

Access to prenatal care: inequalities in a region with high maternal mortality in southeastern Brazil

Acesso ao pré-natal: desigualdades em região de alta mortalidade materna do sudeste brasileiro

Katrini Guidolini Martinelli ¹
Edson Theodoro dos Santos Neto ²
Silvana Granado Nogueira da Gama ¹
Adauto Emmerich Oliveira ²

Abstract *Aim: This article aims to evaluate access to prenatal care according to the dimensions of availability, affordability and acceptability in the SUS microregion of southeastern Brazil. Methods: A cross-sectional study conducted in 2012-2013 that selected 742 postpartum women in seven hospitals in the region chosen for the research. The information was collected, processed and submitted to the chi-square test and the non-parametric Spearman's test, with p-values less than 5% ($p < 0.05$). Results: Although the SUS constitutionally guarantees universal access to health care, there are still inequalities between pregnant women from rural and urban areas in terms of the availability of health care and among families earning up to minimum wage and more than one minimum wage per month in terms of affordability; however, the acceptability of health care was equal, regardless of the modality of the health services. Conclusion: The location, transport resources and financing of health services should be reorganised, and the training of health professionals should be enhanced to provide more equitable health care access to pregnant women.*

Key words *Access to health care, Equity in access, Maternal health services, Health inequalities*

Resumo *Este artigo tem por objetivo avaliar o acesso à assistência pré-natal segundo as dimensões de disponibilidade, capacidade de pagar e aceitabilidade, no SUS de uma microrregião do sudeste brasileiro. Trata-se de um estudo seccional, realizado em 2012-2013, que selecionou 742 puérperas em sete maternidades da região escolhida para a pesquisa. As informações foram coletadas, processadas e submetidas ao teste Qui-quadrado e ao teste não paramétrico de Spearman, com p-valor menor que 5% ($p < 0,05$). Apesar de o SUS garantir constitucionalmente o acesso universal ao sistema de saúde, nota-se que ainda existem iniquidades entre as puérperas da zona rural e urbana quanto à disponibilidade e, entre as famílias que ganham até um salário mínimo e mais de um salário mínimo por mês, quando se relaciona à capacidade de pagar, porém a aceitabilidade revelou-se igual, independentemente da modalidade dos serviços de saúde. O local de moradia, os recursos de transporte e o financiamento dos serviços de saúde devem ser reorganizados, e a formação dos profissionais de saúde aprimorada, a fim de oferecer um acesso mais justo às gestantes.*

Palavras-chave *Acesso aos serviços de saúde, Equidade no Acesso, Serviços de saúde materna, Desigualdades em saúde*

¹ Programa em Epidemiologia em Saúde Pública, Escola Nacional de Saúde Pública, Fiocruz, R. Leopoldo Bulhões 1480, Manguinhos, Rio de Janeiro RJ Brasil. 21041-210 katrigm@gmail.com

² Programa de Pós-Graduação em Saúde Coletiva, Universidade Federal do Espírito Santo, Vila Velha ES Brasil.

Introduction

Since the early 1970s, access to healthcare has been approached according to different beliefs and conceptual frameworks. Because of this, the concept of access is considered complex and multidimensional^{1,2}. Access can be defined as the way people perceive the characteristics of the supply of services and, therefore, how they perceive the barriers and facilitators to the use of the services³ or the opportunity to freely use the services, taking into consideration a number of circumstances that lead to the appropriate use of health care services². Prenatal care aggregates several types of health care that are essential for pregnant women.

Pregnancy should be monitored throughout the prenatal period to identify and address possible risk factors and thus prevent and control some morbidities, such as hypertension, diabetes and obesity. To ensure that pregnant women begin treatment early in their pregnancy and conscientiously follow through with prenatal visits, the location of health care services must be easily accessible⁴. Moreover, the role of the national health care service is relevant; it provides universal coverage of services, reduces financial barriers⁵ and strengthens the bond between women and health care professionals.

When availability is considered as a dimension of access, it generally refers to whether the health care service exists in the appropriate place at the appropriate time^{1,2}, i.e., it includes a geographic relationship between the user and the health care service (distance and time)⁴, transportation resources, work hours and the quality of the service². In this way, the proximity of prenatal services and how they are organised plays a relevant role in determining when in their pregnancy women seek care and the frequency of their visits.

Accordingly, when affordability is recognised as another dimension of access, a broad context related to the financing of health care services becomes evident. Such a context comprises the relationships between the costs of using health-care services and the mobilisation of individuals' financial resources^{1,2}, including direct expenditures for medical consultations, medication, diagnostic tests, transportation to the health care service and special diets as well as indirect expenditures, such as reduced income or productivity related to travel to or wait time at the service, among other factors². The Brazilian Unified Healthcare System (Sistema Único de Saúde - SUS) substantially contributes to women's abil-

ity to receive prenatal care and makes it more accessible by reducing the costs of procedures, examinations and medication.

From another point of view, when acceptability is considered the last complementary dimension of access, the nature of the services provided and how these are perceived by individuals and communities is revealed^{1,2}. Acceptability may be considered the least tangible dimension because it is influenced by personal, cultural, educational and behavioural factors^{3,6}. However, it is a decisive factor in women's adherence to prenatal care when the professional-patient relationship is based on respect, humanisation, trust and listening.

It is known that universal coverage alone is not enough to eliminate geographic inequalities in the access to healthcare, but it does reduce disparities by reducing financial barriers. The factors that determine individuals' health also contribute to the inequity in health care, but these factors lie outside the scope and direct responsibility of the health care system⁶.

In this context, it is necessary to outline the barriers to access to address inequities and to achieve truly universal access because disfavoured social groups use health services less often and do not enjoy the same access to good-quality services, despite their greater need⁷. Therefore, this study proposes to evaluate the access to prenatal care according to availability, affordability and acceptability dimensions in the SUS of a microregion in southeastern Brazil.

Methods

A cross-sectional epidemiological study was conducted in the Microregion of São Mateus, Espírito Santo (ES), Brazil. This region exhibited high maternal mortality rates, namely, a mean of 70 maternal deaths per 100,000 live births and a maximum of 165 deaths between 2001 and 2010⁸. These indicators are higher than the maternal mortality ratio in Latin America, where the rate is 62.2 deaths per 100,000 live births⁹.

A sample was selected from among the women who were admitted to public hospitals and maternities in the study region at the time of delivery between July 2012 and February 2013, time needed to render the previously calculated sample. The sample size calculation considers what would be the ideal coverage in prenatal care recommended by the Ministry of Health in Brazil, which is seven or more visits. From this, it iden-

tified among municipalities in the region, which at the municipality had the lowest coverage rate. The sample was calculated, with the lowest coverage rate, to include contemplated other fees that are higher than the same, within the same municipality and other municipalities.

Thus, the sample size was determined by considering an estimated population of 4,071 live births in 2009 and the lowest proportion of 29.7% coverage with seven or more prenatal consultations. These data were retrieved from the Information System on Live Births (Sistema de Informações sobre Nascidos Vivos – SINASC). The desired precision was set at 4.5%, the design effect was 1.5%, and the significance level was 5.0%, resulting in a sample size of 595 postpartum women. The sample size was then increased by 30.0% to 773 to compensate for possible losses and refusals or the absence of the Prenatal Care Card at the place of birth, and a final total of 742 postpartum women were interviewed. Sample representativeness was guaranteed by respecting stratification according to the number of live births in each municipality.

Because of the reduced number of births per day in the seven hospitals participating in the study, all of which are members of the SUS, almost all of the admitted postpartum women were interviewed, including those who were admitted on weekends and holidays. Those who were not receiving prenatal care in the microregion of São Mateus-ES were excluded, as were those who received private care, even if only in part, and those who received prenatal care but did not have their prenatal care card at the time of the interview.

All of the interviewees signed an informed consent form. The project was approved by the Research Ethics Committee of the Centre for Health Sciences of the Federal University of Espírito Santos (UFES).

The access to healthcare services was evaluated based on the dimensions availability, affordability and acceptability, as in Thiede et al.². Availability was measured through the variables distance (km) and time (minutes) between the postpartum woman's house and the prenatal service, the means of transportation used (foot/motorised vehicle/other), the working hours of the prenatal service (adequate/inadequate) and the place of residence (rural/urban). Other variables were the use of the health care system's transportation, home visit from professionals using the health care transportation resources, good-quality prenatal care and the prenatal services needed by the postpartum woman, all of which were dichotomised.

Affordability included the following variables: payment of prenatal examination/consultation, purchase of medication (pain/infection) or food while waiting to be seen, payment for transportation, missed work days, loss of money (for women who were employed), need to borrow money (from a family member/neighbour/friend/bank/credit agent) or the need to sell material assets and monthly family income (more or less than the minimum wage - USD 266).

Acceptability included the following variables: trust in healthcare professionals, respectful treatment by professionals, agreement with the procedures performed, professionals' attentive listening to complaints, needs fulfilled, discrimination by healthcare professionals, perception that the available equipment was sufficient, satisfactory training of the team to provide care, open channel for complaints, patient's opinion regarding medical care and the modality of the prenatal service. The modality of service was categorised as Family Health Strategy (Estratégia de Saúde da Família - ESF), Community Health Agent Programme (Programa de Agentes Comunitários de Saúde - PACS) or Traditional Basic Health Unit (Unidade Básica de Saúde - UBS).

The ESF provides comprehensive and continuous attention to enrolled users, so do active search for pregnant women, and is comprised of general practitioners (nurse, physician, nursing technicians, community health agents). The PACS performs the same procedures of the ESF, however, there is no presence from the staff of physicians, and UBS does not make active search, serves through spontaneous demand and is generally composed of experts who do not work as a team.

A judgment matrix was created for each dimension, and each variable was assigned a value (Chart 1). Each answer in accordance with the expected of the health system, received one point, except the variables related to distance and time, and finally totalled all the points of each dimension; thus, each dimension obtained a summary measure that could range between 0 and 10 points, which led to the following classification: very bad (0 - 2 points), bad (3 - 4 points), fair (5 - 6 points), good (7 - 8 points) and very good (9 - 10 points).

The database was assembled and analysed using SPSS 16.0 (SPSS Inc., Chicago, United States). The data were entered in duplicate, after which the information was checked for completeness and consistency.

The data were descriptively analysed with absolute and relative frequencies and confidence intervals (95%). The association among variables

related to access, dimensions of access, place of residence, monthly family income and modality of prenatal service coverage was evaluated using the chi-square (χ^2) test at a 5% significance level. For each dimension of access, normality was evaluated using the Kolmogorov-Smirnov test. Next, the non-parametric Spearman test was used to ascertain the level of correlation (ρ) between the dimensions of access.

Results

Of the initial sample of 742 postpartum women who were interviewed, 3 (0.4%) did not receive any health care during pregnancy and were excluded from this analysis.

Table 1 shows the distribution of the availability variables according to the place of residence. Only the variables “working hours of the prenatal service”, “good-quality prenatal care” and “prenatal service needed by the postpartum woman” were not associated with the place of residence. While 89.1% of postpartum women in the urban area lived within 4 km of the health care service, 68.1% of those in the rural area lived 1 to 14 km away from it. Therefore, those residing in the rural area tended to take longer to travel from their houses to the health care service.

For the most part, the women in the urban area walked to their consultations, while half of those in the rural area used motorised transportation. A small percentage of the postpartum

women in the rural area used public transportation to get to their prenatal consultations, and this type of transportation was also seldom used by health care professionals to visit the women at their homes. Most women considered the prenatal service to be of good quality (91.9%) and thought that the service’s hours were compatible with their availability (95.9%).

Table 2 shows the distribution of affordability variables according to monthly family income. The postpartum women with family incomes greater than one minimum wage spent more of their financial resources on examinations/consultations and lost more work days, whereas the women with family incomes of up to one minimum wage borrowed more money from relatives. Regardless of monthly income, 19.5% of postpartum women needed to buy some food when attending prenatal consultations, 28.7% needed to pay for transportation and 48.2% needed to buy medication (pain killers/antibiotics).

Table 3 shows the distribution of acceptability variables according to the modality of prenatal service coverage. There was no statistically significant difference for any variable. More than 90.0% of the postpartum women trusted the health care professionals, agreed with the procedures that were performed, felt respected, had their complaints attentively heard, had their needs fulfilled and said that the health care team was properly trained to care for them. Moreover, 86.0% rated the medical care during the prenatal period as very good/good.

Chart 1. Judgement matrix – Access to health care services.

Variables	Maximum expected value	Value description
Distance*	3	3 points if <1 km 2 points if 1-4 km 1 point if 5-14 km 0 point if \geq 15 km
Time*	2	2 points if <30 min. 1 point if 30-59 min. 0 point if \geq 60 min.
Medical care	1	1 point if very good/good 0 point if bad/fair/very bad
Other variables	1	1 point if in agreement with the best expected result 0 point if in disagreement with the best expected result

*Adapted from Wilkinson et al.¹²; Rose et al.⁴.

Table 1. Distribution of variables for availability according to place of residence for postpartum women who received prenatal care in the microregion of São Mateus, Espírito Santo, Brazil, 2012/2013.

Variables	Total % (n = 739)	Urban % (n = 497)	Rural % (n = 242)	χ^2	p-value
Distance from user's home to service (km)					
< 1 km	21.0	24.5	13.6	11.04	0.001
1-4 km	57.1	64.6	41.7	33.91	0.000
5-14 km	14.2	8.2	26.4	42.87	0.000
≥ 15 km	5.7	1.6	14.0	44.57	0.000
Does not know	2.0	1.0	4.1	6.43	0.011
Time from user's home to service (min.)					
< 30 min.	80.1	88.1	63.6	59.71	0.000
30-59 min.	14.9	9.9	25.2	28.84	0.000
≥ 60 min.	4.6	2.0	9.9	21.44	0.000
Does not know	0.4	0.0	1.2	-	-
Means of transportation					
On foot	67.9	79.1	45.0	85.32	0.000
Motorised vehicle	26.8	14.7	51.7	111.65	0.000
Other/Does not know	5.3	6.2	3.3	2.20	0.138
Use of the health care systems' transportation	2.8	1.8	5.0	4.92	0.027
Received home visits from professionals who used public transportation	11.2	8.7	16.5	9.15	0.003
Working hours of prenatal service are adequate	95.9	96.0	95.9	0.018	0.893
Received good-quality prenatal care	91.9	90.7	94.2	2.22	0.137
Received the prenatal services that were needed	90.5	90.3	90.9	0.02	0.898

Table 2. Distribution of variables for affordability according to monthly family income for postpartum women who received prenatal care in the microregion of São Mateus, Espírito Santo, Brazil, 2012/2013.

Variables	Total % (n = 739)	≤ 1 minimum wage % (n = 218)	> 1 minimum wage % (n = 468)	χ^2	p-value
Payment for examination/consultation	47.0	39.4	52.1	9.11	0.003
Purchase of medication (pain/infection)	48.2	47.2	49.4	0.21	0.649
Payment for transportation	28.7	29.4	29.7	0.00	0.992
Purchase of food	19.5	19.7	19.7	0.01	0.918
Loss of work day	14.3	9.6	16.5	5.23	0.022
Loss of money	8.1	9.6	6.6	1.51	0.219
Need to borrow money from relatives	14.9	21.6	11.8	10.50	0.001
Need to borrow money from friends/neighbours	5.0	6.9	4.5	1.27	0.260
Need to borrow money from the bank/ credit agent	0.7	0.9	0.6	0.002	0.958
Need to sell some material asset	2.0	1.8	2.4	0.05	0.827

* Some values present in the total were lost in the subdivision because the postpartum woman could not provide her total family income.

Among the participants, 5.4% of the postpartum women reported that they felt discriminated against during their prenatal care, 12.4% thought that the available equipment was insufficient to meet their needs as pregnant women, and 16.1%

thought that there was no open channel for them to complain about aspects of the prenatal care that were not to their liking.

Table 4 summarises the dimensions of access and shows that acceptability obtained the best

rating, with 80.8% of postpartum women classifying it as very good. Affordability received the next highest rating, with 83.2% of women considering it good/very good; 35.8% rated the availability dimension as fair/bad/very bad. Regarding the analysis of correlation between the summary measures, the non-parametric Spearman test showed statistical significance between all dimensions of access ($p \leq 0.001$), and the correlation levels varied in the range of $0.121 \leq \rho \leq 0.267$.

Discussion

Access is a complex concept that is sometimes inadequately applied. In this study, access was defined and evaluated according to its different dimensions (availability, affordability and acceptability) to detect characteristics that influence both the entry and maintenance of pregnant women in the prenatal care system. Therefore, evaluations of the access to and use of health care services reveal characteristics of the health care system that need to be modified to reduce social inequalities

Table 3. Distribution of the variables for acceptability according to the modality of prenatal service coverage for postpartum women who received prenatal care in the microregion of São Mateus, Espírito Santo, Brazil, 2012/2013.

Variables	Total % (n = 739)	ESF % (n = 508)	PACS % (n = 98)	UBS % (n = 133)	ESF x PACS		ESF x UBS		PACS x UBS	
					χ^2	p-value	χ^2	p-value	χ^2	p-value
Trust in professionals	93.1	93.7	87.8	94.7	3.42	0.065	0.05	0.822	2.70	0.100
Respectful treatment	97.4	98.2	94.9	96.2	2.61	0.106	1.13	0.287	0.02	0.879
Agreement with procedures	97.3	97.2	96.9	97.7	0.03	0.867	0.00	0.987	0.001	0.968
Attentive listening to complaints	95.4	95.7	95.9	94.0	0.33	0.569	0.36	0.550	0.12	0.732
Needs fulfilled	93.2	94.3	89.8	91.7	0.03	0.855	0.81	0.367	0.06	0.811
Discrimination from professionals	5.4	5.3	6.1	5.3	0.001	0.939	0.05	0.828	0.00	0.978
Sufficiency of available equipment	87.6	88.2	84.7	87.2	0.63	0.426	0.03	0.868	0.12	0.726
Properly trained team	95.5	95.9	96.9	93.2	0.03	0.855	1.18	0.278	0.90	0.342
Open channel for complaints	83.9	83.9	86.7	82.0	0.30	0.585	0.16	0.693	0.61	0.435
Medical care*										
Very good	34.4	36.2	25.5	33.8	3.70	0.054	0.17	0.680	1.47	0.226
Good	51.6	49.8	60.2	51.9	3.15	0.076	0.11	0.739	1.26	0.263
Fair	10.7	10.8	10.2	10.5	0.00	0.998	0.00	0.954	0.02	0.885
Bad	0.5	0.0	1.0	2.3	-	-	-	-	0.06	0.813
Very bad	0.8	0.4	2.0	1.5	1.23	0.267	0.66	0.416	0.05	0.823
Does not know	2.0	2.8	1.0	0.0	0.48	0.490	-	-	-	-

*Excluding those who were not seen by physicians.

Table 4. Evaluation of the summary measure of each dimension of access for postpartum women who received prenatal care in the microregion of São Mateus, Espírito Santo, Brazil, 2012/2013.

Classification	Availability			Affordability			Acceptability		
	N	%	CI	N	%	CI	N	%	CI
Very good	13	1.8	1.0-3.0	354	47.9	44.3-51.5	597	80.8	77.8-83.5
Good	444	60.1	56.5-63.6	261	35.3	32.0-38.8	88	11.9	9.8-14.4
Fair	210	28.4	25.3-31.8	90	12.2	10.0-14.7	21	2.8	1.9-4.3
Bad	52	7.0	5.4-9.1	30	4.1	2.9-5.7	9	1.2	0.6-2.3
Very bad	3	0.4	0.1-1.2	2	0.3	0.1-1.0	4	0.5	0.2-1.4
No classification*	17	2.3	1.4-3.7	2	0.3	0.1-1.0	20	2.7	1.8-4.1

*When any variable of the given dimension was left unanswered, the postpartum woman received no corresponding summary measure.

in access and use^{5,10}. Studies indicate the need to create equitable access to the entire population via improved quality of service, policy reformulation, resource redirection and better coverage^{4,7,10}.

This characteristic is a prerequisite for women adequately meet basic premises of prenatal care, number of necessary consultations and early prenatal care at the right time, since the relationship between high rates of maternal mortality and inadequate prenatal care are established. Latin American countries such as, Bolivia and Haiti, have coverage of four or more consultations around 70.0% and maternal mortality ratio ranging from 190 to 350/100,000 live births, already Colombia, Jamaica, Peru and Paraguay have maternal mortality ratios ranging between 71.6 and 93.0/100,000 live births and coverage of four or more consultations around 90.0%^{9,11}.

Thus, the first dimension of access to be studied is the availability, which cannot be evaluated in isolation because it interacts with other factors. However, it is the most important barrier to access because it represents a condition that is absolutely necessary for the use of health care services¹⁰. A study conducted in several countries, including Tunisia, Colombia, Dominican Republic and Ecuador, revealed heterogeneity in the distance distribution; at least 80.0% of the urban population lived until 1 km from the health care service, while the rural areas this percentage ranges from 23.1% to 36.9%. This finding is similar to the results of this study, as regards inequity, it shows that women in rural areas (13.6%) are at a disadvantage compared with women in urban areas (24.5%).

This inequity is also observed for the time spent travelling and means of transportation: in countries such as Zimbabwe, Tunisia, Dominican Republic and Ecuador, most women in the urban area spent up to 30 minutes travelling to the health care service on foot, while at least half of the women in the rural areas spent up to one hour and used motorised transportation^{4,12}. This may hinder prenatal care because as pregnancy advances, women gain weight, swell and have difficulties with locomotion. Therefore, transportation must be provided to pregnant women so they can continue receiving the prenatal care at the health care service, or health care professionals must provide home visits.

Home visits provide support for intervention in the health-disease process and aim to promote health, but they are hindered by a lack of transportation, especially in rural areas¹³. These visits support providing technical procedures and are

important for educating the pregnant women's caregivers to detect and/or prevent problems that affect the pregnancy's development¹⁴. Overall, it is clear that women in rural areas are at a disadvantage compared with women in urban areas, and this inequity reflected in the number of visits received during the prenatal period^{15,16}.

It is clear that distance interferes with the use of health care services, as do other factors, such as transportation costs, quality of care and lack of knowledge about the importance of prenatal care, as well as in Colombia, Ecuador and Mexico¹⁵⁻¹⁷. However, when there are financial limitations, proximity to the service becomes fundamental to whether the service will be used¹⁰.

Affordability is related to patients' direct financial participation in purchasing services, which has direct influence on whether patients use those services. Poorer individuals tend to use services less than wealthier people because of financial barriers. One way to reduce these barriers is by establishing access universalisation policies^{5,10}; however, the SUS has managed to guarantee equity for only some of the variables that were examined in this study.

Equity in undergoing examinations and loss of work days, for women with higher incomes spent more ($p = 0.003$) and lost more work days ($p = 0.022$), may have occurred because these women did not get appointments in the public system, wished to obtain examination results quickly or underwent more examinations than necessary¹⁸. Regarding the loss of work days, according to *toegundo Hoffman e Leone*¹⁹ it is likely that more women in families making up to one minimum wage were employed and directly contributed to their family's income than the women in other income groups. However, postpartum women with lower family incomes bought medication ($p = 0.649$), paid for transportation ($p = 0.992$) and borrowed money from relatives ($p = 0.001$) at least as frequently as the women with larger family incomes, when in fact they should pay less, showing inequity between the different income strata.

The low availability of medication in the public health care system in different states of Brazil has been reported by several authors over the years^{13,20}. Thus, it is necessary to perfect pharmaceutical assistance policies by routinely evaluating both the elaboration and execution of basic health care policies to guarantee equity, integration and increased access to medication. This is important because medication costs have a high impact on individuals' budgets²¹ and most harsh-

ly penalise vulnerable lower-income individuals, who generally depend on obtaining medications free of charge^{20,21}.

Still, it is not just the cost of medication that influences access to prenatal care. The cost of transportation also greatly affects the use of health care services, especially among the poorer population^{7,22}; in such countries as Cambodia, these poorer individuals also often suffer from food shortages²³. In Tanzania, the cost of transportation represents between 40.0% and 50.0% of prenatal costs²⁴, and in Cambodia, the transportation costs are 2.5 times the costs of the prenatal care itself²³. In the present study, different income strata paid the same for transportation (Table 2); thus, transportation costs have a greater impact on families with lower incomes, who must allocate a larger share of their resources to prenatal care.

In the face of so many expenditures and the need to monitor the foetus's development, women may find a solution in credit loans¹⁷. In South Africa, Mexico and Tanzania, family and friends' support through loans or even the sale of assets to cover prenatal care costs are common practices¹⁸ that affect mainly the poor^{22,24}.

In Brazil, all pregnant women have a constitutional right to prenatal care because one of the principles of the SUS is universal and equitable health care service coverage. However, the greatest challenge of this system is political, and political decisions have led to the underfinancing of the health care sector, with State support going to the private sector and services becoming concentrated in more developed regions²⁵. Moreover, it is not enough that the Federal States provide universal healthcare systems at a macropolitical level. At the micropolitical level, there must also be an intersubjective interaction between health care professionals and service users if adequate health care is to be provided²⁶.

In this sense, acceptability becomes the most difficult dimension to measure because it is expressed by the relationship between health care professionals and service users and is influenced by personal characteristics². Thus, creating a relationship of trust and satisfying users' expectations includes the ability to start early prenatal care and ensure the return of women to follow-up^{15,17}.

Given these considerations, it becomes evident that health care professionals must treat pregnant women with respect and not discriminate against them, regardless of their race/colour, marital status or socioeconomic condition; such

equal treatment is conducive to greater participation in the prenatal care system²⁷. According to Table 3, this and other studies have found that approximately 5.0% of pregnant women were not treated respectfully²³, just as users of the health care services felt they were discriminated against²⁸. Although this percentage is not high because discrimination is not always admitted by those who suffer it, humanisation of care for pregnant women must be incorporated into the training of health care professionals²⁹.

This experience of discrimination may have contributed to the 12.0% of the postpartum women in this study and the 20.0% of those in another study³⁰ who rated their medical care as fair/bad/very bad. Another factor that may have contributed to the classification of prenatal care as low-quality is the provision of impersonal medical care delivered hurriedly and impatiently, which hinders the establishment of trust between patient and professional²⁷.

There was no statistically significant difference in the dimension of acceptability between the different modalities of prenatal care coverage, as another study found³⁰. It was expected that the ESF would outperform the UBS and PACS because the ESF health care teams aim to humanise healthcare practices, to establish bonds with their users and to get to know families' realities. However, based on these results, it may be assumed that the UBS and PACS have also applied these principles and that they permeate the whole SUS, given that acceptability was the summary measure that achieved the best results. There is evidence that well-structured primary care programmes have a positive effect on access to health care services, improve the health conditions of the population they cover, particularly in early life, and can reduce social inequalities in health³.

A correlation analysis was conducted to determine the relationship between the three dimensions. Its results were weak, showing that there was little dependence between the different dimensions, i.e., good ratings for availability do not necessarily mean that ratings for acceptability or affordability will be good.

The present study uses objective answers because it is a quantitative study. It does not provide a broad view of the contexts that lead to a positive or negative classification of the factors related to acceptability or affordability; the first is influenced by beliefs, behaviour and culture and the second by individuals' choices. This is a limitation of this study, and it indicates the need for further studies of a qualitative nature to un-

derstand the social complexity of access to health care services from the point of view of postpartum women.

The access to healthcare services varied according to each dimension. Acceptability was the best rated aspect, followed by affordability and availability. Each dimension evaluated very distinct characteristics of access. This explains the weak dependence between them and the variation in classifications for each dimension by any given postpartum woman in the sample; the dimensions could be considered equal or unequal depending on the variable being analysed.

Inequalities among postpartum women in urban and rural areas may be solved by physically reorganising access and by mapping services to identify geographic inequalities and areas where the population would obtain the greatest benefit; for more distant places, transportation should be provided for home visits. Financial barriers between postpartum women with a family income of up to the minimum wage and those with more

than the minimum wage could be reduced by the conditional transfer of money or vouchers for transportation costs and the guarantee that the SUS would provide medication and examinations.

Equity was observed among the ESF, PACS and UBS prenatal care modalities. This means that despite the good interaction between health care professionals and the community, acceptability must still be improved by training health care teams to develop more humane practices, such as active listening, dialogue, interaction and sharing experiences rather than regarding prenatal care solely as physical and biological care.

Because the SUS still fails to provide universal coverage, health care professionals and managers must promote social justice for users of prenatal care by increasing the opportunities for and attention to less-favoured women instead of treating all women equally, as is currently the case. Such a change in attitude would help to minimise social inequalities in health conditions between socially distinct groups.

Collaborations

KG Martinelli participated in the study design, reviewed the literature, performed data analysis, drafted the initial version and approved the final version of the present article; SGN Gama participated in the study design and approved the final version of the present article; AO Emmerich made substantial contributions and approved the final version of the present article; ET Santos Neto participated in the study design, performed data analysis, drafted the initial version and approved the final version of the present article.

Acknowledgments

The research project was financed by the Espírito Santo Research Foundation (Fundação de Amparo à Pesquisa do Espírito Santo - FAPES).

References

1. Penchansky R, Thomas W. The Concept of Access: Definition and Relationship to Consumer Satisfaction. *Med Care* 1981; 19(2):127-140.
2. Thiede M, Akweongo P, McIntyre D. Exploring the dimensions of Access. In: McIntyre D, Mooney G, editors. *The economics of health equity*. Cambridge: Cambridge University Press; 2007. p. 103-123.
3. Starfield B, Shi L. Policy relevant determinants of health: an international perspective. *Health Policy* 2002; 60(3):201-208.
4. Rose M, Abderrahim N, Stanton C, Helsel D. Maternity Care: A Comparative Report on the Availability and Use of Maternity Services. Data from the Demographic and Health Surveys Women's Module & Services Availability Module 1993-1996. *MEASURE Evaluation Technical Report Series* 2001; 9:1-77.
5. World Health Organization (WHO). *The World Health Report – Health Systems Financing: The Path to Universal Coverage*. Geneva: WHO; 2010.
6. Sanchez RM, Ciconelli RM. Conceitos de acesso à saúde. *Rev Panam Salud Publica* 2012; 31(3):260-268.
7. Harris B, Goudge J, Ataguba JE, McIntyre D, Nxumalo N, Jikwana S, Chersich M. Inequities in access to health care in South Africa. *Journal of Public Health Policy* 2011; 32(Supl. 1):2-23.
8. Brasil. Ministério da Saúde. DATASUS [Internet]. Informações de Saúde. Estatísticas vitais. Mortalidade e nascidos vivos: nascidos vivos desde 1994. Brasília (DF): Ministério da Saúde; 2010. [acessado 2013 maio 27]. Disponível em: <http://tabnet.datasus.gov.br>
9. Organización Panamericana de la Salud (OPAS), Organización Mundial de la Salud (OMS). *Enfermedades Transmisibles y Análisis de Salud/ Información y Análisis de Salud: Situación de Salud en las Américas: Indicadores Básicos 2013*. Washington: OPAS, OMS; 2013.
10. Travassos C, Castro MSM. Determinantes e desigualdades sociais no acesso e na utilização de serviços de saúde. In: Giovanella L, Escorel S, Lobato LVC, Noronha JC, Carvalho AI, organizadores. *Políticas e Sistema de Saúde no Brasil*. Rio de Janeiro: Editora Fiocruz; Rio de Janeiro; 2008. p. 215-243.
11. Macro International Inc, MEASURE DHS STAT compiler. [en línea]. [acessado 2015 mar 15]. Disponível em: <http://www.measuredhs.com>
12. Wilkinson MI, Warmucci N, Noureddine A. The availability of Family Planning and Maternal and Child Health Services. *DHS Comparative Studies* 1993; 7:24-32.

13. Cotta RMM, Schott M, Azeredo CM, Franceschini SCC, Priore SE, Dias G. Organização do trabalho e perfil dos profissionais do Programa de Saúde da Família: um desafio na reestruturação da atenção básica em saúde. *Epidemiol. Serv. Saúde* 2006; 15(3):7-18.
14. Narchi NZ. Atenção pré-natal por enfermeiros na Zona Leste da cidade de São Paulo – Brasil. *Rev. Esc. Enferm. USP* 2010; 44(2):266-273.
15. Osório AM, Tovar LM, Rathmann K.: Individual and local level factors and antenatal care use in Colombia: a multilevel analysis. *Cad Saude Publica* 2014; 30(5):1079-1092.
16. Paredes I, Hidalgo L, Chedraui P, Palma J, Eugenio J. Factors associated with inadequate prenatal care in Ecuadorian women. *International Journal of Gynaecology and Obstetrics* 2005; 88(2):168-172.
17. Quelopana AM, Champion JD, Salazar BC.: Factors predicting the initiation of prenatal care in Mexican women. *Midwifery* 2009; 25(3):277-285.
18. Almeida CAL, Tanaka OU. Perspectivas das mulheres na avaliação do Programa de Humanização do Pré-natal e Nascimento. *Rev Saude Publica* 2009; 43(1):98-104.
19. Hoffmann R, Leone ET. Participação da mulher no mercado de trabalho e desigualdade da renda domiciliar per capita no Brasil: 1981-2002. *Nova Economia* 2004; 14(2):35-58.
20. Guerra Jr AA, Acúrcio FA, Gomes CAP, Miralles M, Girardi SN, Werneck GA, Carvalho CL. Disponibilidade de medicamentos essenciais em duas regiões de Minas Gerais, Brasil. *Rev Panam Salud Publica* 2004; 15(3):168-175.
21. Boing AC, Bertoldi AD, Peres KG. Desigualdades socioeconômicas nos gastos e comprometimento da renda com medicamentos no sul do Brasil. *Rev Saude Publica* 2011; 45(5):897-905.
22. Tlebere P, Jackson D, Loveday M, Matizirofa L, Mbombo N, Doherty T, Wigton A, Treger L, Chopra M. Community-Based Situation Analysis of Maternal and Neonatal Care in South Africa to Explore Factors that Impact Utilization of Maternal Health Services. *J Midwifery Women's Health* 2007; 52(4):343-350.
23. Zafar AA, Ehiri JE, Anyanwu EC. Use of Antenatal Services in Kampung District, Cambodia. *Scientific World Journal* 2003, 3(3):1081-1092.
24. Kowalewski M, Mujinja P, Jahn A. Can Mothers Afford Maternal Health Care Costs? User Costs of Maternity Services in Rural Tanzania. *Afr J Reprod Health* 2002; 6(1):65-73.
25. Paim J, Travassos C, Almeida C, Bahia L, Macinko J. O sistema de saúde brasileiro: história, avanços e desafios. *The Lancet [on line]. Séries: Saúde no Brasil 1*. [acessado 2013 jun 5]. Disponível em: <http://download.thelancet.com>.
26. Cecílio LC. As necessidades de saúde como conceito estruturante na luta pela integralidade e equidade na atenção em saúde. In: Pinheiro R, Mattos RA. *Os sentidos da integralidade na atenção e no cuidado à saúde*. Rio de Janeiro: Abrasco; 2006. p. 113-125.
27. Tsunehiro MA, Bonadio IC, Oliveira VM. Receiving: a differential factor in prenatal care. In *Proceedings of the 8. Brazilian Nursing Communication Symposium [Proceedings online]*; 2002 May 02-03; São Paulo, SP, Brazil; 2002 [acessado 2014 maio 13]. Disponível em: http://www.proceedings.scielo.br/scielo.php?script=sci_arttext&pid=MSC0000000052002000200027&lng=en&nrm=van.
28. Silva MP. O dilema da saúde: novos desafios para a agenda política do Movimento Social Negro. In: Santos GG, Silva MP, organizadores. *Racismo no Brasil: Percepções da discriminação e do preconceito racial no século XXI*. São Paulo: Fundação Perseu Abramo; 2000. p. 77-87.
29. Leal MC, Gama SGN, Cunha CB. Desigualdades raciais, sociodemográficas e na assistência ao pré-natal e ao parto, 1999-2001. *Rev Saude Publica* 2005; 39(1):100-107.
30. Ribeiro JM, Costa NR, Pinto LFS, Silva PLB. Atenção ao pré-natal na percepção das usuárias do Sistema Único de Saúde: um estudo comparativo. *Cad Saude Publica* 2004; 20(2):534-545.

Artigo apresentado em 27/07/2015

Aprovado em 14/12/2015

Versão final apresentada em 16/12/2015

