High-Risk Pregnancy: Associated Factors, Impacts, and the Importance of Prenatal Care.

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ARTIGO DE REVISÃO

ABSTRACT

This article addresses the theme of high-risk pregnancy, discussing its definition and the many factors that can lead a pregnancy to be considered risky. Based on the analysis of the data obtained through studies published in medical sites and journals, it was possible to correlate some factors, such as pre-existing conditions or those acquired during the pregnancy, to a greater risk during the course of the gestational period. The studies also show the possible ways to approach such factors when discovered, avoiding aggravations. Thus, the importance of thorough prenatal care becomes clear, in such a way as to allow the early discovery of any abnormalities, enhancing the chances for an efficient treatment that maintains the safety of the gestation.

Keywords: High-risk pregnancy, prenatal, safety.

Gestação de alto risco: fatores associados, impactos e a importância do acompanhamento pré-natal

RESUMO

Este artigo aborda o tema gestação de alto risco, discorrendo sobre sua definição e os diversos fatores que podem levar uma gestação a ser considerada arriscada. Com base na análise de dados obtidos através de estudos publicados em sites e revistas médicas, foi possível correlacionar alguns fatores, como condições pré-existentes ou adquiridas durante a gestação, a um maior risco no decorrer do período gestacional. Os estudos mostram também como seria possível abordar tais fatores quando descobertos, evitando agravamentos. Deste modo, torna-se clara a importância de um acompanhamento pré-natal minucioso que possibilite a constatação precoce de qualquer anormalidade, aumentando a chance de um tratamento eficaz que preserve a segurança da gestação.

Palavras-chave: Gestação de risco, pré-natal, assistência pré-natal.

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INTRODUCTION

According to the Ministry of Health (MS), a high-risk pregnancy is one that poses any threat to the pregnant woman or the baby. Epidemiologically, data prove that half of the population has the possibility of being affected by some type of injury during pregnancy (Brazil, 2023). Pregnancy is a physiological process, which in theory should follow the gestational period without complications. However, in some cases, certain women have comorbidities or develop injuries during the gestational period (Fernandes et al., 2019).

The various factors that may be associated with high-risk pregnancy are identified mainly during prenatal care, the monitoring period for the pregnant woman and the fetus, while the majority of cases of complications are due to possible morbidities during the pregnancy itself or a previous history, that is, underlying pathologies, since the epidemiological profile of perinatal morbidities is intrinsic to cases of chronic non-communicable diseases, such as hypertensive gestational syndromes, obesity and diabetes, associated with routine inadequate nutritional intake (Gadelha et al., 2020; Soares, 2021).

In Brazil, 80% of maternal deaths occur due to direct obstetric causes and 20% are due to indirect obstetric causes, which originate from pathologies that existed before pregnancy or developed during pregnancy. In the Brazilian scenario, the main aggravating factors are chronic diseases such as hypertension, followed by hemorrhages and infections (Costa et al., 2021). Changes in the lifestyle of pregnant women, such as nutritional modification during pregnancy, have a significant impact on clinical improvements in the cardiovascular risk of pregnant women after pregnancy-induced hypertension (Macphail et al., 2024).

Infections in pregnant women are generally asymptomatic. This type of complication in pregnant women can lead to many perinatal problems. Bacteremia and transient or intermittent skin and tissue infections are directly related to urinary tract infections, which can cause intrauterine growth restriction, ruptured membranes, and premature birth. Infections have a high rate of colonization in offspring, which in turn leads to a higher incidence of hospitalization in Intensive Care Units (ICU). These

newborns generally have respiratory problems (Vidal Amaral et al., 2022; Arabaci et al., 2023).

Primary care services and professionals seek greater humanization in the obstetric and neonatal sector, based on characteristics related to the care flow process, which in turn is the principle of this entire humanization process (Soncini et al., 2019; Coelho et al., 2024). For greater humanization of the obstetric sector, due professional improvement is necessary, so that it provides early identification and screening of maternal pathologies, including those related to the mental health of the pregnant woman during pregnancy, so that due care minimizes the consequences of these disorders in mothers and babies (Souza et al., 2023).

Reducing maternal mortality due to gestational complications remains a significant challenge for health services and Brazilian society, even with increased investment in several regions of the country in actions aimed at strengthening primary maternal health care during pregnancy. Despite these efforts, complication rates during the gestational and postnatal periods remain worrying (Alves et al., 2021).

Identifying risk factors related to high-risk pregnancies is an essential strategy for managing measures aimed at consolidating the perinatal network, with the aim of reducing both maternal and neonatal mortality (Demitto et al., 2018). This scenario highlights the relevance of the topic of "high-risk pregnancy" in the health area, since it encompasses conditions that can compromise the health of the pregnant woman, the fetus, or both, requiring specialized care and continuous monitoring.

The decision to investigate this topic is justified by the need to deepen the understanding of the factors that contribute to the occurrence of these pregnancies and the most effective strategies to minimize complications. In this way, the aim is to promote comprehensive, qualified and humanized care. The general objective of this research is to analyze the risk factors associated with high-risk pregnancies and propose intervention measures that contribute to the reduction of adverse outcomes, improving the quality of prenatal care and promoting better results for mothers and newborns.

METHODOLOGY

This study is characterized as an integrative review using the methodology of formulating the research question, developing strategies with the objective of obtaining the necessary data from the articles that integrated the results. A guiding question was used: "What are the risk factors associated with high-risk pregnancies and the intervention measures that contribute to reducing adverse outcomes and ensuring better quality prenatal care, as well as better results for mothers and newborns?".

The search was carried out in the main databases: *Latin American* and *Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis* and *Retrieval System Online (MEDLINE/PubMed®), Scientific Electronic Library Online (SciELO) and Virtual Health Library (BVS)*. The *MESH Medical Subject Headings* and *DeCs (Health Sciences Descriptors)* were used as descriptors in the search strategy. The search strategy followed the criteria of the *Boolean* operator "*AND*" that combines terms. The terms used were: high-risk pregnancy "*AND*" prenatal "*AND*" prenatal care, during the months of January to March 2024.

The inclusion criteria were articles published up to 5 years ago, articles with a systematic or integrative literature review methodology and full text. The exclusion criteria were articles published more than 5 years ago, articles with a methodology contrary to that investigated and incomplete texts. The results were presented through a sample table, presenting the title, authors, year, database, objectives and results.

RESULTS

To compose the results of this research, 13 studies were included, selected according to the criteria defined in the methodology. All included studies were carefully analyzed, as all are relevant to the composition of the work (Table 1).

Table 1: Summary of the main results highlighted by author/year, title, objective and results.

Autor/ ano	Título	Objetivo	Resultados
Ahmed et al.,2024	Elevated uric acid in gestational diabetes and its risk on pregnancy	To evaluate the consequences of high serum uric acid levels in pregnant women and newborns.	Maternal serum uric acid in diabetic pregnant women can predict the occurrence of both neonatal and maternal complications, therefore, monitoring is recommended,

	outcomes		through routine exams, throughout the pregnancy, especially in the third semester.
Cabral et al., 2023	Prevalência de uso de álcool na gestação, Brasil, 2011-2012	To determine the proportion of pregnant women who engage in excessive alcohol consumption during pregnancy and identify the socioeconomic characteristics of these women.	Of the pregnant women who participated in the study, 10% presented alcohol misuse, with the prevalence of these women in the South region. In addition, the intrinsic relationship between dipsomania and the situation of social vulnerability was reported, that is, in pregnant women belonging to the lower economic class, of non-white skin color, without partners during pregnancy and without paid work.
Carvalho et al., 2023	Gestational hypertension as a factor associated with chronic kidney disease: the importance of obstetric history of women undergoing hemodialysis	To consider the medical, sociodemographic and obstetric history of women on hemodialysis.	Women who underwent hemodialysis due to chronic kidney disease were more likely to develop hypertension during pregnancy or up to one year after giving birth.
Damayanti et al., 2019	Integrated information system for early detection of maternal risk factors based on continuum of care approach of mother and toddler cohorts	To clarify how the use of an integrated information system can facilitate the identification and necessary care in a high-risk pregnancy.	The study confirmed the viability of using the software to aid in the early recognition of high-risk pregnancies, given that it will assist both in more effective data collection and in better availability of information obtained during prenatal care.
Farland et al.,	Endometriosis	To elucidate the	Endometriosis is seen as a

2020	and risk of adverse pregnancy outcomes	relationship between endometriosis and undesirable outcomes during pregnancy.	risk factor, which is directly related to the occurrence of Gestational Diabetes Mellitus and hypertensive disorders, and it also increases the chance of spontaneous abortion and ectopic pregnancy.
Im et al., 2023	Risk factors and pregnancy outcomes of antepartum hemorrhage in women with placenta previa	To correlate placenta previa (PP) disorder with risk factors for antepartum hemorrhage (APH).	No direct relationship was found between the occurrence of HPA and cases of PP, however, a higher incidence of premature births and neonatal complications was observed when compared to cases of PP without HPA.
Lee et al., 2024	Risk factors for pregnancy-associated heart failure with preserved ejection fraction and adverse pregnancy outcomes:a cross-sectional study	To clarify the increase in Heart Failure in pregnant women with Preserved Ejection Fraction (HFpEF), given the small number of studies that present risk factors and possible complications.	Although the number of women who presented HFpEF is low, when compared to the total number of cases presented, an intrinsic relationship was observed between comorbidity and advanced maternal age, multiple pregnancy, rheumatic disease, pregnancy-induced hypertension and pre-eclampsia and eclampsia.
Morales-Suárez-Varela et al., 2022	Vitamin D-related risk factors for maternal morbidity during pregnancy: a systematic review	Relate the adequate use of vitamin D as crucial in the prophylaxis of comorbidities that may be presented by pregnant women at different stages of pregnancy.	It was observed that patients with low vitamin D levels are more susceptible to gestational diabetes, preeclampsia, premature birth and other complications during pregnancy. In addition, the literature review highlighted the prevalence of low vitamin D levels in pregnant women and, consequently, in newborns.

Parikh et al., 2021	Adverse pregnancy outcomes and cardiovascular disease risk: unique opportunities for cardiovascular disease prevention in women	Analyze comorbidities presented by women during prenatal care, including hypertension, cardiovascular diseases, placental abruption, among others.	Hypertensive disorders during pregnancy, gestational diabetes, premature placental abruption and pregnancy loss increase the chances of developing cardiovascular diseases, highlighting the need for physical activities throughout pregnancy, aiming to reduce the chances of cardiac complications.
Pfaller et al., 2021	Risk associated with valvular regurgitation during pregnancy	Establish regularity of several cardiac episodes in pregnant women with mild or serious valvular lesions.	It was concluded that pregnant women with aortic and pulmonary regurgitation have a lower chance of developing heart disease during pregnancy, when compared to those who suffer from mitral and tricuspid regurgitation.
Pinheiro et al., 2019	Advanced maternal age: adverse outcomes of pregnancy, a meta-analysis	To analyze whether women aged ≥ 35 years had greater complications during prenatal and postpartum periods when compared to younger pregnant women.	Women aged ≥ 35 were more likely to have a more pronounced weight gain during pregnancy, in addition to a higher rate of comorbidities, such as gestational diabetes. There was also a higher incidence of premature births, more cases of perinatal mortality, as well as a greater need for hospitalizations in the neonatal ICU. It is worth noting that women > 40 years old had higher rates of complications during pregnancy.
Sanine et al., 2019	Atenção ao pré-Natal de gestantes de risco e fatores associados no município de	Analysis of the profile of pregnant women with high-risk pregnancies who had prenatal care in São Paulo.	Most of the patients in the study were active users of the SUS, did not have health insurance, and received prenatal care from the first months of pregnancy. These

	São Paulo, Brasil		characteristics provide care at different stages of pregnancy, as well as integrated treatment between AE and PHC.
Szyhta et al., 2023	Fatores de risco para óbito perinatal em gestantes de alto risco de um hospital terciário de Curitiba-PR, Brasil: estudo caso-controle	To assess the risk factors for perinatal fatalities in a referral hospital for high-risk pregnancies.	The characteristic variables raised by the study were: mother's blood type; prenatal care; gestational age; birth weight and congenital anomalies.

Source: Authors, 2024.

When analyzing the various variables associated with maternal and child health in the context of high-risk pregnancies, the relevance of early initiation of prenatal care stands out, while the reviewed studies emphasize that early monitoring of risk factors, such as advanced maternal age, blood type, birth weight and presence of congenital anomalies, contributes significantly to a safer pregnancy (Szyhta et al., 2023). In addition, the importance of the care provided to the populations served by the Unified Health System (SUS) is highlighted, which prioritizes the principles of universality and comprehensiveness in health care in Brazil.

According to Pinheiro et al. (2019) and Sanine et al. (2019), there is an intrinsic relationship between the socioeconomic conditions of pregnant women and increased gestational risk, and this scenario is particularly observed in women over 35 years of age, with low levels of education, unemployment, or in their first pregnancy. In addition, health conditions, such as a history of pelvic and peritubal adhesions, problems in the reproductive system, previous miscarriages, and comorbidities, especially those related to hypertensive disorders, aggravate the risks during pregnancy. Morales-Suárez-Varela et al. (2022) highlight the importance of vitamin D for pregnant women, both in supporting the maternal organism and in the healthy development of the fetus. A deficiency in this vitamin is associated with serious risks, such as postpartum hemorrhage, preeclampsia, gestational diabetes, premature birth, and embolisms,

including pulmonary embolism. Women with a history of endometriosis are also more vulnerable to these complications (Farland et al., 2020).   Vitamin D is essential for biological processes such as cellular regulation and is transferred to the fetus through the placenta throughout pregnancy. However, factors such as higher metabolic demand, low sun exposure, and inadequate diet make pregnant women more susceptible to deficiency. Thus, effective prenatal care, which includes monitoring vitamin D levels and adequate supplementation, can significantly reduce maternal and fetal risks.

Although heart failure with preserved ejection fraction (HFpEF) has no precise definition, it combines clinical symptoms of heart failure with evidence of cardiovascular abnormalities. During pregnancy, HFpEF is associated with a higher incidence of perinatal complications, such as preeclampsia, which, without adequate treatment, can progress to eclampsia, posing a risk to the life of the mother and fetus (Lee et al., 2024).

Data organization is a crucial aspect in maternal and child health research. In a study conducted by Damayanti et al. (2019) in Indonesia, a digital program was developed to replace paper-based systems, aiming to improve the storage and management of information on pregnant women. The program proved to be effective in reducing maternal and child mortality associated with eclampsia and preeclampsia, optimizing data collection and analysis.

Among the modifiable factors associated with high-risk pregnancies, alcohol consumption during pregnancy is of particular concern due to its teratogenic effect. Despite the gaps in the literature on this relationship, it is essential to better inform pregnant women about the harms of alcohol consumption to avoid complications to the fetus (Cabral et al., 2023). In addition, arterial hypertension (APH) is associated with higher risks of neonatal complications in preterm births, especially in women with chronic kidney disease undergoing hemodialysis, who are more predisposed to developing APH (Im et al., 2023; Carvalho et al., 2023).

Early identification of risk factors and implementation of prophylactic measures are essential to reduce gestational complications; for example, treating obesity can help prevent gestational hypertension and preeclampsia (Damayanti et al., 2019). Additionally, screening the socioeconomic profile of pregnant women is essential, allowing specific characteristics, such as alcohol abuse, to be addressed by a

multidisciplinary team of medical and social professionals, ensuring comprehensive care (Dejong et al., 2018).

FINAL CONSIDERATIONS

Based on the analysis of theoretical frameworks, it is clear that research into high-risk pregnancies is extremely relevant in the field of global health, considering the significant impacts of these conditions on maternal and fetal health. Factors such as advanced maternal age, previous comorbidities, socioeconomic inequalities, nutritional deficiencies, such as vitamin D, and harmful habits, such as alcohol consumption, play a determining role in the evolution of these pregnancies, making it essential to recognize and address these factors in the context of prenatal care.

Therefore, the adoption of evidence-based intervention strategies is essential to minimize complications and improve gestational outcomes. Thorough prenatal monitoring allows for the early identification of abnormalities and risk conditions, increasing the chances of effective treatments that preserve the safety of the pregnancy and promote better results for mothers and newborns.

In this sense, it is essential to guarantee comprehensive, qualified and humanized prenatal care, in order to meet the individual demands of each pregnant woman, promoting not only safety and well-being, but also contributing to the construction of a more equitable and efficient health system.

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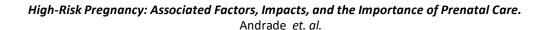
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