Understanding how low-income communities gain access to healthcare services: A qualitative study in São Paulo, Brazil

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ARTICLE INFO

ABSTRACT

Introduction: Accessibility to healthcare is recognised as an important component in the uptake of healthcare. Accessibility gaps may underpin health inequalities and the burden often born by socially disadvantaged groups who experience higher levels of disease and have shorter lives. This study aims to identify, from the perspective of people on low incomes, the determinants of their ease of access to healthcare, and how this impacts upon short- and long-term mobility strategies for activity participation.

Methods: The research takes a qualitative approach, guided by a conceptual framework that combines transport disadvantage and social exclusion perspectives with human needs theories. We employed focus groups to gather views and experiences on healthcare accessibility from 114 residents of 12 low-income neighbourhoods in São Paulo (Brazil).

Results: Five emergent themes encompass the main barriers to healthcare accessibility, namely: proximity and remoteness, walking safety, public transport services, personal security issues, and quality of healthcare services. Participants explained the difficulties of gaining access to healthcare beyond factors such as location and distance. A range of inter-related, multi-dimensional factors shapes the accessibility of the poor to healthcare in São Paulo. Even under severe financial and time constraints, people may travel longer to access facilities perceived as adequate to respond to their health needs. Participants' narratives suggest a strong effect of healthcare inadequacies, such as the poor quality of the patient-provider relationship and the long times needed to receive medical care, on mobility strategies.

Conclusions: Within policy setting agendas in Brazil, "objective" assessments of people's ability to access healthcare tend to over-emphasise the spatial separation between patients' home locations and the physical location of healthcare services, most notably in terms of travel time or distance. Tackling health inequalities requires planners to design integrated transport and health policies taking into consideration the **adequacy and quality** of both transport and healthcare services.

1. Introduction

Access to healthcare is considered as a citizen's right in most countries, as it is known to influence healthcare uptake and, subsequently, health outcomes, which impact on the prevalence of diseases and life expectancy (World Health Organization, 2008). The conceptualisation of access to healthcare has evolved to reflect a wide range of factors related to the supply of, and demand for, healthcare services. This multidimensional framing comprises, on the one hand, the location, availability, cost, appropriateness and

quality of health resources and, on the other, users' needs and abilities to engage with the care opportunities, including socio-economic circumstances, cultural-specific perceptions of illness, information level, acceptability of healthcare use, financial afford-ability and patients' preferences (Gulliford and Morgan, 2003; Levesque et al., 2013; Penchansky and Thomas, 1981; Peters et al., 2008).

Differences in access and uptake of healthcare opportunities underpin systematic disparities of health status between population groups according to their socioeconomic positioning (Whitehead and Dahlgren, 1991; Wilkinson and Marmot, 2003). More affluent people tend to make more use of healthcare services (Graham, 2010), as they have a larger choice set for medical services, being able to secure the benefits of more distant health services since they may face lower cost and time budgetary constraints (Marmot et al., 2010). There is strong evidence linking social disparities in terms of income, educational level, employment status, gender and ethnicity to health inequalities (Evans et al., 1994; Marmot, 2016; Marmot and Wilkinson, 2006). For instance, in the British context, health inequalities were given prominence with the publication of the 1980 Black Report, which demonstrated a gradient of mortality across social classes for a wide range of specific causes of death (Donaldson et al., 2009). Following this report, other studies such as the 2010 Whitehall Report showed that civil servants at the bottom of the occupational ladder in Great Britain were four times more likely to die at a specific period in comparison to those at the top of the ladder (Graham, 2010). Similarly, studies conducted in several other geographical contexts (e.g. United States, Sweden, Russia, Chile, South Africa, among other countries) have supported the positive association between socioeconomic status and health outcomes (Evans et al., 2001; Feinstein, 1993; Marmot and Wilkinson, 2006).

Spatial access (or accessibility) to healthcare is regarded as one important component within the uptake of healthcare services. Accessibility generally refers to the effort in terms of time and cost to overcome the spatial separation between population and healthcare providers (Cromley and McLafferty, 2012; Joseph and Phillips, 1984). Accessibility is associated with the physical location of the services and people's ability to get to that location. It embraces the notion of distance decay or spatial dissonance, which reflects that the intensity of interaction with a service decreases with increasing distance or travel time. Assessing the ease with which people can to get to places of care is politically important in several countries due to the ongoing efforts to reorganise healthcare provision, leading to the concentration of some forms of care into fewer facilities. Numerous studies of accessibility to healthcare have been undertaken in order to support health policies, by identifying area-based provision inequalities to inform the optimal allocation of facilities such as clinics and hospitals (Cromley and McLafferty, 2012; Guagliardo, 2004; Neutens, 2015).

However, the relationship between accessibility and healthcare uptake is of a complex nature. The frictional effect of time or distance on health service utilisation is more nuanced than is commonly assumed. How time and distance influence people's access to healthcare may depend on numerous factors, such as specific land-use settings, the medical episode experienced, the personal cir-cumstances of those seeking care and their socio-demographic characteristics, as well as the nature of the services themselves. For example, the distance-decay effect is more pronounced in low-density environments such as rural areas than in the urban context (Brabyn and Skelly, 2002; Hjortsberg, 2003; Peters et al., 2008). Distance has a weaker effect on access to facilities for acute emergency procedures or serious injuries (Cromley and McLafferty, 2012). Vulnerable social groups such as seniors tend to travel shorter distances to healthcare and are more sensitive to the adverse effects of hospital closures (Buchmueller et al., 2006). Having a driver's license is statistically strongly associated with a higher frequency of visits to practitioners and facilities for regular check-ups and chronic care in the United States (Arcury et al., 2006). As reported by Exworthy and Peckham (2006), surveys undertaken in the United Kingdom also revealed that the vast majority of people would travel farther than to local facilities favouring those with a better reputation, quicker treatment or specialised services.

Empirical research has also sought to determine the importance of time or cost of travel to services for health outcomes. Studies have identified a positive association between distance to the nearest hospital and mortality rates due to asthma, and the number of people receiving a late diagnosis of some types of cancer (Gulliford and Morgan, 2003). Most of these research studies linking low accessibility and health outcomes were undertaken in rural or sparsely settled regions where there is both lower health service and less public transport provision (Arcury et al., 2006; Brabyn and Skelly, 2002; Hjortsberg, 2003), or at large geographical scales allowing for an urban-rural comparison (Carr-Hill et al., 1996). A systematic review of 108 studies conducted in countries of the Global North showed no clear picture of the statistical association between distance to healthcare facilities and patients' health outcomes (Kelly et al., 2016) and such studies in the context of Global South cities are extremely rare.

Within the transport geography discipline, most studies of healthcare accessibility have adopted quantitative, largely GIS-based approaches that seldom take into account individuals' personal experiences or the wider social context of their access to health. Accessibility to healthcare has been assessed through the calculation of provider-to-population ratios, distance-to-facilities measures, gravity models, and the more sophisticated two-step floating catchment area approach (Neutens, 2015). These measures usually account for the number of facilities that can be reached based on an easily observable indicator of spatial friction, such as travel time or distance. Exactly because they miss the influence that the perceived quality of these services may have on people's mobility and accessibility outcomes and because they are rather insensitive to the actual needs of people seeking healthcare, they have been blamed for creating "misleading landscapes of healthcare accessibility and utilisation, particularly in lower-income, urban com-munities" (Hawthorne and Kwan, 2012, p. 18). The dissociation between spatial and a-spatial factors and the disregard of the interlinkages between them consist in a serious limitation of previous investigations on healthcare accessibility and associated in-equalities (Gutiérrez, 2010, 2009; Hawthorne and Kwan, 2013, 2012).

There is still little research to acknowledge the multidimensionality of healthcare accessibility combined with the intersectionality with spatial and a-spatial aspects. Usually, such studies assess the role of biographical circumstances and socio-cultural contextual determinants to investigate the *meanings* of accessibility to real people, instead of simply assuming that reaching a larger number of healthcare services within a pre-defined time threshold or minimising travel times to facilities would unequivocally contribute to

improving people's health uptake. People living in areas well-equipped with services or from which healthcare can be easily reached might still have problems of accessibility, due to a variety of other objective and subjective constraints, which we will later explore. This is a valuable insight, especially for researchers concerned with poverty and inequality issues and their interfaces with transport and health policies.

For their explorative and 'deep-dive' nature, most studies following a multidimensional approach tend to employ qualitative forms of inquiry or mixed-methods research designs (e.g. Gutiérrez, 2009; Hawthorne and Kwan, 2013, 2012; Hernandez and Rossel, 2015). Many of these works shed light on the complex and multi-layered manner in which geographic distance interact to affect healthcare accessibility for socially disadvantaged people in multiple and complex ways. Such studies provide valuable insights on accessibility to healthcare from a 'realist' perspective, as well as exploring what would contribute to effectively improve people's access to health and health outcomes that are grounded in peoples' own experiences and social practices.

Hawthorne and Kwan (2013) engaged in 65 individual in-depth interviews with lower-income residents of Columbus (United States) to understand how they experience and perceive accessibility to healthcare. Despite the proximity to affordable healthcare, quality of care may be unsatisfactory, making many patients bypass close facilities and visit doctors less frequently than needed. The authors also found that accessibility to healthcare in that context can be negatively affected by problems in the patient-provider relationship, remarkably by doctors lacking listening and technical skills.

In the Latin American context, which is likely to be different from the Global North in numerous respects, Hernandez and Rossel (2015) explored the spatial-time constraints that limit access to the prenatal care of pregnant women and the new-born health check-ups in Montevideo (Uruguay). The narratives collected in in-depth interviews with 13 families with children showed that decisions about travelling to specific healthcare facilities resulted from a broad assessment of the necessary total time investment, whereby travel time was considered along with the waiting time at the facilities before being attended by a physician. Stressing the crucial importance of perceptions of quality of the healthcare services for the urban poor, the authors advocate that accessibility approaches should go beyond spatial factors and aim for a deeper exploration of the underlying mechanisms that influence access to services.

One unique study (Gutiérrez, 2009) specifically explored in-depth the difficulties faced by pregnant teenagers residing in poor urban outskirts of the metropolitan region of Buenos Aires (Argentina) in accessing healthcare. It found that, to complete the recommended five control consultations and clinical investigations during a low-risk pregnancy, women had to navigate the public health system through a chain of 22 concatenated trips. Travelling to public hospitals often involved walking up to 2 kilometres to the closest bus stop and at least one interchange. Participants reported that they had to leave home 3 hours before their appointments, and the trip cost exceeded the daily expenses with food. Although primary healthcare facilities were often located in their neighbourhoods, women had to walk up to 3 kilometres under suboptimal pedestrian infrastructure conditions. Conditions of access also varied depending on whether patients had a scheduled appointment or sought urgent care. Especially in the latter case, public transport was perceived as an inefficient and unreliable mode. The study identified 13 coping strategies adopted to overcome the obstacles related to access to healthcare, including recurring to the private healthcare system, which allowed having the care needed in a single facility and moving temporarily to a close relative who lives closer to the hospital where they could give birth. This study is based on an explicit conceptual framework and a methodological approach detailed in Gutiérrez (2018, 2014, 2013), which has helped us in the scoping and design of this current research, and this will be discussed later.

Despite differences in their approaches, these qualitative studies consistently identified significant differences between the measured time-based healthcare accessibility and the subjective experiences of low-income people when seeking healthcare. For instance, people living in poverty are usually very time and income constrained, but, still, they may not travel to the closest healthcare facility. In several instances, they seek more distant facilities with the expectation of receiving services of (perceived) higher quality. In light of these findings, scholars have challenged the role of distance in current political discourses (Hawthorne and Kwan, 2013) and advocate for the overcoming of the "cartographic approach to accessibility" (Gutiérrez, 2009, p. 3).

Our study adopts a similar qualitative, people-centred approach to identify the main determinants of accessibility to healthcare within the broader topic of access to health. In doing so, it aims to deepen the understanding of the key barriers of accessing healthcare services, and the coping strategies people adopt to overcome these barriers in order to get their health needs satisfied in the Brazilian context. This case study was chosen for its substantial and overlapping (and potentially connected) health, transport and socio-economic inequalities. In an international comparison study, the Brazilian healthcare system has been regarded as unfair because people have to make high out-of-pocket payments (World Health Organization, 2000). Residents of poor and distant areas are less likely to be admitted to overall healthcare facilities or referred to ones in deprived areas, which are less well-equipped (Paim et al., 2011). Furthermore, as a result of the country's exclusionary urbanisation process, travel times faced by the residents of deprived areas are generally higher for daily activities (Vasconcellos, 2001).

1.1. The Brazilian healthcare system

Brazil has consolidated a hybrid healthcare system that accommodates a public, universal and cost-free system alongside a private system comprising numerous insurance plans providers and facilities. The public and the private systems operate in parallel, with services organised in a decentralised manner. The backbone of the Brazilian healthcare system is the public Unified Health System SUS (Sistema Único de Saúde), which was passed into constitutional law in 1988 and is guided by the principles of equal and universal access to health (Paim et al., 2011). The introduction of SUS has been widely regarded as successful in Latin America and contributed to expanding citizen's rights in the context of the country's re-democratisation (Massuda et al., 2018).

The public healthcare system is hierarchically organised in three tiers of complexity. Primary healthcare aims to provide universal and comprehensive basic care and coordinates the referrals to more complex levels of the system. It also organises health promotion

actions and public health campaigns (e.g. vaccinations). Secondary care encompasses medium-complexity procedures and specialised care, usually upon referral by a primary care facility. Examples are medical specialities (e.g. endocrinology, cardiology), specialist diagnostic procedures (e.g. endoscopy) and rehabilitation services. Tertiary care includes highly complex and expensive procedures, typically provided in hospitals. In the Southeast region of the country, where São Paulo is located, SUS is responsible for over 80% of all vaccinations and basic infirmary procedures, two-thirds of the hospital and first-aid treatments and the majority of the medical appointments (Silva et al., 2011).

Because of the relatively low public expenditure levels to finance a universal healthcare system, patients are burden with high out-of-pocket costs at the point of its delivery, causing the Brazilian system to be perceived as unfair in comparison to other national systems (Massuda et al., 2018; World Health Organization, 2000). Another challenge concerns wide discrepancies in service quality. It has been acknowledged that the system tended to perform well in certain complex procedures (e.g. surgeries and transplantations), but very poorly in highly utilised services such as maternal and childcare. A survey ordered by the Department of Health in 2005 found out that 37% of the hospitals financed by the SUS offered care of "unacceptable" or "very unacceptable" quality (La Forgia and Couttolenc, 2008). Another study showed that almost half of the public and private hospitals in the state of São Paulo did not accomplish the minimum operation requirements in 2003 (Gragnolati et al., 2013). Frequent problems in the Brazilian system include errors or delays in diagnosis, staff failure in accomplishing with standardised procedures, selecting the appropriate treatment, dosing and administrating medicinal products, among others. Nevertheless, the adoption of quality management programs is still limited (Gragnolati et al., 2013). Data from a representative survey conducted in 2003 (National Health Survey) show that over 20% of people belonging to the lowest income quintiles do not seek medical care mainly because of difficulties with transport or the perception that healthcare facilities are hard to reach.

1.2. Health inequalities in Brazil

Although overall levels of healthcare utilisation in Brazil have been recently increasing as a result of the expansion of community-based schemes and other developments in the public healthcare system, several health-related inequalities persist (Macinko and Lima-Costa, 2012; Mullachery et al., 2016; Silva et al., 2011). Barriers to access healthcare in Brazil are related to low income, low educational attainment, lack of formal employment, as well as to gender and ethnicity (Boccolini and de Souza Junior, 2016; Macinko and Lima-Costa, 2012). Health outcome indicators tend to be worse for indigenous populations, black people, among other groups (Victora et al., 2011) and visiting a doctor or a dentist are activities more common among the highest income group (Mullachery et al., 2016). The share of people who never consulted a dentist is 23.4% among the poorest in comparison to 5.6% among the richest (Paim et al., 2011). People who have private health insurance use significantly more healthcare than people who do not. There are some indications that delays in the decision to seek care due to negative previous experience and inability to miss work may be part of the explanation of these disparities (Paim et al., 2011). These authors suggest that these inequalities can broaden as the public healthcare system is currently under pressure, and the absence of stable financing sources posits severe limits for a de-facto universalisation of healthcare.

1.3. São Paulo and the case study area

São Paulo is a notable example of health inequalities. Depending on which district one resides, one can live as long as 81 years or as short as 58 years, on average (Municipality of São Paulo (Department of Health), 2017). The case study is located within the east zone of the City of São Paulo, an urban region characterised by a strong job-residence imbalance and with a large share of households living in social housing or subnormal conditions (slums and other informal settlements). Currently, public transport supply in the area comprises mainly bus lines. It is common for residents to spend over 2 hours in each direction when commuting to the city centre, where job opportunities and services are concentrated. More specifically, the research was conducted with residents of neighbourhoods located close to stations of a planned monorail line, which is expected to improve the connectivity of these areas to the city centre. Although investment in new major transport infrastructures can potentially improve access to key life-enhancing opportunities, contributing to promote social inclusion of socially disadvantaged groups and lessen inequalities (Lucas, 2004; Lucas et al., 2008), rail-based systems have been rarely implemented with this intended objective in mind. In developing cities, most rail-based systems have aimed, first and foremost, to relieve road congestion and to improve general public transport conditions, overcoming low service quality of bus services (Armstrong-Wright, 1993; Fauracre et al., 1990). The government has regarded the better connectivity of populous neighbourhoods to the central areas as a key benefit of the monorail project. The study aimed to explore residents' perceptions of their accessibility to healthcare services and to explore the benefits of the new monorail line in this respect.

1.4. Conceptual framework

A theoretical and conceptual framework was developed based upon a detailed literature review, which combined transport disadvantage (Currie, 2010; Delbosc and Currie, 2011; Dodson et al., 2004) and transport-related social exclusion perspectives (Church et al., 2000; Kenyon et al., 2003; Lucas, 2012; Social Exclusion Unit, 2003) with theories of human needs (Doyal and Gough, 1991; Gough, 2017, 2015; Max-Neef, 1991). These constructs are underpinned by the notion of *accessibility*, which relates to the nexus between transport and an activity that can respond to a human need within a particular land-use system. Transport disadvantage describes situations in which people are not able to move out freely due to shortages in transport provision or their restricted abilities to use available transport options. The review sheds light on how transport provision failure can restrict people's
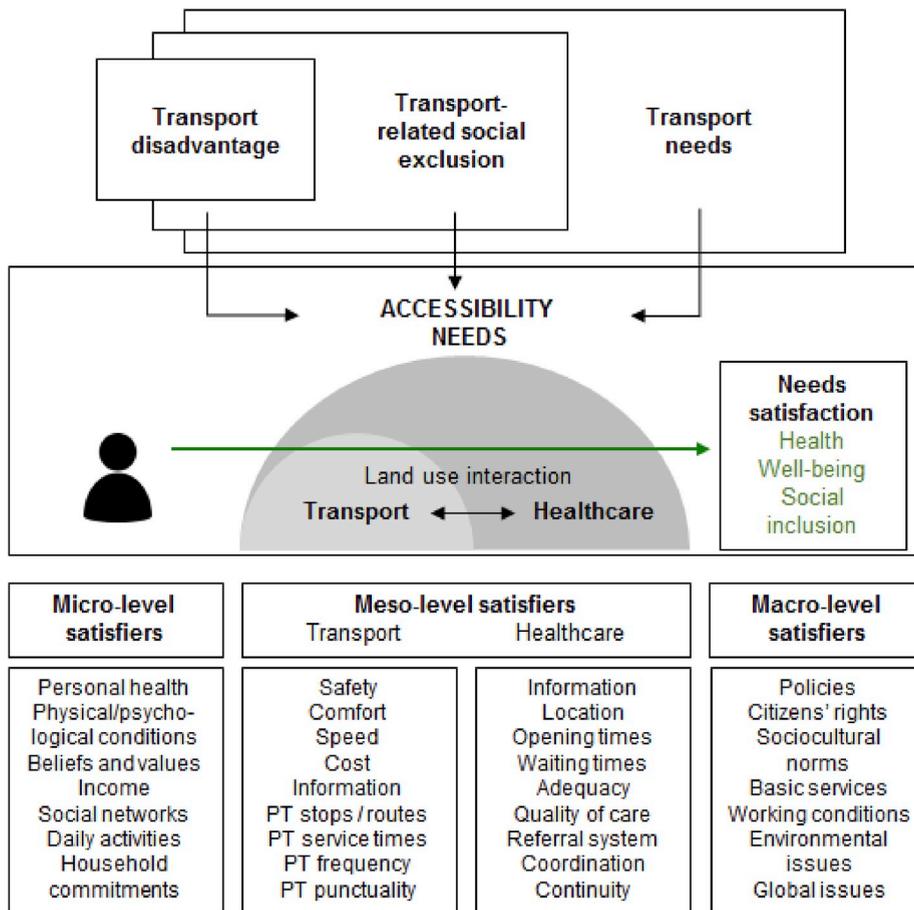
Fig. 1. Conceptual framework for healthcare accessibility.

accessibility. Transport-related social exclusion identifies accessibility, or rather its lack, as the key mechanism of people having limited possibilities of taking up basic activities, who are thus hindered from participating in social opportunities and social networks. In some sense, it extends the transport disadvantage lenses towards the social consequences of it. The addition of human needs theories in the framework represents a further extension of the transport disadvantage lenses in that it recalls that at least some "need satisfiers" may be intrinsic to the actual opportunities and the land-use component of accessibility. Represented diagrammatically in Fig. 1, the framework helps to uncover the complex mediatory role of accessibility with regard to health and wider social outcomes.

The three-level framework represents the perspective of a person seeking healthcare in outpatient facilities, which is a common form of satisfying health needs in most contemporary societies. At the *micro-level*, personal mobility and accessibility are bounded by individual and household-related circumstances, including factors such as age, gender, income, social networks, daily activities, care responsibilities, personal health conditions, personal beliefs, attitudes and values that may influence the time-space organisation. The *macro-level* encompasses issues related to a wider institutional, cultural, economic and political context that determines how the transport and healthcare systems are shaped in a particular context. These issues include the local availability of health-enhancing opportunities and facilities (e.g. green areas, groceries of healthy food), housing and basic services (such as sanitation and garbage collection), socio-cultural norms, citizens' rights and the main political and funding mechanisms that sustain healthcare systems, for instance.

The conceptual model is focused on the *meso-level,* i.e. on how satisfiers located within the transport and in the healthcare provisioning systems may (or may not) contribute to people reach, engage with and benefit from basic services, which are pivotal for people's well-being. The framework conceptualises accessibility to healthcare as a mediator between peoples' fundamental needs for good health and the barriers or "satisfiers". It regards accessibility needs as the amalgam of need satisfiers related to the transport and healthcare provisioning systems that may contribute to social outcomes. While satisfiers related to transport encompass walking infrastructures and transport services, including times, frequency and routes of public transport, fare and out-of-pocket costs, safety aspects etc., healthcare satisfiers relate to health services attributes such as opening hours, the presence of health providers, appointment mechanisms, service coordination and continuity, among others.

Some needs theorists posit that needs satisfiers maintain a hierarchical relationship (Doyal and Gough, 1991), which implies that satisfiers in the healthcare sector are of higher-orders than transport-related satisfiers (see also Mattioli, 2016). Others sustain that

satisfiers relate to each other in various, complex and non-linear manners (Max-Neef, 1991). At this inception stage of the research, our framework kept an open mind concerning this theoretical debate. However and very importantly, we do postulate that the *relationships* between these satisfiers underlie the mechanisms that explain pathways of people seeking healthcare and which eventually lead to social participation and needs satisfaction.

The resulting frame shares some similarities with the conceptual framing put forward by Gutiérrez (2014, 2013). This author developed a rights-based approach that connects mobility with the uptake of activities. Her "geographies of access" approach aims to counter the "materialistic bias" of mainstream spatial analysis, which often translates the problem of health accessibility into origin-destination pairs, while in reality people's access is gained within a functionally unified chain of trips timely and spatially fragmented (Gutiérrez, 2014, 2013). This framework conceptualises trips as social practices connecting health needs to service provision, whereby the meaning of mobility is given by the uptake of activities and the performance of services (Gutiérrez, 2013).

However, there are some key differences between the frameworks. Although Gutiérrez (2014, 2013) acknowledges that people travel ultimately to satisfy needs, the framework developed by this author does not relate explicitly to needs theories but rather engages with discourses on mobility as a right (Gutiérrez, 2016). Neither does her framework embrace perspectives on social exclusion, which could be used to justify the focus on a particular socially disadvantaged group in her empirical studies. Lastly, given that the author's framework is strongly linked to a particular approach to assessing accessibility barriers faced by individuals through a questionnaire designed for semi-structured interviews (Gutiérrez, 2018), it may be less relevant for a collective assessment of the accessibility barriers affecting different social groups and geographically identified neighbourhoods. Whereas our study directly aims to identify barriers to health accessibility at the aggregate geographical level and the accessibility needs by the different population groups that are represented within these areas.

2. Methods

In August and October 2017, 15 focus groups were undertaken in 12 distinct neighbourhoods in the east zone of the City of São Paulo to gain an understanding of how people relying on low incomes gain access to healthcare services. The conceptual framework was used to develop the topic guide for the discussion and to determine the subsequent categorical and relational analysis of the data. The main aim for the fieldwork was to explore on the ground of peoples' experiences the meaning of healthcare accessibility by gaining an in-depth understanding of the concrete barriers low-income groups face when getting to healthcare facilities and how they overcome these barriers, at the neighbourhood level. Further, it explored participants' views and expectations on how transport policy may contribute to lessen, remove, perpetuate or aggravate the barriers in the access to healthcare. Focus groups were adopted as the main technique to collect information, as they allow the exploration of the complex issues of accessibility grounded in the participants' direct experiences in the broader socio-spatial context in which they live. This technique also provides the opportunity to explore the plurality of views, opinions and perspectives among the diverse participants (Kitzinger, 1995; Krueger and Casey, 2015) and is regarded as especially useful to obtain the views of marginalised groups in society, who are often difficult to reach through mainstream survey methods (Patton, 2015).

2.1. Participant recruitment

Participants were recruited from referrals by an important grassroots pro-housing social movement in São Paulo: the Movimento dos Sem Terra Leste I (MSTLI), which was established in the 1980s campaigning and organising actions to counteract the lack of housing public policies and promote the right of housing, as established in the national constitution. The movement is composed predominantly of women (79%), non-white members (69%), according to an internal survey carried out in 2015 to which the researchers got access. Almost half of the members (48%) completed high school, but 27% did not complete the primary school, some of them being illiterate. The social movement also adopts an income-based entry criterion, which was much aligned with the purposes of this study. Its members must not have a household's gross income higher than five minimum wages, and this corresponds to classes C, D and E according to the official socioeconomic classification, even though living standards and purchasing power of families living with up to 5 minimum wages are relatively low in the context of the metropolitan area of São Paulo.

MSTLI acted as a gatekeeper to facilitate the identification of suitable participants for the study and convenient venues for the conversations. We targeted at eight participants per group, as the experience with a pilot study demonstrated that this size was manageable to moderate and provided good potential for rich discussions. This number was achieved in nine conversations. In two cases, the discussion involved nine people, and in four groups the number of participants ranged between five and seven. Table 1 presents the characteristics of study participants grouped by focus group conversations.

As familiarity with local transport and healthcare facilities was regarded as an important requirement to sustain rich conversations on accessibility to healthcare, participants who had been residing at least one year in below-average income districts of São Paulo's East Zone within the predefined corridor alongside the monorail line 15 were targeted. Potential areas of interest were located by means of a GIS-based spatial analysis that processed income data from the 2010 Brazilian National Census and local public transport network data for São Paulo. The sampling of focus group participants privileged people living in below-average income census tracts and residing within three different distance buffers (1, 2 and 3 km straight line) drawn from the closest station of the planned monorail line.

To gather experiences and views of people who regularly use healthcare services, female participants were deliberately over-sampled. This is because, according to the 2017 origin-destination survey of the Metropolitan Region of São Paulo, nearly two-thirds of the trips to healthcare are undertaken by women, this share being higher than for any other trip purpose. Furthermore, the

Table 1
Focus group profiles and neighbourhood characteristics.

| FG | District | Participants | Duration (min) | Gender | | Age | | Average income | Distance from focus group venue (km) | | |
				Fem	Male	min	max	(R$, 2010)	To the city centre	To the closest operating rail station	To the closest planned monorail station
1	C. Tiradentes	8	104	8	0	20	42	392.65	24.6	3.1	1.7
2	Iguatemi	8	110	6	2	22	64	461.62	19.7	6.7	1.4
3	Sapopemba	8	138	4	4	28	44	321.24	16.5	4.7	0.5
4	C. Tiradentes	9	108	9	0	29	44	415.92	23.1	3.8	0.3
5	São Mateus	8	110	8	0	25	58	1098.07	17.8	5.6	0.5
6	C. Tiradentes	8	118	6	2	18	52	566.82	23.0	2.9	1.5
7	Iguatemi	8	109	8	0	30	50	459.80	19.0	6.7	0.6
8	Iguatemi	7	95	4	3	19	65	459.80	19.0	6.7	0.6
9	Sapopemba	6	88	4	2	35	60	321.24	16.5	4.7	0.5
10	São Lucas	8	104	6	2	50	68	675.31	12.9	2.5	1.2
11	Vila Prudente	8	95	6	2	32	56	798.94	9.1	1.7	1.7
12	São Rafael	5	100	5	0	24	47	648.54	18.6	3.4	2.2
13	Sapopemba	6	111	5	1	29	54	880.42	14.7	4.2	0.5
14	São Rafael	9	123	9	0	29	59	497.64	20.0	3.8	3.0
15	São Mateus	8	122	5	3	29	52	1098.07	17.8	5.6	0.5

prevailing socio-cultural norm in Brazil is to assign to healthcare responsibilities over family members to females in the household. As such, women tend to be more knowledgeable about their family health needs and access barriers faced by other household members as their children. Lastly, the involvement of a higher share of women also reflected the gendered membership of MSTLI, from which participants were recruited.

Table 1 provides an overview of the sociodemographic composition of each focus groups regarding gender and age in addition to characteristics of the neighbourhoods where the focus groups took place.

2.2. Data collection instruments

The lightly moderated group discussions evolved around a topic guide, which was based upon the literatures and which allowed the participants to explore issues in an increasing level of depth, following the approach by Krueger (1998). The guide focused on accessibility and mobility experiences to healthcare facilities and explored issues related both to the use of different transport modes to get to healthcare facilities and the difficulties associated to the health system affecting participants' mobility. Some of the questions included were: "How is it to walk in the neighbourhood?", "How are the healthcare services in the neighbourhood?", "Have you used healthcare in other neighbourhoods? Why?", "Is there something that could be done to make your access to healthcare easier?"

In addition to these verbal questions in the focus groups, we used some targeted data collection instruments to assist in the subsequent analysis:

i) a paper-based questionnaire to capture key sociodemographic data at the individual level;
ii) an interactive exercise for marking participants' experiences with different transport modes;
iii) a cognitive mapping exercise similar to those employed in previous related studies (e.g. Maia et al., 2016; Rivas Perez, 2013).

In the latter exercise, participants were asked to express the degree of ease to get to each healthcare facility that they have been using by placing stickers in a schematic map with concentric circles representing different levels of difficulty. Such maps gave continuation to the conversation around what makes travelling easy or difficult so that no attribute (e.g. travel time, distance etc.) was prioritised as this could limit and impoverish participants' contributions. After a quick visual assessment by the moderator, participants were asked to discuss remarkable disparities or similarities among their perceptions.

2.3. Data analysis

Thematic analysis followed the six-step approach by Braun and Clarke (2006). The researcher was familiarised with the data by moderating all conversations, leading debriefing sessions with assistants, cross-checking transcribed data against the audio records to ensure accurate documentation, and translating the transcripts. All these initial stages were accompanied by note-taking documenting interesting aspects of the conversations. Next, an initial coding scheme was developed using different, mostly descriptive coding types, such as structural, magnitude and values codes (Saldaña, 2013). Subsequent coding cycles were used to classify and synthesise knowledge. The resulting coding dictionary comprised a large number of codes and sub-codes organised hierarchically in three levels, as it combined deductive and inductive approaches in order to retain information that can be relevant for the next analytical step (Bazeley, 2013). Themes were identified primarily at the explicit level in an iterative process of collating, merging and

rearranging codes, and using a range of visualisation techniques such as code matrices and thematic maps.

To reduce the likelihood of misinterpreting what participants said, techniques of "respondent validation" or "member checks" were employed. In several moments throughout the conversations, the moderator rephrased what participants said and formulated summaries after a topic has been discussed, asking the respondents for confirmation. Such verification techniques were even more crucial given the limited ability of most participants to accurately express the issues on transport and healthcare under discussion and their unfamiliarity with the technical jargon used in transport planning. This often led to the use of improper or imprecise expressions and the articulation of complex syntax structures, making data interpretation and analysis more challenging. Another technique used to enhance validity was a steady search for discrepant evidence. The Brazilian cultural trait of conflict avoidance can potentially reduce the plurality of views and opinions in group conversations. As focus groups do not target consensus-building, participants were often encouraged to express their thoughts freely and recalled that they do not have to agree with what others have said.

At the end of the discussions, participants were asked how easy or difficult was to participate in the conversation, whether they understood the questions and exercises, and about their level of confidence in providing the answers. Debriefing sessions between moderator and assistant enhanced the trustworthiness of analysis from an early stage. Categories and themes were discussed in a number of meetings with the co-authors, and subject to several revisions, as advised by Braun and Clarke (2006). Individual video-recorded interviews with a subset of six focus group participants were carried as an additional form of validation of the findings, as discussed in the next section.

3. Key findings

The findings presented in this section are a selection of the results which arose from a comprehensive thematic analysis that evidenced main themes, links and dynamics between them, and outcomes, in particular regarding the uptake of healthcare options, which is the core focus of this paper. Due to space limitations, this paper presents only the most important results obtained for the whole sample and does not explore variations between different population groups or locations. Wherever appropriate, selected verbatim quotes that capture views and perceptions shared by many participants are reproduced, although these have been translated from the Portuguese language in which they were originally captured.

Themes correspond to the satisfiers that can be located in the transport and healthcare systems. We also present and discuss outcomes for realised mobility to healthcare, linking them with the barriers previously discussed.

This qualitative inquiry revealed that the main barriers related to healthcare accessibility for residents of low-income neighbourhoods in São Paulo could be arranged around five major themes, namely: i) proximity and remoteness, ii) walking safety, iii) public transport services, iv) personal security issues, and v) quality of healthcare services, each of which are now discussed in this section of the paper. Table 2 identifies the overall occurrence of these within the analysis, which offers some indication of their level of perceived importance across the different group discussions.

3.1. Proximity and remoteness

One central aspect of accessibility is the perceived distance to the services and opportunities people use for their everyday activities, usually expressed as the *distance* or *time* needed to overcome the distance between opportunities and their places of residence. This geographical relationship is referred to here as the continuum between proximity and remoteness. Not surprisingly, given that this was the most common form of mobility for most of the participants, a very common indication of proximity was people's perceived ability to reach these places *walking*, i.e. not depending on motorised modes, rather than a rigid time or distance threshold. It is noted that perceptions of proximity and remoteness can strongly vary according to personal circumstances and places of residence at a very fine-grained level, so that residents of the same neighbourhood might perceive proximity differently, depending on the specific local characteristics of the urban fabric (e.g. whether they live inside a large social housing complex or in an area with mixed land-use) and their personal capabilities.

Table 2
Frequency of themes and subthemes.

Main themes and subthemes	Number of coded segments	Number of groups
Proximity and remoteness	**62**	**15**
Walking safety	**66**	**14**
Public transport services	**312**	**15**
Availability	99	15
Affordability	18	7
Comfort and reliability	195	15
Personal security	**100**	**13**
Assaults	68	13
Female harassment	32	10
Quality of healthcare services	**145**	**15**
Waiting time for an appointment	63	14
Waiting time on the day	39	11
Quality of consultation	43	12

Nevertheless, the participants commonly expressed that they appreciated living in well-equipped areas "close to everything". Local services positively valued included a range of public facilities such as parks, squares, schools, nurseries and also healthcare sites. Conversely, participants of some groups pointed out the "lack" of colleges, playgrounds for children, primary healthcare clinics and hospitals as shortcomings of their neighbourhoods.

3.2. Walking safety

Walking safety concerns were nearly ubiquitous in the focus groups, referred in all but one discussion. Participants' contributions to this topic were mostly convergent in the sense they usually confirmed and expanded what others said before, building a cohesive collective narrative. Also, discussions on walking safety usually involved several interactions among the participants, who thus signalised high interest in this topic. People described the precariousness of their everyday walking experiences as they feel permanently exposed to the risk of suffering injuries as the consequence of falling over on inappropriate sidewalks and of being hit by a motorised vehicle when walking on the road.

> *Sidewalks here are terrible. We have to walk on the road because the sidewalks have several ditches. Those who have difficulty with any impairment or with a baby always walk on the road and run the risk of being run over. So, it is quite complicated. (Female, 35 years old, FG 12)*

Lack of sidewalks, uneven walking surfaces, narrow pedestrian zones, lacking access ramps, and lack of traffic signalling were reported as common inadequacies of the street network in the low-income neighbourhoods studied. Participants also remarked the absence of traffic lights or crossing markings even in areas with high pedestrian flows, e.g. next to schools. Another issue was the length of the green phase in the traffic light, considered insufficient for people to cross roads safely. Inadequacies due to the lack of continuous segments of the sidewalk and the poor road design at junctions were perceived as important issues, particularly for *children* (or adults with children) and *people with physical disabilities*. Some participants commented on the virtual impossibility of those sitting in a wheelchair to safely cross the street, also noting the lack of ramps that provide access to the sidewalks.

> *I've tried to take a person, so I've been trying to help her, but it's hard to walk on those sidewalks here. Sometimes because of the traffic light or because of the elevation of the ditch, you do not know the right position to take a wheelchair. You want to carry the wheelchair to the sidewalk but you cannot, it is impossible … You have to ask people [car drivers] to stop, to slow down. (Male, 34 years old, FG 11)*

Even where sidewalks do exist, residents, retailers and companies may put physical obstacles that impede the free transit of pedestrians. Participants reported cars illegally parked on the sidewalks, garbage and construction materials, the personal belongings of residents, retailers and the presence of street vendors on sidewalks. In several instances, pedestrians have no option apart of walking on the road, risking their lives.

Residents of low-income neighbourhoods always need to be alert when they walk, since they feel unsafe due to motorised vehicle drivers who ignore speed limits and disregard driving obligations such as stopping at traffic lights and pedestrian crossings. The threat represented by drivers is also felt when people adhere to traffic rules (e.g. crossing streets during the green phase of the traffic sign or when walking on sidewalks). Not only drivers of private cars or motorcycles, but also buses' and even police vehicle conductors were said to endanger pedestrians' lives.

> *Nobody respects us. We have to cross [the street] there to go to Park Boa Esperança. There is a traffic light at the gas station. It may be red [for the cars], and pedestrians may have preferential crossing. But people [drivers] run over, they take you over their car … (Female, 37 years old, FG 5)*

3.3. Public transport services

People living in low-income neighbourhoods in São Paulo rely heavily on metros, trains and, in particular, buses for travelling to places of work, education, shopping, personal visits, healthcare and other activities located outside their neighbourhoods. They know in detail the inadequacies of public transport services, which affect their mobility experiences, as well as their accessibility to certain locations. Given their dependency on these modes due to their lack of access to a personal vehicle, people seem to be usually locked into a situation in which they have to use public transport without being satisfied with it. The main public transport inadequacies that affect people's perceived ease to reach places are composed of three subthemes: availability, affordability and, above all, overcrowding.

3.3.1. Availability

There was a wide perception that their neighbourhoods are undersupplied with public transport. In particular, people lack public transport for getting to public parks and recreational, cultural and educational activities, which are usually located outside their neighbourhoods. Several participants remarked the reduced availability of public transport at the *weekends*, when some bus lines have their frequency reduced or do not operate and when train headways are often increased due to maintenance works.

Participants expressed the aspiration to have bus lines which provide a *direct connection to metro stations*, as the metro was regarded as an effective means to gain access to opportunities in the rest of the city. Overall in the conversations, the positive attitude towards these direct lines (considered "practical", "useful", "fast" etc.) contrasted with criticisms against recent initiatives led by the local transport authority which aim to rearrange the bus lines into a stricter trunk-and-feeder logic. These efforts have usually

consisted in splitting long lines into shorter ones, resulting in the cancellation of services that provided a direct link from participants' residence places to metro stations and other relevant centralities, forcing passengers to change between services.

Earlier there was the minibus line straight from sector G to Penha. They took it out, put the circular buses. We have now to leave sector G, get off at the terminal to get another bus to Penha metro station. You have to join another queue. So, they take out a bus that helps you and make a complication that is inferior to you. (Female, 29 years old, FG 4)

Another crucial issue discussed was the physical inaccessibility of public transport vehicles for *people with physical disabilities*. Participants noted that the most regular bus services attending their neighbourhoods are unable to accommodate people with disabilities and also difficult for the *elderly to use*. Vehicles are not equipped with chair lifts or ramps and do not have low floor entry. There is also a lack of staff to support people to get on or off the vehicles, and regular users may not demonstrate an understanding or consideration for the special needs of disabled passengers.

3.3.2. Affordability

Public transport fares represent an additional constraint of people's activity spaces.

Usually the most interesting events are all there close to [Avenue] Paulista, which is far away for people who live here on the outskirts, you know? It is bad. Sometimes we do not have the resources to pay for everyone … When we have the opportunity, we have a good time … Otherwise, we remain at home. (Female, 39 years old, FG 7)

While the inability to bear transport costs was sometimes addressed, participants expressed more concerns about recent changes in the local public transport fare policy that reduced the scope of benefits for some groups of users, such as students. Some participants also complained about the difficulty of reaching destinations paying a single fare, impacting on the household budget.

3.3.3. Comfort and reliability

The technical literature defines public transport comfort as the "absence of mental and physical strain and presence of pleasant experiences" (Vuchic, 2005, p. 531). Current understanding of transport comfort encompasses a broad range of elements such as the appearance of stations, the aesthetics of vehicle interior, cleanness, noise, opportunities of relaxation during the ride, among many others. In the context of this case study, however, comfort relates primarily to a very fundamental issue, namely: the opportunity to travel in *non-crowded conditions*.

Participants reported experiencing overcrowding on a daily basis in São Paulo's rail and bus systems. Discomfort in public transport was reported at different stages of the trips. The dominance of this topic across the groups and the vivid, lurid descriptions of peoples' experiences suggest that discomfort due to overcrowding was one of the most significant issues about public transport. A common metaphor used in the focus groups to depict the discomfort experienced during the entire trips inside buses, metros and trains, especially at peak hours, was "sardines in a can".

You get the packed bus, there's no free seat. Sometimes you take a foot off the floor and cannot put it back down again. (Female, 35 years old, FG 7)

In all 15 conversations, participants expressed concerns about the discomfort suffered in particular by children, but also by the elderly, women, people with physical impairment, and people who feel unwell. Experiences of "*travelling squeezed, tightened every day*" (FG 2) or "*really, literally kneaded*" (FG 11) inside vehicles was the main reason for the low satisfaction with public transport.

In close connection to comfort, public transport *reliability* also emerged as a topic in the conversations. Several participants expressed mistrust about the times when they are able to catch buses and trains because they simply cannot embark in overcrowded vehicles. This means that, even when transport arrives as scheduled, people might not gain timely access to activity places. Road congestion, technical disruptions and whether events are additional issues experienced by public transport users.

I already had to wait for 15 trains to take the underground… It was on 18th of February this year. (Female, 35 years old, FG 12)

3.4. Personal security

Crime and violence have a particular meaning for dwellers of the main metropolitan areas in Brazil, where figures of violent crimes underpinned references to a "civil war" in the recent past. The focus group conversations brought evidence that insecurity is a widespread and current concern in low-income neighbourhoods in São Paulo. The fear of being victimised can significantly deteriorate the quality of travel experiences, although the type of crime feared seemed to depend on the transport mode used. While concerns of being assaulted prevailed among pedestrians, sexual harassment was specifically addressed in the context of the use of public transport modes.

3.4.1. Assaults

In 13 conversations, people reported their fear of being assaulted as pedestrians, including when walking to access public transport. Several participants told that they, their children or acquaintances have been victimised while undertaking trips to everyday activities. Assaults took place in customary situations, victimising students on the way to school and workers waiting for the bus at the stop early in the morning. In some instances, their fear was explicitly related to the characteristics of the urban environment. People may avoid taking the more direct path if these are perceived as favourable for the occurrence of assaults.

Participants alluded that assaults inside buses are frequent, and have become part of the "normality" of commuters and transport professionals.

According to them, little can be done to cope with these threats on personal insecurity. Some people walk as fast as they can, leave valuables such as mobile phones at home or wear low-quality shoes hoping that this will reduce the chances of being assaulted. Police as an institution had a bad reputation amongst participants. Their approaches in low-income neighbourhoods were described as careless, disrespectful, unprofessional, unethical, and, above all, irresponsive.

3.4.2. Female harassment

Another severe security issue, which has gained increased visibility in the local media, relates to the various forms of abuse suffered by women including groping, molestation, staring, and stalking. Considering the high sensitivity of the topic, participants' reports on harassment were surprisingly numerous. Female participants of nine focus groups expressed concerns about sexual harassment in public transport, and several of them witnessed or were themselves victims of this type of violence.

Sexual violence is perceived as a frequent, spatially overspread and current issue. Women of different ages reported having suffered sexual assaults, and some experiences were recent. One female participant told that a friend suffered a sexual attack inside the metro in the same week of the focus group conversation (FG 5). One 40-year old participant shared with the group that her mother was victimised two years before (FG 5). Another participant witnessed a girl appearing 12 years old being groped inside a bus (FG 16). Participants' narratives suggest that harassment is a particularly severe problem in metros and trains, happening during usual trips in overcrowded vehicles, e.g. while commuting to work. This issue was perceived as related to the broader socio-cultural context in which asymmetries of power between the gender are firmly crystallised, and where male travellers may act opportunistically, feeling free to have sexual contacts without consent.

> *Women suffer a lot because some guys take advantage of the situation. They don't care and put their hands on us … (Female, 28 years old, FG 3)*

3.5. Quality of healthcare services

Unavoidably, the focus group conversations on accessibility to healthcare captured people's concerns on the quality of healthcare services. The three more important people's concerns regarding the possibilities of utilisation of healthcare services related to the waiting time until the medical appointment, the waiting time in the healthcare facilities on the day of the consultation, and the quality of the care received from the health staff.

3.5.1. Waiting time for an appointment

A key barrier for getting access to medical care relates to the disproportionately long waiting times to get an appointment. This limits significantly the availability of these services to people in need of healthcare. Participants of all but one focus groups reported they have to wait very long for consultations in public facilities, including those which deliver primary care and are supposed to be the entry point of the health system (basic healthcare centres or BHCs). Participants usually reported in a number of months the waiting time to get an appointment or schedule medical procedures.

Gaining access to specialised doctors, such as gynaecologists and paediatricians, or investigations (such as mammography and imaging tests) is particularly difficult.

> *My girl is 18 years old, she wants to go to the gynaecologist. But if you are not pregnant or with haemorrhage, you do not get an appointment. (Female, 39 years old, FG 7)*

3.5.2. Waiting time on the day

Once inside a healthcare facility, people may have to wait several hours for having a consultation and receiving treatment. There is broad dissatisfaction with the long waiting time at healthcare sites. Some people may spend several hours of the day waiting, without being sure at which time they will finally be attended or whether they will be attended at all.

> *Last month I went with my sister [to the BHC]. She had a migraine attack. She stayed there the whole day without being attended … I stayed with her from 8 am until 4 pm. (Male, 37 years old, FG 11)*

In some instances, health facilities lack the most basic staffing resources necessary for the services that those places should provide. Participants complaining about "*lack of doctors*" could denote the insufficient number of medical staff in relation to the demand of these neighbourhoods, but also the absolute absence of physicians, what reveals the precariousness of some local public facilities.

3.5.3. Quality of consultation

The notion of healthcare quality may be socially constructed and encompass a wide range of factors such as the opportunities to receive individualised care; to be treated with respect by staff; to be involved in an open communication flow; among many others (Sofaer and Firminger, 2005). Focus groups participants placed a heavy emphasis on staff abilities to communicate and provide emotional support to patients. In their understanding, the key competencies for a good quality patient-centred care are the ability to listen to the patients carefully, to express compassion and sympathy for the patients, and to deliver a technically good and

individualised effective care.

However, in general, people feel treated with disinterest by the medical staff in consultations regarded as extremely short. Physicians are said not to listen to patients carefully, not to examine them appropriately and not to provide individualised care. Participants complained about the rushed medical care or, as some participants formulate, "without love", "with little humanisation".

You are sick, you go there looking for improvement, a good word, good care. And it sucks, people are very grumpy and attend with a lack of education, an irritating lack of will. (Female, 57 years old, FG 10)

In such rushed consultations, patients may receive treatments that do not contribute to improving their health status. Several participants experienced situations in public healthcare services in which doctors do not take any consequent action to investigate accurately the health problems and tackle their causes. Instead, physicians may provide means just to ameliorate symptoms, e.g. prescribing painkillers. Some patients raised the suspicion that they have received incomplete treatments.

My son is two years and seven months old, and he has never had a blood test or faeces test. He never passed with a paediatrician here in the BHC. He [the doctor] does not ask for blood, urine, faeces, anything … (Female, 30 years old, FG 14)

3.6. Outcomes for healthcare uptake

The difficulties represented by the multiple barriers situated both in transport and in healthcare domains exposed in the previous sections have concrete consequences for healthcare utilisation. The focus groups conversations also shed light on short- and long-term manifestations of the accessibility barriers to healthcare put in place by people who actively sought to travel to health facilities. Short-term outcomes relate to the more instantaneous coping strategies adopted by people while seeking access to healthcare. The time frame of these strategies is usually within a few hours of a day. Long-term outcomes refer to the strategies that tend to be adopted systematically over a more extended period. As discussed below, these outcomes impact differently on the activity spaces where trips to healthcare may potentially take place.

3.6.1. Short-term outcomes

Mostly because of the healthcare deficiencies previously described residents of low-income areas in São Paulo may not be able to be attended and treated in public healthcare facilities next to their homes. To enhance the likelihood of being attended in local public facilities, residents may try to "force" providers to receive treatment. They may adopt strategies such as arriving earlier at the clinic for their appointment and might also attempt to get priority at the triage stage through inappropriate means. For example, patients might exaggerate while reporting their health issues to the medical staff, pretending to feel more pain than they really have expecting to receive priority. People may also be involved in conflictive situations with providers to persuade them to get access to care. Some participants reported being successful with this approach.

In face of the healthcare service deficits or transport inadequacies (e.g. public transport unreliability) that make them miss their medical appointments, patients may *travel back home* without receiving care. Another reported short-term response is *travelling to other facilities*, which is, at no means, a guarantee that the individual health needs are satisfied, as these facilities may also suffer from similar deficiencies. Because of these uncertainties, some people needing timely care may have to travel to different places in a *complex trip chaining* until they get their health needs satisfied.

My daughter was seven months old when she got an allergy. I still haven't found out what caused it. Her whole leg was filled with blisters, which began to burst. They looked like cigarette burns, and blood flowed from every single part of her, including the intimate part … She was bleeding completely. I went to the AMA [ambulatory care unit], I went to the BHC, I went to the Hospital Cidade Tiradentes. They prescribed medication, they gave me the receipt for an antibiotic, I bought everything. And they said, 'Mom, go to BHC, she has to pass with the paediatrician who accompanies her since she was born to analyse her carefully'. Till today she has not been seen by the doctor. (Female, 18 years old, FG 6)

3.6.2. Long-term coping strategies

Based on previous negative experiences and anticipating the range of difficulties they might repeatedly face, people living in low-income communities may *give up travelling* to outpatient healthcare facilities when they should. Patients may skip check-up consultations, regular visits to the doctor and do not seek healthcare in the case of issues they consider to be not threatening.

Participants also reported overcoming long distances to gain access to *medical treatment in more distant facilities* instead of using local facilities, which should provide these services. Some participants reported travelling over 30 km to get access to healthcare. Realising that quality conditions may also vary substantially across primary healthcare facilities, people may also inform fictive residential addresses to circumvent the compulsory catchment areas established by the healthcare system.

However, travelling to more distant healthcare facilities can also be constrained by transport opportunities. In São Paulo, efforts towards the reorganisation of bus lines, which consists of segmenting existing routes to establish a more logical hierarchy to the services, have put additional burdens on people's access to healthcare services. As such policies usually pose additional interchanges to passengers intending to reach their usual destinations, they are strongly disapproved by public transport users and especially by patients needing an efficient manner to get to healthcare.

Lastly, to overcome barriers of the public system, people may enter the private health sector *acquiring low-cost health insurance plans* which entitle them to use private services and facilities.
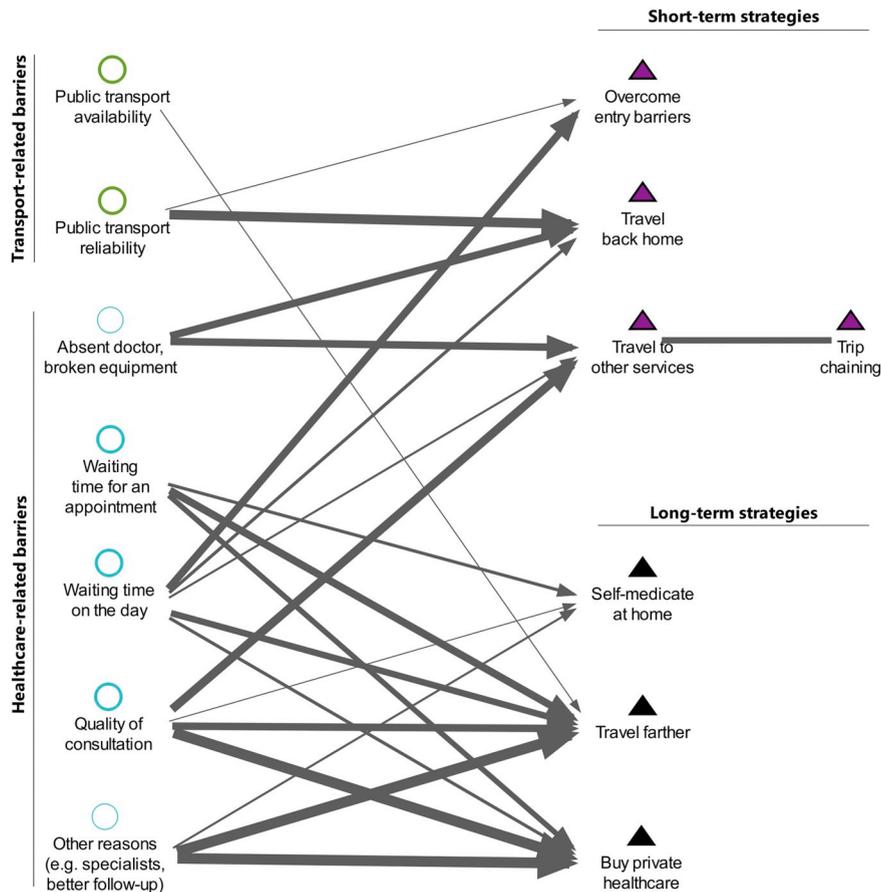
Fig. 2. Causal relationships between accessibility barriers and activity strategies.

3.6.3. Links between barriers and outcomes

The focus group analysis also explored the links between the barriers and outcomes related to healthcare uptake. Fig. 2 displays on the left side a series of barriers and outcomes on the right. The width of the connecting lines represents the frequency of coding segments in the focus groups that relate both to the barriers and outcomes. This diagram shows , for instance, that *public transport unreliability* consists of the main cause of people missing medical appointments and travelling back home. The diagram only includes the themes regarded as key satisfiers for accessing healthcare facilities which were mentioned in participants' narratives on concrete experiences of how these issues were related to outcomes.

As shown in Fig. 2, different constellations of accessibility barriers underlie the causal mechanisms that lead to different outcomes related to healthcare utilisation. In general, transport inadequacies were mentioned less frequently as barriers to healthcare accessibility than deficiencies within the healthcare system. Public transport inadequacies may undermine healthcare utilisation in the short-term, as people report having missed medical appointments and travelling back home due to buses stuck in road congestion, the inability to embark in overcrowded vehicles or operational problems affecting metros or trains. Some participants acknowledged that in the long-term transport provision affect their travel decisions. Following excerpt illustrates how the cancellation of a bus line contributed to limit participant's access to a healthcare service considered appropriate.

I used to get dental treatment in Vila Mariana [27 km distant neighbourhood], the [bus line] Paraíso left me in front of the clinic. The dentist was good. The ride was a bit time consuming, but the bus left me in front of the clinic, it was just one bus [line]. At the time it cost R$ 1.70, R$ 2.00, it was worth it. Now I gave up going to a dental treatment … I quit my treatment there, because they took out the bus, took it out without informing anyone. (Female, 29 years old, FG 4)

The main barriers related to the access to public healthcare services are the waiting times between scheduling and the medical consultation; the waiting time "in loco" between the arrival to the health facility and the consultation; and the interpersonal quality of care between patients and health professionals. These issues have been mentioned by several participants who also reported they are linked to both short-term and long-term outcomes. In some cases, people may also have to travel home because of the absence of medical staff, as illustrated below.

I had an appointment with the doctor. The girl [at the reception] said to me: "Luís, you have to go home because the doctor did not come". I said: "But wasn't it scheduled for today?" And she: "I do not know what happened to him, because he has not shown up so far, he has not

come". It was about 16:00 and the doctor had not arrived yet … (Male, 68 years old, FG 10)

People may give up waiting for care after staying queuing for a disproportionately long time or due to staff absence. Seeking care in other healthcare facilities, and eventually presenting themselves in multiple units, may be related to the long on-site waiting time.

Negative experiences with travelling to and using the healthcare system also affect potential accessibility in the long-term although the main determinants may be others. For instance, the absence of specialised professionals at local facilities and of "good doctors", who are able to listen patients' concerns in consultations with appropriate time and demonstrating interest to investigate in depth the health issues, play a crucial role for participants who reported travelling to farther facilities on a more regular basis or those who bought a private insurance plan. However, also in these cases, waiting time for consultations and the duration of the episodes of care in the facilities were also reported as important factors. Several participants regarded private healthcare providers as more agile in comparison to public ones. The possibility to schedule faster follow-up consultations and exams were deemed as key advantages especially for the treatment of children and patients suffering from chronical diseases.

4. Discussion and conclusion

The goal of the research was to gain a deep understanding of accessibility to healthcare concerns among urban low-income groups in São Paulo. Using a hybrid framework that conceptualises transport as an intermediate satisfier of health needs, the study showed that, for these groups, accessibility to healthcare is defined in the intersection between transport- and healthcare-related satisfiers, under the contextual circumstances of a Global South city.

4.1. Overarching findings

The study revealed a range of issues relevant to socially disadvantaged population groups in São Paulo when attempting to access healthcare. The conversations around healthcare accessibility have inevitably reflected multiple barriers pertaining to the domains of transport, land use and service provisions, and their interfaces. These accessibility barriers could be arranged around five main themes after an in-depth qualitative analysis of the narratives of the focus groups participants. Many people immediately associated the ease to get to healthcare facilities with the possibility of walking to these places, usually implying low travel times and distances. However, these spatial deterrence factors, widely incorporated in accessibility measures, are neither the sole nor the most critical barriers of access to healthcare. Symptomatically, no focus group participant emphasised travel time reductions as the key to enhance accessibility to healthcare.

The findings corroborate the results of previous research by showing that people usually make a joint assessment of transport and service qualities when creating their accessibility landscapes and in considering to which facilities they travel. The effort of travelling longer or in inferior conditions can be compensated by expectations of receiving healthcare service of good quality, able to respond adequately to their health needs. Waiting time for consultation, on-site waiting time and quality of consultations emerged as the key components of quality perceived by participants, and this goes in line with the findings of previous studies (Gutiérrez, 2009; Hawthorne and Kwan, 2013; Hernandez and Rossel, 2015). Travel time and out-of-pocket transport cost are usually put in relation to the time and monetary burden of the medical treatment, respectively.

Regarding the travel experience, people perceive overcrowding as the core problem of public transport in São Paulo. Overcrowding is related to physical discomfort, service unreliability (situations in which it is impossible to embark on a vehicle), higher total travel times and perceptions of insecurity, these all affecting accessibility to healthcare. Based on reports by the operating companies, São Paulo's metro was regarded as the most crowded in the world in 2011, when the line 3 used to carry nearly 11 passengers per square metre at peak times, while the upper threshold considered technically reasonable is six (Dantas, 2011). In the same year, all but one train lines operated above that threshold (Machado, 2010). In 2015, the municipality estimated that every sixth bus line operated in overcrowded conditions, and most of them were operated by independent cooperatives (Monteiro and Souza, 2015). Gender-related violence episodes were reported as a serious concern in several groups, and this enlarges the body of evidence that this is a current and utmost important issue in Latin American cities (Corporación Andina de Fomento and FIA Foundation, 2018; Pereyra et al., 2018).

The study also found robust evidence that patients may not necessarily use healthcare services located closest to their places of residence. Even under severe financial and time constraints, residents of low-income neighbourhoods in São Paulo may travel longer to obtain access to facilities perceived as adequate to respond to their health needs or of superior quality (Hawthorne and Kwan, 2012). With this respect, one of the key attractiveness aspects of healthcare facilities is the quality of the relationship between patients and providers, what confirms findings of previous studies (Hawthorne and Kwan, 2012; Hernandez and Rossel, 2015). People's narratives created a strong connection between transport and healthcare issues, positioning the meaning of accessibility at the intersection of both sectors. However, most people regarded healthcare as the key issue (Maia et al., 2016). This evidence supports the theoretical stance that locates satisfiers belonging to the healthcare domain in a higher hierarchical position than transport-related satisfiers (Doyal and Gough, 1991).

A key difference from the previous research in this field of inquiry is that our study not only identifies a range of multidimensional barriers to healthcare accessibility but also uncovers how these different barriers to accessibility may impact on healthcare utilisation, bringing additional evidence on the adverse effects of inadequate transport and health service provision on peoples' wellbeing. By exploring these causal mechanisms, our qualitative findings shed light on how issues pertaining to the transport and health domains interact to shape the accessibility of low-income people in São Paulo. Our study pointed out that different constellations of

factors lead to different outcomes regarding healthcare utilisation, and this is also a novel aspect of the research.

4.2. Methodological contribution

Evidence gathered in this study could feed further explorations towards the development of accessibility metrics that contribute to avoiding looking at transport separately from qualities of the destinations and ignoring wider contextual issues in which people's needs are inscribed. Our findings can be used to complement and enhance GIS-based measures of healthcare accessibility. To date, these are still largely locked in a deep positivistic mindset which mistakenly attempts to capture the main difficulties experienced by socially disadvantaged groups in accessing healthcare solely by means of travel time and to relate "distance decay" to higher-order health and social outcomes. Regarding issues such as overcrowding in public transport as "soft" factors and overlooking healthcare service attributes in contexts with noticeable quality disparities, some studies may overplay the role of time and distance as deterrents of accessibility. In order to achieve better representations of accessibility from the perspective of those seeking healthcare, future research could be directed towards the incorporation of key qualitative aspects of travel and destinations (i.e. health services) into accessibility measures. A new generation of mixed-method accessibility measures would represent an important contribution to bridge the research gap between, on the one hand, the sophisticated narratives describing the complex relations between transport and social exclusion and, on the other hand, simplistic measures of accessibility that may overlook issues that really matter to people who most suffer from these inequalities.

Methodologically, the qualitative research design we employed was able to comprehensively capture the main meso-level barriers to accessibility at the neighbourhood level and was effective in giving voice and empowering participants considered "hard to reach". Focus group participants expressed their concerns on accessibility to healthcare in their way, using their own vocabulary (which was indeed much different from the language usually employed in survey questionnaires, for instance), and grounded in their social context (Patton, 2015). Nevertheless, we do acknowledge some limitations of this study.

Despite the relatively large scope of this qualitative data collection exercise (with a sample of 114 people), there was a relatively low involvement of older people (only 6 participants were aged 60 or over), and this may have prevented the research from capturing the specific health and transport needs of this important social segment. Future studies could also seek to achieve a more balanced gender mix to include more male perspectives, as well as to more explicitly involve persons with disabilities, as this group stood out as facing several barriers (notably unsafe walking and unavailable public transport). Secondly, this accessibility study 'from the ground' requires reflections on the researchers' positionality given the clear contrast between their higher socio-educational back-ground vis-à-vis that of the vast majority of the participants, which made focus group moderation and data interpretation more challenging in some respects. Also, the presence of a male moderator could not be exempted from an overarching background of structural discrimination and illegitimate domination in the relationship among genders. This may have inhibited some participants to talk more openly about their concerns about sexual attacks, for instance. It is plausible that several comments on overcrowding could refer more precisely to gendered forms of violence, but such meaning was not made explicit in the conversations. Lastly, even after being encouraged to freely express what they think in the focus groups, in several instances participants agreed with the first opinions expressed. This behaviour can be interpreted in light of the strong cultural trait that condemns open divergences in con-versational settings. As it is not always possible to distinguish authentic from conveniently supportive attitudes, one can just postulate that the trend towards conformity may have eventually constrained the plurality of opinions, impoverishing the discussion.

4.3. Policy implications

The research has important policy implications. To be more socially inclusive, transport schemes should explicitly aim to increase accessibility to key services and opportunities able to effectively satisfy the needs of disadvantaged populations, rather than simply reducejourney time to the city centre, as they currently do. Furthermore and very importantly, enhancing transport connectivity to the closest, local health facilities alone may not necessarily improve people's health and well-being, if these facilities operate under precarious conditions, such as with inadequate staffing resources or with ineffective appointment systems. In the context explored in this study, the re-routing of municipal buses following the trunk feeder logic might deteriorate people's accessibility given the reliance of low-income residents on services of perceived higher quality in more distant locations and the current structural in-adequacies of public transport. Correcting systematic health inequalities may demand integrated intersectoral policies targeted at levelling up accessibility to facilities able to deliver services at a minimum acceptable quality level for satisfying the health needs of socially disadvantaged population groups.

In light of these findings, one can conclude that urban transport interventions, including the large-scale rail investments expected for the coming years in São Paulo (e.g. new monorail lines, expansion of the metro network), may be limited in addressing the accessibility needs of the poor residents to public healthcare. This is particularly true within the Brazilian environment, which only appears to address social inclusion in transport as a matter of political and legal rhetoric and not as a measured target. Without considering the deeply contextualised, relational and multidimensional nature of accessibility, transport policies may be inad-vertently exclusionary and deepen health and social inequalities. This happens, for instance, if rearrangements of transport services hinder safe and comfortable access by socially disadvantaged groups to appropriate and good-quality healthcare services.

Financial disclosure

Declaration of competing interest

The Authors declare no competing interests.

Acknowledgements

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