

EVALUATION OF PREGNANT WOMEN ASSISTED IN A HIGH-COMPLEXITY MATERNITY HOSPITAL IN THE STATE OF MARANHÃO

AValiação de Gestantes Assistidas em uma Maternidade de Alta Complexidade no Estado do Maranhão

Evaluación de Gestantes Asistidas en una Maternidad de Alta Complejidad del Estado de Maranhão

Gustavo Thales Bringel Vieira¹, Adriana Sousa Rêgo², Janaína Maiana Abreu Barbosa³, Marcia Rodrigues Veras Batista⁴, Yuri Alfredo Araujo Mendonça Silva⁵, Rodrigo Sevinhago⁶, Dalciney Maximo Diniz⁷, Nielson Valério Ribeiro Pinto⁸, Guilherme Belo Carvalhêdo⁹, Flor de Maria Araújo Mendonça Silva¹⁰

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ABSTRACT

Introduction: The prevalence of pregnancy complications among Brazilian women is reinforced by several factors inherent in the pregnant woman's life, including education level, physiological requirements, and obstetric characteristics themselves. **Objective:** To identify the characteristics associated with the Body Mass Index (BMI) of pregnant women assisted at a High Complexity Maternity Hospital in the State of Maranhão. **Methods:** An analytical and cross-sectional study was conducted at a High Complexity Maternity Hospital in Maranhão, with pregnant women who were in the Emergency Room (ER) between February and August 2023. Data collection involved interviews using a questionnaire containing questions covering variables related to pregnancy. **Results and Discussion:** A sample of 100 pregnant women was evaluated, and the variables that

¹ Master in Health Programs and Services Management, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: gustavo_bringel@hotmail.com Orcid: <https://orcid.org/0000-0002-2118-2558>

² PhD in Public Health, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: adriana004723@ceuma.com.br Orcid: <https://orcid.org/0000-0003-2824-6531>

³ PhD in Public Health, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: jana_mayana@hotmail.com Orcid: <https://orcid.org/0000-0001-5263-6586>

⁴ Master in Health Programs and Services Management, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: marcia.veras2932@gmail.com Orcid: <https://orcid.org/0000-0001-7127-3805>

⁵ Master in Health Programs and Services Management, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: yurimendonca33@icloud.com Orcid: <https://orcid.org/0000-0002-4760-8844>

⁶ Master in Health Programs and Services Management, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: rodrigo.sevi@gmail.com Orcid: <https://orcid.org/0000-0001-6039-1531>

⁷ Master in Health Programs and Services Management, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: dalciney.maximo@ceuma.br Orcid: <https://orcid.org/0000-0002-5654-0984>

⁸ Master in Health Programs and Services Management, Universidade CEUMA. E-mail: nielson_valerio@hotmail.com Orcid: <https://orcid.org/0000-0002-5531-829X>

⁹ Graduating in Medicine, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: guibc28@hotmail.com Orcid: <https://orcid.org/0009-0008-3074-7224>

¹⁰ PhD in Public Health, Universidade CEUMA, São Luís, Maranhão, Brazil. E-mail: floragyh@gmail.com Orcid: <https://orcid.org/0000-0002-2796-0939>

showed statistical significance associated with the pregnant women's BMI were: number of members in the household ($p=0.035$), education level ($p = 0.039$), and receipt of social benefits ($p = 0.016$); Age, ethnicity, marital status, income, number of abortions, primiparity, type of delivery, type of pregnancy, interval between pregnancies, pregnancy planning, physical activity, and use of supplements did not show statistical significance. Conclusion: The study advances by elucidating characteristics of pregnant women related to BMI, which may have a significant impact on maternal mortality rates, reinforcing the importance of prenatal care and monitoring throughout pregnancy, aiming to promote maternal health and highlighting the need to prioritize and strengthen actions that offer assistance and that make it possible to identify, guide and prevent so that pregnant women can have a healthy pregnancy.

Keywords: Pregnancy. Maternity. Gestational Complications. Risk Factors.

RESUMO

Introdução: A prevalência das complicações na gestação de mulheres brasileiras é reforçada por vários motivos que estão inseridos na vida da gestante, incluindo escolaridade, requisitos fisiológicos e as próprias características obstétricas. **Objetivo:** Identificar as características associadas ao Índice de Massa Corporal (IMC) das gestantes assistidas em uma Maternidade de Alta Complexidade do Estado do Maranhão. **Métodos:** Estudo analítico e transversal, realizado em uma Maternidade de Alta Complexidade do Maranhão, com gestantes que se encontravam no Serviço de Pronto Atendimento (SPA) no período entre fevereiro e agosto de 2023. Na coleta dos dados, foram realizadas entrevistas com questionário contendo questões abrangendo variáveis relacionados à gestação. **Resultados e Discussão:** Foi avaliada uma amostra de 100 gestantes e as variáveis que apresentaram significância estatística associados ao IMC das gestantes foram: número de integrantes no domicílio ($p=0,035$), escolaridade ($p = 0,039$) e recebimento de benefícios sociais ($p = 0,016$); a idade, etnia, estado civil, renda, número de abortos, primiparidade, tipo de parto, tipo de gravidez, intervalo entre gestações, planejamento da gravidez, prática de atividade física e uso de suplementos não evidenciaram significância estatística. **Conclusão:** O estudo avança ao elucidar características das gestantes relacionadas ao IMC, que podem ter impacto significativo dos índices de morte materna, reforçando a importância da realização do pré-natal e acompanhamento durante toda a gestação, visando promover a saúde materna e destacando a necessidade de priorizar e reforçar ações que ofereçam assistência e que possibilitem identificar, orientar e prevenir para que as gestantes possam ter uma gestação saudável.

Palavras-chave: Gestação. Maternidade. Complicações Gestacionais. Fatores de Risco.

RESUMEN

Introducción: La prevalencia de complicaciones del embarazo entre mujeres brasileñas se ve reforzada por varios factores inherentes a la vida de la gestante, incluidos el nivel de escolaridad, los requerimientos fisiológicos y las propias características obstétricas. **Objetivo:** Identificar las características asociadas al Índice de Masa Corporal (IMC) de gestantes asistidas en una Maternidad de Alta Complejidad del Estado de Maranhão. **Métodos:** Se realizó un estudio analítico y transversal en una Maternidad de Alta Complejidad de Maranhão, con gestantes que estuvieron en el Servicio de Emergencias (ER) entre febrero y agosto de 2023. La recolección de datos involucró entrevistas mediante un cuestionario que contenía preguntas que cubrían

variables relacionadas con el embarazo. Resultados y Discusión: Se evaluó una muestra de 100 gestantes y las variables que mostraron significancia estadística asociadas al IMC de las gestantes fueron: número de miembros en el hogar ($p = 0,035$), nivel de escolaridad ($p = 0,039$) y recepción de beneficios sociales ($p = 0,016$); La edad, la etnia, el estado civil, los ingresos, el número de abortos, la primiparidad, el tipo de parto, el tipo de embarazo, el intervalo entre embarazos, la planificación del embarazo, la actividad física y el uso de suplementos no mostraron significación estadística. Conclusión: El estudio avanza al dilucidar las características de las embarazadas relacionadas con el IMC, que pueden tener un impacto significativo en las tasas de mortalidad materna, reforzando la importancia de la atención prenatal y el seguimiento durante el embarazo, con el objetivo de promover la salud materna y destacando la necesidad de priorizar y fortalecer las acciones que ofrecen asistencia y permiten identificar, guiar y prevenir, para que las embarazadas puedan tener un embarazo saludable.

Palabras clave: Embarazo. Maternidad. Complicaciones Gestacionales. Factores de Riesgo.



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INTRODUCTION

The World Health Organization (WHO, 2021) reports that approximately 73 million abortions occur worldwide each year, of which about 45% are unsafe, representing up to 13.2% of global maternal deaths. In Latin America, the majority of abortions are classified as unsafe, reflecting persistent challenges in the region's reproductive health systems (WELLE, 2024). Post-abortion complications, including infections and hemorrhages, disproportionately affect Black women, those with low incomes, and those with lower levels of education (LEAL *et al.*, 2019).

Prenatal care enables the assessment of the maternal and fetal condition. When a pathology is identified, prompt initiation of treatment is recommended in order to prevent clinical complications. Prenatal medical consultations are essential and aim to evaluate the pregnant woman, monitor fetal growth, and educate and prepare women for a healthier childbirth (ARRAIS; ARAUJO; FRAGALLE, 2017).

During the first trimester, maternal characteristics and risk factors should be carefully assessed during prenatal visits. A thorough medical history and a detailed physical examination are key tools in reducing complications, such as preeclampsia. Without adequate prenatal follow-up, the detection of abnormalities during the pregnancy process becomes more challenging (FERREIRA *et al.*, 2019).

The intervals between prenatal consultations and examinations are essential and may be extended according to the individual needs of each pregnant woman, in order to balance risks and benefits between maternal–fetal safety and unnecessary exposure of pregnant women and the broader community. Another important aspect is minimizing waiting times for prenatal appointments; therefore, healthcare services should carefully plan scheduling logistics (FREITAS JÚNIOR *et al.*, 2020).

Prenatal care is defined by the Ministry of Health as a set of educational and clinical procedures aimed at the early identification of conditions that may increase risks to maternal or fetal health. Preventive in nature, prenatal care represents one of the main strategies for reducing maternal and perinatal mortality rates. In this sense, adequately delivered prenatal care significantly reduces complications during this period (BRASIL, 2016).

Worldwide, half a million women suffer from morbid complications arising from pregnancy, childbirth, or the postpartum period, and around 50 million suffer from illnesses or disabilities related to pregnancy. In 2018, approximately 40% of the 10,446 preventable infant and neonatal deaths in Brazil were associated with inefficient prenatal care. Data provided by the Ministry of Health in 2016 showed that Maranhão had the second highest maternal mortality rate in the country, with an average of 122 cases per 100,000 live births. In São Luís, Maranhão, after the municipality joined the Stork Network (Rede Cegonha), there was a reduction of approximately 43% in the number of maternal deaths in the last four years (SIM, 2021).

The prevalence of pregnancy-related complications among Brazilian women is influenced by multiple factors inherent to women's lives, including educational level, physiological demands, and obstetric characteristics. Therefore, it is essential to reflect on the need to prioritize and strengthen actions that provide care for this population and enable early identification, guidance, and prevention, thereby promoting healthy pregnancies.

In this context, the aim of the present study was to identify factors associated with the Body Mass Index (BMI) of pregnant women in relation to their reproductive, clinical, socioeconomic, demographic, and lifestyle characteristics among women receiving care at a high-complexity maternity hospital in the state of Maranhão.

METHODOLOGY

This was an analytical, cross-sectional study conducted between February and August 2023 at a high-complexity maternity hospital in the state of Maranhão. A non-probabilistic (convenience) sample was used, consisting of pregnant women aged 18 to 45 who lived in and were treated by the state public health system in the municipality of São Luís, Maranhão. The sample size was calculated using the G*POWER program, with a significance level (α) of 5%, test power of 80%, tolerable error of 4%, plus 10% for possible losses. Pregnant women treated at the High Complexity Maternity Hospital of the State of Maranhão were included, undergoing specialized prenatal care during the study period, admitted to the Emergency Room (ER), and carrying a pregnancy booklet.

Data collection was carried out using a questionnaire containing questions grouped into blocks, covering sociodemographic, economic, reproductive, and clinical variables, as well as factors related to pregnancy. The interviews were conducted by the researcher with the prior consent of the participants, ensuring the anonymity of all. Statistical analysis was performed using the STATA software version 15.0 (Stata Corp College Station, Texas, USA). Descriptive statistics were performed, including the calculation of absolute and relative frequencies (percentages). Associations between the dependent variable (current BMI) and the independent variables (reproductive and clinical characteristics of pregnant women) were analyzed using Pearson's Chi-square test (X^2), and p-values, in which values ≤ 0.05 were considered statistically significant.

This study followed the recommendations of Resolution No. 466/12 of the National Health Council, which regulates research involving human beings (BRAZIL, 2012b).

Participants were informed and given explanations regarding the objectives and importance of the research and, upon agreeing to participate, signed the Informed Consent Form. The possibility of not participating in the research or withdrawing from it, as well as the privacy, confidentiality, and anonymity of the participants, were guaranteed.

RESULTS AND DISCUSSION

Table 1 presents an evaluation of the sociodemographic and economic data of 100 pregnant women admitted to the High Complexity Maternity Hospital of the State of Maranhão,

showing that the age range and BMI of the pregnant women did not present statistical significance ($p = 0.211$). However, it was observed that the highest proportion of overweight and obese pregnant women was in the 20–30 age range, representing 67.74% and 85.71%, respectively. The majority of pregnant women aged 30–45 years had ideal weight (41.67%), while the youngest (18–20 years) had a lower proportion of overweight (9.68%), and none of them presented obesity.

Table 1. Association between BMI and sociodemographic and economic data of pregnant women at a High Complexity Maternity Hospital in the state of Maranhão, São Luís-MA, Brazil (2023).

Variable	(n)	CURRENT BMI				P*
		Overweight n(%)	Obesity n(%)	Ideal weight n(%)	Underweight n(%)	
Age						0,211
18 to 20	05	03 (09,68)	00 (00,00)	01 (04,17)	01 (04,17)	
20 to 30	66	21 (67,40)	18 (85,71)	13 (54,17)	14 (58,33)	
30 to 45	29	07 (22,58)	03 (14,29)	10 (41,67)	09 (37,50)	
Ethnicity						0,710
Black	16	03 (09,68)	03 (14,29)	05 (20,83)	05 (20,83)	
White	09	04 (12,90)	01 (04,76)	03 (12,50)	01 (04,17)	
Brown	75	24 (77,42)	17 (80,95)	16 (66,67)	18 (75,00)	
Marital status						0,572
Cohabiting	55	09 (56,25)	06 (54,55)	10 (71,43)	02 (40,00)	
Single	25	07 (43,75)	05 (45,45)	04 (28,57)	03 (60,00)	
Married	20	08 (25,81)	01 (04,76)	05 (20,83)	06 (25,00)	
Educational level						0,039
Illiterate/Incomplete elementary education (primary school)	04	00 (00,00)	01 (04,76)	00 (00,00)	03 (12,50)	
Complete elementary education/Incomplete lower secondary education	14	04 (12,90)	03 (14,29)	04 (16,67)	03 (12,50)	
Complete lower secondary education/Incomplete upper secondary education	19	06 (19,35)	05 (23,81)	05 (20,83)	03 (12,50)	
Complete upper secondary education/Incomplete higher education	53	20 (64,52)	11 (52,38)	14 (58,33)	08 (33,33)	
Complete higher education	10	01 (03,23)	01 (04,76)	01 (04,17)	07 (29,17)	
Household size						0,035
< 8	82	29 (93,55)	13 (61,90)	20 (83,33)	20 (83,33)	
> 8	18	02 (06,45)	08 (38,10)	04 (16,67)	04 (16,67)	
Income						0,102
< Salary	63	16 (51,61)	13 (61,90)	20 (83,33)	14 (58,33)	
>Salary	37	15 (48,39)	08 (38,10)	04 (16,67)	10 (41,67)	
Social benefit						0,016
No	40	11 (35,48)	12 (57,14)	04 (16,67)	13 (25,17)	
Yes	60	20 (64,52)	09 (42,86)	20 (83,33)	11 (45,83)	

Source: Author.

The results described in Table 2 showed no statistically significant association between the number of abortions and the current BMI of the pregnant women ($p = 0.393$). The majority

of pregnant women, in all BMI categories, reported never having had an abortion. The overweight group had the highest proportion of abortions among those who had 2 to 3 abortions (9.68%), while underweight pregnant women had a small proportion of more than 3 abortions (4.17%).

Primiparity was predominant in all BMI categories, ranging from 83.33% in underweight pregnant women to 96.77% in overweight pregnant women. The association between current BMI and type of pregnancy was not significant ($p = 0.391$), indicating that the BMI of pregnant women is not associated with the number of previous pregnancies. There was a very high proportion of cesarean deliveries in all BMI categories, ranging from 95.83% to 100%, with no statistically significant difference ($p = 0.530$).

Singleton pregnancies were the most common across all BMI categories, with percentages ranging from 85.71% to 95.83%, though this difference was not statistically significant ($p = 0.509$). The pregnant women's BMI did not show a significant impact on the type of pregnancy (singleton or twin). Although the intervals between pregnancies varied across BMI categories, with the highest percentage of pregnant women having an interval greater than 5 years in the underweight (37.50%) and ideal weight (37.50%) groups, there was no statistically significant difference ($p = 0.660$). For both planned and unplanned pregnancies, there was no significant association with current BMI ($p = 0.951$). In all categories, more than 67% of pregnancies were unplanned.

Physical activity was reported by pregnant women in all BMI categories, ranging from 33.33% to 48.39%, but without statistical significance ($p = 0.700$). Most pregnant women reported using folic acid ($p = 0.887$) and iron ($p = 0.133$), regardless of BMI category. The proportion of folic acid use was greater than 67% in all groups, but this was not statistically significant. The use of multivitamins was also similar between groups ($p = 0.998$).

Table 2. Association between BMI and reproductive characteristics of pregnant women at a High Complexity Maternity Hospital in the state of Maranhão, São Luís-MA, Brazil (2023)

Variable	(n)	CURRENT BMI				P*
		Overweight n(%)	Obesity n(%)	Ideal weight n(%)	Underwei ght n(%)	
Abortion						0,393
No history of abortion	75	24 (77,42)	15 (71,43)	17 (70,83)	19 (79,17)	
01 abortion	18	04 (12,90)	05 (23,81)	07 (29,17)	02 (08,33)	
2 to 3 abortions	06	03 (09,68)	01 (04,76)	00 (00,00)	02 (08,33)	
More than 03 abortions	01	00 (00,00)	00 (00,00)	00 (00,00)	01 (04,17)	
Pregnancy						0,391
Primigravida	91	30 (96,77)	19 (90,48)	22 (91,67)	20 (83,33)	
Multigravida	09	01 (03,23)	02 (09,52)	02 (08,33)	04 (16,67)	
Deliveries						0,530

Cesarean section	98	31 (100,00)	21 (100,00)	23 (95,83)	23 (95,83)
Vaginal delivery	02	00 (00,00)	00 (00,00)	01 (04,17)	01 (04,17)
Type of pregnancy					0,509
Singleton	93	29 (93,55)	18 (85,71)	23 (95,83)	23 (95,83)
Twin	07	02 (06,45)	03 (14,29)	01 (04,17)	01 (04,17)
Interpregnancy interval					0,660
< 1	05	01 (03,23)	02 (09,52)	02 (08,33)	00 (00,00)
1 to 2 years	37	14 (45,16)	07 (33,33)	08 (33,33)	08 (33,33)
3 to 4 years	29	10 (32,26)	07 (33,33)	05 (20,83)	07 (29,17)
> 5	29	06 (19,35)	05 (23,81)	09 (37,50)	09 (37,50)
Planned pregnancy					0,951
No	71	21 (67,74)	15 (71,43)	17 (70,83)	18 (75,00)
Yes	29	10 (32,26)	06 (28,57)	07 (29,17)	06 (25,00)
Physical activity					0,700
No	60	16 (51,61)	14 (66,67)	15 (62,50)	15 (62,50)
Yes	40	15 (48,39)	07 (33,33)	09 (37,50)	09 (37,50)
Folic acid					0,887
No	27	10 (32,26)	05 (23,81)	06 (25,00)	06 (25,00)
Yes	73	21 (67,74)	16 (76,19)	18 (75,00)	18 (75,00)
Iron supplementation					0,133
No	19	09 (29,03)	02 (09,52)	02 (08,33)	06 (25,00)
Yes	81	22 (70,97)	19 (90,48)	22 (91,67)	18 (75,00)
Multivitamin supplementation					0,998
No	51	16 (51,61)	11 (52,38)	12 (50,00)	12 (50,00)
Yes	49	15 (48,39)	10 (47,62)	12 (50,00)	12 (50,00)

Source: Author

Table 3 shows the association between the current BMI of pregnant women and clinical characteristics, including anemia, premature birth, Pap smear, use of medication, need for nursing care, psychological and dental follow-up. Pregnant women with obesity had a higher proportion of anemia (23.81%) compared to those who were overweight (52.38%) and of ideal weight (33.33%).

Underweight pregnant women also had a high proportion of anemia (41.67%). Despite these differences, the association between BMI and anemia was not statistically significant ($p = 0.353$). There was a higher incidence of premature birth among pregnant women with obesity (9.52%) and low weight (75%), compared to those with ideal weight (58.33%) and overweight (76.19%). However, this association was also not statistically significant ($p = 0.495$).

The performance of the Papanicolaou test was similar across the different BMI categories, ranging from 12.50% to 23.81%, with no statistically significant association ($p = 0.794$). Pregnant women with ideal weight showed a higher proportion of medication use (37.50%) compared to those with overweight (25.81%) and obesity (14.29%). Underweight pregnant women also showed a high proportion (37.50%). However, this association was not statistically significant ($p = 0.257$).

The need for nursing care did not show major variations among the different BMI categories. Pregnant women with ideal weight (20.83%) and low weight (16.67%) received more nursing care compared to those with overweight (14.29%) and obesity (33.33%). However, this difference was also not statistically significant ($p = 0.708$).

Most pregnant women did not receive psychological or dental care, regardless of their BMI. Only a small percentage of pregnant women who were overweight (3.23%) or obese (4.76%) reported receiving such care. These variables were also not statistically significant ($p = 0.565$).

Table 3. Association between BMI and clinical characteristics of pregnant women at a High Complexity Maternity Hospital in the state of Maranhão, São Luís-MA, Brazil (2023).

Variable	(n)	CURRENT BMI				P*
		Overweight n (%)	Obesity n (%)	Ideal weight n (%)	Underwei ght n (%)	
Anemia						0,353
No	62	10 (47,62)	15 (71,43)	16 (66,67)	14 (58,33)	
Yes	38	11 (52,38)	05 (23,81)	08 (33,33)	10 (41,67)	
Preterm birth						0,495
No	32	05 (23,81)	19 (90,48)	10 (41,67)	06 (25,00)	
Yes	68	16 (76,19)	02 (09,52)	14 (58,33)	18 (75,00)	
Pap smear						0,794
No	81	16 (76,19)	21 (100,00)	21 (87,50)	19 (79,17)	
Yes	19	59 (23,81)	00 (00,00)	03 (12,50)	05 (20,83)	
Medication use						0,257
No	71	18 (85,17)	18 (85,71)	15 (62,50)	15 (62,50)	
Yes	29	03 (14,29)	03 (14,29)	09 (37,50)	09 (37,50)	
Need for nursing care						0,708
No	85	18 (85,71)	02 (09,52)	19 (79,17)	20 (83,33)	
Yes	15	03 (14,29)	07 (33,33)	05 (20,83)	04 (16,67)	
Psychological follow-up						0,565
No	98	30 (96,77)	20 (95,24)	24(100,00)	15 (62,50)	
Yes	02	01 (03,23)	04 (04,76)	00 (00,00)	09 (37,50)	
Dental follow-up						0,565
No	98	30 (96,77)	20 (95,24)	24(100,00)	24(100,00)	
Yes	02	01 (03,23)	01 (04,76)	00 (00,00)	00 (00,00)	

Source: Author.

In the present study, 74% of pregnant women initiated prenatal care in the first trimester. The Ministry of Health recommends a minimum of six consultations; however, adherence to prenatal care remains a challenge, especially among women with low income and low educational level or without social support (RANGEL; SOUZA, 2021; MELO; SOARES; SILVA, 2022). Laboratory diagnosis is essential for the early detection of conditions such as HELLP syndrome, characterized by schizocytosis, thrombocytopenia, hepatic alterations, and signs of hemolysis (PEREIRA *et al.*, 2019).

Pre-existing conditions such as hypertension and diabetes, as well as obstetric conditions such as pre-eclampsia, eclampsia, and hemorrhages, constitute important risk factors (CORREIA, 2022). Cases of severe pre-eclampsia are associated with higher maternal and infant mortality, especially among premature and low birth weight infants (VANELLI; CAMARGO; RIBAS, 2017).

Congenital malformations account for approximately 25.8% of neonatal deaths and can be detected early by ultrasonography, allowing adequate preparation of the multidisciplinary team (BRASIL, 2022).

In this study, the mean maternal age was 25 years, an age range consistent with findings from national studies that also report a higher incidence of pregnancy among women over 25 years of age (VANELLI; CAMARGO; RIBAS, 2017; COELHO; KUROBA, 2018). However, extremes of reproductive age, before 20 and after 35 years, have been increasing and are associated with higher maternal and perinatal risks, including a greater incidence of fetal malformations and a higher number of cesarean sections (MOREIRA *et al.*, 2018).

Maternal education is an important determinant of obstetric outcomes, as demonstrated in the study by Haidar, Oliveira, and Nascimento (2001), which showed that low educational level is associated with low birth weight, a higher number of births, and lower adherence to prenatal care. These factors directly affect the understanding of gestational care and decision-making regarding the search for health services, while demographic and socioeconomic characteristics contribute to the early identification of gestational risks, allowing for more equitable and targeted approaches to care (NOVAES *et al.*, 2015).

High rates of unplanned pregnancy have been observed in both earlier and more recent studies, as reported in Salvador by Coelho *et al.* (2015), who identified that more than 66% of pregnant women experienced unplanned pregnancy, with similar findings in Recife, where the prevalence reached 60.2% (BRITO *et al.*, 2015). A recent integrative review (FERREIRA *et al.*, 2022) confirms the persistence of this scenario in regions covered by the Family Health Strategy (FHS), reinforcing the need for family planning and reproductive education policies

Unsafe abortion remains an important cause of maternal morbidity and mortality. The WHO estimates that approximately 73 million abortions occur worldwide each year, of which about 45% are unsafe and account for up to 13.2% of global maternal deaths (WHO, 2021). In Latin America, most of these procedures are considered unsafe (WELLE, 2024). In Brazil, post-

abortion complications, such as infections and hemorrhages, predominantly affect Black women with low income and low levels of education (LEAL *et al.*, 2019).

Mental health during pregnancy is a crucial aspect, with the most common conditions affecting up to 20% of pregnant women (BAKER; GILLMAN; COXON, 2020). Insecurity in dealing with emotions and care during pregnancy and the postpartum period may hinder maternal performance and is influenced by individual, cultural, and family factors (ARRAIS; ARAÚJO, 2017). Psychosocial factors and mental health during pregnancy have a direct impact on pregnancy, particularly in unplanned cases, in which women experiencing unwanted pregnancies may be more vulnerable to affective disorders, anxiety, and stress, with repercussions in the postpartum period (GRILLO *et al.*, 2024). Emotional insecurity and difficulty in coping with the demands of motherhood may compromise the performance of the maternal role, which is also influenced by family and cultural factors (ARRAIS; ARAÚJO, 2017). Baker, Gillman, and Coxon (2020) report that mental health conditions affect up to 20% of pregnant and postpartum women, constituting important causes of maternal death up to the first year postpartum. Family and professional support is essential to minimize negative feelings and strengthen maternal caregiving capacity (VASCONCELOS *et al.*, 2019; DA SILVA *et al.*, 2023).

The adoption of healthy lifestyle habits, including balanced nutrition, weight control, physical activity, and abstinence from alcohol and tobacco, is fundamental for fetal development and maternal well-being (CABASET *et al.*, 2019). Regarding supplementation, the study by ALIZADEH AND SALEHI (2016) discusses the universality of mandatory supplementation and suggests that supplementation should be individualized.

Folic acid supplementation is essential and mandatory in Brazil due to its effectiveness in preventing neural tube defects (PEREIRA; TELES; COSTA, 2019). The use of iron for anemia in the postpartum period remains controversial, and adherence to ferrous sulfate continues to be a challenge (SCHAFASCHEK *et al.*, 2018). Anemia remains prevalent in the country, particularly among low-income populations, reflecting socioeconomic and nutritional inequalities (JESUS, 2021).

Gestational syphilis stands out due to both its high prevalence and its association with severe outcomes, including miscarriage; the increase in detection rates is also related to improvements in screening practices (MELO *et al.*, 2019). Public policies such as Rede Cegonha (2011) and the Strategic Agenda for Syphilis Reduction (2017) have expanded access to rapid testing and appropriate treatment (NUNES *et al.*, 2018; DINIZ, 2021). Vaccination during

pregnancy is essential, particularly against hepatitis B, as recommended by the National Immunization Program (PACHECO, 2011). Although there is no consensus regarding the optimal timing for immunization, vaccinated pregnant women transfer antibodies to the fetus, thereby reducing neonatal risks (CALVERT; JONES, 2017; DE LIRA, 2022).

In the present study, 74% of pregnant women began prenatal care in the first trimester, in accordance with the Ministry of Health recommendation of a minimum of six consultations. However, adherence to prenatal care remains a challenge, particularly among women with low income and education levels or without social support (RANGEL; SOUZA, 2021; MELO; SOARES; SILVA, 2022). Laboratory diagnosis is essential for the early detection of conditions such as HELLP syndrome, characterized by schizocytosis, thrombocytopenia, hepatic abnormalities, and signs of hemolysis (PEREIRA *et al.*, 2019).

Pre-existing conditions such as hypertension, diabetes, and obstetric disorders, including pre-eclampsia, eclampsia, and hemorrhages, represent important risk factors (CORREIA, 2022). Severe preeclampsia is associated with increased maternal and infant mortality, particularly among premature and low birth weight infants (VANELLI; CAMARGO; RIBAS, 2017).

Congenital malformations account for approximately 25.8% of neonatal deaths and can be detected early through ultrasonography, allowing adequate preparation of the multidisciplinary team (BRASIL, 2022).

Thus, qualified, multidisciplinary, and humane prenatal care is essential for the early detection of risks, reducing maternal morbidity and mortality, and promoting a safe pregnancy (SANTOS *et al.*, 2014; NAIR *et al.*, 2015). The relationship between the healthcare team, the family, and the pregnant woman must be strengthened to ensure comprehensive and welcoming care.

CONCLUSION

The results presented show that it is possible to address the challenges of reducing maternal mortality, especially deaths related to childbirth, since the vast majority of these deaths are preventable.

The findings of this study reinforce the importance of considering gestational health as a multifactorial phenomenon, in which social, behavioral, and institutional factors interact with women's clinical and anthropometric conditions. Therefore, professional strategies and

interventions are extremely important in preventing and reducing maternal mortality. In view of this, it is important to improve the childbirth care network, ensuring better resolution by integrating healthcare teams to provide better care for pregnant women; increasing the number of beds in hospitals and maternity wards; ensuring safe transportation for both pregnant women and newborns; and expanding humanized and safe childbirth, with the aim of reducing maternal mortality.

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