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Use, access, and equity in health care services in São Paulo, Brazil

Uso, acesso e equidade nos serviços de saúde em São Paulo, Brasil

Uso, acceso y equidad en los servicios de salud en São Paulo, Brasil

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Abstract

The study analyzed how socioeconomic factors are associated with seeking, access, use, and quality of health care services in São Paulo, Brazil. Data were obtained from two household health surveys in São Paulo. We used logistic regression to analyze associations between socioeconomic factors and seeking, access, use, and quality of health care services. Access to health care services was high among those who sought it (94.91% in 2003 and 94.98% in 2008). The proportion of access to and use of health care services did not change significantly from 2003 to 2008. Use of services in the public sector was more frequent in lower socioeconomic groups. There were some socioeconomic differences in seeking health care and resolution of health problems. The study showed almost universal access to health care services, but the results suggest problems in quality of services and differences in quality experienced by lower socioeconomic groups, who mostly use the Brazilian Unified National Health System (SUS).

Health Services; Universal Access to Health Care Services; Equity in Access; Equity in Health

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Background

Socioeconomic inequalities are a major problem in the Americas [1,2]. Of the world's fifteen countries with the highest income concentration, ten are in Latin America [3]. Brazil, Guatemala, and Paraguay rank second, third, and fourth in the world in terms of income concentration [1,2]. São Paulo, the biggest city in South America and the richest in Brazil, is one of the most unequal cities in the country [4], with a Gini coefficient [5] of 0.62 in 2000 and 0.65 in 2010 (DATASUS. http://tabnet.datasus.gov.br/cgi/ibge/censo/cnv/ginisp.def, accessed on 20/Oct/2014), considered to very high (range from 0 to 1 with higher scores indicating more inequality).

Evidence points to socioeconomic inequalities in the use of health care services in Brazil and specifically in São Paulo [4,6,7]. In 1998, the disparities in Brazil were pro-poor for hospitalization, adjusted for need of care, and pro-rich for medical care and dental visits, also adjusted for need of care [7]. The Brazilian health system is complex and diversified. It is a mixed system with active participation by both the public and private sectors; the public sector, performed by the Brazilian Unified National Health System (SUS) [8] and the private sector, which offers supplementary care. People with private health plans can also use the public sector, so the health system contains a segment of the population with double coverage of health services [8,9,10].

Due to the expansion of coverage by the SUS, health care services in Brazil have improved significantly over the last 20 years, a considerable increase in access to consultations and home care has been realized, especially among the poor [9,10], and significant economic changes have occurred, including income distribution programs to reduce health inequalities. The infant mortality rate has dropped substantially, hospital admissions for non-communicable chronic diseases have decreased, and there has been a reduction in hospitalizations due to outpatient conditions [9,10].

There has been an increase in access to health care services since 2003 in Brazil and specifically in the city of São Paulo at all socioeconomic levels, and a considerable increase in access by the poor [11,12], with the main gateway being the Family Health Program (FHP) inside the SUS. However, there is still concern about the Brazilian health system's ability to improve equity in access to these services and to increase the quality of health care services [13,14,15].

The present study aims to analyze socioeconomic differences in access, use, and quality of health care services in São Paulo in 2003 and 2008. In addition, the study explored the trends from 2003 to 2008 regarding socioeconomic characteristics and access, use, and quality of such services.

Methods

ISA-Capital 2003 and ISA-Capital 2008

Data were obtained from the population-based health surveys ISA-Capital 2003 and ISA-Capital 2008 (*Health Survey in São Paulo City*), which collected information from a representative sample of non-institutionalized residents of São Paulo, Brazil.

The ISA-Capital 2003 and ISA-Capital 2008 were two cross-sectional population-based household surveys that investigated living and health conditions, health status, and use of health care services. The two surveys were based on similar probabilistic samples. The only differences were the number of randomly selected census tracts and the sampling errors. Two-stage sampling was done within census tracts (primary sampling unit) and households (second stage) [16,17].

In 2003, 60 sectors were randomly sampled from the 264 census tracts previously selected by the Brazilian Institute of Geography and Statistics (IBGE) [18] for the *Brazilian National Household Sample Survey* (PNAD). In 2008, 70 sectors were randomly sampled from the 267 census tracts selected by the IBGE [19] for the PNAD. Census tracts were first stratified according to education (low, medium, high) defined by the schooling of the head of each household, and next the desired number of tracts were selected. In the second stage, households were sampled from the selected tracts in order to obtain an adequate sample size for each domain. Domains were based on gender (male, female) and age group (< 1 year, 1-11 years, 12-19 years, 20-59 years, ≥ 60 years). A stratified sample of 420 respondents in each domain was approached for an interview. This was based on a sampling error of 0.06 (2003) and

0.04 to 0.07 (2008) and a design effect of 1.5 (2003 and 2008). Response rate was 78.62% in 2003 and 76.41% in 2008. A total of 3,357 respondents were interviewed in 2003 and 3,271 in 2008.

Data were collected through a structured questionnaire with mostly closed questions. All interviews were conducted by trained staff members that were supervised throughout the study. For quality control, another interview by phone or at home was performed in a random sample of 5% of the interviews. Researchers from three universities in São Paulo State (University of São Paulo – USP, University of Campinas – Unicamp, and São Paulo State University – UNESP) participated in the surveys.

The Institutional Review Board of the USP approved the design and conduct of the study. The design, characteristics, and questionnaires of ISA-Capital 2003 and ISA-Capital 2008 have been described in detail in: http://www.fsp.usp.br/isa-sp.

Demographic and socioeconomic factors

The following demographic factors were examined: age (0-11 years, 12-19 years, 20-59 years, and 60 and over) and gender.

The target socioeconomic factors were: self-reported ethnicity, education (0-3 years of schooling, 4-11, and 12 or more), income (monthly per capita family income: ≤ 1 national minimum wage, > 1.1 to 4.99, ≥ 5), and housing conditions. Self-reported ethnicity was obtained by the question: "What is your color or race?". We divided the responses into two categories: white and non-white (the latter including brown, black, and others). For young people 0 and 20 years of age we used household education instead of own education because many are still enrolled in school. Housing conditions were classified as adequate versus inadequate; housing conditions were considered adequate when the house had piped water from the public water supply, electricity, connection to public sewage system, an indoor lavatory, and street lighting. When any of these factors was absent, the housing was considered inadequate. The national minimum wage was BRL 240.00 in 2003 and BRL 415.00 in 2008.

Health status

- **Health problems in the previous 2 weeks**

To assess health status, respondents were asked whether they had suffered a health problem in the 2 weeks preceding the interview (yes or no). Only respondents who answered affirmatively (had a health problem) were asked to answer follow-up questions about the health care service (n = 994 in 2003 and n = 726 in 2008).

- **Chronic diseases**

Another measure of respondents' health status was history of chronic disease, including: hypertension, diabetes, allergy, back pain, arthritis, rheumatism, chronic kidney disease, stroke, depression, anxiety, emotional problems, headache, osteoporosis, leprosy, tuberculosis, and cancer. The variable indicated whether the respondent had one or more of these chronic diseases.

The variables *Health Problem in the Previous 2 Weeks* and *Chronic Diseases* were included in our analyses to adjust for unequal need across socioeconomic groups. Equal access was defined as equal use for those in equal need [5], and since socioeconomic status is related to health status, individuals with low socioeconomic status are also likely to need more health care. Thus, if inequalities in use of and access to health care are relevant, it is important to adjust for this unequal need.

Access, use, and quality of health care services

- **Care-seeking behavior**

Among individuals who reported a health problem in the previous 2 weeks, the first question related to health care was whether the respondent had sought health care services. Those who responded

affirmatively to the question "Did you seek any health care service for your health problem in the previous 2 weeks?" were categorized as "sought health care service". The other respondents were categorized as "did not seek health care service" and the reasons for not seeking were recorded.

• **Basic health care access**

Access to health care as an outcome measure is multidimensional and difficult to operationalize [20,21,22,23]. In this study, access to health care was concerned with the opportunity to obtain health care when wanted or needed, so that "to have access" meant that the patient was seen by a health professional when they sought care. We only considered this type of basic access to health care, not any other dimensions such as availability, acceptability, affordability, and information [22]. Those who had sought a health care service in the previous 2 weeks were asked whether they actually received care. Those who responded affirmatively were categorized as "having access". Those who responded negatively were categorized as "not having access to health care service". The reasons for not having access were recorded.

• **Use of health care services in the SUS**

Subjects with access to health care services were asked who covered the expenses. Those who used the SUS were categorized as "use of health care services in the SUS" and others were categorized as "use of health care services in the private sector", including private health plans, out-of-pocket, and/ or trade union and company plans.

ISA-Capital did not directly assess quality of care. We thus used two measures closely related to quality of care: satisfaction with health care services and resolution of the health problem.

• **Satisfaction with health care services**

Subjects with access to health care services were asked whether they were satisfied with the service received. Those who answered that the service was "very good" or "good" were categorized as "satisfied with health care service". Those who responded "fair" or "bad" were categorized as "dissatisfied with health care service".

• **Resolution of health problem**

Resolution of health problems was measured by the question "Was the health problem resolved?". This question was addressed to all subjects that reported a health problem in the previous 2 weeks, regardless of whether they had sought health care. Subjects who responded that their health problem was completely or partially resolved were categorized as "health problem resolved". Those who responded that their health problem was not resolved were categorized as "health problem unresolved".

Statistical analyses

The samples from ISA-Capital 2003 and ISA-Capital 2008 were weighted, and the final weight applied to each interviewee was the product of the design weight, post-stratification weight, and non-response weight.

Trends from 2003 to 2008 in socioeconomic characteristics and access and use of health care services were analyzed with the chi-square test.

Descriptive analyses were used to show the reasons for not seeking health care, not having access to health care, and use of health care services in the private sector.

Crude and adjusted logistic regression models were used to explore associations between socioeconomic variables and health status, and between socioeconomic variables and the different measures of access and use of health care services. Model 0 depicts the crude odds ratio (OR) between socioeconomic variables and the outcome. When health status was the outcome, model 1 was adjusted for age, gender, and socioeconomic indicators. In the models on access and use of health care services,

model 1 was adjusted for age, gender, chronic disease, and socioeconomic indicators. Significance was set at α = 0.05 or 95% confidence interval.

All analyses used Stata 11.0 (StataCorp LP, College Station, USA), survey package, which allows considering the complex sample design and the effect of stratification and embedding the different observation weights.

Results

Table 1 shows the socio-demographic and socioeconomic characteristics, care-seeking behavior, access to health care services, use of health care services in the SUS, satisfaction with health care services, resolution of health problems, and trends from 2003 to 2008. There were no significant changes from 2003 to 2008 in the socioeconomic indicators or any of the measures related to access to or use of health care services. The number of subjects that reported health problems in the two weeks prior to the interview decreased significantly in 2008 compared to 2003.

Among people who had not sought health care services in 2003 and 2008, the reasons were: thought it was unnecessary: 69.76% (n = 256) and 78.39% (n = 203), lack of time to visit health care service: 6.8% (n = 19) and 6.7% (n = 14), financial problems: 1.26% (n = 4) and 0.7% (n = 6), health care service too far from person's home: 1.92% (n = 7) and 0.4% (n = 3), did not know service was available: 0.15% (n = 1) and 1.06% (n = 2), other reasons: 18.96% (n = 73) and 12.63% (n = 39).

In 2003, 5.09% (n = 19) reported no access to health care services. The reasons were: health care service full (60.12%, n = 7), no physician or other health professional available in the service (26.86%, n = 7), or other reasons (13.02%, n = 2). In 2008, 5.02% (n = 12) reported no access to health care services. The reasons were: health care service full 35.51% (n = 5), no physician or other health professional available in the service, 40.34% (n = 3) too long waiting at the health care service and left 13.31% (n = 2), or other reasons 10.84% (n = 2).

Use of health care service in the SUS in 2003 was 51.3% (n = 254), compared to 48.7% (n = 212) in the private sector. In 2008, use of the SUS increased to 56.43% (n = 222), while use of the private sector decreased to 43.57% (n = 162).

Table 2 shows the socioeconomic factors related to health status in 2003 and 2008. Having a health problem in the previous two weeks was associated with non-white skin color in 2003 and low income in 2008 in the adjusted models. Having any chronic disease was associated with lower education, lower income, and non-white skin color in 2003 and lower education in 2008 in the adjusted models.

Table 3 shows the socioeconomic factors related to health care-seeking, access to health care services, and problem resolution in 2003 and 2008. Seeking health care services was less frequent in subjects with inadequate housing in 2003 and 2008 and in middle-income individuals in 2008 in the adjusted models. Access to health care services was associated with adequate housing in 2003 and 2008.

Resolution of health problems was associated with higher education, middle income, and white skin color in 2003 and with higher income and adequate housing in 2008, in the adjusted models. Resolution was also higher in individuals that used the private sector (82.36%, n = 176) compared to those using the SUS (70.59%, n = 184) (p = 0.03) and higher in people with access to health care services than those without (p = 0.01).

Use of services in the SUS was associated with lower income, lower education, inadequate housing, and non-white skin color (Table 4).

Discussion

Access to health care services was high in both 2003 and 2008, while there were some socioeconomic differences in health care-seeking and resolution of health problems. Resolution of health problems was more frequent in people with high socioeconomic status and those that used the private sector. Approximately one in four respondents were dissatisfied with the health service they accessed.

Table 1

Characteristics of respondents in the ISA-Capital 2003 and ISA-Capital 2008 surveys. São Paulo, Brazil.

Characteristics	2003 (N = 3,357) % (n)	2008 (N = 3,271) % (n)	Trend (2003-2008) *
Socio-demographic factors			
Age bracket (years)			0.254
0-11	19.78 (843)	19.73 (580)	
12-19	15.05 (847)	12.15 (605)	
20-59	54.76 (795)	57.00 (1,162)	
≥ 60	10.42 (872)	11.12 (924)	
Gender			
Male	47.46 (1,678)	47.44 (1,444)	0.347
Female	52.54 (1,679)	52.56 (1,827)	
Socioeconomic factors			
Ethnicity			< 0.001
White	65.08 (2,138)	61.94 (2,002)	
Non-white	34.92 (1,146)	38.06 (1,263)	
Education (years of schooling)			0.278
0-3	13.61 (620)	9.12 (487)	
4-11	67.59 (2,300)	71.18 (2,375)	
12+	18.80 (389)	19.69 (389)	
Income (times national minimum wage) **			0.430
≤ 1	12.32 (476)	15.08 (547)	
> 1.1 to 4.99	43.19 (1,571)	61.72 (1,738)	
≥ 5	44.49 (1,310)	23.20 (638)	
Housing conditions			0.207
Adequate	80.05 (2,688)	85.83 (2,742)	
Inadequate	19.95 (669)	14.17 (529)	
Health status			
Chronic diseases	49.92 (1,651)	49.99 (1,796)	0.980
Health problem in the previous 2 weeks	28.77 (994)	20.89 (726)	0.001
Access to and use of health care services			
Health care-seeking	58.22 (613)	60.66 (448)	0.569
Access ***	94.91 (466)	94.98 (384)	0.975
Satisfaction #	74.96 (346)	77.94 (306)	0.487
Use of services in the SUS ##	51.30 (254)	56.43 (222)	0.368
Resolution of health problem ###	78.88 (763)	80.27 (553)	0.619

ISA-Capital: *Health Survey in São Paulo City*; SUS: Brazilian Unified National Health System.

* Difference between proportions in 2003 and 2008. Pearson's chi-square;

** Missing data were excluded;

*** Those who sought health care services in the previous 2 weeks were asked whether they actually obtained access;

Respondents who obtained access to health care services were asked whether they were satisfied with the service received;

Respondents who obtained access to health care services were asked whether the use was in the public sector;

Respondents who reported a health problem in the previous 2 weeks were asked whether the health problem was resolved.

Table 2

Crude and adjusted multivariate logistic regression models on the association between different socioeconomic indicators and "health problem in the previous 2 weeks" and "chronic diseases". São Paulo, Brazil, 2003 and 2008.

| | Health problem in the previous 2 weeks | | | | Chronic diseases | | | |
| | 2003 | | 2008 | | 2003 | | 2008 | |
	Crude OR (95%CI)	Adjusted OR * (95%CI)	Crude OR (95%CI)	Adjusted OR * (95%CI)	Crude OR (95%CI)	Adjusted OR * (95%CI)	Crude OR (95%CI)	Adjusted OR * (95%CI)
Education (years of schooling)								
0-3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4-11	1.04	1.04	0.87	0.96	**0.69**	0.76	**0.50**	**0.66**
	(0.78-1.39)	(0.76-1.42)	(0.63-1.19)	(0.69-1.33)	**(0.50-0.96)**	(0.55-1.06)	**(0.37-0.68)**	**(0.47-0.94)**
≥ 12	0.81	0.80	0.74	0.83	0.63	**0.58**	**0.51**	**0.58**
	(0.53-1.22)	(0.52-1.00)	(0.49-1.14)	(0.53-1.31)	(0.39-1.01)	**(0.36-0.92)**	**(0.32-0.80)**	**(0.35-0.93)**
Income (times national minimum wage)								
≤ 1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
> 1.1 to 4.99	0.95	0.95	0.69	0.70	0.81	0.81	**0.63**	0.72
	(0.72-1.26)	(0.72-1.25)	(0.46-1.02)	(0.47-1.05)	(0.59-1.11)	(0.57-1.16)	**(0.46-0.87)**	(0.48-1.09)
≥ 5	0.76	0.79	**0.64**	**0.66**	**0.69**	**0.65**	0.69	0.70
	(0.55-1.06)	(0.57-1.10)	**(0.43-0.98)**	**(0.40-0.99)**	**(0.51-0.94)**	**(0.47-0.89)**	(0.45-1.06)	(0.41-1.20)
Housing								
Adequate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Inadequate	0.98	0.94	1.05	1.03	**0.74**	0.94	**0.81**	1.07
	(0.81-1.18)	(0.78-1.13)	(0.84-1.31)	(0.83-1.29)	**(0.62-0.88)**	(0.78-1.14)	**(0.67-0.98**)	(0.87-1.33)
Ethnicity								
White	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Non-white	**1.22**	**1.25**	1.07	1.15	1.09	**1.19**	0.92	1.11
	(1.05-1.42)	**(1.07-1.46)**	(0.91-1.27)	(0.96-1.36)	(0.95-1.26)	**(1.01-1.41)**	(0.80-1.06)	(0.94-1.30)

95%CI: 95% confidence interval; OR: odds ratio.

* Adjusted for age and gender.

Study strengths and limitations

More in-depth knowledge on use, access, and inequalities in health services is important to inform health policies and provide a better understanding of the potential barriers to the reduction of inequalities in their use. Several study limitations need to be considered when interpreting the findings.

The questionnaire's structure, where certain questions were only posed to a subset of respondents, limited our analyses. We were only able to study access to and use of health services in those who reported a health problem in the previous two weeks. Since health is socioeconomically patterned, this may have biased our results by underestimating inequalities. Since reported health problems can be highly diverse, this may not reflect overall health care access but only a momentary assessment related to the respondent's most recent health complaint. These health complaints can vary from a common cold to cancer, and subsequent questions on access and use of health care services may have been influenced by the type of health problem the respondent was experiencing. The measure of "access to health care services" in the study excluded the population that did not seek these health care services. According to Starfield [23], and partially confirmed by our results, people from lower

Table 3

Adjusted multivariate logistic regression models on the association between different socioeconomic indicators and health care service-seeking in the previous 2 weeks, access, satisfaction, and resolution. São Paulo, Brazil, 2003 and 2008.

	Health care seeking in the previous 2 weeks		Access to health care service		Satisfaction		Resolution	
	2003 Adjusted OR * (95%CI)	2008 Adjusted OR * (95%CI)	2003 Adjusted OR * (95%CI)	2008 Adjusted OR * (95%CI)	2003 Adjusted OR * (95%CI)	2008 Adjusted OR * (95%CI)	2003 Adjusted OR * (95%CI)	2008 Adjusted OR * (95%CI)
Education (years of schooling)								
0-3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4-11	0.95	1.32	0.49	2.83	1.15	1.00	1.46	1.10
	(0.54-1.68)	(0.85-2.05)	(0.06-4.12)	(0.48-16.48)	(0.53-2.46)	(0.31-3.19)	(0.79-2.71)	(0.66-1.84)
≥ 12	1.00	0.94	3.33	1.75	1.15	2.27	2.01	1.69
	(0.46-2.19)	(0.43-2.05)	(0.24-46.55)	(0.09-33.77)	(0.37-3.55)	(0.41-12.68)	(1.20-3.98)	(0.80-3.59)
Income (times national minimum wage)								
≤ 1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
> 1.1 to 4.99	0.80	**2.07**	1.46	1.03	0.70	1.23	**0.45**	**2.29**
	(0.47-1.34)	**(1.04-4.12)**	(0.50-4.27)	(0.01-9.65)	(0.25-1.94)	(0.40-3.74)	**(0.25-0.80)**	**(1.09-4.84)**
≥ 5	0.77	1.64	5.98	1.01	0.84	2.30	0.81	**2.90**
	(0.45-1.30)	(0.76-3.50)	(0.74-48.11)	(0.00-16.45)	(0.31-2.30)	(0.62-8.50)	(0.43-1.52)	**(1.17-7.18)**
Housing								
Adequate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Inadequate	**0.62**	**0.59**	**0.20**	**0.36**	2.03	0.53	0.73	**0.50**
	(0.45-0.87)	**(0.36-0.99)**	**(0.07-0.56)**	**(0.09-1.46)**	(0.91-4.81)	(0.22-1.28)	(0.43-1.24)	**(0.30-0.83)**
Ethnicity								
White	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Non-white	0.83	0.93	0.52	1.26	0.78	0.63	**0.73**	0.95
	(0.63-1.09)	(0.63-1.39)	(0.16-1.70)	(0.41-3.89)	(0.50-1.21)	(0.37-1.04)	**(0.53-0.99)**	(0.59-1.52)

95%CI: 95% confidence interval; OR: odds ratio.

* Adjusted by age, gender and chronic disease.

socioeconomic groups seek health care services less often. Thus, our study may have underestimated the inequalities in basic access to health care.

Due to the small number of subjects who reported no access to health care services, the results of access to care were relatively imprecise, with wide confidence intervals. In addition, the questionnaire did not measure quality of care directly; satisfaction and resolution were used as a proxy for quality, as indirect indicators of quality. Other studies are needed to confirm our results.

In addition, in the complex Brazilian health system, some private institutions provide private services that are funded by the SUS. Since this is not always made explicit to the users, there may have been some misclassification between the self-report of private versus SUS care. This misclassification may have underestimated the use of services provided by the SUS.

The period analyzed in this study was limited to 5 years, corresponding to the survey's periodicity. The data thus refer to 2003 and 2008. The situation in 2016 may be different due to health policies implemented in Brazil since 2008. Data from ISA-Capital 2003 and ISA-Capital 2008 will be very

Table 4

Crude and adjusted multivariate logistic regression models on the association between different socioeconomic indicators and health care service use in the Brazilian Unified National Health System (SUS). São Paulo, Brazil, 2003 and 2008.

| | Use of health services in the SUS (2003) | | Use of health services in the SUS (2008) | |
| | Model 0 | Model 1 | Model 0 | Model 1 |
	Crude OR (95%CI)	Adjusted OR * (95%CI)	Crude OR (95%CI)	Adjusted OR * (95%CI)
Education (years of schooling)				
0-3	1.00	1.00	1.00	1.00
4-11	**0.17**	**0.15**	0.71	0.50
	(0.07-0.43)	**(0.06-0.36)**	(0.31-1.66)	(0.19-1.33)
≥ 12	**0.02**	**0.01**	**0.10**	**0.05**
	(0.00-0.10)	**(0.00-0.04)**	**(0.04-0.27)**	**(0.02-0.15)**
Income (times national minimum wage)				
≤ 1	1.00	1.00	1.00	1.00
> 1.1 to 4.99	0.78	0.79	**0.20**	**0.16**
	(0.36-1.69)	(0.36-1.72)	**(0.07-0.57)**	**(0.06-0.43)**
≥ 5	**0.10**	**0.10**	**0.03**	**0.03**
	(0.03-0.26)	**(0.04-0.25)**	**(0.01-0.13)**	**(0.01-0.10)**
Housing conditions				
Adequate	1.00	1.00	1.00	1.00
Inadequate	1.58	1.61	**2.83**	**2.92**
	(0.96-2.61)	(0.97-2.65)	**(1.47-5.46)**	**(1.49-5.61)**
Ethnicity				
White	1.00	1.00	1.00	1.00
Non-white	**2.42**	**2.43**	**2.11**	**2.08**
	(1.62-3.62)	**(1.63-3.64)**	**(1.37-3.26)**	**(1.33-3.23)**

95%CI: 95% confidence interval; OR: odds ratio.

* Adjusted for age, gender, and chronic disease.

useful for comparison with future studies on access and use of health care services, due to the surveys' methodological rigor and the sample's representativeness.

Finally, the study used a cross-sectional design, so we cannot draw conclusions on causality between socioeconomic factors and indicators of access, use, and quality of health care services.

Access, use, and quality of health care services and trends from 2003 to 2008

Regarding health status, in both years, individuals with low socioeconomic status reported more chronic diseases than those with high socioeconomic status. This agrees with previous studies that reported socioeconomic inequalities in health in Brazil [13,24,25]. Brazil has major socioeconomic inequalities in health, with the most adverse health outcomes occurring among the poorest segments of the population [4]. Inequalities in the health system could explain part of these socioeconomic inequalities in health [26]. Inequalities in socioeconomic factors can also result in socioeconomic inequalities in health, i.e. differences in health status or in the distribution of health determinants between population groups from different socioeconomic backgrounds [5,27]. These socioeconomic inequalities in health led us to expect to find inequalities in access to and use of health care services.

Individuals in our study with inadequate housing, an indicator of severe poverty, reported seeking health care less often and having less access when health care was sought. This agrees with the *Brazilian National Health Survey* [28], which reported that seeking health care in the previous 2 weeks was

more frequent in white individuals with more education. Cultural factors and differences in health care service supply in a complex city like São Paulo may influence health care seeking.

Several of the target associations indicated that individuals with lower socioeconomic status had less access to health care services and reported less satisfaction and problem resolution, although only a few of these associations reached statistical significance. Other studies confirm that poorer individuals tend to have less access to health care services: O'Donnell et al. [29] found that poor people often use health services less. Louvison et al. [30] also reported that the elderly in São Paulo with lower income and less schooling used health care services less.

The study showed almost universal access to health care services (94.91% in 2003 and 94.98% in 2008). Political decisions have contributed to the expansion of access to health care services in Brazil as a result of changes in the socioeconomic context, which includes cash transfer programs and health care policy [11]. In 2003-2008 there was an expansion in the SUS, such that several activities in health care services have reached almost universal coverage [3], such as those covered by the Brazilian public health strategies [9,10]. These public health strategies, including the FHP, may have increased access to health care. Access to health care services continues to be high [28]. The FHP has provided better quality in primary health care, especially for the poor [14] (Ministério da Saúde. http://dab.saude.gov.br/portaldab/historico_cobertura_sf.php, accessed on 18/Aug/2014). Coverage by the FHP and the large number of private health plans (in São Paulo, half the population has private health plans) can explain the almost universal access to health care services.

Among individuals who reported no access, the most important reasons were: health care service full, no physician or other health professional available, and long waiting times. Despite almost universal access, the evidence suggests problems with satisfaction and resolution of health problems, potential indicators of suboptimal quality.

About one in four people who used health care services were dissatisfied (25.04% in 2003 and 22.06% in 2008). Quality issues may also be more serious among individuals with less education, since we observed that resolution of health problems was associated with higher socioeconomic status. Many middle-income countries, including Brazil, display large inequalities in quality of health care [31]. Inequalities in quality may influence health inequalities, since a factor that contributes to health inequalities is lack of access to good quality health care for poorer individuals [6,8,32,33]. There is no consensus on the legitimacy of quality assessment by patients in health care [34], but the present study indicates that implementation of the SUS is experiencing difficulties. More studies on the relationship between socioeconomic factors and access to use and quality of health care services are needed to better understand how to ensure equal access to health services for all groups in society.

In addition, the present study found that people that used services in the private sector experienced better resolution of their health problems than people that used the SUS. Garcia-Subirats et al. [26] found similar results, that is, socioeconomic differences in resolution of health problems and initial health care-seeking in a large city in Brazil. Previous studies [4,28,35] showed that use of the private sector was more frequent among higher socioeconomic groups. Santos et al. [36] found some inequalities in health care services favoring the population with private health plans in Brazil. The SUS is reaching a previously unassisted portion of the population, with lower income and lower education. There may be serious quality-related inequalities in public and private health care services that were not detected completely in the current study, since we only had limited information on quality-related indicators.

The proportion of access to and use of health care services in the SUS did not change from 2003 to 2008, despite the implementation of strategies for improvement such as the FHP. We did observe an overall improvement in health, based on a reduction in the prevalence of individuals reporting health problems in the previous two weeks, which could indicate some improvement in society's overall health. Information on changes in health care services since 2003 may provide the basis for planning, implementing, and monitoring health policy actions and will be useful for comparison with future studies.

Conclusions

The study provides insights into the socioeconomic factors associated with health and access to and use and quality of health care services in Brazil, specifically in the city of São Paulo. The findings indicate that access to health care services for those who sought them was high, and that although some inequalities were observed in access to and use of health care services, they were not structurally observed across all socioeconomic indicators. However, the results suggest problems in the quality of health care services and differences in quality experienced by lower socioeconomic groups who mostly use the SUS.

Contributors

C. N. Monteiro and M. A. Beenackers contributed to the research concept, data analysis and interpretation, writing of the manuscript, and revision of the final version. M. Goldbaum contributed to the research concept, questionnaire, data analysis and interpretation, and revision of the final version. M. B. A. Barros contributed to the research concept, questionnaire, data interpretation, and revision of the final version. R. J. Gianini contributed to the research concept, analysis, data interpretation, and revision of the final version. C. L. G. Cesar contributed to the research concept, questionnaire, and revision of the final version. J. P. Mackenbach contributed to the research concept, data interpretation, and revision of the final version.

Acknowledgments

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Resumo

O estudo analisou os fatores socioeconômicos associados à procura, acesso, uso e qualidade dos serviços de assistência à saúde em São Paulo, Brasil. Os dados foram obtidos a partir de dois inquéritos domiciliares de saúde em São Paulo. A regressão logística foi utilizada para analisar as associações entre fatores socioeconômicos e a procura, acesso, uso e qualidade dos serviços de assistência à saúde. O acesso aos serviços de assistência à saúde era alto entre aqueles que procuravam (94,91% em 2003 e 94,98% em 2008). A proporção de acesso e uso dos serviços de assistência à saúde não mudou de maneira significativa entre 2003 e 2008. O use de serviços no setor público era mais frequente nos extratos socioeconômicos mais baixos. Houve algumas diferenças na procura de assistência e na resolução dos problemas de saúde. O estudo mostrou acesso quase universal aos serviços de assistência à saúde, mas os resultados sugerem problemas na qualidade dos serviços e diferenças na qualidade vivenciada pelos grupos socioeconômicos mais baixos, a maioria dos quais utilizavam o Sistema Único de Saúde (SUS).

Serviços de Saúde; Acesso Universal a Serviços de Saúde; Equidade no Acesso; Equidade em Saúde

Resumen

El estudio analizó los factores socioeconómicos asociados a la búsqueda, acceso, uso y calidad de los servicios de asistencia a la salud en São Paulo, Brasil. Los datos fueron obtenidos a partir de dos encuestas domiciliarias de salud en São Paulo. La regresión logística se utilizó para analizar las asociaciones entre factores socioeconómicos y la búsqueda, acceso, uso y calidad de los servicios de asistencia a la salud. El acceso a los servicios de asistencia a la salud era alto entre aquellos que lo buscaban (94,91% en 2003 y 94,98% en 2008). La proporción de acceso y uso de los servicios de asistencia a la salud no se vio modificado de manera significativa entre 2003 y 2008. El uso de servicios en el sector público era más frecuente en los estratos socioeconómicos más bajos. Hubo algunas diferencias en la búsqueda de asistencia y en la resolución de los problemas de salud. El estudio mostró un acceso casi universal a los servicios de asistencia a la salud, pero los resultados sugieren problemas en la calidad de los servicios y diferencias en la calidad experimentada por los grupos socioeconómicos más bajos, la mayoría de los cuales utilizaban el Sistema Único de Salud (SUS).

Servicios de Salud; Acceso Universal a Servicios de Salud; Equidad en el Acceso; Equidad en Salud