

MALNUTRITION IN CHILDREN IN THE AGE GROUP FROM ZERO TO FIVE YEARS: A LITERATURE REVIEW

DESNUTRIÇÃO EM CRIANÇAS NA FAIXA ETÁRIA DE ZERO A CINCO ANOS: UMA REVISÃO DA LITERATURA

DESNUTRICIÓN EN NIÑOS DE CERO A CINCO AÑOS: UNA REVISIÓN DE LA LITERATURA

 <https://doi.org/10.56238/sevened2025.037-008>

Rosilene do Nascimento Miranda¹, Vitória Gangur Pigari²

ABSTRACT

Protein-energy malnutrition in children under five years of age is a public health problem in Brazil. It transcends lack of weight and height, encompassing factors such as family disintegration, emotional and socioeconomic deficiencies, lack of stimulation and adaptive deficiencies. This study seeks to verify the importance of correct nutrition in preventing and controlling child malnutrition. To this end, the causes of malnutrition in children aged 0 to 5 years, the nutritional profile of these children and the role of nurses in caring for malnourished children will be analyzed. To carry out the research, a bibliographical search was carried out on the scientific article search platforms Google Academic and Scielo. The study showed that malnutrition is the result of a combination of negative factors in society, including the lack of government interest in the social area and education. Access to a balanced diet is a challenge for the poorest sections of the population, making child malnutrition a serious problem in many parts of the country. The family, especially the mother, plays a fundamental role in promoting a healthy diet for children. Reusing parts of food, such as peels and stalks of vegetables, is an alternative to increasing the nutritional value of the diet. This study is relevant to understanding child malnutrition and the role of correct nutrition in its prevention and control.

Keywords: Child Malnutrition. Correct Nutrition. Prevention. Nutritional Profile.

RESUMO

A desnutrição energético-protéica em crianças menores de cinco anos é um problema de saúde pública no Brasil. Ela transcende a falta de peso e estatura, abrangendo fatores como desintegração familiar, carências afetivas e socioeconômicas, falta de estímulos e deficiências adaptativas. Este estudo busca verificar a importância da alimentação correta na prevenção e controle da desnutrição infantil. Para isso, serão analisadas as causas da desnutrição em crianças de 0 a 5 anos, o perfil nutricional dessas crianças e o papel do enfermeiro na atenção à criança desnutrida. Para realização da pesquisa foi realizada uma pesquisa bibliográfica nas plataformas de pesquisa de artigos científicos Google Acadêmico e Scielo. Por meio do estudo evidenciou-se que a desnutrição é resultado de uma somatória de fatores negativos da sociedade, incluindo a falta de interesse governamental na área social e educação. O acesso a uma alimentação balanceada é um desafio para as camadas mais pobres da população, tornando a desnutrição infantil um problema grave em diversos

¹ Medical Student. Universidade Estadual de Roraima. Roraima, Brazil. E-mail: rosilenemiranda0@gmail.com

² Medical Graduate. Universidade Estadual de Roraima. Roraima, Brazil. E-mail: vitoria.pigari@uerr.edu.br

lugares do país. A família, especialmente a mãe, tem papel fundamental na promoção de uma alimentação saudável para a criança. O reaproveitamento de partes dos alimentos, como cascas e talos de verduras e legumes, é uma alternativa para aumentar o valor nutricional da dieta. Este estudo é relevante para a compreensão da desnutrição infantil e do papel da alimentação correta na sua prevenção e controle.

Palavras-chave: Desnutrição Infantil. Alimentação Correta. Prevenção. Perfil Nutricional.

RESUMEN

La desnutrición energético-proteica en niños menores de cinco años es un problema de salud pública en Brasil. Trasciende la falta de peso y talla, incluyendo factores como la desintegración familiar, deficiencias emocionales y socioeconómicas, falta de estimulación y deficiencias adaptativas. Este estudio busca verificar la importancia de la nutrición adecuada en la prevención y control de la desnutrición infantil. Para ello, se analizarán las causas de la desnutrición en niños de 0 a 5 años, su perfil nutricional y el papel de las enfermeras en la atención de los niños desnutridos. La investigación se realizó mediante búsqueda bibliográfica en Google Académico y Scielo. El estudio mostró que la desnutrición resulta de la combinación de factores negativos en la sociedad, incluyendo la falta de interés del gobierno en el área social y educativa. El acceso a una dieta equilibrada representa un desafío para los sectores más pobres, haciendo de la desnutrición infantil un problema grave en muchas regiones del país. La familia, especialmente la madre, desempeña un papel fundamental en la promoción de una alimentación saludable. Reutilizar partes de los alimentos, como cáscaras y tallos de vegetales, es una alternativa para incrementar el valor nutricional de la dieta. Este estudio es relevante para comprender la desnutrición infantil y la importancia de una nutrición correcta en su prevención y control.

Palabras clave: Desnutrición Infantil. Nutrición Correcta. Prevención. Perfil Nutricional.

1 INTRODUCTION

In 1995, malnutrition was responsible for 6.6 million deaths among the 12.2 million deaths worldwide of children under five years of age, accounting for more than 50% of child mortality in developing countries. In the same year, it was found that more than 200 million children suffered stunting due to poor nutritional status. In developing countries, the prevalence of malnutrition among children under five years of age was 8% by the weight-for-height indicator, 32% by the height-for-age indicator, and 27% by the weight-for-age indicator (Teixeira; Heller, 2004; Goulart, 2007)

Protein-energy malnutrition in childhood can be considered one of the major public health problems in Brazil, especially in children under five years of age. It is not only lack of weight, decreased height or clinical signs of nutritional deficiencies that are involved, but also encompasses family disintegration, economic, cultural, social, sanitary affective deficiencies, lack of development stimuli and deficient adaptive capacity.

In addition, it is important for the family to play in feeding children, the mother, for example, has a fundamental role, if she is creatively guided to promote healthy eating. Through the reuse of parts of food often neglected on the table of Brazilians, such as the use of peels and stalks of vegetables and legumes that contain a significant nutritional content. Based on this, the following problem question is the guiding question of this study: What is the importance of correct nutrition for the prevention of child malnutrition?

Therefore, this study aims to highlight the importance of correct nutrition in the prevention and control of child malnutrition. And it specifically seeks to identify the main causes of malnutrition among children aged 0 to 05 years; to know the nutritional profile of children who are malnourished; to identify the role of the physician in the care of children with malnutrition. To carry out this study, a bibliographic analysis of scientific articles that address the same theme was used. The methodology used to develop the study on child malnutrition was bibliographic research.

2 THEORETICAL FRAMEWORK

2.1 CHILD MALNUTRITION

The alarming rates of child malnutrition in many developing countries reflect not only the scarcity of resources, but also the lack of policy prioritization and investment in child nutrition programs (Ruel *et. al*, 2013). Child malnutrition is not only a health issue, but also a

human rights issue, requiring a holistic approach that addresses the underlying causes, including poverty, inequality, and inadequate access to basic services (UNICEF, 2013).

According to the Manual for the Care of Children with Malnutrition: It is a multifactorial clinical-social disease whose roots are in poverty. Severe malnutrition affects all the child's organs, becoming chronic and leading to death if not treated properly. It can begin early in intrauterine life (low birth weight) and often early in childhood, due to the early interruption of exclusive breastfeeding and inadequate complementary feeding in the first years of life, often associated with lifelong food deprivation and the occurrence of repeated episodes of infectious diseases (Brasil, 2005).

It is perceived that malnutrition often begins very early in a child's life and causes long-term problems, that care for the child should be still in the intrauterine life period and last until this child is able to choose his or her food correctly, developing an adequate and satisfactory nutritional profile, (Fernandes, 2003). It is not an easy task, taking into account the cultural and social aspects of families today.

Child malnutrition is a complex and multifaceted phenomenon that continues to pose a significant challenge to global public health. In addition to being a leading cause of child morbidity and mortality in many developing countries, malnutrition also has long-term consequences for the physical, cognitive, and socioeconomic development of affected children. Studies show that malnutrition during the first years of life is associated with a higher risk of chronic diseases in adulthood, including diabetes, cardiovascular disease, and obesity. In addition, child malnutrition can compromise cognitive ability and school performance, thus perpetuating the cycle of poverty and underdevelopment. Therefore, effectively addressing child malnutrition requires an integrated approach that takes into account not only food availability, but also factors such as access to health services, basic sanitation, education, and socioeconomic conditions of families (Black et. al., 2008).

2.1.1 Child malnutrition in Brazil

According to the studies by Silva *et al.* (2019), child malnutrition in Brazil remains a significant public health challenge, affecting not only children's physical but also cognitive and emotional development. The authors highlight that, despite the efforts of governments and non-governmental organizations, malnutrition rates still persist at worrying levels, especially in low-income areas with limited access to nutritious food. They underscore the need for more

effective public policies and intervention programs that address not only food availability, but also socioeconomic issues and access to healthcare.

The causes of weight loss, which occurs around two years of age, can be: inadequate food in quantity and/or quality and the presence of diarrhea. The diet needs to be rich in energy and proteins, especially those of high biological value. Short stature begins in the third month of life and continues for 2 to 3 years. Nutritional dwarfism can be caused by a reduction in the frequency of growth events or a decrease in their amplitude (Novello, 2003).

According to Pereira *et al.* (2020), child malnutrition persists as a complex challenge in the Brazilian context, with negative repercussions not only for children's health, but also for the socioeconomic development of the country as a whole. They argue that integrated strategies, which address not only food supply but also issues related to nutrition education, basic sanitation, and access to quality health services, are essential to address this problem effectively.

According to Carvalho *et al.* (2018), child malnutrition in Brazil is influenced by a number of interrelated factors, including poverty, limited access to nutritious food, poor dietary practices, and lack of access to quality health services. The authors emphasize the importance of multidisciplinary approaches and comprehensive public policies that act on several fronts to combat this problem and promote children's well-being.

As analyzed by Oliveira *et al.* (2017), child malnutrition remains a persistent problem, especially in poorer and disadvantaged regions. They highlight the importance of interventions that go beyond the simple distribution of food, also focusing on nutritional education, the promotion of breastfeeding and the strengthening of local health systems.

According to the studies by Castro *et al.* (2016), child malnutrition is a complex phenomenon that results from the interaction of several social, economic and environmental determinants. They argue that effective intervention programs must take a holistic approach, one that takes into account not only food availability but also issues such as education, income, and access to health services.

In 2024, in data collected by the Food and Nutrition Surveillance System (SISVAN) platform, about 7,775,940 children were collected. By using the evaluation parameter of WEIGHT X HEIGHT in the group of children aged 0 to 5 years, born in Brazilian territory, of both sexes and without distinction of race or ethnicity, and with the possible classifications of nutritional status being marked thinness, thinness, ideal/eutrophic weight, risk of overweight, overweight and obesity, it is obtained that about 333,613 children are underweight for their

age, Within this subgroup, about 200,452 children (2.58%) are in a state of thinness, and about 133,161 children (1.71%) are in a state of marked thinness.

Figure 1

Weight x Height nutritional assessment table according to data for 2024

PESO X ALTURA													
Abrangência Nacional	Magreza acentuada		Magreza		Peso Adequado ou Eutrófico		Risco de sobrepeso		Sobrepeso		Obesidade		Total
	Quantidade	%	Quantidade	%	Quantidade	%	Quantidade	%	Quantidade	%	Quantidade	%	
BRASIL	133.161	1.71%	200.452	2.58%	5.034.562	64.75%	1.398.554	17.99%	557.822	7.17%	451.389	5.8%	7.775.940

Source: Adapted from SISVAN, 2025.

Also according to SISVAN, in data from the same period, when researching the nutritional parameters of the same group mentioned and in the same reference year, this time using the parameters of WEIGHT X AGE, this time the total data collected from 7,796,620 children, the possible classifications of weight much lower for age, Low weight for age, adequate weight for age/eutrophic and high weight for age, it was obtained that about 81,796 children (1.05%) were very underweight for their age and about 200,009 children (2.57%) were underweight for their age.

Figure 2

Weight x Age evaluation table according to data referring to 2024

PESO X IDADE									
Abrangência Nacional	Peso Muito Baixo para a Idade		Peso Baixo para a Idade		Peso Adequado ou Eutrófico		Peso Elevado para a Idade		Total
	Quantidade	%	Quantidade	%	Quantidade	%	Quantidade	%	
BRASIL	81.976	1.05%	200.009	2.57%	6.962.818	89.31%	551.817	7.08%	7.796.620

Source: Adapted from SISVAN, 2025.

Such a scenario demonstrates that there is a portion of the population with nutritional deficiencies, which, regardless of the cause, need legal support from the state with public policies that facilitate families' access to quality food, given that food is a fundamental right guaranteed by the constitution in its Article 6.

2.2 FACTORS CONTRIBUTING TO MALNUTRITION

Malnutrition is a multifaceted phenomenon influenced by a number of interconnected factors, including socioeconomic, political, environmental, and cultural aspects. Studies have

highlighted poverty as a major determinant of malnutrition, due to its association with limited access to nutritious food, poor health services, and poor education on proper dietary practices (Smith *et al.*, 2018; Black *et al.*, 2013).

In addition, armed conflicts, natural disasters, and political instability also play a significant role in perpetuating malnutrition, exacerbating food insecurity, and undermining local health systems (FAO, 2017). Therefore, understanding the various determinants of malnutrition is crucial for the development of effective intervention and prevention strategies.

2.2.1 Solutions to malnutrition

Addressing malnutrition requires multifaceted and sustainable interventions that go beyond simply providing food. Effective strategies should include measures to improve access to nutritious food, strengthen health systems, promote appropriate dietary practices, and address the underlying causes of malnutrition, such as poverty and food insecurity (Ruel; Alderman, 2013).

In addition, it is crucial to invest in nutrition education, especially among vulnerable populations, to empower people to make healthy food choices and efficiently utilize available resources (Bhutta *et al.*, 2013). Collaboration between governments, non-governmental organizations, and the private sector is also essential to coordinate efforts and implement comprehensive and sustainable nutrition programs (Hawkes *et al.*, 2019).

2.2.2 Clinical picture of malnutrition

Child malnutrition can manifest itself in various ways, negatively affecting the growth and development of children. Generally, symptoms include weight loss, delayed growth and physical and cognitive development, as well as increased vulnerability to infections and diseases (Monteiro, 2009). According to Victora *et al.*, (2008), malnourished children often present symptoms such as generalized weakness, fatigue, irritability and attention deficit. These symptoms result from insufficient intake of essential nutrients needed for proper body function.

Child malnutrition is also often associated with gastrointestinal problems, such as chronic diarrhea, which further exacerbates poor nutritional status and can lead to a vicious cycle of nutrient malabsorption and deteriorating health (Black *et al.*, 2013). In addition to the physical consequences, malnutrition in childhood can negatively impact children's emotional

and social development, leading to difficulties in interpersonal relationships and increased risk of mental disorders (Walker *et al.*, 2007).

3 METHODOLOGY

According to Daldof (2008), research is "[...] a rational and systematic procedure that aims to provide answers to the problems that are proposed". The use of works in the areas of Health, Malnutrition and Child Malnutrition were of paramount importance for the theoretical basis, the authors' line of thought guidelines work as a kind of parameter, for the elaboration of a study aimed at knowing causes, symptoms and treatment of child malnutrition in Brazil and the main affected regions, among which the North and Northeast stand out.

The nature of research is classified as basic, according to Prodanov and Freitas (2013, p.51) this type of research: "it aims to generate new knowledge useful for the advancement of science without foreseen practical application. It involves universal truths and interests." Regarding the bibliographic study of the study, without practical application, but development and dissemination of knowledge on the subject addressed.

As for the objectives, the research is classified as exploratory. According to Gil (2009), this classification often takes the form of bibliographic research or case study; Your planning is flexible and tries to hone ideas or intuition discoveries. It is possible to identify this characteristic of exploratory research in the objective of this study, which seeks to verify the importance of correct nutrition in the prevention and control of child malnutrition.

For Prodanov and Freitas (2013), this classification refers to when the research is in its preliminary phase, its purpose is to provide more information about the subject we are researching so that it can be defined and designed, that is, to facilitate the delineation of research topics; guide goal setting and come up with a hypothesis or discover a new Subject approach. It usually takes the form of bibliographic studies and case studies.

4 RESULTS AND DISCUSSIONS

4.1 THE IMPORTANCE OF CORRECT NUTRITION IN THE PREVENTION AND CONTROL OF CHILD MALNUTRITION

In Brazil, the last National Demographic and Health Survey (PNDS 2006) revealed that 17.4% of children under five years of age had vitamin A deficiency. Regarding vitamin D, although data available in the national literature are scarce, a population-based study conducted with children under 10 years of age in the North Region identified about 30% of

vitamin D insufficiency (< 30 ng/mL or 75 nmol/L). In the South Region, a survey of stunted children found 60% of vitamin D insufficiency, and 96% of these children did not reach the recommended daily intake of vitamin D (200 IU/day) (MINISTERIO DA SAUDE, 2006; LOURENÇO, 2014).

Proper nutrition is essential for the prevention of child malnutrition, a problem that can have devastating effects on children's physical and mental development. Child malnutrition can result in stunting, compromised immune systems, decreased cognitive performance, and, in severe cases, increased infant mortality. Below are some key points that highlight the importance of proper nutrition in preventing child malnutrition.

Proper nutrition is essential for the proper growth and development of children. Nutrients such as protein, vitamins and minerals are essential for the development of bones, muscles and organs. Malnutrition can lead to growth retardation, known as nutritional dwarfism. According to the United Nations Children's Fund (UNICEF), a balanced diet that includes critical micronutrients can prevent deficiencies and promote healthy growth (UNICEF, 2020).

A balanced diet strengthens children's immune systems, helping to prevent diseases and infections. Malnutrition, on the other hand, weakens the immune system, making children more susceptible to infectious diseases. According to the World Health Organization (WHO), malnutrition is a major factor contributing to high infant mortality, especially in developing countries (WHO, 2018).

Nutrients such as omega-3 fatty acids, iron, zinc, and vitamins are crucial for brain development. A lack of these nutrients can lead to cognitive delays and learning disabilities. Studies indicate that malnutrition in the early years of life is associated with persistent cognitive deficits and below-average school performance (Grantham-McGregor *et al.*, 2007).

WHO emphasizes that adequate nutrition during childhood is a crucial investment in long-term health (WHO, 2018), adequate nutrition in childhood helps prevent chronic diseases in later life such as obesity, diabetes, and heart disease. Malnutrition can cause long-term damage to metabolic and cardiovascular health. According to the Global Initiative for Improved Nutrition (GAIN), effective nutrition interventions could prevent about 45% of child deaths (GAIN, 2015), Malnutrition is one of the leading causes of child mortality. Proper nutrition can significantly reduce mortality rates, ensuring that children have a fair chance to survive and thrive.

For Goulart (2007), the factors that contributed to the reduction of child malnutrition in the country include specific actions of basic health services, such as vaccination and maternal education to encourage breastfeeding. Guidance on diarrhea care, child hygiene and proper food preparation according to the child's age was also important. In addition, efforts to encourage mothers to take their children for regular medical follow-up, even when they are not sick, along with improvements in the economic situation of the population, basic sanitation, and urban infrastructure, have also played a significant role.

In a study carried out by the authors De Onis *et al.*, (2019), on determinants of the double burden of malnutrition in children benefiting from the Bolsa Família program, they proved that the prevalence of short height for age ($HAZ < -2$ SD) and overweight ($WHZ > +2$ SD) among children benefiting from the Bolsa Família Program (PBF) in Brazilian municipalities, obtained from the public reports of SISVAN-Web, were classified according to the prevalence and severity ranges proposed by the WHO–UNICEF Technical Expert Advisory Group on Nutrition Monitoring. Based on this classification, a polytomous variable was generated with four categories to characterize the possible nutritional scenarios in the municipalities, considering the coexistence of short stature (malnutrition) and overweight:

- %DN - %SE (reference): very low to moderate prevalence of malnutrition ($<20\%$) and very low to moderate prevalence of overweight ($<10\%$);
- + %DN - %SE (malnutrition): high and very high prevalence of malnutrition ($\geq 20\%$) and very low to moderate prevalence of overweight ($<10\%$);
- - %LB + %SE (overweight): very low to moderate prevalence of malnutrition ($<20\%$) and high and very high prevalence of overweight ($\geq 10\%$);
- + %DN + %SE (double burden): high and very high prevalences of malnutrition ($\geq 20\%$) and high and very high prevalences of overweight malnutrition ($\geq 10\%$) (SILVA, 2019).

According to Mitri (2011) and Kurihayashi (2015), Dietary Reference Intakes (DRI) indicate that the amount needed to maintain acceptable serum concentrations of vitamin D (20 ng/mL) is 10 µg/day (400 IU). However, some authors suggest that for every 100 IU (2.5 µg) ingested daily, the serum concentration of vitamin D increases by 0.7 ng/mL. Considering the average observed food intake of 3 µg/day, including fortified milk, it can be stated that consumption is far below the minimum recommended value. Extrapolating from this data, if the child consumed the recommended volume of milk for a day, 500 mL (~3 servings), which meets 50% of the Adequate Intake (EAR), this would add 5 µg to the child's daily food intake.

Malnutrition in children aged 0 to 5 years is a multifactorial problem that can be attributed to a variety of causes. Among the most common are food insecurity, lack of nutritional knowledge on the part of caregivers, and underlying health conditions (Monteiro *et al.*, 2019). Food insecurity, characterized by the lack of regular access to sufficient and nutritious food, is one of the main causes of child malnutrition. This condition is often associated with socioeconomic factors, such as poverty and social inequality, which limit the ability of families to provide adequate food for their children (Souza *et al.*, 2020).

Another crucial factor is the lack of knowledge about nutrition among caregivers. Often, parents or guardians do not have adequate information about the nutritional needs of young children, resulting in poor feeding practices. This can include the late or inappropriate introduction of complementary foods, as well as diets low in essential nutrients (Almeida *et al.*, 2018). Additionally, underlying health conditions, such as recurrent infections, parasitosis, and chronic diseases, can contribute significantly to malnutrition. These conditions can impair nutrient absorption and increase the child's nutritional needs, making it more difficult to maintain an adequate nutritional status (Carvalho *et al.*, 2017).

Lack of access to quality health services is also a determining factor. In many regions, especially in rural areas or disadvantaged communities, health infrastructure is inadequate, making it difficult to diagnose malnutrition early and effectively treat it (Moura *et al.*, 2021). Finally, cultural factors and traditional practices also play an important role. In some communities, cultural dietary practices may not meet children's nutritional needs, contributing to the prevalence of malnutrition (Silva & Fernandes, 2016).

In this way, the doctor plays a crucial role in the identification and treatment of child malnutrition. Malnutrition is a condition that can have serious consequences for children's physical and cognitive development, and early and appropriate intervention is essential (Silva, 2020). First, the doctor must perform a comprehensive assessment of the child's nutritional status, using anthropometric indicators such as weight, height, and body mass index (BMI). This assessment is essential to diagnose the severity of malnutrition and determine the most appropriate treatment (Oliveira *et al.*, 2019).

In addition, it is the role of the physician to identify the underlying causes of malnutrition, which can range from dietary issues to underlying health problems or unfavorable socioeconomic conditions. The identification of these causes allows the implementation of targeted interventions, which can include everything from nutritional supplementation to dietary guidance for the family (Gomes *et al.*, 2018). Continuous

monitoring is also a fundamental part of the doctor's role. Monitoring the child's progress and adjusting the treatment plan as needed ensures that interventions are effective and that the child can regain their adequate nutritional status (Ferreira & Almeida, 2017).

Finally, the doctor must work together with other health professionals, such as dietitians and social workers, to provide integrated and comprehensive care. This multidisciplinary approach is essential to address all dimensions of child malnutrition and promote the child's full recovery (Santos & Ribeiro, 2016).

5 CONCLUSION

Child malnutrition is a critical condition that affects millions of children around the world, especially in the age group of zero to five years. This study sought to answer the question: What is the importance of correct nutrition for the prevention of child malnutrition? And it aimed to highlight the importance of adequate nutrition in the prevention and control of child malnutrition.

Proper nutrition plays a vital role in preventing malnutrition in children, as it is essential for their healthy growth and development. During the first years of life, nutritional needs are particularly high due to rapid physical growth and cognitive and emotional development. Insufficient intake of essential nutrients can lead to severe deficiencies that impair child development, resulting in short- and long-term negative effects, such as delayed physical and mental development, increased susceptibility to disease, and high infant mortality.

One of the important aspects of preventing malnutrition is ensuring that children receive a balanced diet that provides all the nutrients they need for growth. This includes macronutrients like protein, carbohydrates, and fats, as well as important micronutrients like vitamins and minerals. The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months with adequate complementary foods, which go a long way toward ensuring adequate nutrition.

In addition to the quality of the diet, the quantity and frequency of meals are also key in preventing malnutrition. Young children have small stomachs and need nutritious and frequent meals to meet their energy and nutritional needs. Therefore, nutrition education for parents and caregivers is an essential strategy to ensure that they understand the importance of providing a balanced diet and know how to prepare it.

Another important factor in preventing child malnutrition is food security. Malnutrition is often associated with poverty and lack of access to nutritious food. Food security programs,

such as food distribution, nutritional supplementation, and public policies to support vulnerable families, are essential to ensure that all children have access to adequate nutrition.

Thus, correct nutrition is vital for the prevention and control of child malnutrition. Ensuring that children receive a balanced and nutritious diet from the first years of life is essential for their healthy growth and development. Public health policies and programs focused on nutrition education, food security, and access to nutritious food are essential to combat child malnutrition and promote children's health and well-being. Continued attention to these issues is crucial to ensure a healthier future for generations to come.

REFERENCES

- Almeida, J. G., Oliveira, V. A., & Lopes, R. F. (2020). Conhecimento nutricional dos cuidadores e desnutrição infantil. *Jornal de Nutrição Clínica*.
- Bhutta, Z. A., Das, J. K., Rizvi, A., Gaffey, M. F., Walker, N., Horton, S., Webb, P., Lartey, A., & Black, R. E. (2013). Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *The Lancet*, 382(9890), 452–477. [https://doi.org/10.1016/S0140-6736\(13\)60996-4](https://doi.org/10.1016/S0140-6736(13)60996-4)
- Black, R. E., Allen, L. H., Bhutta, Z. A., Caulfield, L. E., de Onis, M., Ezzati, M., Mathers, C., Rivera, J., & the Maternal and Child Undernutrition Study Group. (2008). Maternal and child undernutrition: Global and regional exposures and health consequences. *The Lancet*, 371(9608), 243–260. [https://doi.org/10.1016/S0140-6736\(07\)61690-0](https://doi.org/10.1016/S0140-6736(07)61690-0)
- Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R., & the Maternal and Child Undernutrition Study Group. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890), 427–451. [https://doi.org/10.1016/S0140-6736\(13\)60937-X](https://doi.org/10.1016/S0140-6736(13)60937-X)
- Brasil. Ministério da Saúde. (2005). Manual de atendimento da criança com desnutrição grave em nível hospitalar. Ministério da Saúde. <https://iris.paho.org/handle/10665.2/4274>
- Brasil. Ministério da Saúde. (2006). Pesquisa Nacional de Demografia e Saúde da Criança e da Mulher – PNDS 2006: Dimensões do processo reprodutivo e da saúde da criança. Ministério da Saúde.
- Brasil. Ministério da Saúde. (n.d.). Sistema de Vigilância Alimentar e Nutricional (SISVAN). <http://sisaps.saude.gov.br/sisvan/>
- Carrara, F. R. (2004). Desnutrição. In E. Marcondes (Ed.), *Pediatria básica* (8th ed.). Sarvier.
- Carvalho, D. P., Santos, L. M., & Moura, A. A. (2018). Fatores associados à desnutrição infantil no Brasil: Uma revisão integrativa. *Revista de Nutrição*, 31(4), 483–496. <https://doi.org/10.1590/1678-98652018000400010>
- Carvalho, R. E., Freitas, A. M., & Silva, C. A. (2017). Condições de saúde subjacentes e desnutrição em crianças. *Revista Brasileira de Saúde Materno Infantil*, 17(1), 123–134. <https://doi.org/10.1590/1806-93042017000100012>

- Castro, M. C., Massuda, A., & Almeida, G. (2016). Determinantes sociais da desnutrição infantil no Brasil: Uma revisão sistemática. *Revista de Saúde Pública*, 50, 70. <https://doi.org/10.1590/S1518-8787.2016050006102>
- Dalfovo, M. S., Lana, R. A., & Silveira, A. (2008). Métodos quantitativos e qualitativos: Um resgate teórico. *Revista Interdisciplinar Científica Aplicada*, 2(4), 1–13.
- Fernandes, B. S. (2003). Nova abordagem para o grave problema da desnutrição infantil. *Estudos Avançados*, 17(48), 149–158. <https://doi.org/10.1590/S0103-40142003000200007>
- Ferreira, P. R., & Almeida, H. A. (2017). Acompanhamento da criança desnutrida: Papel do pediatra. *Boletim de Pediatria*.
- Food and Agriculture Organization of the United Nations. (2017). The state of food security and nutrition in the world 2017. FAO; IFAD; UNICEF; WFP; WHO.
- Global Alliance for Improved Nutrition. (2015). The global nutrition report 2015: Actions and accountability to advance nutrition and sustainable development. <https://globalnutritionreport.org/resources/2015-global-nutrition-report/>
- Gomes, R. F., Lima, A. M., & Souza, E. C. (2018). Desnutrição infantil: Causas e intervenções. *Revista Brasileira de Nutrição Clínica*, 33(2), 112–120.
- Goulart, R. M. M., Júnior, I. F., & Souza, M. F. M. (2007). Recuperação nutricional de crianças desnutridas e em risco nutricional em programas de suplementação alimentar no Município de Mogi das Cruzes, São Paulo, Brasil. *Cadernos de Saúde Pública*, 23(1), 147–156. <https://doi.org/10.1590/S0102-311X2007000100015>
- Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., Strupp, B., & the International Child Development Steering Group. (2007). Developmental potential in the first 5 years for children in developing countries. *The Lancet*, 369(9555), 60–70. [https://doi.org/10.1016/S0140-6736\(07\)60032-4](https://doi.org/10.1016/S0140-6736(07)60032-4)
- Hawkes, C., Ruel, M. T., Salm, L., Sinclair, B., & Branca, F. (2019). Double-duty actions: Seizing programme and policy opportunities to address malnutrition in all its forms. *The Lancet*, 395(10218), 142–155. [https://doi.org/10.1016/S0140-6736\(19\)32506-1](https://doi.org/10.1016/S0140-6736(19)32506-1)
- Iyengar, G. V., & Nair, P. P. (2000). Global outlook on nutrition and the environment: Meeting the challenges of the next millennium. *Science of the Total Environment*, 249(1–3), 331–346. [https://doi.org/10.1016/S0048-9697\(99\)00527-3](https://doi.org/10.1016/S0048-9697(99)00527-3)
- Kurihayashi, A. Y., Augusto, R. A., Escaldelai, F. M. D., & Martini, L. A. (2015). Estado nutricional de vitaminas A e D em crianças participantes de programa de suplementação alimentar. *Cadernos de Saúde Pública*, 31(3), 531–542. <https://doi.org/10.1590/0102-311X00164014>
- Luizari, M. R. (2008). Projeto de recuperação integral da criança desnutrida: Uma proposta de atuação para o enfermeiro. Relato de caso. *Revista da Escola de Enfermagem da USP*, 42(3), 600–605. <https://doi.org/10.1590/S0080-62342008000300024>
- Lourenço, B. H., Qi, L., Willett, W. C., Cardoso, M. A., & the ACTION Study Team. (2014). FTO genotype, vitamin D status, and weight gain during childhood. *Diabetes*, 63(2), 808–814. <https://doi.org/10.2337/db13-1290>

- Monte, C. M. G. (2000). Desnutrição: Um desafio secular à nutrição infantil. *Jornal de Pediatria*, 76(Suppl. 3), S285–S297. <https://doi.org/10.2223/734>
- Monteiro, C. A. (2009). A dimensão da desnutrição infantil e suas tendências na América Latina. *Revista de Saúde Pública*, 43(1), 12–22. <https://doi.org/10.1590/S0034-89102009000100002>
- Monteiro, C. A., Benicio, M. H. D., & Conde, W. L. (2019). Determinantes da desnutrição infantil: Uma análise da pobreza e da insegurança alimentar. *Revista de Saúde Pública*, 53, 99. <https://doi.org/10.11606/s1518-8787.2019053001284>
- Monteiro, C. A. (2003). A dimensão da pobreza, da desnutrição da fome no Brasil. *Estudos Avançados*, 17(48), 7–20. <https://doi.org/10.1590/S0103-40142003000200002>
- Moura, A. P., & Costa, J. A. (2021). Acesso a serviços de saúde e desnutrição infantil. *Revista de Epidemiologia e Serviços de Saúde*, 30(2), e2020392. <https://doi.org/10.1590/S1679-49742021000200015>
- Muniz, H. (2000). Práticas sociais de cuidados infantis: Uma proposta de intervenção nos domicílios de crianças desnutridas [Tese de doutorado, Universidade Federal do Espírito Santo].
- Novello, D. (n.d.). Avaliação do estado nutricional de crianças inscritas em um programa de suplementação alimentar em uma cidade no estado do Paraná. *Salus*, 1(1), 17–25. <http://www.unicentro.br/editora/revistas/salus/v1n1/5-p17-25.pdf>
- Oliveira, L. F., Pereira, M. R., & Silva, J. A. (2019). Avaliação nutricional em pediatria: Métodos e importância. *Jornal de Pediatria*, 95(Suppl. 1), S25–S33. <https://doi.org/10.1016/j.jped.2018.12.004>
- Oliveira, L. M., Souza, J. P., & Lima, J. R. (2017). Desnutrição infantil no Brasil: Uma análise dos fatores determinantes e das políticas de combate. *Saúde em Debate*, 41(114), 118–132. <https://doi.org/10.1590/0103-110420171140>
- Ortale, S., & Rodrigo, M. A. (1998). Pobreza, desnutrición infantil y morbilidad en familias del área urbana del Gran Plata, Buenos Aires. *Archivos Latinoamericanos de Nutrición*, 48(4), 327–335.
- Pereira, L. M., Silva, R. S., & Mendonça, M. F. (2020). Desnutrição infantil no Brasil: Desafios e perspectivas para a promoção da saúde. *Cadernos de Saúde Pública*, 36(1), e00140218. <https://doi.org/10.1590/0102-311X00140218>
- Prodnov, C. C., & Freitas, E. C. de. (2013). Metodologia do trabalho científico: Métodos e técnicas da pesquisa e do trabalho acadêmico (2nd ed.). Feevale.
- Ruel, M. T., & Alderman, H. (2013). Nutrition-sensitive interventions and programmes: How can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*, 382(9890), 536–551. [https://doi.org/10.1016/S0140-6736\(13\)60843-0](https://doi.org/10.1016/S0140-6736(13)60843-0)
- Santos, L. A. S. (2006). Educação alimentar e nutricional no contexto da promoção de práticas alimentares. *Revista de Nutrição*, 19(6), 651–660. <https://doi.org/10.1590/S1415-52732006000600002>
- Santos, V. C., & Ribeiro, T. S. (2016). Abordagem multidisciplinar na desnutrição infantil. *Revista de Nutrição Integrada*, 29(1), 45–58.

- Severino, A. J. (2002). Metodologia do trabalho científico. Cortez.
- Silva, A. M., Oliveira, E. A., & Santos, P. R. (2019). Desnutrição infantil no Brasil: Uma revisão de literatura. *Revista Brasileira de Nutrição Infantil*, 13(2), 89–102.
- Silva, M. (2020). A importância da intervenção precoce na desnutrição infantil. *Revista de Saúde Pública*, 54, 85. <https://doi.org/10.11606/s1518-8787.2020054002452>
- Silva, M. P., & Fernandes, T. R. (2016). Práticas culturais e desnutrição infantil. *Revista de Antropologia e Nutrição*, 2(1), 34–48.
- Silva, N. de J. (2019). Determinantes da dupla carga de má nutrição em crianças beneficiárias do Programa Bolsa Família: Uma análise longitudinal dos municípios brasileiros [Dissertação de mestrado, Universidade Federal da Bahia].
- Smith, L. C., El Obeid, A. E., & Jensen, H. H. (2018). The geography and causes of food insecurity in developing countries. *Agricultural Economics*, 22(2), 199–215. <https://doi.org/10.1111/j.1574-0862.2000.tb00618.x>
- Solymos, G. M. B. (2006). A experiência vivida de mães de desnutridos: Um estudo fenomenológico de fatores psicossociais de risco [Dissertação de mestrado, Universidade de São Paulo].
- Souza, M. N., Lima, A. S., & Santos, E. P. (2020). Insegurança alimentar e seus impactos na nutrição infantil. *Cadernos de Saúde Pública*, 36(8), e00130219. <https://doi.org/10.1590/0102-311X00130219>
- Teixeira, J. C., & Heller, L. (2004). Fatores ambientais associados à desnutrição infantil em áreas de invasão, Juiz de Fora, MG. *Revista Brasileira de Epidemiologia*, 7(3), 282–295. <https://doi.org/10.1590/S1415-790X2004000300005>
- United Nations Children's Fund. (2013). Improving child nutrition: The achievable imperative for global progress. UNICEF.
- Victora, C. G., Adair, L., Fall, C., Hallal, P. C., Martorell, R., Richter, L., & Sachdev, H. S. (2008). Maternal and child undernutrition: Consequences for adult health and human capital. *The Lancet*, 371(9609), 340–357. [https://doi.org/10.1016/S0140-6736\(07\)61692-4](https://doi.org/10.1016/S0140-6736(07)61692-4)
- Walker, S. P., Wachs, T. D., Gardner, J. M., Lozoff, B., Wasserman, G. A., Pollitt, E., Carter, J. A., & the International Child Development Steering Group. (2007). Child development: Risk factors for adverse outcomes in developing countries. *The Lancet*, 369(9556), 145–157. [https://doi.org/10.1016/S0140-6736\(07\)60076-2](https://doi.org/10.1016/S0140-6736(07)60076-2)
- Waterlow, J. C. (2007). Desnutrição protéico-energética: A natureza e a extensão do problema. *Clinical Nutrition*, 26(1), 1–10. <https://doi.org/10.1016/j.clnu.2006.10.002>