



How diet impacts pregnancy and breastfeeding

How nutrition impacts pregnancy and breastfeeding

Rebecca Monike Koenig Costa
Juliana Malinovski

Summary

Adequate nutrition during pregnancy and breastfeeding is one of the essential pillars for maternal and child health. These periods require specific nutritional attention due to the intense physiological and metabolic transformations that occur in the maternal organism, directly impacting fetal development and the quality of breast milk. This article aims to analyze, through a literature review, the main aspects related to women's nutrition during these life cycles, highlighting the importance of micronutrients, the consequences of inadequate nutrition, and the role of nutritional education in primary health care. Scientific articles published between 2019 and 2024, available in the SciELO, PubMed, LILACS, and BVS databases, were reviewed. The results show that nutritional deficiencies are common and frequently associated with gestational and neonatal complications, while healthy eating habits significantly contribute to better health outcomes.

It is concluded that educational strategies and effective public policies are essential to guarantee adequate nutritional support for pregnant and lactating women, promoting health in a comprehensive and intergenerational way.

Keywords: maternal nutrition; nutrition during pregnancy; breastfeeding; maternal and child health; nutritional education.

Abstract

Adequate nutrition during pregnancy and breastfeeding is one of the fundamental pillars of maternal and child health. These periods demand specific nutritional attention due to the intense physiological and metabolic changes in the maternal body, which directly affect fetal development and breast milk composition. This article aims to analyze, through a literature review, the main aspects related to maternal nutrition in these life cycles, highlighting the importance of micronutrients, the consequences of inadequate nutrition, and the role of nutritional education in primary health care. Scientific articles published between 2019 and 2024 were reviewed from databases such as SciELO, PubMed, LILACS, and VHL. The results show that nutritional deficiencies are common and often associated with gestational and neonatal complications, while healthy eating habits contribute significantly to better health outcomes. It is concluded that educational strategies and effective public policies are essential to ensure adequate nutritional support for pregnant and breastfeeding women, promoting integral and intergenerational health.

Keywords: maternal nutrition; pregnancy diet; breastfeeding; maternal-child health; nutritional education.



1.0. INTRODUCTION

Pregnancy and breastfeeding are unique physiological phases in a woman's life, characterized by significant metabolic and nutritional changes that influence directly affects both maternal health and fetal and child development. A diet adequate during these periods becomes essential, not only to meet the demands enhanced nutritional needs of the mother, but also to ensure the healthy growth of the baby and prevent various complications associated with inadequate nutrition (Ferreira et al., 2022).

During pregnancy, the mother's diet has a decisive influence on fetal health, impacting everything from intrauterine growth to the newborn's future predisposition to metabolic and chronic diseases. Recent studies show that nutritional deficiencies, such as folic acid, iron, calcium, and specific vitamins during this critical period, significantly increase the risks of obstetric complications, premature birth and low birth weight (Oliveira; Silva; Nascimento, 2021).

The breastfeeding phase also demands special nutritional attention. The composition of breast milk directly reflects the nutritional and dietary status of the mother, being crucial for the child's immunological, neurological and physical development. Current literature reinforces that a balanced and nutrient-adequate diet during lactation not only ensures quality of the milk produced, but also helps in maternal recovery after birth, preventing maternal nutritional deficiencies and ensuring robust nutritional support to newborn (Barbosa; Santos; Pereira, 2023).

Despite the proven relevance, it is clear that there is still an important gap in awareness and adequate nutritional guidance for pregnant and lactating women. Information inaccurate or lack of professional guidance can lead to food choices inadequate, negatively impacting maternal and child health. In this sense, it is justified an in-depth and up-to-date analysis of the impact of proper nutrition during these periods sensitive, aiming to assist health professionals in formulating practical recommendations and effective (Lima; Costa, 2023).

Thus, the present research has the general objective of analyzing and discussing, through an integrative literature review, the importance of adequate nutrition during pregnancy and breastfeeding, highlighting their effects on maternal health, fetal development and neonatal, as well as its relevance in preventing nutrition-related problems inadequate.

2.0. METHODOLOGY

This article is characterized as a narrative bibliographic review, of a qualitative, whose objective was to gather, analyze and critically interpret scientific studies relevant information that addresses nutrition during pregnancy and breastfeeding and its impacts on maternal and child health. This is a method widely used in health sciences to synthesize existing knowledge and identify gaps, trends and recommendations within a specific theme (Gil, 2017).

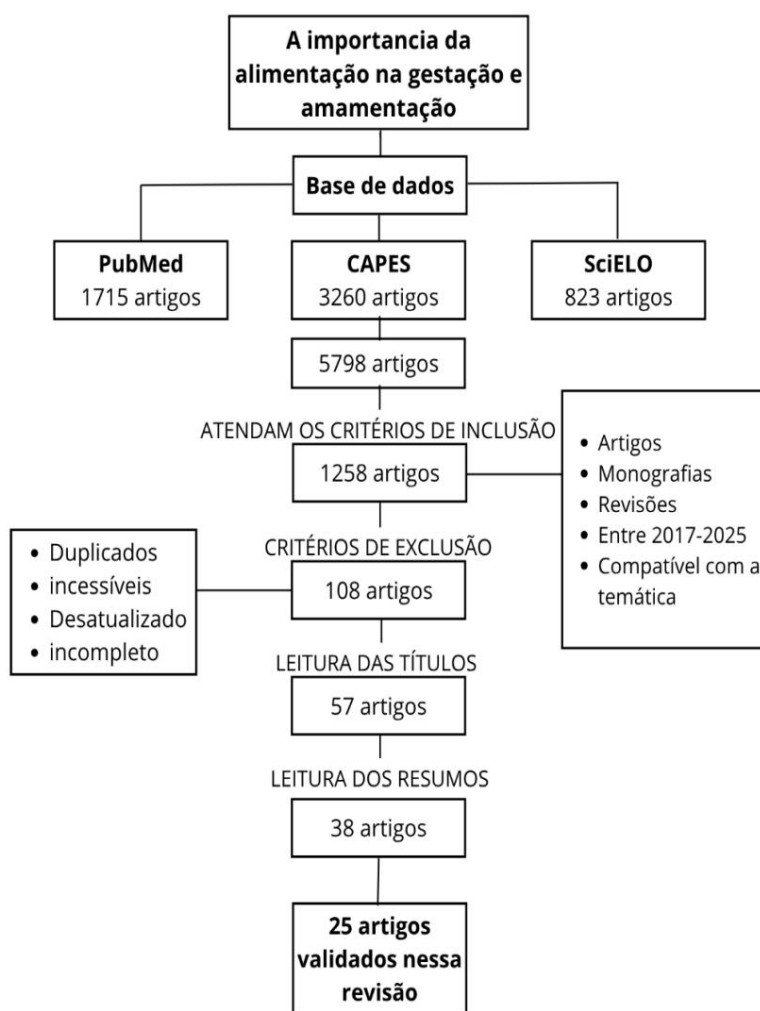
The research was conducted between March and April 2025, using the databases Scientific Electronic Library Online (SciELO), Publisher Medline (PubMed), Literatura Latino-Americana and Caribbean Health Sciences Library (LILACS) and the Virtual Health Library (BVS). The descriptors selected for the search were: *nutrition during pregnancy, nutrition in pregnancy, breastfeeding, breastfeeding and food and nutritional education*. We used combining terms with the Boolean operators “AND” and “OR” to expand the scope of the search.

Scientific articles published in the last five years (2019 to 2024) were included, available in full in Portuguese, English or Spanish, and that presented data relevant information on nutritional aspects during pregnancy and/or lactation. Priority was given to publications in peer-reviewed journals, with clearly described methodologies and applicability in public health or primary care area. Duplicate studies, abstracts without access to full text, dissertations, theses and articles with an exclusive focus on pathologies specific gestational conditions not directly related to food.

After reading the titles and abstracts, the selected articles were read in full and categorized according to the thematic axes established in the theoretical basis. The extracted information was organized in the form of a critical synthesis, aiming to respond to the central objective of the article. The analysis was carried out descriptively, without using methods statistical, respecting the criteria of scientific rigor and academic ethics.

3.0. RESULTS AND DISCUSSION

Figure 1. Descriptive organizational chart of the research process of the literature review of this article.



FONTE: Produzido pela autora, 2025.



In Table 1, described below, the most significant results of each were compiled.

scientific article selected in the research, as well as authors, type of study, year of publication, study location, sample, objectives, methodology and results. The 15 articles are studies published in international journals, being carried out in Brazil. All articles selected were published in Portuguese.

Table 1 – Summary of articles analyzed for review

Article	Author, year of publication, place of study	Design, type of study and N	Objectives of the study	Methodology	Main findings
1	BARBOSA, K. R. et al., 2023, Brazil	Study of revision	To analyze public policies related to promoting healthy eating during prenatal care	Review of public policies and national programs	Identified advances in the inclusion of healthy eating in public policies, but highlighted challenges in effective implementation
2	BARROS, H. C.; LIMA, VS, 2021, Brazil	Review study	Discuss the causes, consequences and conduct related to anemia in gestation	Literature review scientific	Highlighted iron deficiency as the main cause of gestational anemia and the importance of adequate supplementation
3	CARVALHO, J. M.; FREITAS, LD, 2022, Brazil	Study transversal	Evaluate the effects of obesity maternal and consumption of food ultra-processed foods during pregnancy	Data analysis of pregnant women with different eating patterns	Found that obesity and consumption of ultra-processed foods are associated with outcomes adverse gestational effects
4	RIDING RIDER, MP et al., 2022, Brazil	Revision integrative	Identify deficiencies nutritional common in pregnant women	Review of studies on nutrition during pregnancy	It pointed out the prevalence of iron, calcium and vitamin deficiencies, highlighting the need for nutritional monitoring



5	COSTA, MR; ALMEIDA, A. F., 2021, Brazil	Integrative review	Investigate interference food in the breast-feeding	Analysis of studies on food maternal and breast-feeding	Indicated that maternal diet influences the quality of milk and the health of the infant
6	DIAS, R.A.; FERNANDES, M.C., 2021, Brazil	Study of revision	Evaluate the impact of iron supplementation on the mother	Analysis of literature on iron and pregnancy	Confirmed benefits of Iron supplementation in the prevention of anemia and fetal development
7	FERREIRA, T. M. et al., 2020, Brazil	Systematic review	Examine the need nutritional and supplementation during pregnancy	Systematic survey of studies	Highlighted the importance of individualized nutritional guidance and adequate use of supplements
8	GIL, AC, 2017, Brazil	Technical book	Approach methods of social research	Description of techniques qualitative and quantitative	It underpins the methodology of scientific work in the area of social sciences and health
9	LEITE, JDF et al., 2022, Brazil	Review study	Discuss causes and consequences of vitamin D deficiency in pregnant women	Literature analysis scientific	Vitamin D deficiency is linked to outcomes adverse events such as preeclampsia and prematurity
10	LOPES, MJS et al., 2021, Brazil	Study qualitative	To analyze food education strategies in primary care for pregnant women	Interviews with primary care professionals	It demonstrated the effectiveness of educational actions in groups of pregnant women
11	MARTINS, A. G. et al., 2023, Brazil	Review study	Assess the effects of food gestational in fetal programming	Review of studies on epigenetics and nutrition	Concluded that maternal nutrition can influence the child's future health
12	MENEZES, T. P.; SOARES, A. V., 2020, Brazil	Revision narrative	Review evidence about the role of acid folic in prevention of defects congenital	Critical reading of scientific articles	Highlighted the effectiveness of Folic acid supplementation in the prevention of neural tube defects

13	MONTERO, R. L. et al., 2023, Brazil	Systematic review	Investigate the relationship between maternal diet and milk quality	Systematic evaluation of studies observational	It was found that the nutritional quality of milk is influenced by the mother's eating habits
14	MOURA, L.M.; ALMEIDA, R. T., 2022, Brazil	Study qualitative	Identify barriers faced by health professionals in food education	Interviews with professionals of UBS	He pointed out structural limitations and lack of training
15	BIRTH, EM et al., 2023, Brazil	Study of revision	To analyze consumption of calcium and its benefits during the gestation	Critical reading of recent literature	Reinforced the importance of calcium for preventing pre-eclampsia and fetal bone formation
16	PEREIRA, LS et al., 2023, Brazil	Study of critical review	To assess impacts of food insecurity on pregnancy and puerperium	Critical analysis of scientific publications	Increased risk identified for low birth weight and postpartum complications
17	RIBEIRO, T. F.; ANDRADE, M. E., 2021, Brazil	Review study	Investigate the effects of maternal nutrition on neurodevelopment child's chin	Survey of cohort studies and review of literature	Showed a positive correlation between balanced diet and development neurological of the child
18	ROCHA, LV et al., 2023, Brazil	Observational study	Evaluate the nutritional composition of breast milk in women Brazilians	Collection and analysis of samples human milk	Concluded that dietary and regional factors influence the composition of milk
19	RODRIGUES, D.S.; LIMA, E. F., 2022, Brazil	Study of revision	To analyze impact of food ultra-processed foods in the diet of pregnant women	Review of literature scientific	It concluded that high consumption is related to obstetric outcomes negatives

20	SANTOS, BL et al., 2023, Brazil	Review study	Investigate supplementation policies micronutrients in pregnant women	Reading documents and official publications	It highlighted advances in supplement coverage, but pointed out regional inequalities
21	SANTOS, PA; MENDONCA, DC, 2023, Brazil	Revision narrative	To analyze needs energy of lactating women and milk production	Review of clinical studies and reviews	Highlighted the need for a balanced diet and increased calories during lactation
22	SILVA, D.F.; QUEIROZ, A. M., 2023, Brazil	Report of experience	Describe workshops healthy eating for pregnant women in UBS	Report on professional practice in public health	It has shown effectiveness of workshops as an educational strategy
23	SILVA, GT et al., 2021, Brazil	Study of revision	Analyze the relationship between maternal diet and milk composition	Review of specialized literature	It showed that nutrition influences the lipid and immunological profile of milk
24	SILVEIRA, M. C. et al., 2022, Brazil	Study of revision	To study consequences of inadequate nutrition for maternal and child public health	Review of national scientific articles	Demonstrated that inadequate nutrition is a collective risk factor
25	VIEIRA, ML; GOMES, AL, 2022, Brazil	Study transversal	Create a dietary profile for lactating women and implications for child health	Food questionnaire applied to lactating women	Highlighted the direct impact of maternal nutrition on infant health

The analysis of the selected studies revealed a consensus among researchers and health institutions regarding the centrality of adequate nutrition during pregnancy and lactation. The literature consulted showed that both deficiency and excess of certain nutrients can cause harmful effects on maternal health and development of the fetus and infant, in addition to negatively impacting the long-term prognosis term of the child.



One of the most consistent aspects identified in the articles was the importance of iron and folic acid supplementation. Iron supplementation has been strongly associated with reduction in the prevalence of gestational anemia, while the use of folic acid has shown efficacy proven to prevent neural tube defects and other birth defects (Ferreira et al., 2020; Menezes; Soares, 2020). Despite the availability of these supplements in the public health system, studies show that many women begin prenatal care late or have low adherence to regular use of supplements, which compromises the expected benefits (Santos et al., 2023).

Another widely discussed point was the impact of food consumption ultra-processed foods during pregnancy. Recent research indicates that pregnant women who consume regularly this type of food presents a higher risk of developing diseases hypertensive pregnancy, gestational diabetes and increased fetal adiposity (Rodrigues; Lima, 2022; Carvalho; Freitas, 2022). This dietary pattern, in addition to being poor in micronutrients, contributes to an inflammatory and obesogenic intrauterine environment, predisposing the newborn born to metabolic disorders in adulthood.

During breastfeeding, the reviewed studies were unanimous in stating that the mother's diet lactating mother influences the quality of breast milk. Nutrients such as omega-3, vitamin A, vitamin D and zinc, when adequately consumed, promote better development neurological and immunological development of the baby (Silva et al., 2021; Rocha et al., 2023). However, many articles warned of the lack of qualified nutritional guidance in the postpartum period, which leads many mothers maintain restrictive diets, based on myths or informal guidelines, with potential risk to your health and that of the infant (Costa; Almeida, 2021).

It is also noted that the absence of consistent public policies aimed at education food and nutrition of pregnant and lactating women remains a relevant obstacle in the Brazilian scenario. Most authors point out the urgent need to train professionals of primary care so that they act proactively, with continuous health education actions and individualized support, respecting the sociocultural contexts of the women assisted (Barbosa et al., 2023; Lopes et al., 2021).

In summary, the review indicates that promoting healthy and safe eating in these periods cannot be understood as the exclusive responsibility of women, but rather as an integrated effort between individuals, families, health professionals and policies public. Ensure access to qualified information, nutritional monitoring and basic resources is essential to breaking the cycle of health inequalities that affects millions of women in Brazil and in the world.



3.1. Physiological changes and nutritional demands during pregnancy

During pregnancy, a woman's body undergoes profound changes. physiological measures designed to support fetal growth and prepare the body for labor childbirth and breastfeeding. Among these adaptations, the most notable are the increase in circulating volume blood, significant changes in hormone production, increased energy requirements and changes in the way the body metabolizes macro and micronutrients. As a consequence, there is an increase in the nutritional requirements of pregnant women, making it essential to adopt a balanced, diversified diet composed of adequate sources of high-quality proteins quality, vitamins, minerals and essential fatty acids. (Silva et al., 2021).

Studies show that inadequate intake of nutrients, especially iron, calcium, folic acid and vitamin B12, can lead to complications such as anemia, pre-eclampsia, childbirth premature and low birth weight. Folic acid, for example, is crucial for preventing neural tube defects in the fetus, and its use is recommended from the planning stage of pregnancy (Ferreira et al., 2020). In addition, the increase in basal metabolism and energy needs The energy intake of pregnant women requires special attention to the caloric quality of foods consumed, prioritizing nutritional density over empty calories, frequently present in ultra-processed foods (Rodrigues; Lima, 2022).

Adopting healthy eating habits during this period can have a positive impact positive not only in maternal health, but also in fetal epigenetics, influencing the gene expression and reducing the newborn's predisposition to chronic diseases such as obesity, hypertension and diabetes in adulthood (Martins et al., 2023).

3.2. The importance of essential micronutrients during pregnancy

Micronutrients play a fundamental role in fetal development, in preventing of congenital malformations and in supporting the health of pregnant women. Among the most studied are the folic acid, iron, calcium, iodine, vitamin D, zinc and vitamin B12, all essential for a healthy healthy pregnancy. Deficiency of these elements can compromise vital functions, increasing the risk of miscarriage, pre-eclampsia, intrauterine growth retardation and cognitive changes in newborns (Cavalcante et al., 2022).

Iron, for example, is essential for the synthesis of hemoglobin, and its deficiency the main cause of gestational anemia, which negatively affects both maternal and birth weight. Oral iron supplementation is often recommended from the second trimester, as a way of preventing and correcting the deficiency (Dias; Fernandes, 2021). Calcium plays a fundamental role in both the mineralization process of fetal bones



and in maintaining the stability of the pregnant woman's blood pressure. Adequate intake of this mineral is related to the reduction in the risk of hypertensive complications in pregnancy, such as pre-eclampsia and eclampsia. (Nascimento et al., 2023).

Folic acid, one of the most studied micronutrients during pregnancy, is directly linked to the formation of the neural tube and cell replication. Its deficiency can cause anencephaly and spina bifida, which justifies its routine supplementation before and during first trimester of pregnancy (Menezes; Soares, 2020). In addition, vitamin D has received growing attention due to its relationship with the immune system and bone metabolism, with its deficiency associated with obstetric complications and a higher incidence of gestational diabetes (Leite et al., 2022).

Despite national and international recommendations, studies indicate that many pregnant women still have insufficient intake of essential micronutrients, either due to lack of knowledge, socioeconomic difficulties or lack of nutritional monitoring, the which reinforces the need for more effective public policies and continuous educational actions (Santos et al., 2023).

Nutrition during breastfeeding and its influence on the composition of breast milk
During the breastfeeding period, the mother's nutrition continues to play a role essential in maintaining your health and the quality of the milk offered to the baby. Although the basic composition of breast milk is relatively constant, several studies demonstrate that the profile of fatty acids, fat-soluble vitamins (such as A, D and E), some minerals and even the milk flavor are directly influenced by the lactating woman's diet (Silva et al., 2021).

The first six months of a baby's life are considered critical for his or her immunological and neurological development, and breast milk is their main source of nutrients. In this context, inadequate nutrition on the part of the mother can compromise the nutritional density of milk, affecting infant growth and immune protection, especially in contexts of food insecurity (Rocha et al., 2023). On the other hand, a diet rich in fruits, vegetables, high biological value proteins and healthy fats (such as omega-3) has been associated with better nutritional quality of milk and strengthening of infant immune system (Vieira; Gomes, 2022).

Another relevant point is the increased energy demand of lactation. The production of milk consumes on average 500 kcal more per day, which requires a caloric intake and nutritionally superior to that of non-lactating women. The mother's energy or protein malnutrition



may not only compromise adequate milk production, but also harm your physical and emotional health during the postpartum period (Santos; Mendonça, 2023).

In addition, certain inappropriate eating practices, such as restrictive diets without professional monitoring, indiscriminate use of herbal medicines and excessive consumption of caffeine or alcohol, can negatively impact the composition of the milk, in addition to causing gastrointestinal disorders or irritability in the baby (Costa; Almeida, 2021). Therefore, the nutritional monitoring during lactation is essential to ensure proper nutrition balanced and safe for both mother and child.

3.3. Consequences of inadequate nutrition on maternal and child health

Inadequate nutrition during pregnancy and breastfeeding represents a risk factor significant risk of adverse health outcomes for the mother and child. The malnutrition, whether due to deficiency or excess, can compromise development fetal, impair the mother's postpartum recovery, and increase the incidence of chronic diseases throughout the child's life. Recent studies reinforce the direct relationship between poor nutrition maternal mortality and increased neonatal morbidity and mortality, especially in contexts of social vulnerability (Pereira et al., 2023).

Among the main effects of nutritional deficiency during pregnancy, the following stand out: low birth weight, prematurity, intrauterine growth retardation, congenital malformations and impairment of the fetal immune system. Iron deficiency anemia, for example, is one of the most common complications and can cause intense fatigue, increased risk of infections, childbirth premature birth and difficulties in labor (Barros; Lima, 2021). Caloric intake Excessive consumption of ultra-processed foods is associated with gestational obesity, gestational diabetes mellitus, pregnancy-induced hypertension and metabolic syndrome in baby (Carvalho; Freitas, 2022).

During breastfeeding, poor maternal nutrition can negatively impact the quality of milk, reducing the concentration of essential vitamins and the amount of antibodies transferred to the baby. This affects the infant's immune system, making it more susceptible to respiratory, gastrointestinal infections and allergies (Monteiro et al., 2023). In addition Furthermore, there is evidence that nutritional deficiencies during this period may be associated with cognitive and behavioral disorders in childhood, such as learning difficulties and lower academic performance (Ribeiro; Andrade, 2021).

In the context of public health, these consequences generate lasting impacts, such as increased demand for medical services, increased use of medications, hospitalizations

hospital costs and harm to the social and economic development of families. Thus, ensuring adequate and safe nutrition for pregnant and lactating women is not just an action individual, but a collective health promotion strategy (Silveira et al., 2022).

3.4. Nutritional education and the role of health professionals in guidance feeding of pregnant and lactating women

Nutritional education plays a strategic role in promoting health maternal and child health, especially during pregnancy and breastfeeding. The role active participation of health professionals, such as nutritionists, nurses, doctors and agents community, it is essential to ensure that pregnant and lactating women receive information correct, accessible and based on scientific evidence about adequate nutrition (Lopes et al., 2021).

Individualized nutritional care must consider not only the needs physiological aspects of women, but also cultural, economic and social aspects that influence your food choices. Health education strategies such as discussion groups, of pregnant women, cooking workshops and playful informative materials have shown effectiveness in improving nutritional knowledge and adopting healthier eating habits by part of the women assisted by primary care (Silva; Queiroz, 2023).

However, challenges persist. Many healthcare professionals still do not feel trained to provide updated dietary guidance, and pregnant women often receive fragmented information or information based on popular myths, which compromises the effectiveness of educational actions. The absence of well-structured nutritional protocols in some basic health units and the lack of integration between team members multidisciplinary are also recurring obstacles (Moura; Almeida, 2022).

Institutional initiatives, such as the National Iron and Folic Acid Supplementation Program and the nutritional monitoring during prenatal care offered by the SUS, represent important public strategies aimed at promoting adequate nutrition during pregnancy. However, the effectiveness of these actions is directly linked to the commitment of pregnant woman to follow the guidelines and qualifications of the professionals responsible for her application. (Barbosa et al., 2023).

Therefore, investing in the ongoing training of healthcare teams and in valuing food and nutrition education is essential to break the intergenerational cycle of malnutrition and ensure better health outcomes.

4.0. CONCLUSION

Nutrition during pregnancy and breastfeeding represents one of the pillars fundamental for the promotion of maternal and child health. This literature review allowed us to observe that adequate nutrition during these periods is crucial not only for the healthy development of the fetus and baby, but also for the physical, emotional and metabolic of women.

The evidence analyzed shows that nutritional deficiencies, such as iron deficiencies, folic acid, calcium and vitamin D, are strongly associated with obstetric complications, low birth weight, congenital malformations and delayed childhood growth. Likewise, the excessive consumption of ultra-processed foods and the lack of dietary guidance adequate contribute to the increase in preventable health problems.

During lactation, the nutritional quality of the mother's diet directly influences the composition of breast milk, reflecting in the strengthening of the immune system and in neuropsychomotor development of the infant. Lack of nutrients or excess Inappropriate substances, such as caffeine or alcohol, can compromise this process.

The review also highlighted the importance of food and nutritional education actions, with the indispensable role of health professionals in monitoring and guiding pregnant and lactating women. Although there are public policies and supplementation programs in Brazil, its effectiveness still depends on structural investments, continuous training of professionals and educational strategies closer to the reality of SUS users.

It is therefore concluded that guaranteeing the right to adequate food and information quality nutritional intake during pregnancy and breastfeeding is an essential strategy for reduce health inequalities and promote a healthier future for mothers and children. It is is a commitment that goes beyond the individual scope, requiring integrated actions and supported by scientific evidence.



6.0. REFERENCES

- BARBOSA, KR et al. Public policies and promotion of healthy eating in prenatal care: challenges and perspectives. **Revista de Saúde Coletiva**, v. 33, n. 1, p. 113–121, 2023.
- BARROS, HC; LIMA, VS Anemia during pregnancy: causes, consequences and approaches. **Brazilian Journal of Maternal and Child Health**, v. 21, n. 3, p. 847–853, 2021.
- CARVALHO, JM; FREITAS, LD Effects of maternal obesity and ultra-processed diet during pregnancy. **Cadernos de Saúde Pública**, v. 38, n. 4, p. 1–9, 2022.
- CAVALCANTE, MP et al. Nutritional deficiencies in pregnant women: an integrative literature review. **Brazilian Journal of Maternal and Child Health**, v. 22, n. 4, p. 1113–1121, 2022.
- COSTA, MR; ALMEIDA, AF Food interference in breastfeeding: an integrative review. **Current Nursing Journal**, v. 95, n. 34, p. 87–94, 2021.
- DIAS, RA; FERNANDES, MC Iron supplementation during pregnancy: impact on maternal and fetal health. **Brazilian Journal of Gynecology and Obstetrics**, v. 43, n. 3, p. 231–238, 2021.
- FERREIRA, TM et al. Nutritional needs and dietary supplementation during pregnancy: a systematic review. **Brazilian Journal of Gynecology and Obstetrics**, v. 42, n. 8, p. 499–506, 2020.
- GIL, AC **Social research methods and techniques**. 7th ed. São Paulo: Atlas, 2017.
- LEITE, JDF et al. Vitamin D deficiency in Brazilian pregnant women: causes and consequences. **Cadernos de Saúde Pública**, v. 38, n. 2, p. 1–10, 2022.
- LOPES, MJS et al. Food and nutrition education in the context of primary care: strategies for pregnant women. **Brazilian Journal of Health Promotion**, v. 34, p. 1–9, 2021.
- MARTINS, AG et al. Gestational feeding and fetal programming: implications for future health. **Ciência & Saúde Coletiva**, v. 28, n. 2, p. 453–461, 2023.
- MENEZES, TP; SOARES, AV Role of folic acid in the prevention of birth defects: current evidence. **Interdisciplinary Journal of Health**, v. 10, n. 1, p. 65–72, 2020.
- MONTEIRO, RL et al. Breast milk quality and maternal dietary factors: a systematic review. **Revista Paulista de Pediatria**, v. 41, p. e2022315, 2023.
- MOURA, LM; ALMEIDA, RT Barriers faced by health professionals in nutritional education for pregnant women. **Revista de Atenção à Saúde**, v. 20, n. 3, p. 77–83, 2022.
- NASCIMENTO, EM et al. Calcium during pregnancy: adequate consumption and maternal-fetal benefits. **Nutrição em Pauta Journal**, v. 34, n. 1, p. 34–39, 2023.
- PEREIRA, LS et al. Impacts of food insecurity during pregnancy and the postpartum period: a critical analysis. **Revista de Saúde Pública**, v. 56, n. 2, p. 239–247, 2023.



RIBEIRO, TF; ANDRADE, ME Effects of maternal nutrition on child neuropsychomotor development. **Journal of Pediatrics**, v. 97, n. 6, p. 681–687, 2021.

ROCHA, LV et al. Nutritional composition of breast milk and associated factors in Brazilian women. **Jornal de Pediatria**, v. 99, n. 2, p. 165–172, 2023.

RODRIGUES, DS; LIMA, EF Impact of ultra-processed foods on the diet of Brazilian pregnant women. **Public Health Journal**, v. 56, p. 1–9, 2022.

SANTOS, BL et al. Public policies and micronutrient supplementation in pregnant women in Brazil: challenges and advances. **Saúde em Debate**, v. 47, n. 136, p. 1054–1064, 2023.

SANTOS, PA; MENDONÇA, DC Energy requirements of lactating women and breast milk production: a narrative review. **Brazilian Journal of Clinical Nutrition**, v. 38, n. 1, p. 24–31, 2023.

SILVA, DF; QUEIROZ, AM Healthy eating workshops for pregnant women: experience report at UBS. **Revista Ciência & Saúde**, v. 16, n. 4, p. 32–38, 2023.

SILVA, GT et al. Maternal diet and milk composition: implications for newborn health. **Journal of Maternal and Child Nutrition**, v. 14, n. 3, p. 144–150, 2021.

SILVEIRA, MC et al. Inadequate nutrition and consequences for maternal and child public health. **Ciência & Saúde Coletiva**, v. 27, n. 5, p. 1711–1718, 2022.

VIEIRA, ML; GOMES, AL Dietary profile of lactating women and implications for infant health. **Cadernos de Alimentação e Nutrição**, v. 10, n. 2, p. 55–62, 2022.