

FACTORS ASSOCIATED TO THE PRENATAL OF PUERPERAL WOMEN IN A UNIVERSITY HOSPITAL FROM THE RIO GRANDE DO NORTE STATE

Fatores associados ao pré-natal de puérperas em um hospital universitário do Rio Grande do Norte

Factores asociados al pré-natal de puerperas en un hospital universitario del Rio Grande do Norte

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ABSTRACT

Objective: The study's main goal has been to analyze factors associated with the quality of usual risk prenatal care of puerperal women in a University Hospital from the *Rio Grande do Norte* State, Brazil. **Methods:** It is an analytical and cross-sectional study that assessed data from 235 puerperal women over three months of 2017. Prenatal care was classified according to the criteria of Melo, Oliveira and Mathias. **Results:** The quality of prenatal care was classified as 20.4% adequate, 79.6% intermediate and not inadequate. In the univariate analysis, the intermediate prenatal period was associated with having less than eight years of education (OR=2.76, CI=1.11; 6.89), and monthly family income less than a minimum wage (OR=2.13; CI=1.12; 4.07). In the multiple analysis, having a family income less than a minimum wage confirmed an association with the intermediate prenatal (AOR=2.13 and CI=1.12; 4.07). **Conclusions:** It was evidenced that the intermediate prenatal period maintained an association with monthly family income lower than a minimum wage.

Descriptors: Quality of health care, prenatal care, postpartum period, maternal-infant health, public health.

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RESUMO

Objetivo: Analisar fatores associados à qualidade do cuidado pré-natal de risco habitual de puérperas em um hospital universitário do Rio Grande do Norte, Brasil. **Métodos:** Estudo analítico e transversal que avaliou dados de 235 puérperas durante três meses de 2017. O pré-natal foi classificado de acordo com critérios existentes. **Resultados:** A qualidade do cuidado pré-natal foi classificada em 20,4% Adequada, 79,6% intermediário e não houve inAdequada. Na análise univariada, o pré-natal intermediário teve associação com ter menos de oito anos de estudo (OR= 2,76; IC= 1,11; 6,89); e renda familiar mensal menor que um salário mínimo (OR=2,13; IC= 1,12; 4,07). Já na análise múltipla, ter renda familiar menor que um salário mínimo confirmou associação com o pré-natal intermediário (ORaj= 2,13 e IC= 1,12; 4,07). **Conclusões:** Por fim, evidenciou-se que o pré-natal intermediário manteve associação com renda familiar mensal menor que um salário mínimo.

Descritores: Qualidade da Assistência à Saúde; Cuidado Pré-Natal; Saúde Materno-Infantil.

RESUMEN

Objetivo: Analizar factores asociados a la calidad del cuidado prenatal de riesgo habitual de puérperas en un hospital universitario de Rio Grande do Norte, Brasil. **Métodos:** Estudio analítico y transversal que evaluó datos de 235 puérperas durante tres meses de 2017. El prenatal fue clasificado de acuerdo con los criterios existentes. **Resultados:** La calidad del cuidado prenatal fue clasificada en el 20,4% adecuado, el 79,6% intermedio y no fue inadecuado. En el análisis univariado, el prenatal intermedio tuvo asociación con menos de ocho años de estudio (OR = 2,76, IC = 1,11, 6,89), y renta familiar mensual menor que un salario mínimo (OR= 2,76; IC= 1,11; 6,89). En el análisis múltiple, tener renta familiar menor que un salario mínimo confirmó asociación con el prenatal intermedio (ORaj = 2,13 e IC = 1,12; 4,07). **Conclusiones:** Por fin, se evidenció que el prenatal intermedio mantuvo asociación con renta familiar mensual menor que un salario mínimo.

Descriptores: Calidad de La Atención de Salud; Atención Prenatal; Salud Materno-Infantil.

INTRODUCTION

Assistance during prenatal care corresponds to care since monitoring the period of pre-conception, pregnancy, childbirth, birth, and the puerperium, seeking to promote care for the pregnant woman and the fetus.¹

Also considering the extent of this care, it is important to address maternal mortality, which has decreased in Brazil. It decreased between 1990 and 2007, from 140 to 75 deaths per 100 thousand live births, respectively. The "Being born in Brazil" survey also showed lower values for the year 2011 of 60.8 deaths per 100 thousand live births. Nonetheless, it is observed that this figure is still higher than the millennium goal that predicted for 2015 a reduction equal to or less than 35 deaths per 100 thousand live births.^{2,3}

Given this information, the reduction in maternal mortality can be justified by the implementation of policies, strategies, and programs to improve prenatal care, childbirth, and the puerperium.^{2,4,5} And good quality prenatal care can promote better obstetric results, reducing negative outcomes.⁶

In Primary Care, where prenatal care is offered, the pregnant woman's handbook is used as one of the

integrated instruments of the *Sistema Único de Saúde (SUS)* [Brazilian Unified Health System].⁷ The record in the booklet is associated with the quality of care offered, as it allows reflecting on the passage of pregnant women through health services.^{8,9}

Even with the recommendations, access to the beginning of prenatal care and its follow-up is lacking in health services. The lack of diagnostic methods for pregnancy delays the start of consultations, and women of low socioeconomic status and black women generally start prenatal care late.¹⁰

Given these considerations, taking into account maternal-Infant health, it is clear that the quality of prenatal care in Brazil is still presenting itself as a public health problem. Hence, this study was based on the following question: what are the factors associated with the quality of usual risk prenatal care for puerperal women?

Considering the entire context already presented, this study is justified by the need to know and highlight factors associated with the quality of usual risk prenatal care. The data found can contribute to the planning of care for quality prenatal care, seeking to reduce harm and damage to maternal-Infant health.

Bearing in mind the aforesaid, this study meant to analyze factors associated with the quality of usual risk prenatal care of puerperal women in a University Hospital from the *Rio Grande do Norte State*, Brazil.

METHODS

For the methodological follow-up, it was a cross-sectional study. It developed in a referral University Hospital in Maternal-Infant Care within the *SUS* scope, located in the main Municipality of a Health Region from the *Rio Grande do Norte State*, Brazil.

The study population was hospitalized puerperal women after delivery in the rooming-in sectors. At the institution, an average of 200 pregnant women are admitted for labor per month (data from the institution's statistics sector). Based on this information, the sample calculation considered the number of deliveries performed in the service in three months. Thus, the sample totaled 235 puerperal women, considering the size of the universe (600 mothers), 95% confidence level, and 5% sampling error.

The inclusion criteria for the composition of the sample were: puerperal woman interned in the joint accommodation; having been classified as having a normal risk pregnancy; having performed prenatal care in the public health service; and be in possession of the pregnant woman's passbook. The exclusion criteria were as follows: having performed prenatal care in the private health service; having been classified as having a high-risk pregnancy; puerperal women who did not perform prenatal care; and not be in possession of the pregnant woman's passbook.

Data collection took place through two forms. The first form was built by this study to identify the puerperal woman's information (socioeconomic characteristics and reproductive history). The second used the third classification criterion adopted by Melo, Oliveira, and Mathias.⁹ This instrument

makes it possible to assess the beginning of prenatal care, the number of consultations, the examinations performed, and the important records. Data collection was performed using secondary data from the pregnant woman's passbook and medical records carried out in the months of April, May, and June 2017. The following show the details of the quality of prenatal care classification:

Prenatal care is adequate when started before 16 weeks of Gestational Age (GA); having performed six or more consultations; at least twice in the Serologic Testing for Syphilis (VDRL), Hemoglobin (Hb) and Urinalysis (Microscopic Analysis of Urine Sediment); verifying at least five times the records addressing the Uterine Height (UH), Gestational Age (GA), Blood Pressure (BP) and weight; four times the Heart Rate (HR); and three times the fetal presentation.

Prenatal care is considered inadequate when started after 28 weeks; the record of less than three consultations; not having performed any examination; two or fewer recordings of UH, GA, BP, weight, HR, and no record of fetal presentation. And it is classified as intermediate in other situations.

The collected data were stored in Microsoft Office Excel 2007 and transferred to the Statistical Package for Social Science (SPSS) version 20.0 software. For the association of maternal characteristics with the quality of prenatal care, the Logistic Regression model was used, in order to obtain the values of Odds Ratio (OR) and Adjusted Odds Ratio (AOR) with a 95% Confidence Interval (95% CI). In the univariate analysis, all variables with p-value <0.20 were included in the multiple analysis, and in the final model, variables with p-value <0.05 were considered.

The research was conducted in accordance with the ethical standards required by the Resolution No. 466/2012 from the National Health Council, being authorized by the consubstantiated Legal Opinion No. 2,018,078 and the *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No. 64395517.3.0000.5568 of the Research Ethics Committee with Human Beings from the *Faculdade de Ciências da Saúde do Trairi (FACISA) - UFRN*.

RESULTS

The results are described considering the classification of the quality of prenatal care (adequate, intermediate and inadequate) according to the chosen standard. Afterwards, the individual classification of each indicator used to classify the quality of prenatal care is described. Conclusively, the association between the characteristics of puerperal women and the quality of prenatal care is presented.

Among the 235 (100%) mothers attended at the service, the following quality of prenatal care was evidenced, according to the chosen criterion: 48 (20.4%) mothers had adequate prenatal care and 187 (79.6%) an intermediate prenatal. There was no inadequate prenatal care (0%).

When analyzing the indicators, in other words, the records individually, the highest proportion of adequacy was

observed in weight (95.7% adequate), GA (95.3% adequate), BP (94% adequate), and the number of consultations (91.1% adequate). In contrast, the examinations did not show a good proportion of adequacy, with 24.3% adequate, 75.3% intermediate, and 0.4% inadequate.

Considering the classifications, the record of the fetal presentation was mostly adequate (59.6%). **Table 1** shows in detail the classification of prenatal care according to each indicator.

Table 1 - Distribution of the quality of each prenatal care indicator. Santa Cruz city, Rio Grande do Norte State, Brazil, 2018

Indicator	Quality*	n =235	%
GA at first consultation	Adequate	202	86
	Intermediate	21	8.9
	Inadequate	12	5.1
Number of consultations	Adequate	214	91.1
	Intermediate	21	8.9
	Inadequate	00	0%
Examinations	Adequate	57	24.3
	Intermediate	177	75.3
	Inadequate	01	0.4
Record of UH	Adequate	191	81.3
	Intermediate	34	14.4
	InAdequate	10	4.3
Record of GA	Adequate	224	95.3
	Intermediate	08	3.4
	Inadequate	03	1.3
Record of BP	Adequate	221	94
	Intermediate	14	06
	Inadequate	00	0%
Record of weight	Adequate	225	95.7
	Intermediate	10	4.3
	Inadequate	00	0%
Record of HR	Adequate	199	84.7
	Intermediate	19	8.1
	Inadequate	17	7.2
Record of fetal presentation	Adequate	140	59.6
	Intermediate	46	19.6
	Inadequate	49	20.8

*Prenatal care quality.

Following the results of the study, the maternal characteristics (individual, socioeconomic characteristics, and reproductive history of the puerperal women) were associated with the classification of the prenatal care quality, as shown in **Table 2**. The participants' profile was in majority as follows: 10 years old or more (85%); had eight years or more of study (74.9%); non-white (69.8%); with monthly family income below one minimum wage (56.6%); unemployed (78.7%); unplanned pregnancy (67.2%); had more than one pregnancy (54%); and had no history of abortion (86.8%).

Table 2 - Characteristics of puerperal women and its association with the prenatal care quality. Santa Cruz city, Rio Grande do Norte State, Brazil, 2018

Maternal characteristics	Prenatal			Univariate analysis		
	Total n=235 (100%)	Intermediate n=187 (79.6%)	Adequate n=48 (20.4%)	OR	95% CI	p-value
Age						
< 18 years old	34 (14.5)	31 (16.6)	03 (6.3)			
≥ 18 years old	201 (85.5)	156 (83.4)	45 (93.7)	2.98	(0.87;10.2)	0.082
Years of education						
< 8 years	59 (25.1)	53 (28.3)	06 (12.5)			
≥ 8 years	176 (74.9)	134 (71.7)	42 (87.5)	2.76	(1.11;6.89)	0.029
Race/Skin color						
White	71 (30.2)	58 (31)	13 (27.1)			
Non-white	164 (69.8)	129 (69)	35 (72.9)	1.21	(0.59;2.45)	0.597
*Monthly family income						
< 1	133 (56.6)	113 (60.4)	20 (41.7)			
≥ 1	102 (43.4)	74 (39.6)	28 (58.3)	2.13	(1.12;4.07)	0.021
Working						
Yes	50 (21.3)	36 (19.3)	14 (29.2)			
No	185 (78.7)	151 (80.7)	34 (70.8)	0.57	(0.28;1.19)	0.137
Planned pregnancy						
Yes	77 (32.8)	62 (33.2)	15 (31.3)			
No	158 (67.2)	125 (66.8)	33 (68.7)	1.09	(0.55;2.15)	0.802
Number of pregnancies						
1	108 (46)	85 (45.5)	23 (47.9)			
>1	127 (54)	102 (54.5)	25 (52.1)	0.90	(0.48;1.71)	0.76
Abortion						
Yes	31 (13.2)	21 (11.2)	10 (20.8)			
No	204 (86.8)	166 (88.8)	38 (79.2)	2.08	(0.90;4.77)	0.084

*Minimum wage in Brazil over 2017 (R\$937.00).

Considering the association in the univariate analysis, it is observed that the following variables were associated with intermediate prenatal care: the fact of having less than eight years of study increased by 2.76 (CI=1.11; 6.89) times more chances; when the monthly family income is less than the minimum wage, it increased by 2.13 (CI=1.12; 4.07) times more chances. It is noteworthy that in the univariate analysis there was no association between the quality of prenatal care and the variables age, race/skin color, working, planned pregnancy, number of pregnancies, and whether there was an abortion, considering p-value >0.05.

For logistic regression, the variables included in the multiple analysis were those with p-value <0.20 of the univariate analysis, and these were: age, years of education, monthly family income, if you work and have had an abortion. So, after statistical application, it became evident that intermediate prenatal care is associated with monthly family income below one minimum wage (AOR=2.13; CI=1.12; 4.07), regardless of other factors, according to **Table 3**. The other variables showed no association (p-value >0.05).

Table 3 - Final model of the factor associated with the prenatal care quality. Santa Cruz city, Rio Grande do Norte State, Brazil, 2018

Maternal characteristics	Prenatal		Logistic Regression		
	Intermediate n=187 (79.6%)	Adequate n=48 (20.4%)	AOR	95% CI	p-value
Family income					
< 1	113 (60.4)	20 (41.7)			
≥ 1	74 (39.6)	28 (58.3)	2.13	(1.12; 4.07)	0.021

DISCUSSION

Considering the classification criteria adopted, the quality of prenatal care evidenced in this study was considered unsatisfactory. In other studies that were performed in Brazil, several levels of adequate, intermediate, and inadequate prenatal care were found. Some reinforce what was evidenced, where the majority was classified as intermediate.^{9,11-4}

Corroborating with the information already mentioned, a review of scientific productions about the quality of prenatal care in Brazil showed an increase in coverage of prenatal care over the last ten years in almost the whole country, but in relation to the quality, it presented a high level of inadequacy.¹⁵

The adoption of strategies to expand prenatal care needs to be associated with quality health services that have means or processes for evaluating this qualification, such as audits. The Program to Improve Access and Quality of Primary Care is an example of a device to assess the quality of health services, in addition to encouraging managers and teams to improve the quality of these services offered to citizens.¹⁶

The quality of inadequate prenatal care can influence perinatal outcomes, such as maternal and child mortality, prematurity, communicable diseases such as syphilis, and other comorbidities.^{5,17-9} Therefore, the importance of monitoring pregnancy during prenatal care is notorious for promoting maternal health, fetal well-being, and preventing diseases.

When analyzing the indicators, according to the classification adopted for this study, most of the records are adequate, but in relation to the examinations and records of the fetal presentation, most were not classified as adequate. Other studies show findings similar to those found here, where it was shown that the indicators recorded most frequently were BP measurement and weight measurement, and a lower frequency in the registration of examinations and fetal presentation.^{5,19-21}

Considering the frequent records, BP measurement is an important technique for monitoring the pressure levels of the pregnant woman, since she may have risk factors for presenting hypertensive syndromes during pregnancy. Regarding the weight, this is also important to know the nutritional status of this woman, comparing curves present in the pregnant woman's passbook.^{22,23} Furthermore, the scale and the BP measurement device are basic instruments present in the health unit.

During pregnancy, examinations are necessary and are indicated for better monitoring of the woman's health status, and in search of maintaining fetal well-being.² Nevertheless, as noted, the realization of these is not adequately guaranteed. The fetal presentation identifies whether the fetus is in the cephalic, pelvic, chromic, or transverse presentation. The lack of registration of this technique may be due to some hypotheses: technical unpreparedness to perform all stages of the classic obstetric examination, the low valuation of this procedure, and/or the convenience of its replacement by ultrasonographic evaluation.^{2,24}

The reflection of the quality of prenatal care is seen in the filling of the pregnant woman's passbook, an important tool for assistance, monitoring, and notes of consultations. When not completed, it is understood that the recommendations are not respected.²⁴

Here, the variable having less than eight years of study was significant in the univariate analysis, however, after adjustments to the final logistic regression model, this association was not confirmed.

Although this association has not been confirmed, low education is a factor widely presented in research as a risk factor associated with the quality of prenatal care, as well as the non-use of health services in general. This may be due to the level of education being generally linked to a lower economic condition. Thus, it is important not to disregard this variable, as it may be a factor that influences the prenatal care quality.^{25,26}

Continuing in the analysis of the variables, having a monthly family income below one minimum wage, it was evidenced, in this study, as a factor associated with the quality of intermediate prenatal care (univariate analysis OR=2.13 and AOR=2.13 in the analysis multiple). Other studies have also shown this association with the inadequacy of the quality of prenatal care.^{27,5} Therefore, it should be considered that a higher income is associated with greater accessibility to health services.²⁸

Pregnant women who have this associated factor during prenatal care need support from the health team to carry out follow-ups in the care networks, strengthen the bond with the service, and have their rights guaranteed as citizens, women, and pregnant women. Some important points must be further addressed about this fact because in Brazil there are some tools for pregnant women who live in families in a situation of poverty, an example is the variable benefit. It is worth mentioning that this benefit requires criteria and it does not alleviate the situation of poverty by itself.²⁹ Hence, the health team must be attentive in making the necessary referrals so that this right is guaranteed through intersectoral articulations.

CONCLUSIONS

Herein, in the univariate analysis, the fact of having less than eight years of study and monthly family income less than one minimum wage was associated with the prenatal care quality. Conclusively, in the multiple analysis, it was confirmed that intermediary prenatal care is associated with monthly family income below one minimum wage.

Considering this associated factor, other questions arise and may be questions from other future research, such as: Does this family income variable interfere with the quality of prenatal care in all populations or is there a bias towards accessibility to the health system in our reality? In countries with easy access to prenatal care, does family income interfere with the quality of such care?

Bearing in mind the aforementioned, it is important to emphasize the need to identify factors associated with inadequate prenatal care, as recognizing them, it is possible to plan and develop strategies to promote prenatal care in an equitable, universal and comprehensive manner, using instruments for classifying the quality of prenatal care, as well as through the effective and systematic implementation of the recommendations of the Brazilian Ministry of Health.

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