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

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## 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 their short- and long-term mobility strategies.

*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, multidimensional 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.

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*Keywords:* Accessibility; access to healthcare; transport-related social exclusion; poverty; human needs theories; focus groups

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## 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

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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 socioeconomic circumstances, cultural-specific perceptions of illness, information level, acceptability of healthcare use, financial affordability 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 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 circumstances 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 further 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 previously 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 utilization, particularly in lower-income, urban communities" (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 inequalities (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 three 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 research design, 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 provide in-depth understandings 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 significant 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 burdened 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 (Gragnotati 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 administering medicinal products, among others. Nevertheless, the adoption of quality management programs is still limited (Gragnotati 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 two 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 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 an additional 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 Figure 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 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 enhancement. 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 acknowledge 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 a single origin-destination pair, 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.

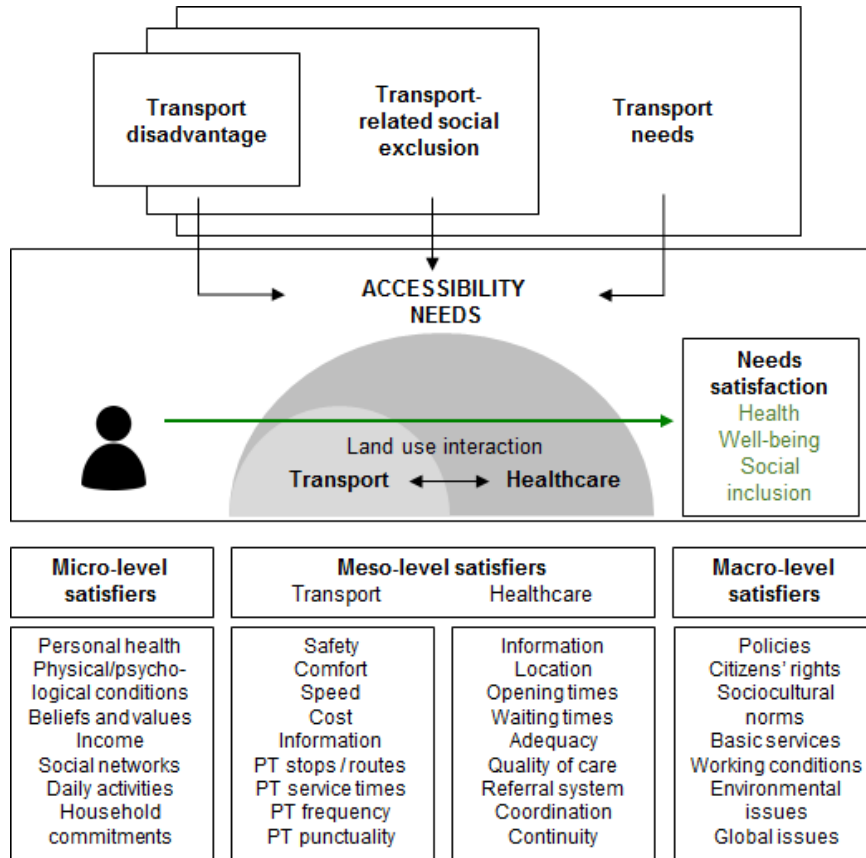


Figure 1: Conceptual framework for healthcare accessibility

## 260 2. Methods

261 In August and October 2017, 15 focus groups were undertaken in 12 distinct neighbourhoods in the east zone of the City of São  
 262 Paulo to gain an understanding of how people relying on low incomes gain access to healthcare services. The conceptual framework  
 263 was used to develop the topic guide for the discussion and to determine the subsequent categorical and relational analysis of the  
 264 data. The main aim for the fieldwork was to explore on the ground of peoples' experiences the meaning of healthcare accessibility  
 265 by gaining an in-depth understanding of the concrete barriers low-income groups face when getting to healthcare facilities and how  
 266 they overcome these barriers, at the neighbourhood level. Further, it explored participants' views and expectations on how transport  
 267 policy may contribute to lessen, remove, perpetuate or aggravate the barriers in the access to healthcare. Focus groups were adopted  
 268 as the main technique to collect information, as they allow the exploration of the complex issues of accessibility grounded in the  
 269 participants' direct experiences in the broader socio-spatial context in which they live. This technique also provides the opportunity  
 270 to explore the plurality of views, opinions and perspectives among the diverse participants (Kitzinger, 1995; Krueger and Casey,  
 271 2015) and is regarded as especially useful to obtain the views of marginalised groups in society, who are often difficult to reach  
 272 through mainstream survey methods (Patton, 2015).

### 273 2.1. Participant recruitment

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

Table 1. Focus group profiles and neighbourhood characteristics

Focus groups				Participants' profile				Neighbourhood profile			
				Gender		Age		Average income (R\$, 2010)	Distance from focus group venue (km)		
FG	District	Participants	Duration (min)	Fem	Male	min	max		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	1,098.07	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	1,098.07	17.8	5.6	0.5

## 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?",



313 “Have you used healthcare in other neighbourhoods? Why?”, “Is there something that could be done to make your access to  
314 healthcare easier?”

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

- 317 i) a paper-based questionnaire to capture key sociodemographic data at the individual level;
- 318 ii) an interactive exercise for marking participants’ experiences with different transport modes;
- 319 iii) a cognitive mapping exercise similar to those employed in previous related studies (e.g. Maia et al., 2016; Rivas Perez,  
320 2013).

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

### 326 2.3. Data analysis

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

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

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

### 352 3. Key findings

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

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

361 This qualitative inquiry revealed that the main barriers related to healthcare accessibility for residents of low-income  
362 neighbourhoods in São Paulo could be arranged around five major themes, namely: i) proximity and remoteness, ii) walking safety,  
363 iii) public transport services, iv) personal security issues, and v) quality of healthcare services, each of which are now discussed in  
364 this section of the paper. Table 2 identifies the overall occurrence of these within the analysis, which offers some indication of  
365 their level of perceived importance across the different group discussions.  
366

Table 2: Frequency of themes and subthemes

Main themes and subthemes	Number of coded segments	Number of groups
<b>Proximity and remoteness</b>	<b>62</b>	<b>15</b>
<b>Walking safety</b>	<b>122</b>	<b>14</b>
Inappropriate infrastructure	55	13
Endangering driving	12	8
<b>Public transport services</b>	<b>160</b>	<b>15</b>
Availability	18	7
Affordability	15	7
Overcrowding	94	15
<b>Personal security issues</b>	<b>137</b>	<b>13</b>
Assaults	53	13
Female harassment	31	9
<b>Quality of healthcare services</b>	<b>198</b>	<b>15</b>
Waiting time for consultation	58	14
On-site waiting time	39	12
Care quality	43	12

### 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 by *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.

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

*P1203: 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 stay on the road and run the risk of being run over. So it is quite complicated. (Female, 35 years old, FG 12)*

Two subthemes emerged from participants' descriptions: the inappropriate infrastructure for pedestrians and dangerous driving. 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 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.

P1108: *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.

P504: *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 there may be a traffic sign for the preferential crossing of pedestrians. 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. However, they also know in detail the inadequacies of public transport service, which affects 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.

P408: *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.

P707: *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 time in which passengers are allowed to change between services without being charged additionally. Some participants felt unsure about the ability to reach their destinations paying a single fare. Also, the

scope of *benefits* awarded to students has been limited, sometimes impacting on the household budget.

### 3.3.3. Overcrowding

The technical literature defines public transport comfort as the “absence of mental and physical strain and presence of pleasant experiences” (Vuchic, 2005, p. 529), and this notion 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. 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”.

*P703: 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 the view of some participants, in comparison to buses, the negative experience of using overcrowded metros is mitigated by the *travel speed* proportionated by this mode in contrast to buses. It is “*rapid suffering*”, as formulated by one participant (FG 13). On the other hand and differently from buses, metro and train users’ concerns about physical discomfort (described by one participant as “*suffocating*”) relate to situations not only inside vehicles but also in stations’ passages, facilities and platforms, hence also affecting the quality of the *waiting time*.

## 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 such as homicides have underpinned references to a “civil war” in the recent past. The focus groups 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 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, discriminatory, unprofessional, unethical, brutal and, above all, irresponsive.

### 3.4.2. Female harassment and victimisation

Another topic related to personal security, which has gained increased visibility in the local media, is violence suffered by women in public transport. For them, concerns about assault coexist with gender-related offences, most notably sexual assault. Participants’ reports of sexual assault were surprisingly numerous. Female participants of nine focus groups said they witnessed or were themselves victims of such type of violence in public transport. 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 sexually harassed by a male bus passenger (FG 16). The 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

505 contacts without consent.

506 *P307: Women suffer a lot because some guys take advantage of the situation. They don't care and put their hands*  
507 *on us... (Female, 28 years old, FG 3)*

### 508 3.5. Quality of healthcare provision

509 Deficiencies encountered in the healthcare system were addressed as key barriers to accessing healthcare. The three more  
510 important people's concerns regarding the possibilities of utilisation of healthcare services related to the waiting time for marking  
511 a consultation, the waiting time in the healthcare facilities and the quality of the care received.

#### 512 3.5.1. Waiting time for consultation

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

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

520 *P708: My girl is 18 years old, she wants to go to the gynaecologist. But if you are not pregnant or with haemorrhage,*  
521 *you do not get an appointment. (Female, 39 years old, FG 7)*

#### 522 3.5.2. On-site waiting time

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

526 *P1104: Last month I went with my sister [to the BHC]. She had a migraine attack. She stayed there the whole day*  
527 *without being attended... I stayed with her from 8 am until 4 pm. (Male, 37 years old, FG 11)*

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

#### 532 3.5.3. Care quality

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

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

543 *P1008: You are sick, you go there looking for improvement, a good word, good care. And it sucks, people are very*  
544 *grumpy and attend with a lack of education, an irritating lack of will. (Female, 57 years old, FG 10)*

545 In such rushed consultations, patients may receive treatments that do not contribute to improving their health status. Several  
546 participants experienced situations in public healthcare services in which doctors do not take any consequent action to investigate  
547 accurately the health problems and tackle their causes. Instead, physicians may provide means just to ameliorate symptoms, e.g.  
548 prescribing painkillers. Some patients may miss investigations as framed by this participant:

549 *P1506: My son is two years and seven months old, and he has never had a blood test or faeces test. He never passed*  
550 *with a paediatrician here in the BHC. He [the doctor] does not ask for blood, urine, faeces, anything... (Female, 30*  
551 *years old, FG 14)*

### 552 3.6. Outcomes for healthcare uptake

553 The focus groups conversations also shed light on a series of outcomes regarding the uptake of healthcare services. These

554 outcomes are short-term and long-term manifestations of the accessibility barriers to healthcare discussed in the previous sub-  
 555 sections for people who actively sought to travel to health facilities. Short-term outcomes relate to the more instantaneous coping  
 556 strategies adopted by people while seeking access to healthcare. The time frame of these strategies is usually within a few hours  
 557 of a day. Long-term outcomes refer to the strategies that tend to be adopted systematically over a more extended period. As  
 558 discussed below, these outcomes impact differently on the activity spaces where trips to healthcare may potentially take place.

### 559 3.6.1. Short-term outcomes

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

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

572 *P605: My daughter was seven months old when she got an allergy. I still haven't found out what caused it. Her*  
 573 *whole leg was filled with blisters, which began to burst. They looked like cigarette burns, and blood flowed from*  
 574 *every single part of her, including the intimate part... She was bleeding completely. I went to the AMA [ambulatory*  
 575 *care unit], I went to the BHC, I went to the Hospital Cidade Tiradentes. They prescribed medication, they gave me*  
 576 *the receipt for an antibiotic, I bought everything. And they said, 'Mom, go to BHC, she has to pass with the*  
 577 *paediatrician who accompanies her since she was born to analyse her carefully'. Till today she has not been seen by*  
 578 *the doctor. (Female, 18 years old, FG 6)*

### 579 3.6.2. Long-term coping strategies

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

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

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

592 Lastly, to overcome barriers of the public system, people may enter the private health sector *acquiring low-cost health insurance*  
 593 *plans* which entitle them to use private services and facilities.

### 594 3.6.3. Links between barriers and outcomes

595 The focus group analysis also explored the links between the barriers and outcomes related to healthcare uptake. Figure 2  
 596 displays on the left side a series of barriers and outcomes on the right. The width of the connecting lines represents the frequency  
 597 of coding segments in the focus groups that relate both to the barriers and outcomes. Not all barriers displayed in this diagram  
 598 correspond to the main themes discussed in previous sections. For instance, *public transport unreliability* is a topic that, in the  
 599 conversations, arises from the interaction of two themes (low availability and overcrowding), but consists of the main cause of  
 600 people missing medical appointments and travelling back home. The diagram only includes the themes regarded as key satisfiers  
 601 for accessing healthcare facilities which were mentioned in participants' narratives on concrete experiences of how these issues  
 602 were related to outcomes.

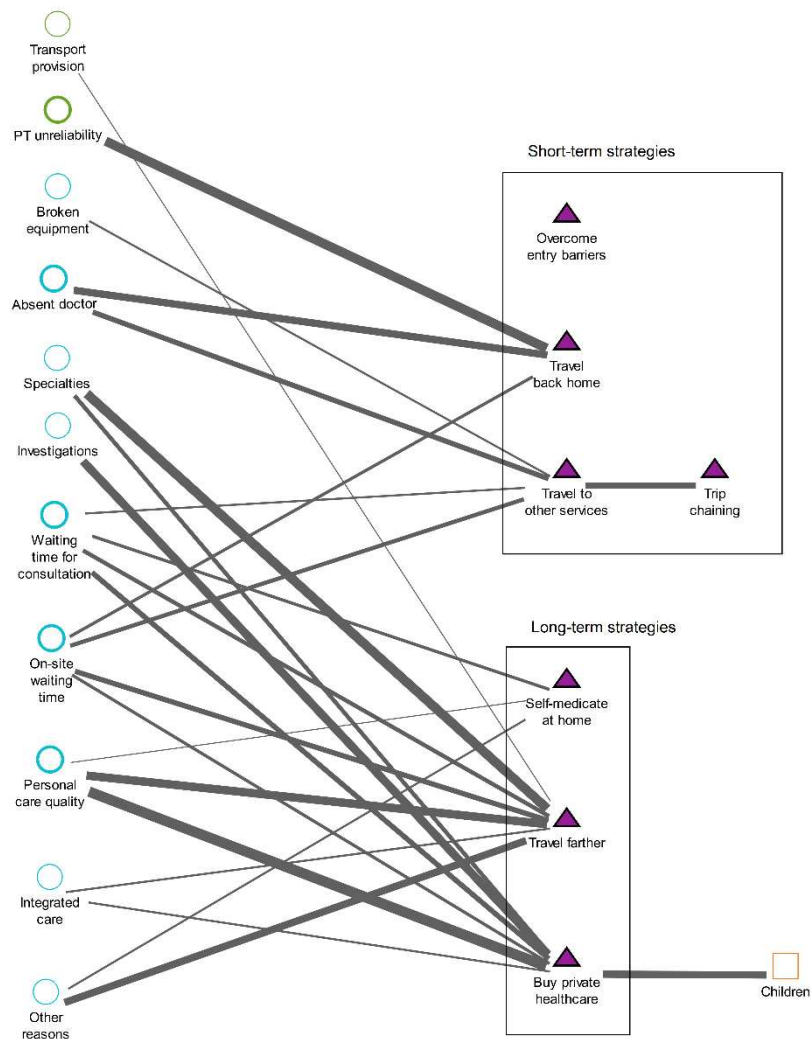


Figure 2: Relationships between themes and outcomes

As shown in Figure 2, different constellations of accessibility barriers underlie the causal mechanisms that lead to different outcomes related to healthcare utilisation. In general, transport inadequacies (themes in green) were mentioned less frequently as barriers to healthcare accessibility than deficiencies within the healthcare system (themes in blue). 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.

*P408: 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 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.

*P1001: 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*

623 *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*  
 624 *arrived yet... (Male, 68 years old, FG 10)*

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

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

#### 636 4. Discussion and conclusion

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

##### 641 4.1. Overarching findings

642 The study revealed a range of specific issues relevant to socially disadvantaged population groups in São Paulo when attempting  
 643 to access healthcare. The conversations around healthcare accessibility have inevitably reflected multiple barriers pertaining to the  
 644 domains of transport, land use and service provisions, and their interfaces. These accessibility barriers could be arranged around  
 645 five main themes after an in-depth qualitative analysis of the narratives of the focus groups participants. Conversations with low-  
 646 income people revealed that travel time and distance consist of important aspects that shape the landscapes of healthcare  
 647 accessibility of residents of poor neighbourhoods in São Paulo. Many people immediately associated the ease to get to healthcare  
 648 facilities with the possibility of walking to these places, usually implying low travel times and distances. However, these spatial  
 649 deterrence factors, widely incorporated in the transport literature on accessibility measures, are neither the sole nor the most critical  
 650 barriers of access to healthcare. Symptomatically, no focus group participant emphasised travel time reductions as the key to  
 651 enhance accessibility to healthcare.

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

659 Regarding the travel experience, people perceive overcrowding as the core problem of public transport in São Paulo.  
 660 Overcrowding is related to physical discomfort, service unreliability (situations in which it is impossible to embark on a vehicle),  
 661 higher total travel times and perceptions of insecurity, these all affecting accessibility to healthcare. Based on reports by the  
 662 operating companies, São Paulo’s metro was regarded as the most crowded in the world in 2011, when the line 3 used to carry  
 663 nearly 11 passengers per square metre at peak times, while the upper threshold considered technically reasonable is six (Dantas,  
 664 2011). In the same year, all but one train lines operated above that threshold (Machado, 2010). In 2015, the municipality estimated  
 665 that every sixth bus line operated in overcrowded conditions, and most of them were operated by independent cooperatives  
 666 (Monteiro and Souza, 2015). Gender-related violence episodes were reported as a serious concern in several groups, and this  
 667 enlarges the body of evidence that this is a current and utmost important issue in Latin American cities (Corporación Andina de  
 668 Fomento and FIA Foundation, 2018; Pereyra et al., 2018).

669 With regard to the actual healthcare utilisation, patients may not necessarily use healthcare services located closest to their place  
 670 of residence. Even under severe financial and time constraints, residents of low-income neighbourhoods in São Paulo may travel  
 671 longer to obtain access to facilities perceived as adequate to respond to their health needs or of superior quality (Hawthorne and  
 672 Kwan, 2012). With this respect, one of the key attractiveness aspects of healthcare facilities is the quality of the relationship  
 673 between patients and providers, what confirms findings of previous studies (Hawthorne and Kwan, 2012; Hernandez and Rossel,  
 674 2015). People’s narratives created a strong connection between transport and healthcare issues, positioning the meaning of  
 675 accessibility at the intersection of both sectors. However, most people regarded healthcare as the key issue (Maia et al., 2016). This  
 676 evidence supports the theoretical stance that locates satisfiers belonging to the healthcare domain in a higher hierarchical position



677 than transport-related satisfiers (Doyal and Gough, 1991).

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

#### 684 4.2. Methodological contribution

685 Evidence gathered in this study could feed further explorations towards the development of accessibility metrics that contribute  
686 to avoiding looking at transport separately from qualities of the destinations and ignoring wider contextual issues in which people's  
687 needs are inscribed. Our findings can be used to complement and enhance GIS-based measures of healthcare accessibility. These  
688 are largely locked in a deep positivistic mindset which may lead to a mechanistic cause-effect understanding which mistakenly  
689 attempts to relate "distance decay" to higher-order health and social outcomes. Regarding issues such as overcrowding in public  
690 transport as "soft" factors and overlooking healthcare service attributes in contexts where quality disparities exist, some studies  
691 may overplay the role of time and distance as deterrents of accessibility. In order to achieve better representations of accessibility  
692 from the perspective of people who seek healthcare, future research could be directed towards the incorporation of key qualitative  
693 aspects of travel and destinations (i.e. health services) into accessibility measures. A new generation of mixed-method accessibility  
694 measures would represent an important contribution to bridge the research gap between, on the one hand, the sophisticated  
695 narratives describing the complexities of the relations between transport and social inequalities and, on the other hand, simplistic  
696 measures of accessibility that may overlook issues that really matter to people who most suffer from these inequalities.

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

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

#### 718 4.3. Policy implications

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

729 In light of these findings, one can conclude that urban transport interventions, including the large-scale rail investments expected  
730 for the coming years in São Paulo (e.g. new monorail lines, expansion of the metro network), may be limited in addressing the  
731 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 nature of accessibility, transport policies may be inadvertently 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.

## References

- Arcury, T.A., Preisser, J.S., Gesler, W.M., Powers, J.M., 2006. Access to transportation and health care utilization in a rural region. *The Journal of Rural Health* 21, 31–38. <https://doi.org/10.1111/j.1748-0361.2005.tb00059.x>
- Armstrong-Wright, A., 1993. *Public transport in Third World cities, State-of-the-art review / Transport Research Laboratory. Department of Transport. HMSO, London.*
- Bazeley, P., 2013. *Qualitative data analysis: practical strategies.* SAGE, London.
- Boccolini, C.S., de Souza Junior, P.R.B., 2016. Inequities in healthcare utilization: results of the Brazilian National Health Survey, 2013. *International Journal for Equity in Health* 15, 150. <https://doi.org/10.1186/s12939-016-0444-3>
- Brabyn, L., Skelly, C., 2002. Modeling population access to New Zealand public hospitals. *International Journal of Health Geographics* 1, 3. <https://doi.org/10.1186/1476-072X-1-3>
- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology* 3, 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Buchmueller, T.C., Jacobson, M., Wold, C., 2006. How far to the hospital?: The effect of hospital closures on access to care. *Journal of Health Economics* 25, 740–761. <https://doi.org/10.1016/j.jhealeco.2005.10.006>
- Carr-Hill, R.A., Rice, N., Roland, M., 1996. Socioeconomic determinants of rates of consultation in general practice based on fourth national morbidity survey of general practices. *BMJ* 312, 1008–1012. <https://doi.org/10.1136/bmj.312.7037.1008>
- Church, A., Frost, M., Sullivan, K., 2000. Transport and social exclusion in London. *Transport Policy* 7, 195–205. [https://doi.org/10.1016/S0967-070X\(00\)00024-X](https://doi.org/10.1016/S0967-070X(00)00024-X)
- Corporación Andina de Fomento, FIA Foundation, 2018. *Ella se mueve segura. A study on women’s personal safety in public transport in three Latin American cities.*
- Cromley, E.K., McLafferty, S., 2012. Analyzing access to health services, in: *GIS and Public Health.* The Guilford Press, New York, pp. 303–337.
- Currie, G., 2010. Quantifying spatial gaps in public transport supply based on social needs. *Journal of Transport Geography* 18, 31–41. <https://doi.org/10.1016/j.jtrangeo.2008.12.002>
- Dantas, T., 2011. *Metrô de SP é o mais lotado do mundo.* O Estado de S. Paulo.
- Delbosc, A., Currie, G., 2011. Transport problems that matter - social and psychological links to transport disadvantage. *Journal of Transport Geography* 19, 170–178. <https://doi.org/10.1016/j.jtrangeo.2010.01.003>
- Dodson, J., Gleeson, B., Sipe, N.G., 2004. Transport disadvantage and social status: a review of literature and methods, Urban Policy Program. Urban Policy Program, Griffith University, Brisbane.
- Donaldson, L.J., Scally, G., Donaldson, L.J., 2009. *Donaldsons’ essential public health.* Radcliffe, Oxford; New York.
- Doyal, L., Gough, I., 1991. *A theory of human need.* Macmillan, Basingstoke, Hampshire.
- Evans, R.G., Barer, M.L., Marmor, T.R. (Eds.), 1994. *Why are some people healthy and others not? the determinants of health of populations, Social institutions and social change.* A. de Gruyter, New York.
- Evans, T., Whitehead, M., Diderichsen, F., Bhuiya, A., Wirth, M. (Eds.), 2001. *Challenging inequities in health: From ethics to action.* Oxford University Press, Oxford [England]; New York.
- Exworthy, M., Peckham, S., 2006. Access, choice and travel: implications for health policy. *Social Policy & Administration* 40, 267–287. <https://doi.org/10.1111/j.1467-9515.2006.00489.x>
- Faurace, P.R., Allport, R.J., Thomson, J.M., 1990. The performance and impact of rail mass transit in developing cities (No. 278). TRL.
- Feinstein, J.S., 1993. The relationship between socioeconomic status and health: A review of the literature. *The Milbank Quarterly* 71, 279–322. <https://doi.org/10.2307/3350401>
- Gough, I., 2017. *Heat, greed and human need: climate change, capitalism and sustainable wellbeing.* Edward Elgar Pub, Northampton, MA.
- Gough, I., 2015. Climate change and sustainable welfare: the centrality of human needs. *Cambridge Journal of Economics* 39, 1191–1214. <https://doi.org/10.1093/cje/bev039>
- Gragnotati, M.L., Magnus Couttolenc, Bernard, Lindelow, M., Couttolenc, B., 2013. Twenty years of health system reform in Brazil: An assessment of the Sistema Único de Saúde, Directions in Development - Human Development. The World Bank, Washington DC. <https://doi.org/10.1596/978-0-8213-9843-2>
- Graham, H. (Ed.), 2010. *Understanding health inequalities, 2. ed., reprinted. ed.* Open Univ. Press, Maidenhead.
- Guagliardo, M.F., 2004. Spatial accessibility of primary care: concepts, methods and challenges. *International journal of health geographics* 3, 1. <https://doi.org/10.1186/1476-072X-3-3>
- Gulliford, M., Morgan, M. (Eds.), 2003. *Access to health care.* Routledge, New York.
- Gutiérrez, A., 2018. Historia de viaje, in: Gutiérrez, A. (Ed.), *Manual Sobre Metodologías de Estudio Aplicables a La Planificación y Gestión Del Transporte y La Movilidad: Recomendaciones Sobre El Uso de Herramientas Cualitativas de Base Territorial.* Eudeba, Buenos Aires.
- Gutiérrez, A., 2016. Direito à mobilidade. Direitos e mobilidade, in: Pires, A.C.M., Pires, L.R.G.M. (Eds.), *Mobilidade Urbana: Desafios e Sustentabilidade.* Ponto e Linha, São Paulo, pp. 41–59.
- Gutiérrez, A., 2014. Revisando el papel del transporte y la movilidad en la gestión de políticas públicas sectoriales: el caso de la salud. Programa interdisciplinario de la UBA en transporte (PIUBAT). *Revista Transporte y Territorio* 158–161.
- Gutiérrez, A., 2013. Movilidad y territorio. Revisando el sesgo “materialista” en la gestión de políticas urbanas. Presented at the N-AERUS XIV, Enschede.
- Gutiérrez, A., 2010. Movilidad, transporte y acceso: una renovación aplicada al ordenamiento territorial. *Scripta Nova: revista electrónica de geografía y ciencias sociales* 14.
- Gutiérrez, A., 2009. La movilidad de la metrópolis desigual: el viaje a la salud pública y gratuita en la periferia de Buenos Aires 28.
- Hawthorne, T.L., Kwan, M.-P., 2013. Exploring the unequal landscapes of healthcare accessibility in lower-income urban neighborhoods through qualitative

- 794 inquiry. *Geoforum* 50, 97–106. <https://doi.org/10.1016/j.geoforum.2013.08.002>
- 795 Hawthorne, T.L., Kwan, M.-P., 2012. Using GIS and perceived distance to understand the unequal geographies of healthcare in lower-income urban  
796 neighbourhoods. *The Geographical Journal* 178, 18–30. <https://doi.org/10.1111/j.1475-4959.2011.00411.x>
- 797 Hernandez, D., Rossel, C., 2015. Inequality and access to social services in Latin America: space–time constraints of child health checkups and prenatal care in  
798 Montevideo. *Journal of Transport Geography* 44, 24–32. <https://doi.org/10.1016/j.jtrangeo.2015.02.007>
- 799 Hjortsberg, C., 2003. Why do the sick not utilise health care? The case of Zambia. *Health Economics* 12, 755–770. <https://doi.org/10.1002/hec.839>
- 800 Joseph, A.E., Phillips, D.R., 1984. *Accessibility and utilization: geographical perspectives on health care delivery*. Sage.
- 801 Kelly, C., Hulme, C., Farragher, T., Clarke, G., 2016. Are differences in travel time or distance to healthcare for adults in global north countries associated with an  
802 impact on health outcomes? A systematic review. *BMJ Open* 6, e013059. <https://doi.org/10.1136/bmjopen-2016-013059>
- 803 Kenyon, S., Rafferty, J., Lyons, G., 2003. Social exclusion and transport in the UK: A role for virtual accessibility in the alleviation of mobility-related social  
804 exclusion? *Journal of Social Policy* 32, 317–338. <https://doi.org/10.1017/S0047279403007037>
- 805 Kitzinger, J., 1995. Introducing focus groups. *British Medical Journal* 311, 299–302. <https://doi.org/10.1136/bmj.311.7000.299>
- 806 Krueger, R.A., 1998. *Developing questions for focus groups, Focus group kit*. SAGE, Thousand Oaks.
- 807 Krueger, R.A., Casey, M.A., 2015. *Focus groups: a practical guide for applied research*, 5th edition. ed. SAGE, Thousand Oaks, California.
- 808 La Forgia, G.M., Couttolenc, B.F., 2008. Hospital performance in Brazil: the search for excellence (No. 44833). The World Bank.
- 809 Levesque, J.-F., Harris, M.F., Russell, G., 2013. Patient-centred access to health care: conceptualising access at the interface of health systems and populations.  
810 *International Journal for Equity in Health* 12, 18.
- 811 Lucas, K., 2012. Transport and social exclusion: Where are we now? *Transport Policy* 20, 105–113. <https://doi.org/10.1016/j.tranpol.2012.01.013>
- 812 Lucas, K., 2004. Transport and social exclusion, in: *Running on Empty: Transport, Social Exclusion and Environmental Justice*. Policy, Bristol, UK, pp. 39–53.
- 813 Lucas, K., Tyler, S., Christodoulou, G., 2008. The value of new transport in deprived areas.
- 814 Machado, R., 2010. *Maioria das linhas da CPTM supera limite de lotação*. O Estado de S. Paulo.
- 815 Macinko, J., Lima-Costa, M.F., 2012. Horizontal equity in health care utilization in Brazil, 1998–2008. *International Journal for Equity in Health* 11, 33.  
816 <https://doi.org/10.1186/1475-9276-11-33>
- 817 Maia, M.L., Lucas, K., Marinho, G., Santos, E., de Lima, J.H., 2016. Access to the Brazilian City—From the perspectives of low-income residents in Recife.  
818 *Journal of Transport Geography* 55, 132–141. <https://doi.org/10.1016/j.jtrangeo.2016.01.001>
- 819 Marmot, M.G., 2016. *The health gap: the challenge of an unequal world*, 1. ed. Bloomsbury paperbacks. Bloomsbury, London.
- 820 Marmot, M.G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., Geddes, I., others, 2010. *Fair society, healthy lives: Strategic review of health  
821 inequalities in England post-2010*.
- 822 Marmot, M.G., Wilkinson, R.G. (Eds.), 2006. *Social determinants of health*, 2nd ed. ed. Oxford University Press, Oxford ; New York.
- 823 Massuda, A., Hone, T., Leles, F.A.G., Castro, M.C. de, Atun, R., 2018. The Brazilian health system at crossroads: progress, crisis and resilience. *BMJ Global  
824 Health* 3, e000829. <https://doi.org/10.1136/bmjgh-2018-000829>
- 825 Mattioli, G., 2016. Transport needs in a climate-constrained world. A novel framework to reconcile social and environmental sustainability in transport. *Energy  
826 Research & Social Science*. <https://doi.org/10.1016/j.erss.2016.03.025>
- 827 Max-Neef, M.A., 1991. *Human scale development: conception, application and further reflections*. The Apex Press, New York.
- 828 Monteiro, A., Souza, F., 2015. Uma de cada 6 linhas de ônibus de São Paulo está superlotada. *Folha de S. Paulo*.
- 829 Mullachery, P., Silver, D., Macinko, J., 2016. Changes in health care inequity in Brazil between 2008 and 2013. *International Journal for Equity in Health* 15, 140.  
830 <https://doi.org/10.1186/s12939-016-0431-8>
- 831 Municipality of São Paulo (Department of Health), 2017. *Programa de Aprimoramento das Informações de Mortalidade (PRO-AIM)*.
- 832 Neutens, T., 2015. Accessibility, equity and health care: review and research directions for transport geographers. *Journal of Transport Geography* 43, 14–27.
- 833 Paim, J., Travassos, C., Almeida, C., Bahia, L., Macinko, J., 2011. The Brazilian health system: history, advances, and challenges. *The Lancet* 377, 1778–1797.
- 834 Patton, M.Q., 2015. *Qualitative research & evaluation methods: integrating theory and practice*, Fourth edition. ed. SAGE Publications, Inc, Thousand Oaks,  
835 California.
- 836 Penchansky, R., Thomas, J.W., 1981. The concept of access: definition and relationship to consumer satisfaction. *Medical care* 19, 127–140.
- 837 Pereyra, L.P., Gutiérrez, A., Nerome, M.M., 2018. La inseguridad en el transporte público del Área Metropolitana de Buenos Aires. *Experiencias y percepciones  
838 de mujeres y varones*. *Territorios* 71. <https://doi.org/10.12804/revistas.urosario.edu.co/territorios/a.6310>
- 839 Peters, D.H., Garg, A., Bloom, G., Walker, D.G., Brieger, W.R., Rahman, M.H., 2008. Poverty and access to health care in developing countries. *Annals of the  
840 New York Academy of Sciences* 1136, 161–171. <https://doi.org/10.1196/annals.1425.011>
- 841 Rivas Perez, F.M., 2013. *The dynamics of access: a study of social inclusion, job opportunities, travel mobilities and developing the Gateshead MetroCentre*.  
842 University of Leeds, Theses M2150.
- 843 Saldaña, J., 2013. *The coding manual for qualitative researchers*, 2nd ed. SAGE, Los Angeles.
- 844 Silva, Z.P. da, Ribeiro, M.C.S. de A., Barata, R.B., Almeida, M.F. de, 2011. Socio-demographic profile and utilization patterns of the public healthcare system  
845 (SUS), 2003-2008. *Ciência & saúde coletiva* 16, 3807–3816.
- 846 Social Exclusion Unit, 2003. *Making the connections: final report on transport and social exclusion*. Office of the Deputy Prime Minister (UK Government),  
847 London.
- 848 Sofaer, S., Firminger, K., 2005. Patient perceptions of the quality of health services. *Annual review of public health* 26.
- 849 Vasconcellos, E.A. de, 2001. *Transporte urbano, espaço e equidade: análise das políticas públicas*, 2. ed. Annablume, São Paulo.
- 850 Victora, C.G., Barreto, M.L., do Carmo Leal, M., Monteiro, C.A., Schmidt, M.I., Paim, J., Bastos, F.I., Almeida, C., Bahia, L., Travassos, C., Reichenheim, M.,  
851 Barros, F.C., 2011. Health conditions and health-policy innovations in Brazil: the way forward. *The Lancet* 377, 2042–2053. [https://doi.org/10.1016/S0140-  
6736\(11\)60055-X](https://doi.org/10.1016/S0140-<br/>852 6736(11)60055-X)
- 853 Vuchic, V.R., 2005. *Urban transit: operations, planning and economics*. J. Wiley & Sons, Hoboken, N.J.
- 854 Whitehead, M., Dahlgren, G., 1991. What can be done about inequalities in health? *The Lancet* 338, 1059–1063. [https://doi.org/10.1016/0140-6736\(91\)91911-D](https://doi.org/10.1016/0140-6736(91)91911-D)
- 855 Wilkinson, R., Marmot, M. (Eds.), 2003. *The solid facts: social determinants of health*, 2nd ed. ed. World Health Organisation, Copenhagen.
- 856 World Health Organization, 2008. *Closing the gap in a generation: health equity through action on the social determinants of health*. Final Report of the Commission

857 on Social Determinants of Health.  
858 World Health Organization (Ed.), 2000. The World Health Report 2000: health systems: improving performance. WHO, Geneva.  
859