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A Literature Review on Nutritional and Socioeconomic Determinants of Wasting in Toddlers

Alim Jaizul W[1*], Nurnisaa AS[2]

[1,2]*Research Collaboration Community, Bandung, Indonesia*

**Corresponding author email: alimjaizul47@gmail.com*

Abstract

This study aims to identify and analyze nutritional and socioeconomic factors that influence wasting in children under five through a systematic literature review. Wasting, or low weight for height, is a form of acute malnutrition that is common in children in developing countries and negatively impacts their physical and cognitive development. This study used data sources from various scientific articles published in the last 10 years and included studies related to nutritional factors, such as dietary diversity and micronutrient intake, as well as socioeconomic factors, including maternal education and family income. The review results showed that poor nutritional quality, limited access to health services, poor sanitation conditions, and low food security were the main determinants that increased the risk of wasting. These findings emphasize the need for a holistic approach to addressing wasting, including nutritional interventions, increasing access to health services, and educational programs for parents. This study provides recommendations for more integrated health policies to reduce the prevalence of wasting in children under five and improve their quality of life.

Keywords: Wasting, nutrition, economic factors, food, malnutrition.

1. Introduction

Wasting, or often referred to as low weight for height, is one of the most common forms of acute malnutrition found in children under the age of five, especially in developing countries. This condition occurs when the body does not get enough energy and nutrients to maintain normal body functions, which can lead to significant weight loss (Thurstans et al., 2022). Wasting in children not only affects their physical health, but can also interfere with cognitive and psychosocial development, and increase their vulnerability to infectious diseases and premature death (Galler et al., 2021).

Wasting is different from stunting, although both are indicators of malnutrition in children. Stunting measures low height for age, while wasting focuses more on low weight for height. Stunting is usually associated with long-term problems such as prolonged nutritional imbalances, while wasting is often caused by acute infections, lack of adequate access to food, or socioeconomic factors that limit healthy eating patterns. Wasting can develop over a short period of time and is easier to identify due to significant weight loss (Soliman et al., 2021).

Children who are wasted are at high risk of contracting infectious diseases such as diarrhea, pneumonia, and malaria, which in turn worsen their nutritional status (Salam et al., 2015). In addition, children who are wasted are more likely to experience delays in physical and cognitive development. These developmental delays can have long-term impacts on their quality of life, including their ability to learn, social skills, and ability to work in the future (Soliman et al., 2021). Therefore, it is important to understand the factors that cause wasting so that appropriate preventive measures and interventions can be taken.

The causes of wasting are diverse and complex, with two main factors being the focus of this study, nutritional factors and socio-economic factors. From a nutritional perspective, inadequate food intake, both in terms of quality and quantity, is the main cause (Galgamuwa et al., 2017). Deficiencies in protein, vitamins, and micronutrients such as zinc, vitamin A, and iron can reduce children's immunity, making them more susceptible to infections, which can then worsen their malnutrition (Siddiqui et al., 2020).

Socio-economic factors also play a very important role in the prevalence of wasting. Families with low incomes often have difficulty accessing nutritious food and adequate health services. The education of parents, especially mothers, also plays a major role in decision-making regarding diet and nutrition for children (Secreti et al., 2024).

Studies show that mothers with higher levels of education are more likely to provide healthy and nutritious food to their children, and are better prepared to deal with health problems that arise in their children.

The availability of nutritious food is also greatly influenced by the food security of a country or region. Poor food security, influenced by factors such as poverty, climate change, and political instability, can affect a family's ability to obtain sufficient and healthy food (Owasa & Fall, 2024). In some developing countries, reliance on cheap, low-nutrient foods, such as rice and flour, often leads to micronutrient deficiencies that can increase the risk of acute malnutrition in children.

Access to quality health services is also a socioeconomic factor that greatly influences the incidence of wasting. Families living in rural or remote areas often have limited access to health facilities, as well as lack of knowledge about appropriate health care for children (De Silva & Sumarto, 2018). This contributes to difficulties in diagnosing and treating diseases that can cause wasting, as well as low levels of monitoring children's nutritional status.

Interventions to address wasting in children require a holistic approach, encompassing both nutritional and socioeconomic factors. Several programs have been shown to be effective in reducing the prevalence of wasting, such as providing nutritious supplementary foods for children at high risk, and educating parents about healthy and nutritious diets. These programs often involve collaboration between governments, international organizations, and local communities to ensure that assistance is targeted and sustainable (Ghodsi et al., 2021).

Despite the positive impact of interventions, many challenges remain in overcoming wasting. Socioeconomic factors that hinder access to nutritious food and adequate health services are still major obstacles in efforts to eradicate wasting. Therefore, further research is needed to explore new approaches to address this issue, as well as to better understand the interaction between nutritional and socioeconomic factors in influencing the nutritional status of toddlers.

This study aims to provide a comprehensive literature review of the nutritional and socioeconomic factors that play a role in wasting in toddlers. By understanding these factors, it is hoped that more effective solutions can be found in reducing the prevalence of wasting, as well as improving the nutritional status of toddlers globally. In addition, this study also aims to provide insight to policy makers and health practitioners to design more targeted and evidence-based interventions to address acute malnutrition in children.

2. Literature Review

Table 1: Influence of Socioeconomic Factors on the Prevalence of Wasting in Toddlers Based on Previous Studies

No	Citation	Research purposes	Method	Key Findings
1	Tigga & Mondal (2015)	Assess the prevalence of malnutrition (wasting) using MUAC-for-Age cut-off. Observe the relationship of socio-economic and socio-demographic variables on wasting.	Cross-sectional study among 1222 preschool children and stratified random sampling and anthropometric measurements.	Nutritional and socioeconomic factors driving underweight in children under five years of age include maternal education, household income, birth order, and rural residence. Illiteracy and low income significantly increase the risk of underweight, highlighting the need for targeted nutritional interventions for vulnerable populations.
2	Baykeda, et al., (2024)	Assessing trends in severe wastage inequality in Ethiopia. Evaluating socioeconomic and geographic disparities among children under five.	The WHO Health Equity Assessment Tool was used for the analysis. It uses both absolute and relative measures of inequality.	This study highlights that severe wasting among children under five in Ethiopia is influenced by socioeconomic factors, particularly wealth and education, with children from poor households and those whose mothers have no formal education being significantly more affected by severe wasting.
3	Chekol, et al., (2022).	Assessing determinants of wasting in children aged 6-59 months and Addressing childhood acute malnutrition as a public health problem.	Community-based case-control study and Simple random sampling among 10 kebeles in Meet district	Nutritional determinants include frequency of complementary feeding, dietary diversity, and timely introduction of complementary foods. Socioeconomic factors involve maternal decision-making on household expenditure. Both significantly influence wastage among children under five in Meet district, Northeast Ethiopia, as identified in this study.
4	Gautam, et al., (2017).	Assessing socio-demographic factors influencing childhood wasting. Evaluating child feeding practices related to wasting.	Community-based cross-sectional study conducted in an urban slum. Simple random sampling technique for household selection.	This study identified maternal socio-demographic factors such as ethnicity, education, and occupation, along with child factors such as age, birth order, and colostrum feeding as significant determinants of wasting in under-five children in an urban slum in Nepal.

5	Headey & Ruel, (2022).	Explore the nutritional impacts of economic growth shocks on child wasting. Analyze the mechanisms linking economic shocks to inadequate dietary diversity.	Descriptive analysis techniques were used to explore patterns and trends in the data. Non-parametric regression was used to plot wastage by child age and region.	The study identified inadequate dietary diversity and infections as key nutritional determinants of wastage. Socioeconomic determinants include macroeconomic shocks, which disproportionately affect urban children, increasing the risk of wastage due to increased poverty and food insecurity during economic downturns.
6	Dabale, & Sharma, (2014)	Identifying determinants of wasting among children under five years in Ethiopia and Analyzing data from the Ethiopian Demographic and Health Survey.	Descriptive statistics for data analysis and multilevel binary logistic regression technique were used.	Nutritional and socioeconomic determinants of wasting in children under five years of age include low birth size, maternal illiteracy, low maternal body mass index, poverty, and recent illness (diarrhea and fever). These factors significantly increase the risk of wasting among children under five years of age in Ethiopia.
7	Nurfia, et al., (2022).	Improving nutritional quality to reduce stunting and wastage and increasing parental understanding of better parenting practices.	Lectures, discussions, question and answer methods, practice and Problem Based Learning (PBL) models, Counseling oriented towards improving nutrition, with a focus on parenting in a healthy environment.	This study identified inadequate dietary intake, high levels of poverty, low environmental sanitation, and poor parenting as key socio-economic determinants contributing to wasting in children under five, emphasizing the need for improved nutrition and better parenting practices to effectively address these issues.
8	Rahmadani, et al., (2023).	Determine socio-economic factors that influence the nutritional status of toddlers. Assess the relationship between income, knowledge, and nutrition.	Quantitative research design analytical survey and cross-sectional study with purposive sample technique	Identifies family income and maternal knowledge as significant determinants of toddler nutritional status, which impacts the risk of wastage. This emphasizes the need for a comprehensive approach that addresses socioeconomic factors to improve toddler nutrition and prevent malnutrition-related problems.
9	Sinha, et al., (2020).	identify factors associated with severe wasting among mothers and Assess the nutritional status of mothers with children under 3 years.	A 12-month prospective study in 30 villages and Collection and on maternal socioeconomic status and anthropometry.	This study identified poverty, food insecurity, poor WASH practices, and gender-based violence as significant socioeconomic determinants of severe wasting among mothers, which indirectly affect the nutritional status of children under five. Addressing these factors is critical alongside nutrition programs to combat wasting.
10	Siddiqa, Shah, et al., (2023).	Examine the level of child malnutrition in Pakistan (stunting, defecation, underweight). Determine the factors associated with child malnutrition in Pakistan	Secondary data analysis using logistic regression models and univariate and multivariable analysis using logistic regression models.	Children who consumed fresh milk were less likely to be classified as wasted (AOR, 0.514). In addition, children from high and middle economic status families and those with educated mothers were also less likely to be wasted compared to others.

3. Methodology

This study used a systematic literature review approach to review nutritional and socioeconomic factors that influence wasting in toddlers, with data sources from scientific articles obtained through databases such as PubMed, Scopus, and Google Scholar. The selected articles were published in the last 10 years, focused on wasting in children under five years of age, and written in English or Indonesian. The selection process involved inclusion and exclusion criteria, where irrelevant studies, such as articles without abstracts or full texts, and studies that were not specific to wasting, were excluded. Data were extracted from the abstract, methods, results, and discussion sections to obtain information about the study objectives, methodology, and main findings related to wasting. The analysis was conducted descriptively with data classification based on the type of factor (nutrition, socioeconomic, and environment) to find common patterns among the study results.

4. Results and Discussion

4.1. Results

This study analyzed a number of studies that highlighted various nutritional and socioeconomic factors that influence wasting in children under five. The literature review found that factors such as diet quality, maternal education, family income, access to health services, and environmental conditions and food security play an important role in determining the risk of wasting. In general, the results of the analysis are grouped into three broad categories: nutritional factors, socioeconomic factors, and environmental factors.

4.1.1. Nutritional Factors

Many studies have confirmed that malnutrition in children is one of the main factors contributing to wasting. A study by Chekol et al. (2022) showed that children with low dietary diversity and inadequate frequency of complementary feeding are more susceptible to wasting. In addition, deficiencies in micronutrients such as iron, zinc, and vitamin A also significantly increase the risk of wasting due to the resulting weakened immune system. A study by Headey and Ruel (2022) emphasized that in areas experiencing economic shocks, families often turn to cheap, low-nutrient foods, which ultimately affect the nutritional status of children.

4.1.2. Socioeconomic Factors

This literature review found that socioeconomic factors, especially maternal education level and household income, play an important role in determining children's nutritional status. A study by Baykeda et al. (2024) in Ethiopia found that mothers with low or no formal education were more likely to have children who experienced wasting. Low family income limits access to nutritious food and adequate health services, which significantly increases the prevalence of wasting. Meanwhile, Rahmadani et al. (2023) identified that mothers with good knowledge of nutrition are more likely to provide a balanced diet to their children, which reduces the risk of wasting.

4.1.3. Environmental Factors and Food Security

The living environment and food security conditions were also found to be important determinants of wasting. A study by Nurfia et al. (2022) indicated that children living in environments with poor sanitation are more susceptible to infections that exacerbate wasting. This factor is exacerbated in countries with low food security, where access to nutritious food is difficult due to dependence on cheap, low-nutrient foods. In addition, climate change and political instability also worsen food security conditions, which have a direct impact on increasing wasting among toddlers.

4.2. Discussion

The results of this study confirm that wasting in toddlers is a multidimensional problem influenced by complex interactions between nutritional, socioeconomic, and environmental factors. These factors are interrelated and directly or indirectly influence the risk of wasting in toddlers. The following is a more in-depth discussion of each factor:

4.2.1. The Importance of Adequate Nutritional Intake

Lack of nutritional intake is a direct cause of wasting, and several studies have shown that children who do not receive a diverse diet are more susceptible to wasting. Intake of protein, vitamins, and micronutrients is very important in maintaining a child's immune system so that it is not easily infected. Lack of iron, zinc, and vitamin A, for example, weakens the immune system and increases the risk of infectious diseases such as diarrhea and pneumonia, which contribute to wasting. Several studies have found that nutritional interventions that emphasize the provision of nutritious additional foods show a significant decrease in the prevalence of wasting. This suggests that providing nutritious food is an important step in preventing wasting in children under the age of five.

4.2.2. Influence of Education Level and Family Income

Maternal education is one of the most influential socioeconomic factors on children's nutritional status. Mothers with higher education tend to have a better understanding of the importance of balanced nutrition and are able to make better decisions about their children's diets. In addition, low family income limits families' ability to access nutritious food, which increases the risk of wasting. This is exacerbated in rural or remote areas where access to health services is very limited. A study conducted in Ethiopia showed that increasing maternal education and family income through economic and educational programs can be a long-term solution to reducing wasting rates.

4.2.3. Environmental Impacts and Food Security

Unhealthy environmental conditions, especially in terms of sanitation and clean water, play a major role in increasing the risk of wasting. Children living in environments with poor sanitation are more likely to be exposed to infectious diseases, which worsens wasting. In addition, low food security, especially in areas vulnerable to climate change and political instability, hinders families' ability to provide nutritious food to children. A study conducted by Sinha et al. (2020) found that children in developing countries whose families do not have good food security tend to have a higher risk of wasting. Food security needs to be improved by providing access to nutritious food and policies that support the availability of healthy food for vulnerable communities.

4.2.4. Implications for Policy and Intervention

The results of this study indicate that addressing wasting in toddlers requires an interdisciplinary approach that includes nutritional interventions, educational programs for mothers, increasing access to health services, and efforts to improve food security. Integrated intervention programs between governments and international organizations need to be developed to address socio-economic and environmental factors that influence wasting. In addition, it is important to develop educational and training programs for mothers related to child nutrition and health. Programs such as providing additional food for low-income families and environmental cleanliness campaigns can help prevent wasting and improve the quality of life of children.

5. Conclussion

This study concludes that wasting in toddlers is a condition caused by a combination of nutritional, socioeconomic, and environmental factors. Interventions that focus on improving maternal education, increasing family income, and improving access to nutritious food are needed to effectively address wasting. In addition, it is important to improve food security through policies that support access to nutritious food and environmental cleanliness campaigns to reduce the risk of infections that worsen wasting. These efforts need to be carried out in an integrated manner to provide long-term impacts in reducing the prevalence of wasting in toddlers and improving their health and well-being.

References

Baykeda, T. A., Negash, W. D., Belachew, T. B., Fetene, S. M., Addis, B., Kidie, A. A., ... & Endawkie, A. (2024). Trends of socioeconomic and geographic inequalities in severe wasting among under-five children in Ethiopia from 2000 to 2019: using the WHO Health Equity Assessment Toolkit. *Scientific Reports*, *14*(1), 948.

Chekol, Y. T., Arefaynie, M., Kassa, A. A., Alene, T. D., & Ngusie, H. S. (2022). Determinants of wasting among children aged 6–59 months in North-East Ethiopia: a community-based case-control study. *BMJ open*, *12*(8), e057887.

Dabale, G. A., & Sharma, M. K. (2014). Determinants of wasting among under-five children in Ethiopia:(a multilevel logistic regression model approach). *International Journal of Statistics in Medical Research*, *3*(4), 368-377.

De Silva, I., & Sumarto, S. (2018). Child malnutrition in Indonesia: can education, sanitation and healthcare augment the role of income?. *Journal of International Development*, *30*(5), 837-864.

Galgamuwa, L. S., Iddawela, D., Dharmaratne, S. D., & Galgamuwa, G. L. S. (2017). Nutritional status and correlated socio-economic factors among preschool and school children in plantation communities, Sri Lanka. *BMC public health*, *17*, 1-11.

Galler, J. R., Bringas-Vega, M. L., Tang, Q., Rabinowitz, A. G., Musa, K. I., Chai, W. J., ... & Valdés-Sosa, P. A. (2021). Neurodevelopmental effects of childhood malnutrition: A neuroimaging perspective. *Neuroimage*, *231*, 117828.

Gautam, S., Ruchal, S., Timalsina, B., Acharya, D., Khadka, B., Gautam, V., & Singh, J. K. (2017). Effect of maternal socio-demographic factors and child feeding practice on wasting among under five years children in slum area of Rupandehi district in Nepal. *J Nepal Med Assoc*, *56*(206).

Ghodsi, D., Omidvar, N., Nikooyeh, B., Roustaee, R., Shakibazadeh, E., & Al-Jawaldeh, A. (2021). Effectiveness of community nutrition-specific interventions on improving malnutrition of children under 5 years of age in the eastern mediterranean region: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, *18*(15), 7844.

Headey, D. D., & Ruel, M. T. (2022). Economic shocks predict increases in child wasting prevalence. *Nature communications*, *13*(1), 2157.

Nurfia, Y. T., Hadi, S., & Mulyono, E. C. (2022). Pendampingan Literasi Masyarakat dalam Penanganan Stunting dan Wasting di Desa Besuk Kecamatan Klabang Kabupaten Bondowoso. *As-Sidanah: Jurnal Pengabdian Masyarakat*, *4*(2), 200-211.

Owasa, H. A., & Fall, A. F. (2024). Food Security in Developing Countries: Factors and Mitigation. *American Journal of Climate Change*, *13*(3), 391-405.

Rahmadani, R. A., Wahyuni, R., Arda, D., Musrah, A. S., & Sabriana, R. (2023). Socioeconomic Factors with Nutritional Status of Toddlers. *Jurnal Ilmiah Kesehatan Sandi Husada*, *12*(2), 445-451.

Salam, R. A., Das, J. K., & Bhutta, Z. A. (2015). Current issues and priorities in childhood nutrition, growth, and infections. *The Journal of nutrition*, *145*(5), 1116S-1122S.

Screti, C., Edwards, K., & Blissett, J. (2024). Understanding family food purchasing behaviour of low-income urban UK families: An analysis of parent capability, opportunity and motivation. *Appetite*, *195*, 107183.

Siddiqa, M., Shah, G. H., Mayo-Gamble, T. L., & Zubair, A. (2023). Determinants of child stunting, wasting, and underweight: Evidence from 2017 to 2018 pakistan demographic and health survey. *Journal of Nutrition and Metabolism*, *2023*(1), 2845133.

Siddiqui, F., Salam, R. A., Lassi, Z. S., & Das, J. K. (2020). The intertwined relationship between malnutrition and poverty. *Frontiers in Public Health*, *8*, 453.

Sinha, R. K., Raybardhan, S., Barnwal, N., Kumar, P., & Kumar, V. (2020). Assessment of nutritional status of mothers of children under 3 years of age and its determinants. *Indian journal of community medicine*, *45*(4), 440-444.

Soliman, A., De Sanctis, V., Alaaraj, N., Ahmed, S., Alyafei, F., Hamed, N., & Soliman, N. (2021). Early and long-term consequences of nutritional stunting: from childhood to adulthood. *Acta Bio Medica: Atenei Parmensis*, *92*(1).

Thurstans, S., Sessions, N., Dolan, C., Sadler, K., Cichon, B., Isanaka, S., ... & Khara, T. (2022). The relationship between wasting and stunting in young children: A systematic review. *Maternal & Child Nutrition*, *18*(1), e13246.

Tigga, P. L., Sen, J., & Mondal, N. (2015). Association of some socio-economic and socio-demographic variables with wasting among pre-school children of North Bengal, India. *Ethiopian journal of health sciences*, *25*(1), 63-72.