



Prenatal care for riverine pregnant women in Brazil: scoping review


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Abstract

Objectives: to analyze how prenatal care has been provided to riverine pregnant women in Brazil.

Methods: this is a scoping review conducted according to the Joanna Briggs Institute Reviewer's Manual for Scoping Reviews and PRISMA-ScR guidelines. Publications in Portuguese, English, and Spanish were included, without time restrictions, identified in the LILACS, MEDLINE, EMBASE, Scopus, Web of Science databases and in the grey literature (Google Scholar).

Results: nine studies met the inclusion criteria. The analysis allowed grouping the findings into two areas: (1) strengths determining the quality of prenatal care, related to compliance with protocols, innovation in service delivery, and pregnant women's recognition of the importance of prenatal care; and (2) challenges affecting care, including geographical barriers, shortage of supplies and professionals, staff turnover, and difficulties in continuity of care.

Conclusion: significant gaps remain in the prenatal care offered to riverine pregnant women in the Amazon, especially in the States of the Amazon and Pará, despite some advances. The findings reinforce the need for territorialized strategies to ensure universality, equity, and comprehensiveness of care.

Key words *Prenatal care, Pregnant women, Rural health services, Riverine*



Introduction

Prenatal care is an essential component of maternal health care, especially in vulnerable populations such as pregnant women living in riverine communities in the Amazon. In these regions, geographical barriers, a shortage of professionals, and structural limitations compromise access to and continuity of care, reflecting inequalities in the *Sistema Único de Saúde* (SUS).¹ (Public Health System). Despite expanded coverage, prenatal care in Brazil is still marked by late initiation of follow-up, an insufficient number of consultations, and low rates of recommended tests.^{2,3}

A similar situation occurs in other countries: studies show that indigenous women in Panama and Canada face geographical, cultural, and social barriers to accessing quality obstetric care, highlighting that this is a global challenge in contexts of vulnerability.⁴⁻⁵

To address this reality, Brazil has implemented various initiatives focused on maternal health. The *Programa de Humanização do Pré-Natal e Nascimento* (2000) (Program for the Humanization of Prenatal Care and Birth) marked the beginning of efforts to ensure quality and comprehensive care. In the following years, policies such as *Atenção Integral à Saúde da Mulher* and the *Pacto pela Redução da Mortalidade Materna e Neonatal* (2004) (Comprehensive Women's Health Care and the Pact for the Reduction of Maternal and Neonatal Mortality) expanded this scope. More recently, the *Rede Alyne* (2024) (Alyne Network) and the *Estratégia QualiNEO* (2024) (QualiNEO Strategy) incorporated a focus on regional and racial equity, in addition to improving the quality of neonatal care.⁶⁻⁸

In the field of specific policies, the *Política Nacional de Saúde Integral das Populações do Campo, da Floresta e das Águas* (published in 2013) (National Policy for Comprehensive Health Care for Rural, Forest, and Riverine Populations) stands out. It is based on the principle of equity and aims to ensure access to the SUS and promote the social inclusion of rural and riverine communities.⁹

Despite advances, gaps persist in the provision of services for pregnant women living in riverine communities, aggravated by the seasonality of rivers, population dispersion, and precarious socioeconomic conditions.¹⁰ These barriers require territorialized, intersectoral, and evidence-based strategies. In this context, this study aims to map how prenatal care has been provided to pregnant women living in riverine communities in Brazil, through a scoping review.

Methods

This is a Scoping Review (SR), prepared based on the methodology developed by the Joanna Briggs Institute Reviewer's Manual for Scoping Reviews¹¹ and recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses - Extension for Scoping Reviews (PRISMA-ScR).¹² The protocol for this review was previously registered on the Open Science Framework (OSF) platform, under DOI number: 10.17605/OSF.IO/X6C3Q.¹³

The acronym PCC was used to formulate the guiding question, where: Population (P) is pregnant women living in riverine communities, Concept (C) is prenatal care, and Context (C) is Brazil. Thus, the question was: How has prenatal care been provided to pregnant women living in riverine communities in Brazil?

Based on this question, the controlled vocabularies of the main terms and their synonyms in Portuguese, English, and Spanish were identified in the *Descritores em Ciências da Saúde* (DeCS) (Health Sciences Descriptors) from *Biblioteca Virtual em Saúde* (BVS), (Virtual Health Library), and the Medical Subject Headings (MeSH) were consulted for English. In conducting the searches, the Boolean operators "AND" and "OR" were used, with specific strategies for each database. Preliminary searches were also conducted in the databases to expand the free vocabulary (synonyms).

Studies available in the scientific and grey literature were considered. The inclusion criteria were: studies addressing prenatal care for pregnant women living in riverine areas in Brazil, with qualitative and quantitative designs, reviews, cohort studies, case-control studies, randomized clinical trials, published in English, Spanish, or Portuguese, and without a time limit, justified by the scarcity of the topic. The exclusion criteria were: letters to the editor, editorials, experience reports, opinions, studies that did not meet the objective of the review, and studies focused on care for women during childbirth and postpartum.

The databases used in the searches were: *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS) (Latin American and Caribbean Health Sciences Literature), Medical Literature Analysis and Retrieval System Online (MEDLINE) via PUBMED of the U.S. National Library of Medicine (NLM), Excerpta Medica database (EMBASE), Scopus, and Web of Science. Due to the scarcity of publications in scientific journals on the subject, grey literature sources such as the CAPES Thesis Database and the *Biblioteca Digital Brasileira de*

Teses e Dissertações (Brazilian Digital Library of Theses and Dissertations) were included. Finally, three searches were performed on Google Scholar (one in each language) and publications from the first ten pages of results were selected.

After the searches, the articles were exported in RIS format to the Rayyan QCRI systematic review software from the Qatar Computing Research Institute to exclude duplicates. Publications from the grey literature were selected manually.

The selection of studies was performed independently by two reviewers (ESN and JJ), ensuring methodological reliability and avoiding bias. In cases of disagreement, a third reviewer (FAG) was consulted to resolve such disagreements. The screening was conducted in two stages: reading the titles and abstracts of the publications found, followed by reading the full texts.

In accordance with the PRISMA-ScR¹² recommendations, the selection process is presented in a flowchart. We chose not to perform a critical appraisal of the included studies, as this is an optional component in scoping reviews.

Results

A total of 10,864 publications were identified in the databases and 394 in the grey literature, totaling 11,258 publications. After excluding duplicates and applying the eligibility criteria, new studies comprised the final sample of this review. The selection process is detailed in the PRISMA flowchart (Figure 1).

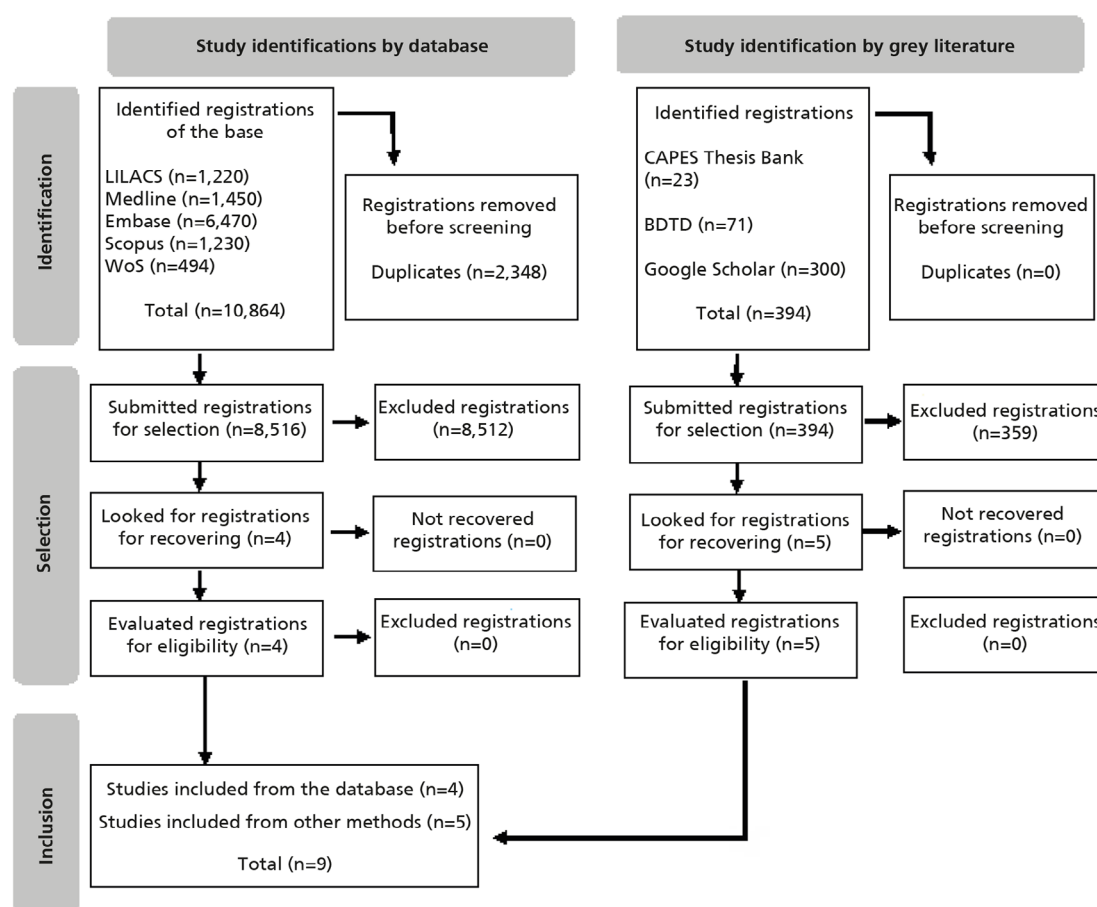
The nine studies included on prenatal care for pregnant women living in riverine communities in Brazil¹⁴⁻²² were conducted mainly in the States of the Amazon^{16-18,20,22} and Pará,^{14-15,19,21,22} as illustrated in Figure 2.

Qualitative designs predominated,^{14-15,17,19} with semi-structured interviews with pregnant women living in riverine communities and health managers and professionals, in addition to three quantitative studies^{18,20-21} of a descriptive nature, and two with a quantitative/qualitative approach.^{14,22} Most of the studies were conducted in the last five years from the date of data collection.¹⁸⁻²²

However, none of the studies mentioned the participation of the *Distritos Sanitários Especiais*

Figure 1

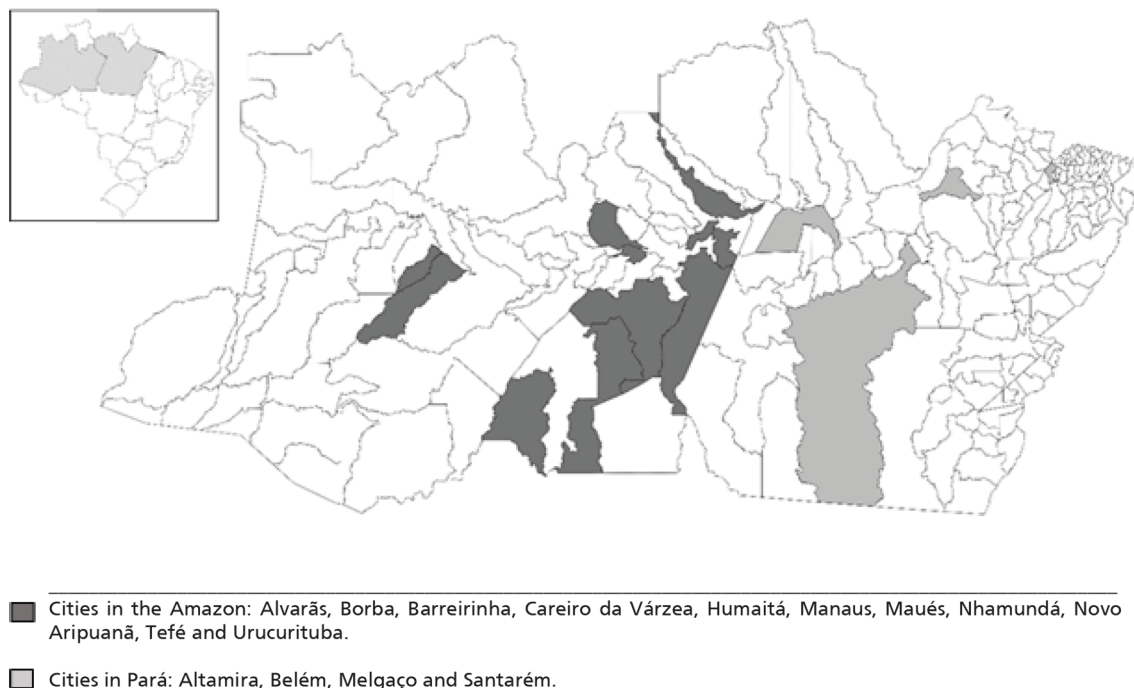
Flowchart (PRISMA-ScR) identifying the primary studies included in the scoping review.



Source: modified from Page MJ *et al.*³²

Figure 2

Distribution of cities covered by studies included in the scope review on prenatal care for pregnant women living in riverine communities in Brazil. Brazil, 2025.



Indígenas (DSEI) (Special Indigenous Health Districts) in prenatal care actions, even in riverside communities that also belong to indigenous populations.

The data extracted from the studies are presented in Table 1, containing information about the authors, year of the study or publication, location, type of dissemination, design, and main results. These findings were summarized narratively and then grouped into thematic axes that are explored in depth in the Discussion section.

Discussion

The nine studies analyzed show that prenatal care offered to pregnant women living in riverine communities in Brazil remains limited,¹⁴⁻²² although some positive aspects were observed in geographically remote and socially vulnerable areas. In general, care is fragmented, especially in regions with the highest concentration of this population. Based on these findings, the discussion was organized into thematic areas that address the strengths and challenges related to the quality of prenatal care.

Determinants strength in the quality of prenatal care

Among the strengths identified, pregnant women's recognition of the importance of prenatal care stands out, which favors adherence, albeit partial, to the

recommendations established by care protocols.^{23,24} In some contexts, studies reported the provision of rapid testing, micronutrient supplementation, and home visits, demonstrating local efforts to expand access to care.²⁵

The work of frontline nurses was also highlighted as a relevant strategy, both for conducting consultations and providing educational guidance, strengthening the bond with the community. These findings converge with the national literature, which recognizes Nursing as a protagonist in the Primary Care, especially in areas of difficult access,²⁶ and with international evidence highlighting the effectiveness of multidisciplinary care in vulnerable populations.^{24,27}

Challenges that impact the quality of prenatal care

Despite local initiatives, studies have highlighted important challenges for the provision of prenatal care in riverside communities. Geographic barriers, dependence on river transport, and the seasonality of river flooding make it difficult to maintain continuity of consultations and timely access to services.^{14,19,21,28-29}

Structural limitations^{14-16,18-20} have also been reported, such as lack of medicines, scarcity of complementary tests close to communities, and precarious facilities, associated with high turnover of professionals, factors that undermine continuity of care.³⁰

Table 1

Description of primary studies included in the scoping review. Brazil, 2025.			
Study identification	Type of publication	Design	Main results
Souza <i>et al.</i> , ¹⁴ 2013 Conducted in Belém/PA Pregnant women in the riverine	Article	Qualitative descriptive	Challenges: the challenges faced by pregnant women in the riverine are not limited to geographical distance, but also encompass structural (human resources), organizational (care flows), communication (limitations in health education), and social and environmental determinants. This city of barriers highlights the complex and multidimensional nature of inequalities in access to prenatal care.
Pereira <i>et al.</i> , ¹⁵ 2018 Conducted in Belém/PA Pregnant women in the riverine	Article	Qualitative descriptive	Strengths and challenges: highlights the dual nature of prenatal care in riverside areas: on one hand, there are strengths related to adherence, appreciation by pregnant women, and the educational and preventive potential of prenatal care; on the other hand, critical structural challenges persist, such as the lack of specialized professionals and the absence of basic clinical procedures, which undermine the continuity and effectiveness of care.
Souza, ¹⁶ 2018 Conducted in Manaus/AM Women registered in the territory	Master's thesis	Qualitative/quantitative descriptive	Strengths and challenges: Mobile care provided by the River Mobile Unit is an important strength for expanding access and maintaining adequate levels of care when compared to other realities. However, this strategy is marked by structural and organizational challenges, such as limited time of stay, registration failures, lack of coordination with the health network, and insufficient material resources, which compromise the comprehensiveness and continuity of prenatal care
El Kadri <i>et al.</i> , ¹⁷ 2019 Conducted in Borba/AM	Article	Qualitative descriptive	Strengths and challenges: The implementation of the Mobile River Unit in Borba-AM represents a structural strength, as it expands coverage and improves the quality of healthcare for riverside populations. The strategy faces challenges related to environmental, temporal, and human resource constraints, in addition to the need to incorporate social and cultural diversity into care planning.
Cabral <i>et al.</i> , ¹⁸ 2020 Conducted in Alvarães/AM Riverine women	Article	Quantitative description	Challenges: Reproductive health in riverine contexts is marked by structural and social vulnerabilities, such as early pregnancies, high fertility, and pregnancy losses. These factors are compounded by insufficient or non-existent prenatal care, evidenced by births without adequate monitoring and the absence of humanized programs. Furthermore, the predominance of a medicalized and hospital-centered model of care, without family planning policies, deepens inequalities and compromises the comprehensiveness of care.
Figueira <i>et al.</i> , ¹⁹ 2020 Conducted in Santarém/PA Mobile River Unit Managers	Article	Qualitative	Challenges: prenatal care in riverside areas is impacted by multiple structural and social barriers that go beyond geographical difficulties. The precarious nature of labor relations and staff turnover compromise the continuity of care. The scarcity of material resources and basic infrastructure, coupled with the lack of training for community agents, weakens the quality of care. The lack of coordination with the care network hinders the comprehensiveness and effectiveness of prenatal care.
Lima <i>et al.</i> , ²⁰ 2021 Conducted in cities of the State of the Amazon	Article	Quantitative descriptive	Strengths and challenges: the creation of the Mobile River Unit represents an organizational and access strength, expanding the coverage of basic care in most of the riverside of the cities investigated. Structural and logistical challenges persist, such as localized reduction in coverage, staff shortages, and extensive travel, which undermine effectiveness. Added to this are the lack of supplies and tests, weaknesses in the link with the healthcare network, and low productivity in prenatal care, which compromise the comprehensiveness and quality of care.
Lourinho e Sousa, ²¹ 2021 Conducted in Altamira/PA Pregnant women, women in labor, and puerperal women	Undergraduate thesis	Quantitative analysis	Challenges: There is a scenario of serious deficiencies in prenatal care coverage and quality, marked by socioeconomic and demographic inequalities that marginalize pregnant women. Added to these vulnerabilities are geographical barriers, which lead to late adherence and an insufficient number of consultations. The fragility of clinical records compromises adequate monitoring and continuity of care.
Silva, ²² 2023 Conducted in Melgaço/PA	Master's thesis Dissertação de mestrado	Quantitative/qualitative analysis	Strengths and challenges: Although prenatal, delivery, and postpartum services are formally available in the municipalities studied, the analysis shows that this availability does not translate into effective access. The main challenges lie in the concentration of care in urban centers, the instability of human resources, and the lack of essential supplies and tests. In addition, poor logistics (transportation, UMF, and restricted schedule) compromise coverage, resulting in alarming percentages of pregnant women without any prenatal consultations, revealing the fragility of universal care.

Furthermore, there was insufficient integration between primary care and hospital referral services,^{16,19-20} making it difficult to link pregnant women to the place of delivery. This weakness compromises the quality and effectiveness of prenatal care,¹⁹ in contrast to international recommendations that emphasize coordination in care networks.³¹

Implications for practice and research

The findings of this review highlight the need to strengthen public policies to promote health equity.^{18,20} The *Rede Cegonha* (Stork Network), restructured and expanded in the form of the *Rede Alyne*⁷ (Alyne Network), demonstrates a strategic improvement in maternal and child care, with a focus on comprehensive and humanized care, especially for black and vulnerable populations. These changes reflect a continuous effort to adapt and improve national strategies, reinforcing the importance of consistent and sustained policies.

The *Política Nacional de Saúde Integral das Populações do Campo, da Floresta e das Águas* (PNSIPCF) (National Policy for Comprehensive Health Care for Rural, Forest, and Water Populations) is an important step forward in recognizing the specificities of riverine populations. However, its implementation is still weak and poorly integrated with local services. Therefore, we reinforce the need for stronger coordination between primary care and referral hospitals, following WHO recommendations to ensure timely access, comprehensiveness, and continuity of care.³¹

The lack of studies on prenatal care for pregnant women in riverine communities in Brazil shows a gap in scientific knowledge. Most studies are qualitative and focus on the Amazon^{16-18,20,22} and Pará,^{14-15,19,21,22} which makes it difficult to generalize the results, reinforcing the need for multicenter studies with mixed methodologies that include more regions of Brazil. In addition, there is a need for more studies evaluating interventions to improve the quality of prenatal care in these communities, which can help strengthen health policies and reduce inequalities.

Final considerations

This scoping review identified both positive aspects and significant challenges in the context of prenatal care for pregnant women living in riverine communities in Brazil. The studies show that, despite local initiatives and the dedicated work of health professionals, such as nurses, care is still fragmented and limited. This reflects inequalities in access to and quality of health care.

The findings reinforce the urgency of creating strategies that strengthen primary care in isolated areas, ensuring equity, comprehensiveness, and universality in

prenatal care. To overcome geographical and structural barriers, it is essential to invest consistently, promote dialogue between managers, professionals, and the communities themselves, and encourage scientific research that supports public policies adapted to the particularities of riverine populations.

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Authors' contributions

Nascimento ESD, Andrade RLP, Gomes-Sponholz F: conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, data visualization, manuscript writing.

Silva ALC and Jurca J: investigation, supervision, validation, writing – revision and editing of the manuscript.

All authors approved the final version of the article and declare no conflict of interest.

Data Availability

The entire dataset supporting the results of this study has been published in the article itself.

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