



INVESTIGACIÓN ORIGINAL

DOI: <http://dx.doi.org/10.18597/rcog.386>

## USE OF MOTHER AND CHILD HEALTHCARE SERVICES ACCORDING TO SOCIAL AND DEMOGRAPHIC CHARACTERISTICS IN A CITY IN PARAÍBA, BRAZIL

Utilização de serviços de saúde materno-infantil segundo características sociodemográficas em cidade do interior do estado da Paraíba, Brasil

Utilización de servicios de salud materno-infantil según características sociodemográficas en una ciudad del interior del estado de Paraíba, Brasil

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Received: February 26/16 – Accepted: June 9/16

### ABSTRACT

**Objective:** To analyse the type of service used (public or private) for antenatal care and during delivery and post-partum according to maternal social and demographic characteristics in the city of Campina Grande, Paraíba, Brazil.

**Materials and methods:** Cross-sectional analytical study of 633 mothers with children under one year of age who were surveyed in order to gather social, demographic, antenatal, partum and post-partum data, including the type of service used. The association between maternal social and demographic characteristics and the type of service used was analysed.

**Results:** The usage of public services was 77% for antenatal care and 80.1% for delivery/puerperium. A systematic difference was found in the use of public services among women with a lower level of schooling (PR = 1.31 95% CI: 1.14-1.43) and families covered by the social programme (PR = 1.28 95 % CI: 1.14-1.33).

**Conclusion:** Findings highlight inequalities in the use of antenatal and partum/post-partum healthcare services.

**Key words:** Healthcare service provision, mother and child health care services, socioeconomic factors.

### RESUMO

**Objetivo:** Analisar o tipo de serviço utilizado (se público ou privado) na assistência pré-natal e ao parto/puerpério segundo características sociodemográficas maternas na cidade de Campina Grande, Paraíba, Brasil.

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**Materiais e métodos:** Estudo transversal analítico no qual entrevistaram-se 633 mães de filhos menores de um ano, obtendo-se informações sociodemográficas e da atenção ao pré-natal, ao parto e ao puerpério, inclusive sobre o tipo de serviço utilizado. Analisou-se a associação das características sociodemográficas maternas com o tipo de serviço utilizado.

**Resultados:** A utilização do serviço público foi de 77,0% na assistência pré-natal e de 80,1% no caso do parto/puerpério. Verificou-se vantagem sistemática na utilização de serviços públicos de saúde durante o pré-natal e o parto/puerpério nas mulheres de menor escolaridade (PR=1.31 95%CI: 1.14-1.43) e nas de famílias beneficiadas pelo Programa Bolsa Família (PR= 1.28 95%CI: 1.14-1.33).

**Conclusões:** Os achados destacam desigualdades no uso de serviços de saúde do pré-natal e parto/puerpério.

**Palavras-chave:** Assistência à Saúde, serviços de saúde materno-infantil, fatores socioeconômicos.

## RESUMEN

**Objetivo:** analizar el tipo de servicio utilizado (público o privado) en la asistencia prenatal y el parto/posparto según características sociodemográficas maternas en la ciudad de Campina Grande, Paraíba (Brasil).

**Materiales y métodos:** estudio transversal analítico, en el cual se entrevistaron 633 madres de hijos menores de un año, obteniéndose información sociodemográfica del prenatal, parto y puerperio, incluido el tipo de servicio utilizado. Se analizó la asociación de las características sociodemográficas maternas con dicho servicio.

**Resultados:** la utilización del servicio público fue de 77,0% en la asistencia prenatal y de 80,1% en el parto/puerperio. Se encontró una diferencia sistemática en la utilización de servicios públicos en las mujeres de menor escolaridad (PR = 1,31; IC 95 %: 1,14-1,43) y en familias beneficiadas por programa social (PR = 1,28 IC 95 %: 1,14-1,33).

**Conclusión:** los hallazgos destacan desigualdades en la utilización de los servicios de salud prenatal y parto/posparto.

**Palabras clave:** prestación de atención en salud, servicios de salud materno-infantil, factores socioeconómicos.

## INTRODUCTION

Pregnant women should have guaranteed access to health services integrating all levels of care (1). The Brazilian Ministry of Health recommends that healthcare services should secure for women the right to reproductive planning and humanized care throughout pregnancy, delivery and postpartum (2, 3). In this regard, the Program for Prenatal and Birth Humanization provides guidelines for a national model of care actions to ensure improved access, coverage and quality of prenatal care, and care during delivery and postpartum, for both the mother and the newborn (4, 5).

Besides the influence of the healthcare organization and healthcare practices, delivery and birth are influenced by social, economic and demographic factors (6). In this context, health status in Brazil is marked by inequalities, favouring the most privileged populations, which are the important target for health policies (7, 8). In addition, there are disparities in the provision, use and quality of services depending on the source provider (9-11).

In this sense, the presence of social inequalities in health is determined by structural and social stratification factors, associated with economic, social, cultural and political aspects, as well as the health system itself (12). In this determination, socioeconomic inequities include systematic differences of social origin that may, therefore, be modified and which can give rise to differences in morbidity and mortality (13).

In this scenario, healthcare services usage is an important indicator for assessing healthcare quality and equity and for guiding the design of policies, considering that its determination includes the

influence of the social and demographic characteristics of the users. In the Brazilian health system, service usage gained particular importance because plurality, characterized by the coexistence of public and private components, has implications for health equity given the possibility of doubling the coverage among the beneficiaries of private assistance. However, studies comparing the use of health services by the Brazilian population according to public or private financing arrangements are still very preliminary (14).

The issue of social inequities in health is a reality not only for the Brazilian population, but also in most of the Latin American countries. In Latin America, only a portion of the population receives satisfactory service through the existing systems, whether public or private. However, the Brazilian experience may be important for other countries in the region, as only Brazil has a public health system. All other countries have linked their health sector reforms to social security systems, many through privatization policies for provision and financing, with the users having free choice of carriers and services (15).

In Colombia, for example, the health system comprises two regimes, one for the salaried people who can afford to pay, and the other for people without resources (16). Insufficient access to health services has been theorized to be the main problem with healthcare in Colombia (15). Care during pregnancy and childbirth has been featured, given the important social inequalities associated with service usage (17). However, like in Brazil, there is a paucity of studies analysing the determinants of utilization of health services in Colombia (16).

The aim of this study was to analyse the type of service used (whether public or private) in prenatal and delivery/postpartum care according to maternal social and demographic characteristics in the city of Campina Grande, Paraíba, Brazil.

## MATERIALS AND METHODS

This is a cross-sectional analytical study that is part of the “Neonatal Call” research developed by the

Sérgio Arouca National School of Public Health – FIOCRUZ/ENSP-SP in the first phase of the national vaccination campaign on June 12, 2010. The aim of Neonatal Call was to obtain information on maternal morbidity, morbidity in children under one year of age, and actions under the Pact for the Reduction of Infant Mortality in a representative sample of mothers and children in 256 municipalities of the Amazon and Northeast Regions. For this study, mothers were interviewed in order to obtain information about social and demographic characteristics.

The method, including training, data collection tools, quality control and sample loss, is described in detail in the official publication entitled “Assessment of prenatal and childbirth care with children under one year of age in the Amazon Legal and Northeast Regions of Brazil, 2010” (18).

Sample size calculation takes into account a 22% prevalence of some serious complications during childbirth (severe maternal morbidity indicator), a 4% error and 95% confidence level, resulting in  $n = 412$  for a simple random drawing. Considering that the research was developed by conglomerate with a two-stage draw, the sample size was multiplied by the drawing correction factor ( $deff = 1.5$ ), which resulted in a sample of 750 mother/child pairs. In the first stage, they were drawn from vaccination posts. In the second stage, we defined a draw fraction for each post, to execute the systematic selection in the vaccination queue.

The research resulted in estimates for seventeen states, their capitals and a set of municipalities within each state. The sampling design for the city of Campina Grande was defined to produce estimates in the same way as in the capitals. The total study sample consisted of 633 mother-child pairs accounting for 55.5% of the 1,141 children under one year of age vaccinated on the day of the vaccination campaign.

The study included children under one year of age, living in the city. Twins and adopted children were excluded. If the mother had two children less

than one year of age, the youngest child was chosen for the study, in an attempt to avoid any maternal memory bias.

The research tool, consisting predominantly of closed questions was developed by the National Coordination (FIOCRUZ/ENSP-SP) and tested by the Regional Coordinators. For data collection, trained interviewers in the vaccination centres gave a verbal questionnaire to the mothers.

The questionnaire included information on household characteristics and prenatal, delivery and postpartum care. The study used the following social and demographic maternal characterization variables: years of education (incomplete primary education, complete primary/incomplete secondary education, and complete secondary/higher education); race (white, brown, black, indigenous/yellow); heads of household (yes, no); benefit from the Family Allowance Program (yes, no). Type of service used, whether public or private, was considered as a feature of prenatal, delivery and postpartum care.

Completed questionnaires and images were scanned using database construction technology and Intelligent Character Recognition. Data consistency analysis was performed for each question on the form. Implausible values were checked with the amounts recorded using the bank of questionnaire images.

Distribution according to the type of service used was analysed on the basis of maternal social and demographic characteristics. The analytical approach included bivariate analysis using Pearson's chi-squared test. Associations between the type of service utilized and the social and demographic variables were analysed by means of crude and adjusted prevalence ratios (PR) and their respective 95% confidence intervals (95% CI). The Poisson regression was used for the adjusted ratio. A significance level of  $p < 0.05$  and the SPSS software version 16 (SPSS Inc. Chicago, USA) were used for the analysis.

The research was approved by the ENSP/FIOCRUZ Research Ethics Committee (CAE: 0058.0.031.000-10).

## RESULTS

In the city of Campina Grande, the total study sample consisted of 633 mother-child pairs, higher than the sample value calculated for the study design, and accounted 55.5% of the 1,141 children under one year of age, vaccinated on the day of the vaccination campaign. The distribution of children according to socioeconomic characteristics showed that only 12.7% of the mothers had higher education, and that the proportion of families benefiting from the Family Allowance Program was 75.3%.

As shown on table 1, the use of public services was 77.0% in prenatal care and 80.1% in the case of delivery/postpartum. There was a systematic advantage in the use of public health services for prenatal and delivery/postpartum among women with lower schooling level (incomplete elementary school) and families benefiting from the Family Allowance Program. There was no association between race and the type of service used.

The multivariate analysis showed that public prenatal services were used predominantly by mothers with incomplete vs. complete secondary education (PR = 1.31; 95% CI: 1.14-1.43). In relation to the Family Allowance Program, it was found that beneficiaries used the public prenatal service significantly more (PR = 1.28; 95% CI: 1.14-1.33) than non-beneficiaries. Similar findings were observed for delivery/postpartum care (table 2).

## DISCUSSION

In general, public healthcare services are the most frequently used, including prenatal and delivery/postpartum care, as evidenced by the results of this study and others reported previously (9, 10, 19, 20). These results are similar to those of other Latin American countries (21), including Colombia (16). In this sense, it is worth noting that, in Brazil, the findings are mostly related to funding by the (Sistema Único de Saúde - SUS) in contrast with large subsidies and greater coverage from the private sector, which covers people in better social situation who also use public services, especially

**Table 1.**  
**Percentage distribution of mothers/children, based on maternal social and demographic characteristics, by type of service used (public or private) in prenatal and delivery/postpartum care. Campina Grande, Paraíba, 2010**

Sociodemographic characteristics	Type of service used in prenatal care *					Type of service used in delivery / postpartum care +				
	Public		Private		P	Public		Private		P
	n	%	n	%		n	%	n	%	
<b>Maternal education</b>					0.001					0.001
Incomplete elementary school	160	90.9	16	9.1		161	90.4	17	9.6	
Complete elementary school	28	87.5	4	12.5		27	84.4	5	15.6	
Incomplete secondary education	65	78.3	18	21.7		70	84.3	13	15.7	
Complete secondary education	171	69.2	76	30.8		189	75.0	63	25.0	
Higher education	49	62.8	29	37.2		52	65.8	27	34.2	
<b>Race</b>					0.19					0.31
White	97	71.3	39	28.7		108	77.1	32	22.9	
Brown	281	77.4	82	22.6		296	80.2	73	19.8	
Black	74	84.1	14	15.9		75	85.2	13	14.8	
Indigenous/Yellow	24	82.8	5	17.2		22	75.9	7	24.1	
<b>Family head</b>					0.48					0.90
Yes	138	77.5	40	22.5		146	81.1	34	18.9	
No	339	77.4	99	22.6		356	79.8	90	20.2	
<b>Family Allowance Program</b>					0.001					0.04
Yes	141	91.6	13	8.4		139	89.7	16	10.3	
No	337	72.6	127	27.4		364	77.0	109	23.0	
<b>Total</b>	<b>478</b>	<b>77.0</b>	<b>143</b>	<b>23.0</b>		<b>503</b>	<b>80.1</b>	<b>125</b>	<b>19.9</b>	

\* N = 621 (valid values); + N = 628 (valid values).

those of lower complexity. These circumstances are considered explanatory of inequalities in the use of health services (11, 19).

Despite high SUS utilization rates, the differences related to the use of health services such as prenatal and delivery/postpartum care, which were found in the present study, are consistent with previous studies carried out at a national and local level in Brazil (10, 19, 20, 22).

Social inequities related to the use of public health services have also been identified in national studies from America Latina (21). These results have been observed even in studies that analysed the evolution of inequalities, as is the case in Colombia (23), México (24) and Jamaica (25). These inequities have also been observed in research on reproductive health services (16, 17). The associations between the level of education and service utilization ob-

**Table 2.**  
**Association between the type of service used (public or private) in prenatal and delivery/postpartum care and maternal social and demographic characteristics. Campina Grande, Paraíba, 2010**

Social and demographic characteristics	Type of service used in prenatal care *		Prevalence Ratios (95% CI)		Type of service used in delivery / postpartum care +		Prevalence Ratios (95% CI)	
	Public	Private			Public	Private		
	n (%)	n (%)	Raw	Adjusted	n (%)	n (%)	Crude	Adjusted
<b>Maternal education</b>								
Incomplete secondary education	253 (86.9)	38 (13.1)	1.28 (1.13-1.37)	1.31 (1.14-1.43)	258 (88.1)	35 (11.9)	1.21 (1.09-1.39)	1.29 (1.19-1.41)
Complete secondary	220 (67.7)	105 (32.3)	1	1	241 (72.8)	90 (27.2)	1	1
<b>Race</b>								
Other	379 (79.0)	101 (21.0)	1.11 (0.70-1.51)	1.09 (0.66-1.43)	393 (80.9)	93 (19.1)	1.05 (0.89-1.27)	1.05 (0.80-1.22)
White	97 (71.3)	39 (28.7)	1	1	108 (77.1)	32 (22.9)	1	1
<b>Head of household</b>								
Yes	138 (77.5)	40 (22.5)	1.0 (0.58-1.22)	1.02 (0.61-1.28)	146 (81.1)	34 (18.9)	1.02 (0.72-1.35)	1.06 (0.77-1.38)
No	339 (77.4)	99 (22.6)	1	1	356 (79.8)	90 (20.2)	1	1
<b>Family Allowance Program</b>								
Yes	141 (91.6)	13 (8.4)	1.26 (1.17-1.40)	1.28 (1.14-1.33)	139 (89.7)	16 (10.3)	1.16 (1.08-1.30)	1.21 (1.06-1.28)
No	337 (72.6)	127 (27.4)	1	1	364 (77.0)	109 (23.0)	1	1

\* N = 621 (valid values); + N = 628 (valid values).

served in this study are consistent with results of previous national (14, 22) and international (23, 24) research studies. In Colombia, an association has been found between the use of reproductive health services and ethnic characteristics, with losses among indigenous and Afro-descendant women (17). This association was not shown in this study in relation to race.

Inequalities previously highlighted should be the focus of attention, since they can generate disadvantages in health care, with a negative impact on women delivering their babies in public health services (20, 22). This creates the need for actions to improve public healthcare, considering that it is targeted to populations with greater access difficulties associated with factors such as the remoteness

of households, lack of guidance, and absence of social networks (9, 26). On the other hand, it is suggested that the quality of healthcare, tied to the source of funding, may be dissociated from these factors when the users have the same socioeconomic characteristics (20, 27). In this sense, it is worth emphasizing the need for reflecting on the professional practice and service routines, regardless of the source of funds, considering the influence of patient satisfaction on access and the fact that healthcare is a right and exercise of citizenship (14, 16, 17, 21, 23).

Finally, it is necessary to emphasize that the reduction of these inequities is essential in terms of health, since the use of reproductive health services contributes to the reduction of maternal and perinatal mortality rates, which are still high in Brazil, especially in North and Northeast regions (12, 17). In the context of this study, the private health system emerges as a source producer of inequality, as noted by other researchers, highlighting the importance of policies that guarantee the right to health (17, 19, 23-25).

Recruitment of participants during a vaccination day may be limitation of this study. This situation can lead to selection bias because children may benefit in other circumstances. There are limitations in the results, given that other factors that may influence the use of health services were not considered (geographic, cultural, health system and health status of the population). However, the study addresses, in a practical way, aspects related to health inequities, a complex and diverse topic still with important knowledge gaps despite its relevance to the region.

## CONCLUSIONS

The findings point to social and demographic inequalities in the use of prenatal and delivery/postpartum care, suggesting challenges for the healthcare system in reducing those inequities.

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**Conflict of interest:** None declared.

**Funding:** Department of Science and Technology, Ministry of Health of Brazil.