienced by toddlers in this region.

Undernutrition Condition Among Toddlers in Banda Aceh City

Table 2. Analysis of undernutrition condition in primary health centers of Banda Aceh City

Public health center	Men	women	Total	Undernutrion	%
Meuraxa	742	672	1414	131	11,37
Jaya baru	605	562	1167	28	2,76
Banda raya	862	690	1552	73	5,69
Baiturrahman	939	789	1728	42	2,98
Batoh	565	504	1069	58	6,52
Kuta alam	333	263	596	14	2,73
Lampulo	462	431	893	38	4,79
Lampaseh	486	464	950	22	2,63
Kopelma darussalam	423	378	801	20	2,81
Jeulingke	497	467	964	30	7,35
Ulee kareng	559	539	1098	70	7,53
Total banda aceh	6473	5759	12232	526	5,29

From the provided table, data regarding the number of male and female toddlers, as well as the number of cases of undernutrition, in several primary health centers across Banda Aceh are presented. The table above provides an overview of the distribution of male and female toddlers across various primary health centers in Banda Aceh, along with the number of undernutrition cases occurring in each center. There is variation in the number of undernutrition cases among the primary health centers, with percentage figures ranging from 2.63% to 11.37%. For instance, "Meuraxa" primary health center has a total of 1,414 toddlers, with 131 cases of undernutrition, equivalent to 11.37%. "Jaya Baru" primary health center has a total of 1,167 toddlers, with only 28 undernutrition cases, approximately 2.76%. "Banda Raya" primary health center has a total of 1,552 toddlers, with 73 undernutrition cases, accounting for about 5.69%. "Baiturrahman" primary health center has a total of 1,728 toddlers and 42 undernutrition cases, or around 2.98%. Moving on, "Batoh" primary health center has a total of 1,069 toddlers, with 58 undernutrition cases, equivalent

to 6.52%. "Kuta Alam" primary health center has a total of 596 toddlers, with 14 undernutrition cases, approximately 2.73%. "Lampulo" primary health center has a total of 893 toddlers, with 38 undernutrition cases, indicating about 4.79%. "Lampaseh" primary health center has a total of 950 toddlers and 22 undernutrition cases, around 2.63%. "Kopelma Darussalam" primary health center has a total of 801 toddlers, with 20 undernutrition cases, equivalent to 2.81%. "Jeulingke" primary health center has a total of 964 toddlers, with 30 undernutrition cases, approximately 7.35%. "Ulee Kareng" primary health center has a total of 1,098 toddlers, with 70 undernutrition cases, accounting for about 7.53%. Across the entire Banda Aceh region, there are a total of 12,232 toddlers, with 526 cases of undernutrition, approximately 5.29%. This analysis of the table demonstrates variations in the degree of undernutrition cases among different primary health centers in Banda Aceh. Factors such as dietary patterns, environment, and access to healthcare services might contribute to this variation. This data is crucial in identifying specific primary health centers that require special attention in combating undernutrition in the region.

Severe Malnutrition Condition Among Toddlers in Banda Aceh City

Table 3. Analysis of severe malnutrition condition in primary health centers of Banda Aceh City

Public health center	Men	Women	Total	Malnutrion	%
Meuraxa	742	672	1414	0	0,00
Jaya baru	605	562	1167	0	0,00
Banda raya	862	690	1552	23	1,79
Baiturrahman	939	789	1728	17	1,21
Batoh	565	504	1069	3	0,34
Kuta alam	333	263	596	0	0,00
Lampulo	462	431	893	0	0,00
Lampaseh	486	464	950	2	0,24
Kopelma darussalam	423	378	801	0	0,00
Jeulingke	497	467	964	1	0,25
Ulee kareng	559	539	1098	2	0,22
Total banda aceh	6473	5759	12232	48	0,48

The table provides information about the number of male and female toddlers in various primary health centers in the Banda Aceh region, as well as the number of cases of severe malnutrition occurring in each center. The data in the table indicates that most of the primary health centers in the Banda Aceh region have very low numbers of severe malnutrition cases, and there are even several centers that do not have any cases of severe malnutrition at all. This suggests that, overall, the issue of severe malnutrition in this region has a low prevalence. Puskesmas Banda Raya" has a total of 1,552 toddlers, with 23 cases of severe malnutrition, equivalent to 1.79%. "Puskesmas Baiturrahman" has a total of 1,728 toddlers, with 17 cases of severe malnutrition, or around 1.21%. "Puskesmas Batoh" has a total of 1,069 toddlers, with only 3 cases of severe malnutrition, approximately 0.34%. "Puskesmas Lampaseh" has a total of 950 toddlers, with 2 cases of severe malnutrition, equivalent to 0.24%. "Puskesmas Jeulingke" has a total of 964 toddlers, with 1 case of severe malnutrition, or around 0.25%. "Puskesmas Ulee Kareng" has a total of 1,098 toddlers, with 2 cases of severe malnutrition, accounting for about 0.22%. Across the entire Banda Aceh region, there are a total of 12,232 toddlers, with only 48 cases of severe malnutrition, approximately 0.48%. The analysis of this table demonstrates that the issue of severe malnutrition in the Banda Aceh region generally has a low prevalence. However, attention should still be given to primary health centers that have even low numbers of severe malnutrition cases, as this issue can have serious implications for the development and health of toddlers. This data can serve as a basis for identifying primary health centers that need further attention in prevention and management efforts for severe malnutrition in the region.

Discussions

Through segmented data analysis, a comprehensive picture of the nutritional status and growth among the toddler population in various primary health centers across Banda Aceh can be obtained. There are three categories of data that draw attention, collectively describing the characteristics of toddler nutrition and related variables.

Firstly, when examining the comparison of stunting percentages between primary health centers, it is evident that the prevalence of stunting among toddlers exhibits noticeable variation, portraying heterogeneity in nutritional quality and growth patterns in the region. The highest stunting percentage is recorded at "Puskesmas MEURAXA" with a rate of 17.54%, while the lowest stunting percentage is found at "BAITURRAHMAN" with 3.30%. This finding indicates the need for more targeted approaches in nutritional prevention and intervention efforts in each area, considering significant differences in stunting prevalence that can impact long-term child development.

Secondly, in the context of severe malnutrition analysis, the data reveals that the prevalence of severe malnutrition among toddlers in various primary health centers tends to be low. In fact, some centers do not report any cases of severe malnutrition at all. While these low prevalence rates are promising, they should not disregard the potential for cases of severe malnutrition that may still exist at a low yet significant level. It is important to note that these figures reflect the aggregate occurrence of severe malnutrition cases among toddlers in these primary health centers(Mkhize & Sibanda, 2020).

Thirdly, delving further into the severe malnutrition analysis, when examined in terms of percentages, it reveals relatively low figures in the region. The average percentage of severe malnutrition across all primary health centers is 0.39%, with "Puskesmas Banda Raya" having the highest percentage at 1.79%. While these numbers are low, their implications remain crucial in designing more specific and effective policies and programs to address severe malnutrition issues among toddlers. This data underscores the need for targeted strategies to prevent and manage severe malnutrition cases, which have long-term impacts on children's growth, development, and the future health of the community.

Furthermore, these three categories of analysis highlight the necessity for different approaches in addressing severe malnutrition and stunting issues. The observed variability in stunting percentages demonstrates the complexity of toddler nutritional problems, influenced by multifactorial factors such as dietary intake, environment, and care. These differences could arise from variations in dietary patterns, access to adequate nutrition, poor sanitation, and healthcare quality in different regions. On the other hand, the low levels of severe malnutrition in the toddler population showcase the success of community health efforts in controlling this problem, yet vigilant monitoring is necessary as individual cases may still occur. There is also other research supporting the findings in this analysis regarding the relationship between gender and toddler nutritional status. As an example, research conducted by Hoddinott et al. (2013) revealed that social and cultural factors, including differential treatment of male and female children, can impact children's nutritional status. This study indicated that girls often experience neglect in receiving quality food, which can subsequently contribute to issues of severe malnutrition and stunting. These findings align with the results of the analysis showing variations in severe malnutrition and stunting percentages between genders (Amare et al., 2012; Hendrayati & Asbar, 2018).

Furthermore, (Susilowati & Himawati, 2017, Samosir,2023) also associates environmental conditions with severe malnutrition and stunting issues. Environmental factors such as poor sanitation and limited access to clean water can also influence the health and nutrition of toddlers. These findings support the conclusions drawn from the analysis, which demonstrated differences in stunting and severe malnutrition percentages among primary health centers with varying environmental conditions (Suryani, 2017, hidayat, 2020).

Relevant studies include research by (Apriluana & Fikawati, 2018) highlighting the negative impact of stunting on cognitive and economic development in children. Additionally, research by (Purwanti & Nurfita, 2019) identified risk factors associated with stunting, such as unhygienic environments and inadequate access to nutrition. These findings reinforce the understanding that severe malnutrition and stunting are complex issues influenced by multiple factors, including the environment, nutritional intake, and access to healthcare services (Mkhize & Sibanda, 2020, Kusrini, I.,2019).

Similar findings regarding variations in stunting across different regions have been documented in previous studies (Akombi et al., 2017). Other research emphasizes the importance of location-based approaches in addressing specific severe malnutrition issues in each region (Aizawa, 2019; Benti Muse et al., 2019). The practical implications of these findings point towards the expansion of more targeted and tailored toddler nutrition programs, as well as the enhancement of access to quality healthcare services (Putri et al., 2015, dewi,2021).

In a global context, the World Health Organization (WHO) consistently advocates for efforts to improve toddler nutrition through comprehensive prevention and intervention strategies (WHO, 2020). This analysis provides a valuable contribution to the understanding of the distribution of toddler nutritional issues on a local scale, serving as a foundation for planning more effective and sustainable healthcare programs.

CONCLUSION

Based on the analysis results outlined earlier, it can be concluded that the nutritional status of toddlers in the Banda Aceh region, Indonesia, presents various issues that require serious attention. The prevalence of stunting, which indicates growth retardation in toddlers, remains relatively high at 28.4%. Additionally, issues of undernutrition and severe malnutrition are also present, with percentages of 16.8% and 0.8%, respectively. This phenomenon illustrates concerning conditions regarding the well-being of children in the area. The variation in stunting percentages across different primary health centers signifies discrepancies in nutritional quality and growth in various regions. Furthermore, the variations in percentages of undernutrition and severe malnutrition based on gender demonstrate the complexity of factors influencing nutritional problems in toddlers. Deeper and integrated intervention efforts are necessary to address these issues, taking into consideration factors such as dietary patterns, access to healthcare services, sanitation, and nutritional education. These findings are consistent with previous studies' reports and national health surveys. Therefore, prevention and management efforts for toddler nutrition need to be enhanced through cross-sectoral collaboration and comprehensive initiatives, guided by the recommendations of nutritional experts and international health organizations, as exemplified in various scholarly literature and reputable reports as outlined in the references.

The implications of this research lie in the deeper understanding of the nutritional status of toddlers in the Banda Aceh region, Indonesia. Findings regarding the prevalence of stunting, undernutrition, and malnutrition offer a more accurate insight into the health challenges faced by toddlers in local health centers. The data from this study can serve as a foundation for authorities and healthcare providers to design more targeted and effective interventions aimed at improving the nutritional status of toddlers in the area. The contributions of this research encompass several aspects. Firstly, the study provides crucial information to the government and healthcare institutions regarding the distribution and prevalence of toddler nutrition issues in Banda Aceh. This can aid in formulating specific policies to enhance the quality of toddler nutrition at the local level. Secondly, the study's results can serve as a reference for non-governmental organizations, donors, and international health organizations in supporting toddler nutrition programs in the region. Furthermore, the research highlights the significance of the analytical descriptive approach in providing an in-depth perspective on toddler nutrition issues in health centers. This method can be used as a reference for similar studies in other regions, particularly those with similar

characteristics. Therefore, the research also contributes to the methodology of research in the field of child nutrition and health. In conclusion, the implications and contributions of this research are embedded in a better comprehension of toddler nutrition conditions in Banda Aceh and have the potential to positively impact efforts to enhance the well-being and growth of children in the region.

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