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# Barriers in access to healthcare in countries with different health systems. A cross-sectional study in municipalities of central Colombia and north-eastern Brazil

Irene Garcia-Subirats [a,b,*], Ingrid Vargas [a], Amparo Susana Mogollón-Pérez [c], Pierre De Paepe [d], Maria Rejane Ferreira da Silva [e,f], Jean Pierre Unger [d], María Luisa Vázquez [a]

[a] Health Policy and Health Services Research Group, Health Policy Research Unit, Consortium for Health Care and Social Services of Catalonia, Avenida Tibidabo, 21, Barcelona 08022, Spain
[b] PhD Programme in Biomedicine, Department of Experimental and Health Sciences, Universitat Pompeu Fabra, Barcelona, Spain
[c] Escuela de Medicina y Ciencias de la Salud, Universidad del Rosario, Calle 14, Número 6-25, Bogotá, Colombia
[d] The Prince Leopold Institute of Tropical Medicine, Nationalestraat 15, Antwerpen, Belgium
[e] Universidade de Pernambuco, Av. Agamenon Magalhães, S/N, Recife, Brazil
[f] FIOCRUZ/PE, Av. Professor Moraes Rego, s/n, Recife, Brazil

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ABSTRACT

There are few comprehensive studies available on barriers encountered from the initial seeking of healthcare through to the resolution of the health problem; in other words, on access in its broad domain. For Colombia and Brazil, countries with different healthcare systems but common stated principles, there have been no such analyses to date. This paper compares factors that influence access in its broad domain in two municipalities of each country, by means of a cross-sectional study based on a survey of a multistage probability sample of people who had had at least one health problem within the last three months (2163 in Colombia and 2155 in Brazil). The results reveal important barriers to healthcare access in both samples, with notable differences between and within countries, once differences in sociodemographic characteristics and health needs are accounted for. In the Colombian study areas, the greatest barriers were encountered in initial access to healthcare and in resolving the problem, and similarly when entering the health service in the Brazilian study areas. Differences can also be detected in the use of services: in Colombia greater geographical and economic barriers and the need for authorization from insurers are more relevant, whereas in Brazil, it is the limited availability of health centres, doctors and drugs that leads to longer waiting times. There are also differences according to surance companies, and to chronic underfunding of the public system in Brazil. Further research is required, but the results obtained reveal critical points to be tackled by health policies in both countries.





## 1. Introduction

### 1.1. Healthcare reforms in Colombia and Brazil and the political background

Health system reforms were widespread worldwide with the stated goal of improving equity of access and efficiency; most have been spurred by a neoliberal agenda in the context of structural adjustment adopted by governments under the influence of international agencies, and focused on decentralization of public sector responsibilities to sub-national levels of government, the introduction of market and cost-control mechanisms, and

* Corresponding author.
*E-mail addresses:* igarcia@consorci.org (I. Garcia-Subirats), ivargas@consorci.org (I. Vargas), amparo.mogollon@urosario.edu.co (A.S. Mogollón-Pérez), pdpaepe@itg.be (P. De Paepe), rejane@cpqam.fiocruz.br (M.R.F. da Silva), JPUnger@itg.be (J.P. Unger), mlvazquez@consorci.org (M.L. Vázquez).

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privatization (Homedes and Ugalde, 2005). Colombia and Brazil have adopted different strategies to addressing social disparities through universal healthcare. The Colombian government, in which a number of top positions are held by individuals known to have neoliberal ideals, introduced a social security system based on the managed competition model, which has been increasingly exported from the USA to low and middle income countries (Waitzkin and Iriart, 2000). This reform received strong support from international organizations (World Bank, World Health Organization) and social sectors with a significant influence on state decisions, such as international health insurance companies, pharmaceutical companies and medical manufacturers (de Groote et al., 2005). Other social actors, such as AD-M19 and the Patriotic Union, were unsuccessful in their opposition of the reforms (Vega et al., 2012). In contrast, Brazil introduced a national health system supported by progressive political parties and social movements united behind a coalition commonly referred to as the Brazilian Sanitary Reform Movement, which opposes privatization (Ocke-Reis and Marmor, 2010). The Brazilian Sanitary Reform Movement identified democratization as central to the creation of an effective healthcare system, and promoted the construction of a political strategy that encouraged civil-society organizations to demand the universal right to healthcare as a duty of the state (Lobato and Burlandy, 2000). The universal health system began in an unfavourable political and economic climate, which promoted a neoliberal rather than universal approach.

Despite the gains made in the Gini index in both countries over the last decade, they still have the highest coefficients in Latin America (0.59–0.57 in Colombia, and 0.60 to 0.55 in Brazil between 1999 and 2009, respectively (The World Bank Group, 2013), indicating considerable inequalities in income distribution. As a percentage of GDP, public health expenditure increased from 3.7% to 4.6% in Colombia, and from 2.9% to 4.1% in Brazil between 1995 and 2011, respectively (The World Bank Group, 2013).

Via Law 100 (República de Colombia, 1993) Colombia created the General System of Social Security in Health (SGSSS in Spanish), composed of two insurance schemes, the contributory scheme for formal sector employees and people of means, and the subsidized scheme for people without ability to pay; each scheme has a different benefit package, the Obligatory Health Plan (POS in Spanish) for the contributory system, and the Obligatory Health Plan – Subsidized (POS – S) for the subsidized system. Competition was introduced between insurers – Health Promotion Entities (EPS in Spanish) – for the enrolment of the population and between public and private healthcare providers for contracts with the insurers. Insured patients make a copayment according to income and the uninsured pays a percentage of the service according to an income classification system, except for indigenous and indigents, who are exempt from payment. The SGSSS co-exists with other special insurance schemes for workers in certain sectors, such as education, the military and the police, and the petroleum sector (Guerrero et al., 2011). In its 1988 Constitution (Presidência da República, 1988), Brazil formulated its Unified Health System (SUS in Portuguese), funded by taxes, and characterised by universal coverage, free at point of delivery, and decentralized to the federation, states and municipalities, according to the country's political structure. Care is provided by public or contracted private providers.

Both reforms share the stated aim of achieving equity in access to healthcare, although they differ markedly in their approach, reflecting these countries' distinct ideologies. While Colombian reform focuses on universal insurance coverage based on managed competition, the Brazilian system offers universal access to integral care by means of a national health.

Both processes are still far from universal; in Colombia, 12.1% of the population remained uninsured (Profamilia, 2010) and the benefits package of the subsidized scheme was greatly inferior to that of the contributory scheme – while funding increased progressively from 2008, the benefits packages of each system were not matched until the end of 2012 (República de Colombia, 2012). Furthermore, while public spending on health (70.7% of total expenditure) has increased significantly since the reform (Barón-Leguizamón, 2007), around 17% is devoted to administrative costs, of which more than 50% is spent on daily operations and enrolment processes (Cendex, 2000). In Brazil, the SUS is mainly used by lower and lower-middle income strata, who also use private health services, and the middle and high income populations have private insurance and use the SUS for high cost services (Ocke-Reis and Marmor, 2010). Thus the level of private spending, which represents 56.4% of total spending on health, is one of the highest in the region (World Health Organization, 2012). Studies have evaluated the effects of the reform in both countries, focussing on health services utilization as a proxy for healthcare access. These studies show the persistence of inequalities in the use of health services related to SGSSS enrolment in Colombia (Ruiz et al., 2007), to private insurance in Brazil (Paim et al., 2011), and to income and education in both countries.

### 1.2. The evaluation of access to healthcare in the broad domain in Colombia and Brazil

To analyse care access one may consider the *narrow domain* – from the moment the patient seeks care to the moment attention is first received – or the *broad domain* – from perceiving the need for healthcare through to the use of services, including all contact throughout the episode (Frenk, 1985). Some authors extend the latter to include satisfaction with the care received and incorporate aspects of quality and health outcomes (Andersen, 1995). Studies on access barriers tend to focus on initial contact and on a specific type of barrier related to the services or the population.

One approach used with increasing frequency to analyse access is to assess unmet need, in other words, the persistence of need as a result of not receiving adequate treatment (Allin et al., 2010). This is divided into different types including not perceiving a need for care when there is an objective need for it (unperceived unmet need), not seeking attention when a need is perceived (subjective, chosen unmet need), and inadequate treatment when care is received (subjective, non-chosen unmet need). While an analysis of different unmet needs and their causes would allow us to identify access barriers throughout the care trajectory, most existing studies do not distinguish between types (Allin et al., 2010). Quantitative studies, in Colombia and Brazil, which analysze access barriers in the broad domain for the general population based on population surveys, are not available. There is only one available study on unmet needs, which is limited to Brazil (Osorio et al., 2011). Existing studies apply qualitative methods based on one type of care or vulnerable population (Souza et al., 2008; Vargas et al., 2010) and few make reference to barriers across the care continuum for the general population (Cunha and Vieira da Silva, 2010; Vargas et al., 2010). These identify structural service-related barriers to access (insufficient physical and human resources and supplies) and organization (waiting times), which especially affect outpatient secondary care in Colombia and primary care in Brazil. In Colombia, moreover, some studies highlight access barriers related to insurance companies, such as control mechanisms for services utilization (Abadia and Oviedo, 2009; Vargas et al., 2010).

The aim of this study is to contribute to our understanding of the factors that influence access to healthcare, through a comparative analysis of barriers from the initial moment care is sought through to resolution of the problem in selected municipalities of Colombia and Brazil, countries with distinct health systems but common stated principles.

## 2. Methods

### 2.1. Design and study area

A cross-sectional study by means of a population survey was conducted in central Colombia and the northeast of Brazil. The study areas were two municipalities in each country: in Colombia, Kennedy (a district of Bogotá) and Soacha; and in Brazil, two micro-regions (3.2 and 3.3) of District 3 in Recife, Pernambuco's capital, and Caruaru, in the interior of Pernambuco state. These four areas are those of the Equity-LA project (http://www.equity-la.eu/), a broader project in which this study is framed. The areas were selected because they are densely populated urban spaces with a high proportion of individuals with low or medium-low socioeconomic status, and with varying geographical access to specialist care.

### 2.2. Study population and sample

The study population was made up of people who had had at least one health problem or had visited the health services during the three months prior to the survey and who resided in the study areas.

The sample size was calculated for each study area based on the population size and an estimated proportion of 50% (maximum uncertainty principle); degree of confidence: 90% (alpha error of 0.1); precision: 2.5. The sample size was 2163 in Colombia (1083 in Kennedy, 1080 in Soacha) and 2155 in Brazil (1076 in Recife, 1079 in Caruaru).

In both countries, multi-stage probability sampling was conducted. In the first stage, census tracts were randomly selected (in Soacha, from all six *comunas* – i.e. districts) with replacement. In the second stage, households were systematically selected. The sample range was calculated according to sample size and number of households in each neighbourhood; the initial home was randomly selected. The household was considered the primary sampling unit to avoid the effect of associated samples in individuals belonging to a family.

### 2.3. Questionnaire

A questionnaire was designed to analyse access to healthcare. More details on the construction and validation process are described elsewhere (Garcia-Subirats et al., 2014); the questionnaires in Spanish for Colombia and Portuguese for Brazil can be found in Appendix 1. The questionnaire is divided into nine sections. The first collects information on perceived health needs and related behaviour for up to six episodes in the three months prior to the survey. An *episode* was defined as a set of diseases, symptoms or health problems that occur simultaneously and that may or may not lead the individual to seek healthcare. The next four sections refer to their most recent experience within the three months prior to the survey of using different types of healthcare (primary, outpatient secondary, emergency, and inpatient care). The last three sections include: a) a Likert scale to measure care continuity; b) knowledge of the healthcare system; and c) sociodemographic data. The Colombian questionnaire has an additional section related to insurance enrolment.

### 2.4. Data collection

Data were collected by specifically trained interviewers between February and June of 2011 by means of face-to-face interviews.

Strategies to ensure the quality and consistency of data included close supervision of interviewers in the field, review of all questionnaires, and re-interviewing of 20% of participants, selected randomly. Inconsistencies during data entry were controlled using the double-entry method.

### 2.5. Ethical considerations

Ethics approval was obtained from the ethics committees in the participating countries: the National Committee of Research Ethics in Brazil; the Research Ethics Committee of the Health Sciences School of Universidad del Rosario in Colombia; the Institutional Review Board of the Institute of Tropical Medicine in Belgium; and the Clinical Research Ethics Committee of Parc de Salut Mar in Spain.

All interviewees participated on a voluntary basis, after signing an informed consent. The right to refuse to participate or withdraw from the survey, anonymity and confidentiality were guaranteed, as was data protection.

### 2.6. Variables

Outcome variables were barriers to healthcare access that may be encountered at various stages: a) barriers to seeking healthcare and to seeking healthcare outside the SGSSS or SUS services (yes/no answers), and reasons for not seeking healthcare, and for seeking healthcare outside the SGSSS or SUS systems (open-ended questions "*Why did you not resort to the health services?*" and "*Why did you not resort to the SUS/your EPS's health services?*", respectively). To include only perceived healthcare needs, those who reported that they didn't need care were excluded; b) having been attended to, and reasons for not being attended to by healthcare services, elicited using the question, "*Why were you not attended to?*"; and c) problems in the use of the SGSSS and SUS services due to waiting times (for getting an appointment (days), for being attended to (days)); payments made (for consultation, drugs and tests, calculated in Purchasing Power Parity ($PPP), distance (in time) to health facilities, resolution of the problem, and finally and reasons for failure to resolve the problem ("*On this occasion, has the doctor solved your health problem? Why not?*").

Explanatory variables. The socio-demographic variables were: sex, level of education; household income; type of SGSSS insurance scheme (Colombia only) and, in both countries, being a holder of a private health plan. Healthcare need was estimated using a set of variables: age, self-rated health, and having a chronic health condition (O'Halloran et al., 2004).

### 2.7. Data analysis

A univariate analysis was performed to describe the distribution of the outcome and explanatory variables and a bivariate analysis to compare results between countries, using the chi-square test for categorical variables and a *t*-test or ANOVA for continuous variables. The median of the waiting times was also calculated. Finally, multivariate analyses were carried out using logistic, multinomial or linear regression according to the dependent variable under study. Analyses of problems in the use of the SGSSS and SUS were stratified by type of care (primary, outpatient secondary, emergency, or inpatient care) and adjusted for sociodemographic and health needs variables.

Analyses were also stratified by area (Soacha and Kennedy in Colombia, and Recife and Caruaru in Brazil) and by insurance scheme in Colombia (contributory, subsidized, special and uninsured); differences according to area or insurance scheme are only presented when they remained statistically significant after adjustment for independent variables. Analyses were carried out using STATA, v12.

## 3. Results

*Colombia* and *Brazil* are used to refer to the study areas even though the results are not extrapolated to the entire country.

**Table 1**
Sociodemographic characteristics, perceived health need and indicators of seeking healthcare of the study sample.

| | Colombia | | | Brazil | | | *p*_value chi-square test |
|---|---|---|---|---|---|---|---|
| | *n* | % | CI[a] 95% | *n* | % | CI[a] 95% | |
| *Sociodemographic characteristics* | | | | | | | |
| Sex | (*n* = 2163) | | | (*n* = 2155) | | | |
| Man | 691 | 32.0 | | 626 | 29.0 | | |
| Woman | 1472 | 68.0 | | 1529 | 71.0 | | |
| Age | (*n* = 2163) | | | (*n* = 2155) | | | |
| 0–17 | 300 | 13.9 | | 483 | 22.4 | | |
| 18–40 | 667 | 30.8 | | 497 | 23.1 | | |
| 41–65 | 909 | 42.0 | | 766 | 35.6 | | |
| >65 | 287 | 13.3 | | 409 | 19.0 | | |
| Level of education | (*n* = 2149) | | | (*n* = 2110) | | | |
| None | 344 | 16.0 | | 623 | 29.5 | | |
| Primary | 804 | 37.4 | | 583 | 27.6 | | |
| Secondary | 821 | 38.2 | | 798 | 37.8 | | |
| University | 180 | 8.4 | | 106 | 5.0 | | |
| Income | (*n* = 2143) | | | (*n* = 2133) | | | |
| <1 MW[b] | 992 | 46.3 | | 785 | 36.8 | | |
| 1 MW[b]–2 MW[b] | 690 | 32.2 | | 750 | 35.2 | | |
| 3 MW[b]–4 MW[b] | 372 | 17.4 | | 439 | 20.6 | | |
| >4 MW[b] | 89 | 4.2 | | 159 | 7.5 | | |
| Private insurance | (*n* = 2066) | | | (*n* = 2155) | | | |
| Yes | 42 | 2.0 | | 434 | 20.1 | | |
| No | 2024 | 97.8 | | 1721 | 79.9 | | |
| SGSSS[c]scheme | (*n* = 2044) | | | | | | |
| Contributory | 1144 | 56.0 | | | | | |
| Subsidized | 572 | 28.0 | | | | | |
| Special | 97 | 4.8 | | | | | |
| Uninsured | 231 | 11.3 | | | | | |
| *Perceived healthcare need* | | | | | | | |
| Self-rated health | (*n* = 2162) | | | (*n* = 2155) | | | |
| Good | 1346 | 62.3 | 60.2–64.3 | 962 | 44.7 | 42.6–46.8 | |
| Poor | 816 | 37.7 | 35.7–39.8 | 1192 | 55.3 | 53.2–57.4 | |
| Chronic condition | (*n* = 2163) | | | (*n* = 2155) | | | |
| Yes (at least one) | 650 | 30.0 | 28.1–32.0 | 903 | 41.9 | 39.8–44.0 | |
| No | 1513 | 70.0 | 68.0–71.9 | 1252 | 58.1 | 56.0–60.2 | |
| *Health care seeking in last three months* | | | | | | | |
| Resorted to the health care services | (*n* = 2912) | | | (*n* = 2764) | | | |
| Yes (at least once) | 2106 | 72.3 | 70.7–73.9 | 2317 | 83.8 | 82.4–85.2 | <0.001 |
| People with chronic condition | 644 | 87.3 | 84.9–89.7 | 912 | 91.1 | 89.3–92.9 | 0.010 |
| People without chronic condition | 1462 | 67.3 | 65.3–69.2 | 1405 | 79.7 | 77.8–81.6 | <0.001 |
| Level of the continuum of care sought | (*n* = 2106) | | | (*n* = 2317) | | | |
| Primary care | 1473 | 69.9 | 68.0–71.9 | 1249 | 53.9 | 51.9–55.9 | <0.001 |
| Outpatient secondary care | 501 | 23.8 | 22.0–25.6 | 627 | 27.1 | 25.3–28.9 | 0.013 |
| Emergency care | 439 | 20.9 | 19.1–22.6 | 796 | 34.4 | 32.4–36.3 | <0.001 |
| Inpatient care | 95 | 4.5 | 3.6–5.4 | 106 | 4.6 | 3.7–5.4 | 0.919 |
| Type of health system sought | (*n* = 2106) | | | (*n* = 2317) | | | |
| Covered by SGSSS[c], SUS[d] | 1951 | 92.6 | 91.6–93.8 | 1805 | 77.9 | 76.2–79.6 | |
| Not covered | 129 | 6.1 | 5.1–7.2 | 429 | 18.5 | 16.9–20.1 | |
| Both (covered and not covered) | 24 | 1.1 | 0.7–1.6 | 83 | 3.6 | 2.8–4.3 | |
| Refused attention | (*n* = 2077) | | | (*n* = 2289) | | | |
| Yes (at least once) | 22 | 1.1 | 0.6–1.5 | 244 | 10.7 | 9.4–11.9 | <0.001 |

[a] CI, Confidence Interval.
[b] MW, Minimum wage.
[c] SGSSS: General System of Social Security in Health.
[d] SUS, Unified Health System.

### 3.1. Sample characteristics

In both samples the majority of participants were women, and while there was a predominance of the central age groups in Colombia (18–40 years), the distribution was similar across all age groups in Brazil. Level of education was higher in the Colombian sample, whereas the percentage of high-income individuals was greater in Brazil, despite the predominance of lower income categories. With regard to SGSSS enrolment, distribution varies between areas: in Soacha, in comparison with Kennedy, the percentage of enrolees in the subsidized scheme was higher (38.8% and 17.0%, respectively), as was the percentage of uninsured (13.8% and 8.8%); conversely the percentage of enrolees in the contributory scheme was lower (44.9% and 67.1%). The socioeconomic level of individuals in the subsidized scheme or who were uninsured was lower than in the contributory scheme: 95.1%, 89.1% and 69.2%, respectively, declared a household income of less than 2 MW in the previous month (Table 1).

Self-rated health was better in Colombia: 62.3% reported good or very good health, compared to 44.7% in Brazil (Table 1).

In most episodes there was a perceived need for care – 86.1% in Colombia and 85.9% in Brazil and, of these, 72.3% and 83.8% sought healthcare respectively. Of the individuals who sought care, more than half resorted to primary care, although more in

Colombia than in Brazil (69.9% and 53.9% respectively), followed by outpatient secondary care in Colombia (23.8%) and emergency services in Brazil (34.3% – notably different to Colombia's 20.9%) (Table 1).

### 3.2. Barriers in seeking healthcare

Of the episodes with a perceived healthcare need, 27.7% in Colombia and 16.2% in Brazil did not seek care (Table 1), this being more frequent in acute (32.8% in Colombia and 20.3% in Brazil) than in chronic episodes (12.7% in Colombia and 8.9% in Brazil). Furthermore, there were significant differences in Colombia between insurance schemes after adjustment for independent variables: healthcare was not sought in 15.7% of episodes in the special scheme, 21.1% in the contributory scheme, 30.6% in the subsidized scheme and in 57.7% of episodes among uninsured people. In Brazil, differences were mainly area specific: in Recife, 11.5% did not seek healthcare, compared to 20.9% in Caruaru.

The principal reasons for not seeking healthcare are related to the health services (Fig. 1a), primarily the long waiting times,

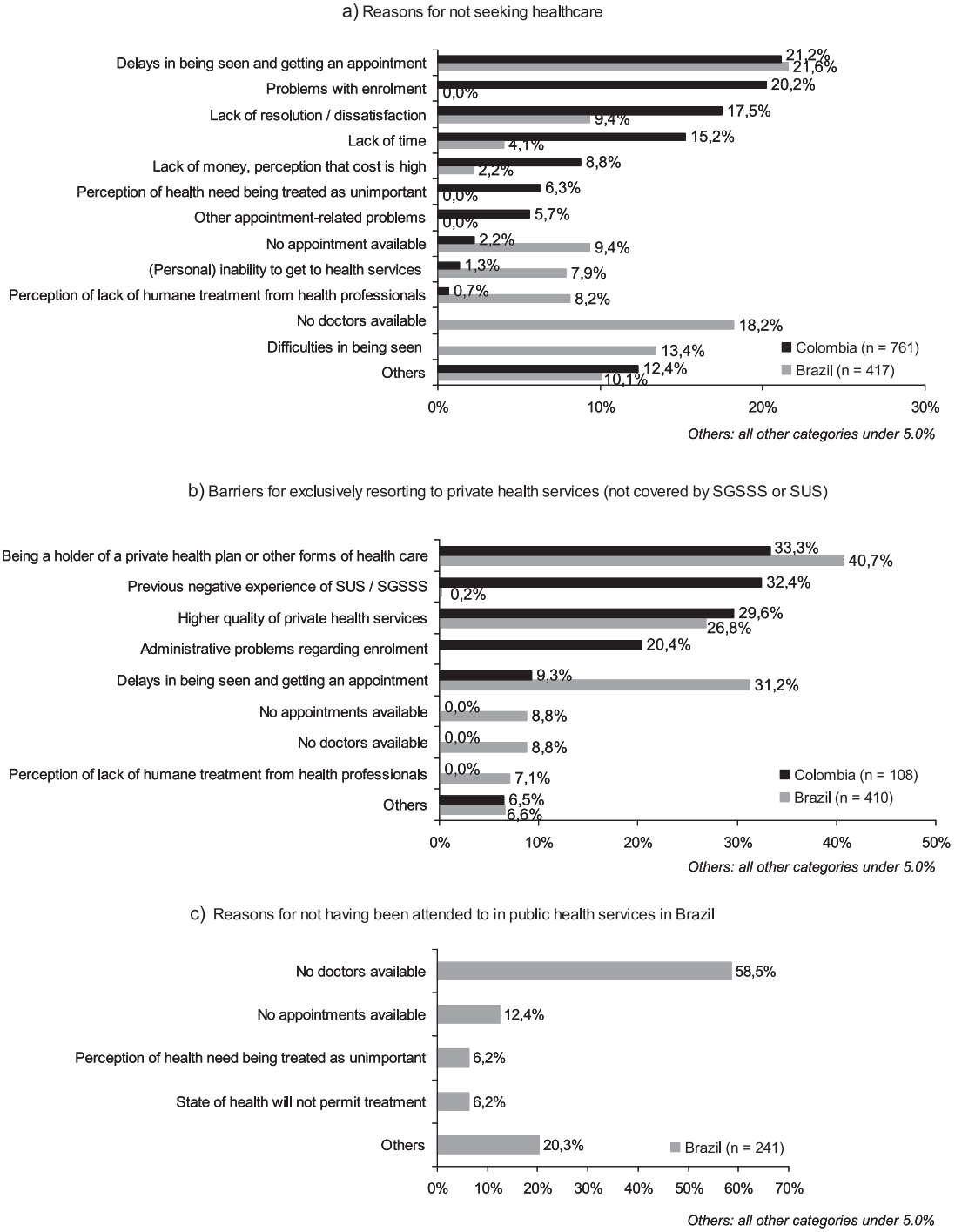



**Fig. 1.** Barriers in seeking healthcare in the three months prior to the survey.

reported by 21.2% in Colombia and 21.6% in Brazil. In Colombia, 20.2% also reported problems related to insurance enrolment (multi-affiliated, uninsured or problems with the EPS information system), mostly individuals in the subsidized scheme or uninsured, and 17.5% lack of resolution of the health problem. In Brazil, participants reported the scarcity of resources such as the unavailability of doctors (18.2%) and appointment times (9.4%) – with greater force in Caruaru, 21.7% and 12.3% – and the difficulties involved in being attended to (13.4%). Among the reasons related to the population, the most common were lack of time (15.2% in Colombia and 4.1% in Brazil) and, in Colombia, lack of money (8.8%).

In 6.1% and 18.5% of episodes in Colombia and Brazil, respectively, healthcare was sought exclusively at services outside the SGSSS or SUS, with this difference being statistically significant adjustment for independent variables. In addition, there were also statistically significant differences between countries, schemes and areas, with the highest proportion of private services use occurring among the uninsured in Colombia (32.1% of episodes) and among Caruaru population (26.4%) in Brazil. The reasons given for only using these services, in addition to being a holder of private health plan, were problems with the SGSSS/SUS services, such as a previous negative experience (32.4%) in Colombia, lower perceived quality (29.6% in Colombia, 26.8% in Brazil) and long waiting times in Brazil (31.2%) (Fig. 1b).

### 3.3. Barriers for entry to the health services

Nearly all episodes for which healthcare was sought in the SGSSS (Colombia) were attended to, whilst 10.7% in the SUS (Brazil) did not receive attention (Table 1), with a significantly higher percentage in Caruaru (14.4%) than in Recife (7.3%). Of the occasions on which attention was not received, 60.0% were in primary care and 30.3% in emergency care, and the main reasons given were the lack of doctors or of appointment times (Fig. 1c).

### 3.4. Barriers in the utilization of services

These results refer to the most recent episode attended to in the SGSSS and SUS in the three months prior to the survey (primary care: 1101 and 774; outpatient secondary care: 405 and 329; emergency care: 306 and 582; and inpatient care: 94 and 93, respectively).

#### 3.4.1. Waiting times

In primary care (PC) and outpatient secondary care (SC) waiting times to get an appointment and up to the actual date of the consultation were lower in Colombia than in Brazil. The mean waiting time in PC was 9.8 days (median: 8) in Colombia and 15.0 days (median: 4) in Brazil, with much higher waiting times in Brazil to actually get an appointment (in Colombia, this is practically nonexistent) and similar waiting times in the two countries for the time waited up to the consultation date (Fig. 2a and b). A considerable proportion of users considered that waiting times up to the consultation PC date were long (42.2% in Colombia, 39.8% in Brazil).

In SC, mean waiting times were also notably lower in Colombia (26.7 days; median: 15) than in Brazil (50.2 days; median: 22), with significant difference in the time it takes to get an appointment (Fig. 2c and d). A considerable proportion of users, more in Colombia (59.9%) than in Brazil (43.7%), considered that waiting times up to the consultation SC date were long.

Significant differences were found between schemes in Colombia and between areas in Brazil. The mean waiting time up to the consultation date in SC was lower in the subsidized (20.1 days, median: 15) than in the contributory scheme (31.4 days, median: 20). In Recife mean of the total waiting times were higher than in Caruaru, both in PC (18.9 days and 10.3 days respectively, median: 7 and 1 day) and in SC (mean: 57.9 and 36.8 days, median: 30 and 15).

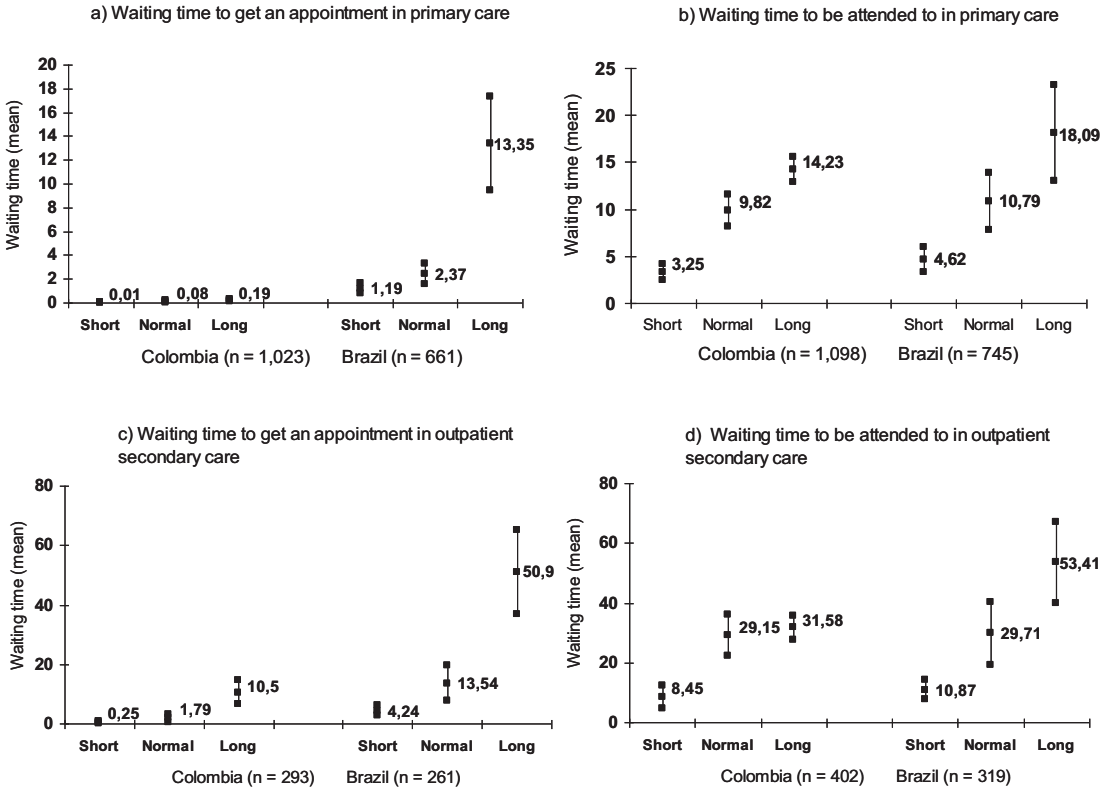



**Fig. 2.** Relationship between waiting time (in days) and users' perceptions, in primary and outpatient secondary care in public health services, according to country.

**Table 2**
Cost according to type of care and country (Purchasing Power Parity, $PPP).

| | | Colombia | | | | | Brazil | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N[a] | n[b] | % | Mean cost | CI[c] 95% | N[a] | n[b] | % | Mean cost | CI[c] 95% |
| Primary care | Consultation | 1101 | 614 | 55.9 | 2.63 | 2.39–2.87 | 774 | – | – | – | – |
| | Drugs | 867 | 492 | 56.8 | 3.82 | 3.05–4.60 | 544 | 151 | 27.8 | 17.21 | 13.17–21.24 |
| | Tests | 489 | 223 | 45.6 | 4.73 | 3.73–5.72 | 346 | 46 | 13.3 | 50.01 | 25.97–74.05 |
| | Total | 1101 | 1064 | | 4.07 | 3.53–4.62 | 774 | 756 | | 6.01 | 4.09–7.93 |
| Outpatient secondary care | Consultation | 405 | 225 | 55.8 | 3.39 | 2.80–3.98 | 329 | – | – | – | – |
| | Drugs | 233 | 142 | 60.9 | 12.73 | 6.50–18.97 | 211 | 74 | 35.1 | 28.01 | 22.30–33.72 |
| | Tests | 245 | 136 | 55.5 | 7.22 | 5.07–9.37 | 211 | 19 | 9.0 | 57.92 | 37.89–77.96 |
| | Total | 405 | 388 | | 8.78 | 6.17–11.40 | 329 | 315 | | 9.00 | 6.30–11.71 |
| Emergency care | Consultation | 306 | 73 | 24.5 | 4.36 | 2.89–5.83 | 582 | – | – | – | – |
| | Drugs | 237 | 115 | 48.5 | 5.89 | 3.83–7.96 | 304 | 181 | 59.5 | 16.80 | 14.22–19.37 |
| | Tests | 133 | 28 | 21.1 | 26.17 | 0.00–53.85 | 190 | 12 | 6.3 | 106.76 | 47.37–172.14 |
| | Total | 306 | 284 | | 5.44 | 2.11–8.77 | 582 | 548 | | 7.08 | 5.17–8.98 |
| Inpatient care | Consultation | 94 | 34 | 36.2 | 214.14 | 29.25–399.03 | 93 | – | – | – | – |

[a] N, number of users.
[b] n, number of users that actually paid.
[c] CI, Confidence Interval.

### 3.4.2. Authorizations

Whilst in Brazil authorization is practically non-existent (in 0.9% for drugs and 1.5% for tests), in Colombia users needed authorization from their insurance company in the following cases: for appointments, in 33.3% of consultations with a specialist doctor; for drugs, in 17.4% of PC, SC or emergency care consultations in which prescriptions were issued; and for medical tests, in 36.4% of PC and SC consultations in which tests were requested. Approximately half of users considered that waiting times for authorization to be processed were long. Authorization requests for appointments with specialists were significantly higher in the subsidized scheme (46.1%) than in the contributory scheme (29.5%).

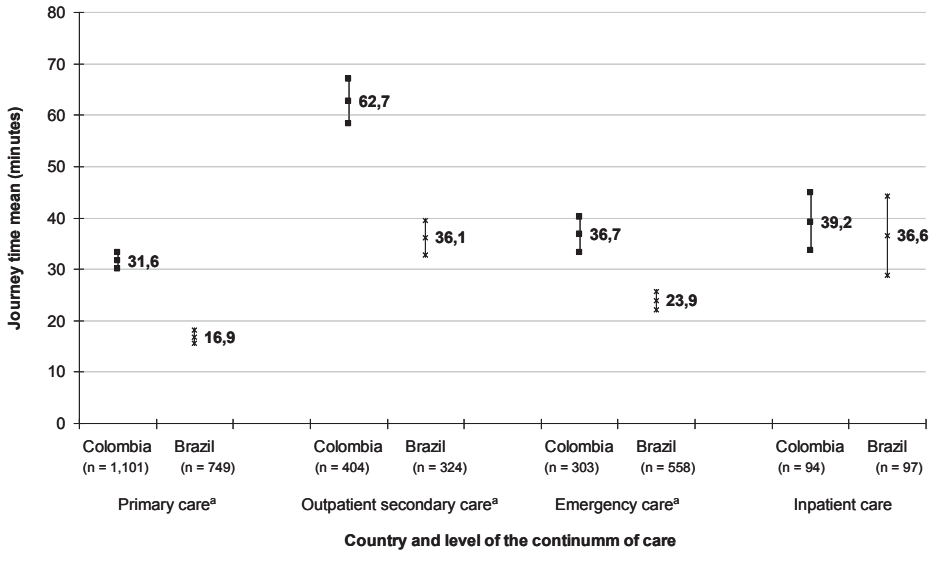
### 3.4.3. Costs

The proportion of users who actually paid for their consultation, drugs or tests was higher in Colombia than in Brazil for all care levels, except for drugs in emergency care (Table 2). The average costs for those who pay, however, were higher in Brazil, with the exception of drugs in hospital admissions. Approximately 30% of Colombian users consider the price of consultations, drugs and tests to be high at all care levels, and 60.6% in inpatient care. The proportion was higher in Brazil (~60%) for drugs and tests (consultations and hospitalization are not charged). There were significant differences between schemes in Colombia and areas in Brazil in the proportion of users who pay: this was always higher in the contributory scheme than in the subsidized scheme, except for tests in SC; and higher in Caruaru for drugs in PC and in emergency care and tests in SC.

Among the reasons given for paying, 79.1% ($n = 829$ individuals) of those who paid for drugs and tests in Colombia stated that it was a co-payment and 16.7% (175) stated that they were not covered by the SGSSS (*out-of-pocket*). The proportion differs according to the scheme: in the subsidized scheme and contributory scheme, 40.2% (37) and 13.4% (114) paid due to lack of coverage, respectively. In Brazil, most of those who paid for drugs (79.2%, $n = 312$) did so because they were not available at the SUS (health centre, state-run pharmacy, etc.), whilst they mainly paid for tests because they had them done outside the SUS services in order to avoid delays in the SUS (69.7%, $n = 53$). All are out-of-pocket payments.

### 3.4.4. Geographical accessibility

Journey times to reach health services were significantly longer in Colombia for all types of care except hospitals, and up to twice as long in PC and SC (Fig. 3). Understandably, the proportion of those




[a] The difference in journey times between countries is significant (p<0.05)

**Fig. 3.** Journey time (minutes) to the healthcare service according to care level and country.

who consider their journey time to be long is also higher: 27.5% in PC, 49.9% in SC, 36.0% in emergency care and 37.2% in inpatient care, compared to much lower percentages in Brazil: 13.3%, 34.5%, 23.1% and 23.8% respectively.

Journey times in the contributory scheme for PC and emergency care were statistically longer than the subsidized, and in Soacha for all types of care except for journeys to the hospital.

#### 3.4.5. Resolution of the health problem

The proportion of individuals who reported not having their health problem resolved was higher in Colombia than in Brazil for all types of care (Table 3). The difference was significant in primary and emergency care: in Colombia, 27.0% of users attended to in PC and 30.5% in emergency care; whilst in Brazil, 21.9% and 20.2%, respectively. Resolution in the subsidized (34.7%) is significantly lesser than in the contributory scheme (23.8%), and less in (Soacha 33.3%) than in Kennedy (19.9%).

The main reason for claiming that the problem was not resolved was that there had been no improvement (29.9% in Colombia and 26.9% in Brazil, mainly in PC and emergency care). In second place, users reported problems with tests (main reason in SC) – in Colombia due to the tests not having been carried out (10.0%) and in Brazil due to delays in delivering the results (15.5%). Other reasons given were that the drugs did not work (8.4% in Colombia, 10.5% in Brazil) and that they did not manage to get an appointment (8.4%) in Colombia. In Brazil, referral to another service (12.7%) or that nothing was done (10.8%) were further reasons.

## 4. Discussion

### 4.1. What this study contributes to current knowledge

This study, conducted in two municipalities of northeast Brazil and central Colombia, and even though we should be cautious in generalizing the results, tackles a central policy concern for health systems: the access barriers encountered from the moment healthcare is sought through to resolution of the health problem, a matter which until now has been little explored in scientific research (Allin et al., 2010). Furthermore, it applies a common methodology in both countries with the generation of primary data, which allows us to identify elements in each system that influence access and thus to get around the difficulties involved in comparing international studies based on secondary data. Moreover, incorporating open-ended questions allows us to analysze the perceived barriers in detail and to add new results to those provided by national surveys. The results show that a significant proportion of individuals with healthcare needs do not resort to the health services, encounter barriers in the use of those services, and claim that their problem was not resolved, indicating high levels of unmet healthcare needs. The type, magnitude and stage in the trajectory at which these barriers are encountered varies between countries and care levels, and also between insurance scheme in Colombia and between the state capital and the interior in Brazil.

**Table 3**
Resolution of health problem according to care level.

| | Colombia | | Brazil | | $p$_value chi-square test |
|---|---|---|---|---|---|
| | $n$ | % | $n$ | % | |
| Primary care | ($n = 1096$) | | ($n = 767$) | | 0.047 |
| Resolved | 571 | 52.1 | 429 | 55.9 | |
| Partially resolved | 236 | 21.5 | 174 | 22.7 | |
| Not resolved | 289 | 26.4 | 164 | 21.4 | |
| Outpatient secondary care | ($n = 400$) | | ($n = 321$) | | 0.963 |
| Resolved | 191 | 47.8 | 150 | 46.7 | |
| Partially resolved | 115 | 28.8 | 94 | 29.3 | |
| Not resolved | 94 | 23.5 | 77 | 24.0 | |
| Emergency care | ($n = 303$) | | ($n = 581$) | | 0.008 |
| Resolved | 176 | 58.1 | 368 | 63.3 | |
| Partially resolved | 42 | 13.9 | 102 | 17.6 | |
| Not resolved | 85 | 28.1 | 111 | 19.1 | |
| Inpatient care | ($n = 94$) | | ($n = 93$) | | 0.255 |
| Resolved | 62 | 66.0 | 65 | 69.9 | |
| Partially resolved | 13 | 13.8 | 17 | 18.3 | |
| Not resolved | 19 | 20.2 | 11 | 11.8 | |

### 4.2. Significant barriers to seeking healthcare

In a considerable proportion of episodes, individuals with care needs do not seek healthcare in the areas studied in both countries, especially among enrolees in the subsidized scheme and uninsured people in Colombia and in the interior municipalities in Brazil. These figures are generally higher than those reported by the national surveys in Colombia (20.6%; (Profamilia, 2010) and for each scheme (26.0% for the uninsured, and 9.8% for the subsidized); (Departamento Administrativo Nacional de Estadística, 2009), and are similar to those reported by the National Household Sample Surveys in Brazil, 17.7% in 2008, which is much higher than that of other public and private health systems (Osorio et al., 2011). The level of unmet needs questions the protection offered by the systems analysed and the widespread use services utilization measures in order to evaluate access. Thus, studies that describe few or no differences in the use of healthcare services between insurance schemes (Giedion and Uribe, 2009; Ruiz et al., 2007) in Colombia appear to overlook inequalities reflected in the decision of whether or not to seek care.

Individual factors that discourage people from seeking healthcare appear to be less important than those related with the design and organization of the health system, including shortfalls in infrastructure, the organization and quality of services, and also to problems with enrolment in Colombia. These results are consistent with those from national surveys (Osorio et al., 2011; Zambrano et al., 2008). In contrast, lack of money is less commonly cited, a difference that may be due to the use of closed questions in those surveys, which limits users' responses and does not allow them to identify other more relevant reasons, such as enrolment problems, staff shortages, or appointment times in their health centres.

### 4.3. Barriers for entry to the health services

Although one would anticipate a lower proportion of refusals in a national health system with universal access than in a managed competition model in which the pursuit of profitability leads insurers and providers to impose barriers on access, our results obtained indicate quite the opposite. This may be due firstly to the high proportion of individuals in Colombia who decide not to seek care in order to avoid being rejected, and secondly to the barriers imposed by insurers within the services rather than at point of entry (Vázquez et al., 2012).

The percentage of users who were refused care in the Brazilian study areas, particularly in primary and emergency care (7% in Recife, similar that for Brazil as a whole (Paim et al., 2011); and considerably higher in Caruaru, at 14.4%) appears to indicate that the problems of insufficient human resources described for the SUS and especially in the north and northeast are intensified in municipalities in the interior of the country (Machado and Pereira, 2002).

### 4.4. Access barriers to the use of services

Although we observe that some barriers encountered during the patient's trajectory are common to both countries, there are

significant differences: while poor geographical accessibility, costs, and insurers' authorization demands are more relevant in the Colombian areas, long waiting times caused by shortfalls in human and physical resources appear to be more important in the Brazilian areas. Differences were also observed between insurance schemes in Colombia: the subsidized scheme has better geographical accessibility, shorter waiting times and fewer financial barriers, but also more authorizations and poorer patient perception of problem resolution than the contributory scheme.

#### 4.4.1. Poorer geographical accessibility in Colombia

Geographical access to health services is poorer in the Colombian study areas than in the Brazilian areas, with significant differences between schemes and areas. One point worth highlighting is the fact that the geographical barriers are greater in the contributory scheme, which has more resources per enrolee in these two predominantly urban areas. This result is consistent with other studies (Vargas et al., 2010) and may be related to the fact that insurers of the subsidized scheme are obliged to contract public primary care centres, whose services networks are georeferenced, whereas the contributory scheme has freedom to contract any centre and prioritizes economic rather than geographical criteria.

#### 4.4.2. Higher care costs in Colombia

In Colombia the percentage of users who make some form of payment for care (copayments or payments for services not included in their benefit package) is much higher. Although copayments are lower and the low income population is exempt, the low level of coverage of the subsidized benefits package means that a significant percentage of users have to cover the costs of care themselves. In the contributory scheme, copayment could also constitute a considerable access barrier because of the predominance of families with low socioeconomic level.

In the SUS, where copayments do not exist, the proportion of users who pay is lower, but the lack of drugs, particularly in emergency care, and long waiting times for tests lead users to acquire these privately (Cunha and Vieira da Silva, 2010), and at a higher average cost than in Colombia. These two types of barriers are cited with notable frequency in access studies for the majority of Brazil's regions (Souza et al., 2008; Vieira da Silva et al., 2010) and are usually associated with both underfunding of the SUS and the weak regulation of the private sector, which manages most of the SUS diagnostic services (Solla and Chioro, 2009).

#### 4.4.3. Access barriers related to insurers in Colombia: authorization

The need for authorization from the insurer to use certain services, mainly in outpatient secondary care, is another element of the Colombian health system that is perceived as a barrier, due to the time this requires. Authorization is the only mechanism that can be readily identified by users, although various qualitative studies on managed competition models that have also taken the viewpoint of professionals and service managers into account (Abadia and Oviedo, 2009; Christianson et al., 2005; Vargas et al., 2010) reveal that insurers use this and other mechanisms (e.g. limits in clinical practice, per capita payment, etc.) to limit user access, which may be the underlying cause of some of the problems identified. Abadia et al. provide a diagram of the path that Colombians need to follow to have their healthcare needs attended to by the system (Abadia and Oviedo, 2009).

#### 4.4.4. Longer waiting times in Brazil associated with insufficient resources

Waiting times for all care levels are longer in the Brazilian areas than in the Colombian areas, although there are differences between areas and schemes. In Brazil, poor accessibility to PC may also be the cause of longer waiting times in SC, in that it receives health problems that could have been resolved in PC, together with the shortage of medium complexity services (Solla and Chioro, 2009). Understaffing of doctors, further exacerbated by timetables not being fulfilled and limited implementation of the family health strategy, together with limited dedication to curative care are among the causes identified. Moreover, difficulties in getting appointments may be related to the use of strategies to restrict use (queues, fixed schedules), which have also been described in other regions of the country (Cunha and Vieira da Silva, 2010; Souza et al., 2008; Vieira da Silva et al., 2010). It is worth noting that waiting times are appreciably lower in the interior municipality, which may be due to the fact that services in the capital also receive patients from other municipalities of the state and the region.

### 4.5. Poor quality of healthcare services

Poor quality of care emerges repeatedly as an access barrier throughout the patient's trajectory in the areas analysed in both countries, discouraging patients from seeking care, giving them reasons to use care not covered by SGSSS or SUS, and generating a perception of poor resolution of health problem. Although no studies of broad domain access are available for either of these countries, national surveys in Colombia also highlight the perception of poor quality as a growing motive for not using health services (Zambrano et al., 2008).

A significant percentage of users, particularly in Colombia, perceive that services do not resolve their health problem, and therefore they do not 'gain access' to the services in the broadest sense of the term. Analysis of the reasons for this seems to indicate problems with the technical and scientific quality of the care, and, to a lesser degree, with access barriers to diagnostic tests and consultations. The shortage of existing studies (Turrini et al., 2008) highlights the need to study this field in greater depth.

## 5. Conclusion

Accessing healthcare in the Colombian SGSSS and the Brazilian SUS is complicated, despite this being a central objective of the reforms introduced. Barriers to access appear throughout the trajectory, especially at the initial moment of seeking care and in health problem resolution in the case of the SGSSS, and in entry to services in the SUS. Although some common barriers were identified (waiting times or limited quality of the services), others are more specific to each health system. In the SGSSS, differential barriers to access include enrolment status and insurance scheme (care payments, and different benefit packages), or barriers related to intermediaries who do not guarantee geographical access or who use mechanisms such as the authorization of services to control access. In the SUS, refusal of care, prolonged waiting times related to the shortfall in human and physical resources are most important. The former barriers indicate the inexistence of a unified and universal social security in health system and failures in the market mechanisms introduced, despite 16 years of attempts to unify benefit packages and regulatory effort, and the latter highlight insufficient funding of the SUS to ensure universal coverage.

Finally, two new policy initiatives that may lead to an improvement in access barriers should be noted. First, in Colombia a new law has come into effect to equalize the benefits package in the two schemes (República de Colombia, 2012) and second Brazil recently introduced the "More Doctors Program", whose aim is to improve doctor availability in areas with shortage. The effect of theses two policy initiatives on access to healthcare should be the object of future analysis.

The analysis highlights critical points in access that must be tackled by public policy in both countries, as well as certain elements that contribute to the debate on health system models and their relationship with access. However, further research is required based on the broad domain of access in order to improve our understanding of the problem in other contexts, with different actors and diverse methodological approaches.

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## Appendix A. Supplementary data

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