

THE CLINICAL-EPIDEMIOLOGICAL PROFILE OF HIGH-RISK PREGNANT WOMEN MONITORED AT A REFERRAL SERVICE**PERFIL CLÍNICO-EPIDEMIOLÓGICO DE GESTANTES DE ALTO RISCO ACOMPANHADAS EM SERVIÇO DE REFERÊNCIA****EL PERFIL CLÍNICO-EPIDEMIOLÓGICO DE EMBARAZADAS DE ALTO RIESGO ATENDIDAS EN UN SERVICIO DE REFERENCIA**

Larissa Manuela Vieira Roque¹, Mirela Karolayne Souza de Moraes², Júlia Richard Gondim Bezerra Cavalcanti³, Larissa Pereira Tavares Mendes⁴, Cristina Wide Pissetti⁵

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ABSTRACT

Objective: To identify the clinical-epidemiological profile of high-risk pregnant women monitored at a referral service. **Methods:** Observational, retrospective, quantitative study, analyzing 254 medical records of pregnant women attended at the High-Risk Prenatal Care Unit of a University Hospital in 2020. **Results:** The results showed pregnant women with an average age of 29 years, mixed race (62.6%), unmarried (37.4%), from the Zona da Mata Paraibana (90.2%), with a high school education (54.7%), homemakers (42.9%), overweight (23.2%), and obesity (43.3%), without previous abortions (72.4%), multiparous, with an average of 2.4 pregnancies, and 1 gestational pathology. The comorbidities that led to referral were Gestational Hypertensive Disorders (26.4%) and Diabetes Mellitus (24.8%). **Conclusions:** It was possible to identify the clinical-epidemiological profile of the sample studied, in which it highlights hypertensive syndromes of pregnancy and diabetes mellitus as the main reasons for referral to the service.

Descriptors: High-Risk Pregnancy; Prenatal Care; Health Profile.

¹ Undergraduate student of Medicine/Center of Medical Sciences/Federal University of Paraíba (UFPB). <https://orcid.org/0009-0001-4164-3649>

² Undergraduate student of Medicine at the Federal University of Paraíba (UFPB). Environmental Technician at the Federal Institute of Education, Science and Technology of Rio Grande do Norte (IFRN)/Ipangaçu. <http://lattes.cnpq.br/7300337358853542>

³ Undergraduate student of Medicine at UFPB. <http://lattes.cnpq.br/0734449448964107>. <https://orcid.org/0000-0003-2123-5346>

⁴ Undergraduate student of Medicine at UFPB. Technical-professional course in buildings at the Federal Institute of Paraíba, Cajazeiras campus. <http://lattes.cnpq.br/3278253087903065>

⁵ Biomedical scientist from the Faculty of Medicine of Triângulo Mineiro, master's and doctorate in Clinical Pathology from the Federal University of Triângulo Mineiro UFTM. Assistant professor in the Department of Obstetrics and Gynecology of the Center of Medical Sciences of the Federal University of Paraíba. <http://lattes.cnpq.br/2849134394015533>. <https://orcid.org/0000-0002-5534-8544>

RESUMO

Objetivo: Identificar o perfil clínico-epidemiológico de gestantes de alto risco acompanhadas em serviço de referência. **Métodos:** Estudo observacional, retrospectivo e quantitativo, com análise de 254 prontuários de gestantes atendidas no Pré-Natal de Alto Risco de um Hospital Universitário, em 2020. **Resultados:** Os resultados foram de gestantes com idade média de 29 anos, pardas (62,6%), sem união estável (37,4%), da Zona da Mata (90,2%), com ensino médio (54,7%), do lar (42,9%), sobrepeso (23,2%) e obesidade (43,3%), sem abortos prévios (72,4%), multigestas, com média de 2,4 gestações e 1 patologia gestacional. As comorbidades que motivaram o encaminhamento foram Síndromes Hipertensivas da Gestação (26,4%) e Diabetes Mellitus (24,8%). **Conclusões:** Foi possível identificar o perfil clínico-epidemiológico da amostra estudada, sendo possível destacar como principais motivos de encaminhamento ao serviço as síndromes hipertensivas da gestação e diabetes mellitus.

Descritores: Gravidez de Alto Risco; Cuidado Pré-Natal; Perfil de Saúde.

RESUMEN

Objetivo: Identificar el perfil clínico-epidemiológico de mujeres embarazadas de alto riesgo atendidas en un servicio de referencia. **Métodos:** Estudio observacional, retrospectivo y cuantitativo, que analiza 254 expedientes médicos de mujeres embarazadas atendidas en la Unidad de Atención Prenatal de Alto Riesgo de un Hospital Universitario en 2020. **Resultados:** Los resultados mostraron mujeres embarazadas con una edad promedio de 29 años, de raza mixta (62,6%), sin unión estable (37,4%), provenientes de la Zona da Mata Paraibana (90,2%), con educación secundaria (54,7%), amas de casa (42,9%), con sobrepeso (23,2%) y obesidad (43,3%), sin abortos previos (72,4%), múltiparas, con un promedio de 2,4 embarazos y 1 patología gestacional. Las comorbilidades que llevaron a la derivación fueron los Trastornos Hipertensivos del Embarazo (26,4%) y la Diabetes Mellitus (24,8%). **Conclusiones:** Se logró identificar el perfil clínico-epidemiológico de la muestra estudiada, en el cual destacan los síndromes hipertensivos de embarazo y diabetes mellitus como los principales motivos de derivación al servicio.

Descriptores: Embarazo de Alto Riesgo; Atención Prenatal; Perfil de Salud.

INTRODUCTION

Pregnancy is a phenomenon that includes physical, emotional and social changes. Although pregnancy is a physiological process, pregnancy may present changes in its usual course. High-risk pregnancy poses an imminent risk to the health of the mother, fetus or newborn.^{1,2}

The objective of prenatal care is to conduct continuous surveillance to identify pre-gestational and gestational diseases that have a silent course, such as arterial

hypertension, diabetes mellitus and infectious diseases.³ Hypertensive syndromes are the main causes of unfavorable maternal outcomes in Brazil. In other low-income countries, bleeding disorders are the most frequent causes.⁴

Recognizing risk conditions during pregnancy is a prerequisite for a successful pregnancy. Identifying predictors of negative outcomes for pregnant women in a timely manner is essential to developing effective management strategies in the context of high-risk prenatal care.⁵

Referral to reference services and comprehensive care for the mother-fetus binomial must be guaranteed until the end of pregnancy. Therefore, coordination between levels of care is a proven strategy for providing longitudinal care throughout pregnancy.⁵

The creation of the Rede Cegonha in 2011 allowed for the expansion of prenatal care throughout the country. Some regions of Brazil have care coverage of around 95% of the target population.⁶ Despite this, maternal-fetal mortality remains high, reflecting qualitative weaknesses in the care provided to pregnant women. A cross-sectional study collected from DataSUS between 2016 and 2017 observed an unsatisfactory quality of care and a low percentage of compliance with the recommendations of the Prenatal and Birth Humanization Program.⁵

Social situations that interfere with the initiative for adequate care greatly determine the chances of life and death of a pregnant woman.⁴ Many causes of death associated with complications during pregnancy are the result of inadequate access to places where women could receive appropriate care.⁶

The effective reduction of maternal morbidity and mortality presupposes qualified prenatal care, with early care and adequate coverage, which unfortunately does not yet occur in Brazil, with

sociodemographic and economic characteristics being the main limiting variables.^{3,7}

The lack of appropriate care assistance leads to an increase in gestational risks, especially in the context of social vulnerability, in which women of reproductive age are inserted. In northern European countries with better social conditions, only 5% of women of childbearing age are at reproductive risk. In Brazil, this number reaches around 30% of pregnant women.⁸

From 1996 to 2018, the direct obstetric causes responsible for unfavorable outcomes in Brazil were: hypertension (8,186 deaths), hemorrhage (5,160 deaths), puerperal infection (2,624 deaths) and abortion (1,896 deaths). Among the indirect causes, the most important were diseases of the circulatory system (2,848 deaths), diseases of the respiratory system (1,748 deaths), AIDS (1,108 deaths) and maternal infectious and parasitic diseases (839 deaths).⁹

Most maternal deaths are related to preventable causes, but few studies in the state relate the clinical conditions of high-risk pregnant women to epidemiological conditions as predictors of unfavorable outcomes. Therefore, the objective of this study was to characterize the profile of pregnant women monitored in the PNAR. In this way, studies like this can contribute

to better elucidating the social representations of pregnant women diagnosed with situations of gestational risk, as well as intensifying the direction of care based on the clinical conditions identified in a University Hospital.

METHODS

This is a retrospective and quantitative observational study, carried out in the high-risk prenatal service of a University Hospital. The study was submitted and approved by the Research Ethics Committee of the Center of Medical Sciences (CCM), under number CAAE 50654821.40000.8069.

For data analysis, 745 medical records documented by the screening registry of the High-Risk Prenatal outpatient clinic were obtained from January to December 2020, according to the routine demand of the sector.

Since this is a descriptive study, a 95% confidence level and a 5% margin of error were used as sample selection parameters. The online calculator “calculate and convert” was used. The sample size obtained was 254 medical records, selected from January to December 2020, through the “sorteador” website.

The requirement for the Free and Informed Consent Form (FICF) was waived, since this study was retrospective in nature and required the collection of

secondary data (through patient records). A commitment to the privacy and confidentiality of the data used in the research was ensured, fully preserving the anonymity of the participants (treated by data identification codes).

Data collection from medical records took place from January 2022 to March 2023 at the Medical Archive and Statistics Service (SAME).

The inclusion criteria adopted were all medical records of patients of reproductive age and pregnant women being monitored at the High-Risk Prenatal Service (PNAR). Patients who did not present significant high-risk gestational changes were excluded.

The information was categorized according to the variables: age, color/race, marital status, income, origin, education, profession, use of legal and illegal drugs, diseases prior to pregnancy, reason for referral, family history, number of prenatal consultations, previous pregnancies, number of abortions, use of contraceptive methods, presence of sexually transmitted infections, interpregnancy interval, Body Mass Index and gestational age of the first consultation at the service.

Data were recorded using a standardized form, prepared based on a literature review on the subject. All information was organized in a Microsoft Office Excel® spreadsheet, stored on a

portable external storage device (pendrive) for statistical analysis.

After tabulating the information, the data were subjected to descriptive statistical analysis and the results expressed as frequency (percentage). The normality of the quantitative variables was verified by the Kolmogorov-Smirnov test, using the IBM SPSS Statistics 21 program.

RESULTS

Regarding sociodemographic characteristics, based on the analysis of the 254 medical records of this study, it was found that 87.8% (223) of the group evaluated lived in the Urban Area, with 90.2% (229) in the Zona da Mata Paraibana, according to the classification in mesoregions established by the IBGE (1989 – 2017).

Regarding color or race, based on self-declaration, the majority of pregnant women declared themselves to be brown, 62.6% (159), 19.7% (50) white, 9.8% (25) black, 5.1% (13) indigenous and 1.6% (4) yellow.

Regarding marital status, 37.4% of the total number of patients were not in a stable union, 31.1% (79) were married, 28% (71) were in a stable union, 0.4% (1) were widowed and 0.4% (1) were divorced; 2.8% (7) of the sample did not provide information regarding the variable studied, as shown in Table 1.

Regarding the level of education, the majority of pregnant women, 54.7% (139), had completed or incomplete high school. Regarding occupation, patients were grouped according to the division established by the IBGE (2002). The categories “Housewife”, which corresponded to 42.9% (109) of the sample, and Agriculture, 12.9% (33) of the total, were added. The other professions accounted for 36.7% (93) of the sample. The information was missing in 7.5% (19) of the medical records evaluated. Due to the lack of data in the medical records, data on income were not analyzed.

Maternal age was normally distributed according to the Kolmogorov-Smirnov test ($p=0.2$). The mean was 29.08 years, with a standard deviation of 7.03 years.

Regarding habits and customs, three variables were researched: smoking, alcoholism and use of other drugs. Only 1.2% (3) of the sample used tobacco, 1.6% (4) alcohol and 0.4% (1) other drugs. Information was missing in 13.8% (216) of the medical records regarding smoking, 15% (212) regarding alcoholism and 56% (197) regarding other drugs.

Regarding the clinical data that motivated patients to be referred to the High Risk service, considering that the variable presents a non-normal distribution according to the Kolmogorov-Smirnov test

($p < 0.000$), the median of pathologies identified was one comorbidity, with an interquartile range of 1, with 1 being the minimum number and 3 the maximum number.

The majority of the group, 61% (155), had at least one comorbidity prior to the gestational process. Of the total medical records evaluated, 62.2% (158) of the

sample had first-degree relatives with chronic diseases, as shown in Table 2.

The pathologies that led to referral from normal-risk to high-risk prenatal care were grouped into primary pathologies (main reason for referral), secondary pathologies and tertiary pathologies (if more than one comorbidity). 27.5% (70) of the patients had more than one comorbidity and 6% (15) had more than two pathologies.

Table 1 — Frequency distribution of marital status of women followed up in High-Risk Prenatal Care, n: 254, 2023.

Marital status	Frequency	Percentage %
Single	95	37.4
Stable union	71	28
Married	79	31.1
Divorced	1	0.4
Widow	1	0.4
Missing information	7	2.8
Total	254	100

Source: prepared by the authors.

Table 2 — Frequency of distribution of diseases prior to pregnancy in High-Risk Prenatal Care, n: 254, 2023.

Previous illnesses	Frequency	Percentage %
Yes	155	61
No	96	37.8
Missing information	3	1,2
Total	254	100

Source: prepared by the authors

Hypertensive Syndromes of Pregnancy were the most frequent diseases, corresponding to 26.4% (67) of the primary pathologies and 8.7% (22) of the secondary pathologies. Diabetes, gestational or not, occupied the second place, being the primary pathology in 24.8% (63) of the

medical records, the secondary pathology in 5.5% (14) and the tertiary pathology in 0.8% (2).

The most frequent pathologies were distributed according to table 3. The variable “other comorbidities” includes: anatomical alterations, gynecological

alterations, other obstetric causes, neurological diseases, twinning, previous prematurity, liver diseases and hemorrhagic

syndromes of the first half and Rh isoimmunization, totaling 64 medical records.

Table 3 — Frequency of distribution of the main pathologies that led to referral to High-Risk Prenatal Care, n: 254, 2023.

Reason for referral	Frequency	Percentage %
Hypertensive Syndrome of Pregnancy	67	26.4
Diabetes Mellitus	63	24.8
Hematological diseases	13	5.1
Endocrinopathies	11	4.3
Lung diseases	10	3.9
Psychiatric disorders	8	3.1
Maternal Age	8	3.1
Rheumatological diseases	7	2.8
Other conditions	64	25.3
Missing information	3	1.2
Total	254	100

Source: prepared by the authors

The Body Mass Index (BMI) was obtained from 209 medical records. 43.3% (110) of the sample was classified as having some degree of obesity and 23.2% (59) as overweight.

Regarding obstetric and gynecological characteristics, 29.5% (75) of the information on previously used contraceptive methods was not found; 28.4% (72) of the patients used oral contraceptives as their only method of contraception at some point in their lives; 19.7% (50) did not use any method; 8.7% (22) used oral and injectable contraceptives; 3.5% (9) used condoms and 1.6% (4) used other methods.

Considering sexually transmitted infections, 11 medical records contained information about the Human Papillomavirus (HPV), corresponding to 4.3% of the sample; 1.2% (3) had a history of syphilis; 87.8% (223) had no history of STI and 5.9% (15) did not contain information about it.

The majority of users (72.4%) did not have a history of abortions in their reproductive life. The average number of pregnancies was 2.40, with a standard deviation of 1.247.

PNAR consultations were grouped into 3 categories, 52.7% (134) had up to 5 consultations; 38.5% (98) between 6-10

consultations and 3.15% (8), more than 10 consultations in the service (table 4).

The second trimester of pregnancy was the period in which most pregnant women had access to their first high-risk prenatal consultation, corresponding to 40.9% (104); 33.9% (86) had access in the third trimester and 16.5% (42) in the first trimester (table 4).

Regarding the interpregnancy interval, 41.9% (106) presented an interval

>2 years between pregnancies, and 12.3% (31) between 1-2 years. 26.5% (67) corresponded to primigravida patients, and it was not possible to delimit the interpregnancy interval. The information was missing in 19.3% (49) of the medical records.

The data were grouped according to Table 4.

Table 4 — Frequency of distribution of gynecological and obstetric characteristics of pregnant women monitored in High-Risk Prenatal Care, n: 254, 2023.

Gynecological and obstetric characteristics	Frequency	Percentage %
Abortions		
Yes	66	26
No	184	72.4
Missing information	4	1.6
Interpregnancy interval in years		
1-2	31	12.3
>2	106	41.9
Primigravidae and missing information	116	45.8
Gestational age at first consultation		
1st quarter	42	16.5
2nd quarter	104	40.9
3rd trimester	86	33.9
Missing information	22	8.7
Number of consultations in PNAR		
0-5	134	52.76
6-10	98	38.58
>10	8	3.15
Missing information	14	5.51
Previous use of contraceptive methods		
Oral	72	28.4
Oral and injectable	22	8.7
Injectable	22	8.7
Male condom	9	3.5
Others	4	1.6
Missing information	75	29.5
Total	254	100

Source: prepared by the authors.

DISCUSSION

The characteristics that classify a pregnant woman as high risk make up a changing list.^{1,2} The definition of gestational risk presents much divergence in the literature, but some clinical and social conditions can culminate in a greater risk of pathologies aggravated or initiated during pregnancy.¹

In 2020, Brazil recorded its first case of COVID-19 in the country. In the same year, social distancing measures were instituted to minimize the spread of the coronavirus, which had an impact on health care in general. However, in the study service, PNAR services were maintained, which resulted in a reduction of 160 services compared to 2019, which did not significantly interfere in the calculation of the sample space.¹⁰

The majority of pregnant women in the PNAR of the University Hospital lived in urban areas (87.8%) and in the Zona da Mata da Paraíba (90.25%), which can be attributed to the ease of geographical access and the contracting of the service with the municipality of João Pessoa and neighboring municipalities. A similar study indicated that the Urban Zone was the place where most pregnant women lived.¹¹

In the color variable, the predominant self-declared ethnicity was brown (62.6%) and the predominant occupation was “housewife”, which is similar to

epidemiological studies carried out in Ceará and Maranhão.^{11,12}

Ethnic characteristics may be related to the fact that black women (brown and black) are more prone to certain diseases, such as High Blood Pressure, Pre-Eclampsia and Sickle Cell Anemia.¹³

The same studies differ regarding marital status. There is a predominance of married women or women in stable unions.^{10,11} This was not possible to verify in the present study, with a predominance of 37.5% of PNAR users without a stable union, which may be a reflection of individual interpretations in the understanding of stable union.

Most patients (54.7%) had completed or incomplete secondary education. The data obtained through an ecological study are similar to ours.¹⁴ It is possible to infer from the sample that the higher the maternal level of education, the greater the adherence to prenatal consultations and greater access to specialized services.

The average age of PNAR users was 29 years. Therefore, most high-risk pregnancies occurred in an age range considered safe in the literature, from 20 to 30 years.¹⁵

The higher proportion of pregnancies at later ages observed in the sample may be related to the higher level of education and participation in the labor market. Pregnancies in adolescents and at older ages

are responsible for unfavorable outcomes during pregnancy. Conditions such as spontaneous abortion, fetal malformations, hypertension (preexisting and pregnancy-related), diabetes (pre-gestational and gestational) and obesity are more observed as maternal age advances.¹⁶

Analysis of the medical records showed that 70% of the sample consisted of non-users of substances of abuse. Approaching pregnant women who use alcohol and other substances is a challenge, especially due to the barriers to disclosing the use of substances known to be harmful and the lower demand for prenatal services.¹

Regarding the characteristics related to the woman's reproductive and healthcare history, our study showed that 72.4% of the pregnant women attended to had no history of abortions in previous pregnancies. Despite the literature highlight pregnancy losses as predictors of high-risk pregnancies, this profile was not found in the reproductive history of most pregnant women.^{1,2,15}

The average number of previous pregnancies, after analyzing the medical records, was approximately two previous pregnancies, which is similar to a study carried out in Maranhão, in which women in a High Risk Service reported 2 to 4 previous pregnancies.^{12,17}

Regarding the interpregnancy interval, 41.9% of pregnant women had an interval >2 years and 12.3% between 1-2 years. Our profile is in line with the literature, which indicates an ideal minimum interval of 2 years, and should not be less than 1 year.²

The number of consultations in the specialized service was up to 5 consultations (52.76%). The Ministry of Health recommends a minimum number of 6 consultations in prenatal care, without specifying an ideal minimum number in the PNAR. It also points out that referral to the high-risk service must be accompanied by continued care in Primary Care.¹ The result found does not mean that the care is inadequate, since there is no data on joint monitoring with Primary Care of these pregnant women studied.

In 75 medical records, it was not possible to obtain information on the contraceptive methods used at some point prior to pregnancy, corresponding to 29.5% of the total. The “oral contraceptive” method obtained 28.4% of the responses, and in second place (19.7%) was the option “no” method. A cross-sectional population-based analysis based on data from the National Health Survey (PNS) reported that 34.2% of women have used the oral hormonal contraceptive method, which is the most widely used method by Brazilian women.¹⁸

The literature indicates that most women with an active sex life do not use protection against sexually transmitted infections during sexual intercourse.¹⁸ Our study showed that 96.5% of women do not use barrier methods. However, no higher prevalence of STIs was observed in the group studied, with this diagnosis being present in 3.9% of pregnant women (HPV, HIV or syphilis).

Most of the users of the PNAR at the University Hospital were referred due to pathologies prior to the gestational process (61%). A similar study was conducted in Paraná, showing a large proportion of pregnant women with overweight, obesity and chronic non-communicable diseases.¹⁷ However, the number of pregnant women referred to the service in the first trimester was only 16.5%. This may be related to failures in the referral processes to the specialized service.

In the sample analyzed, Hypertensive Syndrome in Pregnancy was the main reason for referral (26.4%). Furthermore, when it did not motivate referral, it was the comorbidity that was most associated with other diseases (26.8%). Hypertensive Syndromes in Pregnancy have a significant impact on unfavorable obstetric outcomes. In Brazil, especially in the North and Northeast regions, they represent the leading cause of maternal death.¹⁹

The sample showed that 66.5% of the users had some degree of obesity or overweight. A study conducted in other services in Paraíba showed similar results, in which hypertensive syndromes and obesity were the main pathologies identified.²⁰ The data obtained to calculate the BMI refer to the first consultation in the prenatal service. This means that the gestational age of the study participants cannot be standardized to obtain this data, resulting in bias in this analysis.

Our study found that DM was the second most common pathology (25.2%). The literature indicates that hyperglycemia during pregnancy is one of the most common conditions during pregnancy.¹

12 of the 254 patients in the sample reported some psychiatric comorbidity, with 8 patients reporting this as the main pathology that led to access to high-risk care. Therefore, psychiatric disorders do not explain the motivation for referral of most users. However, the literature lists that the most prevalent characteristics observed in the study, such as multiparity, absence of a partner and diagnosis of complications during pregnancy, are risk factors for severe depression.^{1,2}

CONCLUSIONS

Our study identified a clinical and epidemiological profile predominantly of women from urban areas, with an average

age of 29 years, brown skin, without a stable union, multiparous, with an interpartum interval >2 years, no history of abortions, with at least one comorbidity, with emphasis on gestational hypertensive syndromes and diabetes mellitus and overweight/obesity.

The limitations were related to data collection, which made it impossible to collect important information about income, vaccination history, PNRH data, history of complications in previous pregnancies and individual perceptions about the support of the parent when there was no stable relationship, as well as about pregnancy planning.

High-risk pregnancies are complex and require integration between levels of care to ensure a satisfactory outcome for the mother and fetus. Furthermore, recognizing the profile of patients contributes to planning actions for future pregnancies. We suggest that the profiles of women treated at referral services be constantly assessed, so that strategies for expanding the investigation of gestational risks are continually reviewed and contribute to the multidisciplinary approach to pregnant women.

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