Definition, scale and impact of proximity in a community-based primary care system: a study of São Paulo

Introduction

Since the Alma Ata conference in 1978, WHO has called primary care to be the first and main level of the organization of each health care system (WHO, 1978). In a narrow sense, "primary care" can refer to all low complexity care, whose purpose is to solve the main health issues of a population at a lower cost (Giovanella, Escorel, Lobato, Noronha, & Carvalho, 2012, p. 494-98), but WHO uses a more ambitious and comprehensive definition. According to this comprehensive approach, the primary level must be the main entry point into the health care system, it must ensure a longitudinal monitoring of the individual and collective health conditions, from prevention to the coordination of complex care pathways, and it must take into account a variety of social and medical determinants (Giovanella et al., 2012, p.502, from Starfield, 1998). Existing researches (Starfield, 1994, 1998; Starfield, Shi, & Macinko, 2005) have shown that this type of organization improves equity and access to care, thus helping to reduce health inequalities.
Community health system is one of the possible organizations of a comprehensive primary health care system. The community approach aims at taking into account the individual in a holistic way, including its social and family integration. Anchored at a local scale, it must also diagnose local health needs, so that the offer can be adapted to the needs of the population (Picheral, 2001, p.222).

Adopting this comprehensive vision of primary and community care, Brazil created the Family Health Strategy (FHS*, Estratégia de Saúde da Família* in Portuguese) in 1994, a few years after the creation of a free and universal public health system in 1988[1]. The FHS involves the creation of multidisciplinary teams, working in primary health care facilities (known as UBS, *Unidades Básicas de Saúde*). Each team includes a doctor, paramedical staff (nurses and auxiliaries), and six health community workers, who must be local residents and whose goal is to create a bond between the medical teams and the local population.

This community-based program was designed as a mean to address the country's health challenges. Indeed, Brazil faces a complex social and urban context, characterised by strong spatialized inequalities and by the fragmentation of cities (Marques, 2004), two phenomena accentuated by metropolization (Carlos, 2007). There is a large number of health facilities in São Paulo, but private and complex public care are concentrated in the richest areas of the city (Antas Jr, 2011; SMS-São Paulo; Instituto Via Pública, 2011, p. 80), located far from the most vulnerable neighbourhoods (Théry, 2016), with high health needs. Consequently, for these populations, having access to resolutive primary care facilities, locally based and adapted to their needs is a major challenge.

The primary care must guarantee three different types of proximity. First, a geographical proximity, based on the principle of co-location, is supposed to ensure the physical accessibility of health care (Lucas-Gabrielli, 2001), by "[bringing] health care as close as possible to where people live and work" (WHO, 1978). Secondly, the community approach allows an organised proximity (Rallet & Torre, 2008), that can be defined as the use, by health actors, of the geographical proximity as a tool to "enable planning, decentralised programming and the development of sectoral and intersectoral actions" (Brazil, Ministério da Saúde, Secretaria de

[1] Since its creation, the FHS has grown: in 2014, more than 37,000 family health teams were in activity, covering more than 60% of the Brazilian population (Paim, 2015, p. 50).

Atenção à Saúde, & Departamento de Atenção Básica, 2012, p. 20). Finally, a relational and emotional proximity between the population and its health care teams is supposed to ease access to, and continuity of care.

To implement these three types of proximity, primary care was organized on a territorial basis. Each UBS covers an area (*área de abrangência*, or catchment area), corresponding more or less, in São Paulo, to the scale of the existing neighbourhoods. The objective is to make each team responsible of a given territory and of its population. Through this local anchoring, medical teams are encouraged to make a diagnosis of the local needs and to offer an appropriate follow-up. This system has emerged as a mean of responding to the country's social vulnerabilities and inequalities (Paim, 2015, p.33). Its counterpart is that users are only allowed to consult their attributed medical team and doctor, depending on where they live.

The FHS has been widely studied and has shown positive results: overall improvement of health indicators (J. Paim, C. Travassos, & al., 2011), better follow-up of the populations by the health care system (e. g. decline in avoidable hospitalizations, Macinko, Dourado & alii (2010)). It has also contributed to improving access to care for populations – defined as the ability, for an individual, to access to appropriate care when needed. In São Paulo, for instance, the FHS has been implemented primarily in the most vulnerable and peripheric areas (Bousquat, Cohn, & Elias, 2006). Existing research has also shown the role played by community workers in the improvement of access to health care for ethnic minorities (Aguiar & Mota, 2004) or in overcoming social barriers (S. L. da Costa & Carvalho, 2012; Pinto, da Silva, & Soriano, 2012). Another research has shown that the local anchoring of the UBSs suppressed the geographical barriers to primary care (Azevedo & Monteiro Costa, 2010).
However, few studies have specifically questioned the role of proximity in improving access to healthcare for local populations, or the choice of territorialisation as a tool for implementing these proximities, even though Pereira & Barcellos (2006) have shown that the definition of territory used by the medical teams in Brazil was a narrow one.

Based on the study of two UBSs of the municipality of São Paulo, the objective of this contribution will be: (a) to identify the various forms of proximity implemented by these two UBS and their respective roles in the satisfaction of the local users, and on their declared access to care; (b) to evaluate the impact of the territorialized organization of primary health care on access to care.

Methodology

The data used for this study was collected in the municipality of São Paulo between October 2017 and May 2018. A qualitative methodology was used, articulating observations of the daily activities of two UBS and about 100 semi-directive interviews – 81 of which were realized with users of the public health care system, the rest with the family health medical teams and administration.

Two neighbourhoods have been studied, using the administrative and geographical limits of the UBS (their catchment areas). The first one, called Bom Retiro, belongs to the historical centre of São Paulo. Its population could be classified as lower middle-class, despite the presence of three groups of vulnerable populations (Barata, 2015). Bom Retiro's ancient UBS became a family health facility in 2001. Five family health teams are currently covering its territory, two of which were created recently (2016 for the most recent one), which led to a re-territorialisation of the whole UBS. The second one, called Vila Clara, is located in the close periphery of São Paulo, at the limits of the central municipality, next to the neighbouring city of Diadema. It is relatively easily accessible, but the population is less affluent, with some very

vulnerable areas. In Vila Clara, the new UBS was built in 2005 as a FHS facility, and six family health teams are covering the population of the area.

The territorial basis and physical characteristics of each UBS differ. Vila Clara's UBS covers a territory of less than 1km^2 (0,69km^2). Its catchment area is a subdivision of the wider neighbourhood of Americanópolis, and presents a certain homogeneity, however, its hilly topography can be a barrier to physical access. In Bom Retiro, the catchment area of the UBS is about 3 km^2, covering the neighbourhood of Bom Retiro itself, but also the more distant ones of Armênia and Luz.
The users that were surveyed were chosen because they depend of the studied UBSs, regardless of the frequency or intensity of their use of public care. They were met through their referent Community Health Workers.

Figure 1: Presentation of the interviewees

		Bom Retiro		***Vila Clara***	
		Interviews	****General data on the area***	***Interviews***	****General data on the area***
Number of people		38	25 390	43	19 942
Gender	*Men*	21%	48%	14%	48%
	Women	79%	52%	86%	52%
Age	*<30*	8%	45%	5%	55%
	30-60	63%	41%	46%	38%
	>60	29%	14%	49%	7%
Origin	*Local*	8%	Ø	21%	Ø
	City of São Paulo or Metropolis	21%		28%	
	State of São Paulo	16%		9%	
	Other Brazilian state	32%		40%	
	Other country	18%		2%	
Activity	*In activity*	45%	Ø	28%	Ø
Declared health status	*In good health*	46%	Ø	33%	Ø
	Declaring a chronical disease	32%		53%	

At first, the choice of the interviewees was random: the community health workers introduced me to people they thought had an interesting experience of access to health care. In a second stage, I defined specific profiles in advance and then met the users on a case-by-case basis. The characteristics of the interviewees are detailed in Figure 1. The interviews conducted with the users covered various topics, from their practice of the local territory and mobility to their use and opinion of the UBS.
Several members of the health care teams of both UBS were also interviewed (4 doctors, 3 nurses and 7 community health workers). The interviews conducted with the professionals questioned their diagnosis of the local health needs and their role in order to lessen it.
The project, methodology and interview grids were validated by the Ethics Committee of the Faculty of Public Health of the University of São Paulo and the Health Secretariat of the Municipality of São Paulo in October 2017. The interviews were conducted between October 2017 and May 2018. The data were analysed through a content analysis.

The geographical proximity of primary health care and the choice of territorialisation

Organized at the scale of the urban neighbourhoods, community care is described in existing works as "proximity" care, whose geographical accessibility is ensured. However, in São Paulo, the location of the health care facilities and the division of the catchment areas are set administratively by the municipality, and do not take into account the users' prior health practices. Therefore, we first tried to see whether geographical proximity appeared to facilitate access to primary care for the users we met.

An appreciated geographical proximity

A majority of the users that were interviewed said they were satisfied with the geographical location of their UBS of reference. Of the 81 respondents, only 52 talked about the location of care, but 34 of them found the UBS close and accessible, i.e. 65% of the users who responded. It can be assumed that most of those who have not expressed their opinion on the location of care also accept it.
Geographical proximity is even recognized by many users as one of the main positive aspects of primary care, and as a decisive factor in the use of public care by users who also pay for a private health plan (*convênio*). An interviewee of Bom Retiro declares: *"I use the UBS more than the convênio: the unit is here, right in front of my house, it's very close"*, another judges the place *"very close, it's close, so it's practical when I need to do something quickly, for example to vaccinate the baby, it's closer. I don't need to take him there to the convênio, because there is this unit here, nearby, so it's easier, more convenient*". In Vila Clara too, geographical proximity is praised by most of the interviewees.

This proximity is also reflected in the choice of the transportation used to get there: 49 out of 63 users report that they regularly - or exclusively - walk to go to the UBS (78% of users). However, this rate drops to 63% of the users, if we exclude the 9 people who declare that they walk to their UBS only because they have no alternative means of transport.
For most of the locals, the accessibility and physical proximity of the UBS seems to be a criterion favouring access to primary care. However, nearly a third of the users surveyed have difficulty accessing their UBS: the second step was to identify the determinants of this unsatisfaction.

Three barriers to the geographical access to primary health care

Almost a third of the interviewees who gave an opinion about the location of their UBS report difficulties in accessing to primary care. These difficulties are of three kinds. The first, which only affects Vila Clara, is linked to its hilly topography. The other two depend on planning choices: they have to do either with the urban policies, which are sometimes inadequate to the location of care (e.g. lack of public transport) or with the territorialisation of access to primary care – the limits of the catchment areas sometimes being inadequate to the users' practices and to their representations of geographical proximity.

Topography, a barrier to access to care in Vila Clara

In Vila Clara, the first barrier mentioned in the interviews is the hilly topography of the area. This obstacle is not mentioned by the population of the (flatter) district of Bom Retiro. The outside of the UBS catchment area – the *Avenida Engenheiro Armando de Arruda Pereira* – is flat, but is located at a height, while the rest of the area is uneven. The UBS itself is located

some 50 metres below the hills, along the street *Rolando Curti* (in the centre of the left photograph – figure 2).

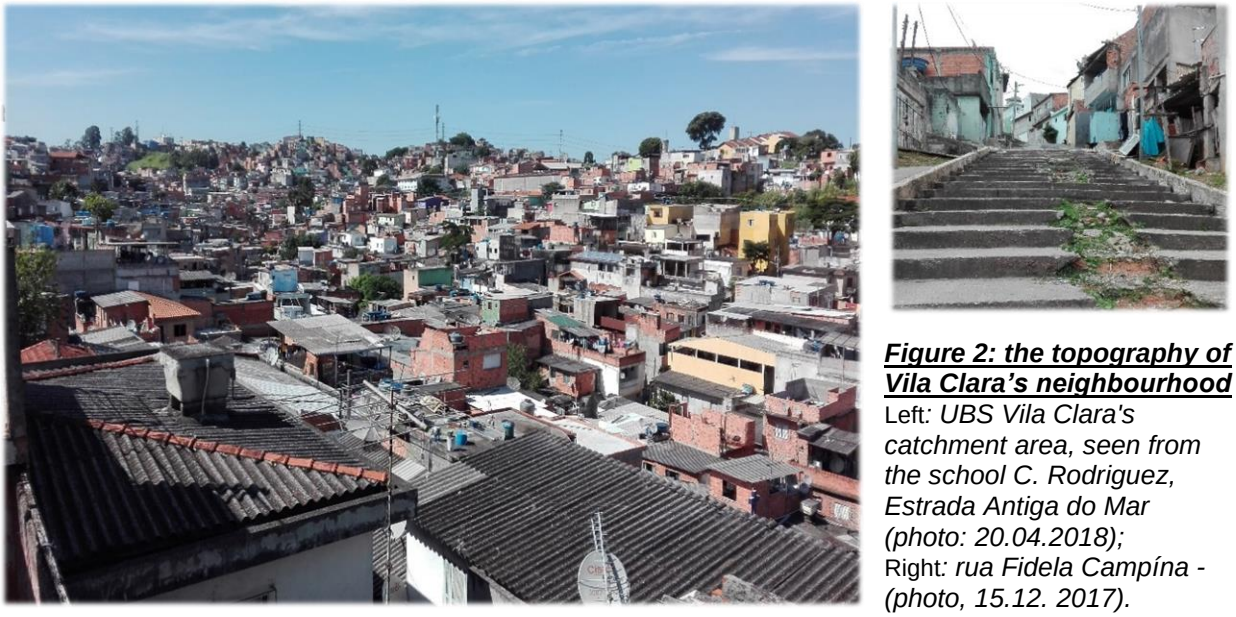

Figure 2: the topography of Vila Clara's neighbourhood
Left*: UBS Vila Clara's catchment area, seen from the school C. Rodriguez, Estrada Antiga do Mar (photo: 20.04.2018);*
Right*: rua Fidela Campína - (photo, 15.12. 2017).*

This hilly terrain, visible in the photographs above (figure 2) and in the map below (figure 3), is quoted as a mere negative aspect of the neighbourhood by 5 of the 43 people interviewed, but is declared as a real barrier to health care by 16 other people. The topography has a stronger impact on the elderly: 13 of the 16 people complaining are above 60 years old.

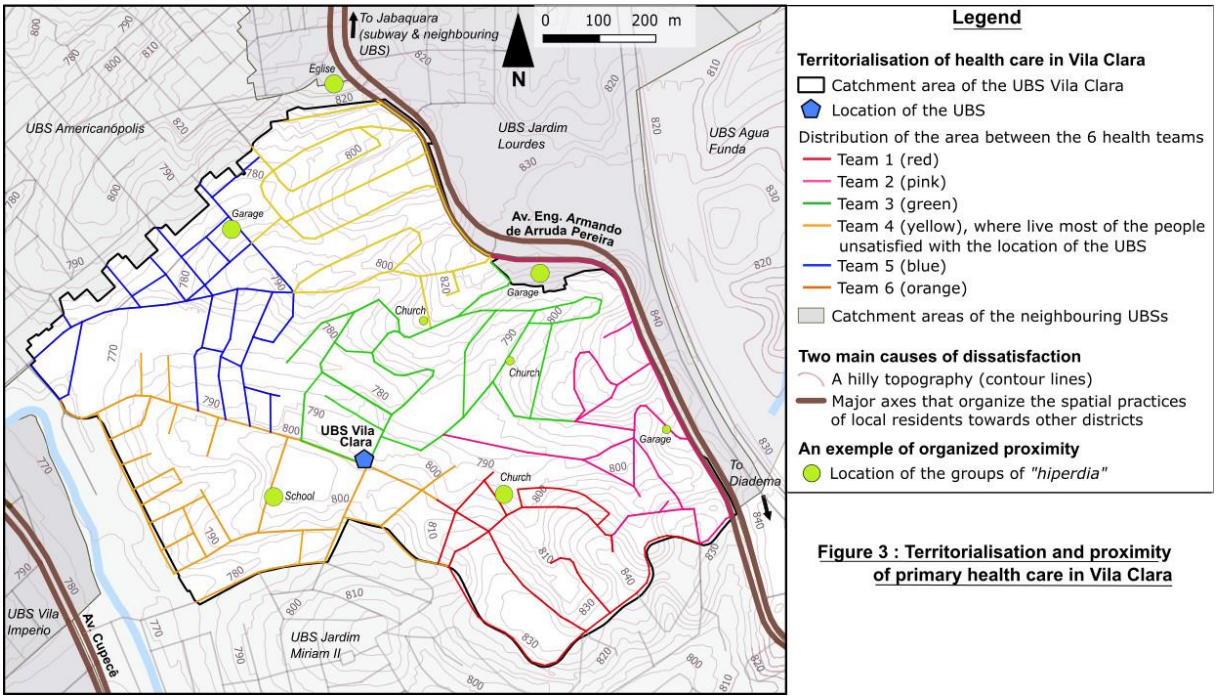

Figure 3 : Territorialisation and proximity of primary health care in Vila Clara

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During an interview with an elderly woman from Vila Clara who declares having difficulty to get to the UBS, the health community worker explains: *"It's because of the access. To get there, she has to take the path we have climbed, or another one there that is also pfff... that's what I told you, for the elderly, the climbs, to be able to climb up to the avenue, it's difficult [...] To climb these hills... The houses are full of stairs, and then [you have to] go up these hills to get*

to the avenue." ; another resident says: *"[...] You know, to go down there [to the UBS], there are old men, old ladies, people who are not in good health [...] We think a thousand times before going down there, it's horrible! ».*
Nonetheless, the topography itself is certainly a local constraint, but with which individuals are forced to cope. For 10 of the 16 people affected, the main problem is the relative location of the UBS in relation to this terrain – which has to do with urban planning.

Urban planning, transport policies and barriers to the physical accessibility of the UBS

The second issue quoted in the interviews is due to urban planning: lack of transport and inadequate sidewalks for people with a reduced mobility.
To begin with, the lack of an adequate public transportation to get to the UBS is declared as an obstacle by some of the interviewees. In fact, the catchment areas are relatively reduced (0.69 km^2 for Vila Clara, 3.09 km^2 for Bom Retiro), but for some people with mobility issues, or for those living in the streets located far from their UBS, access to care would be facilitated by the presence of a public transportation.

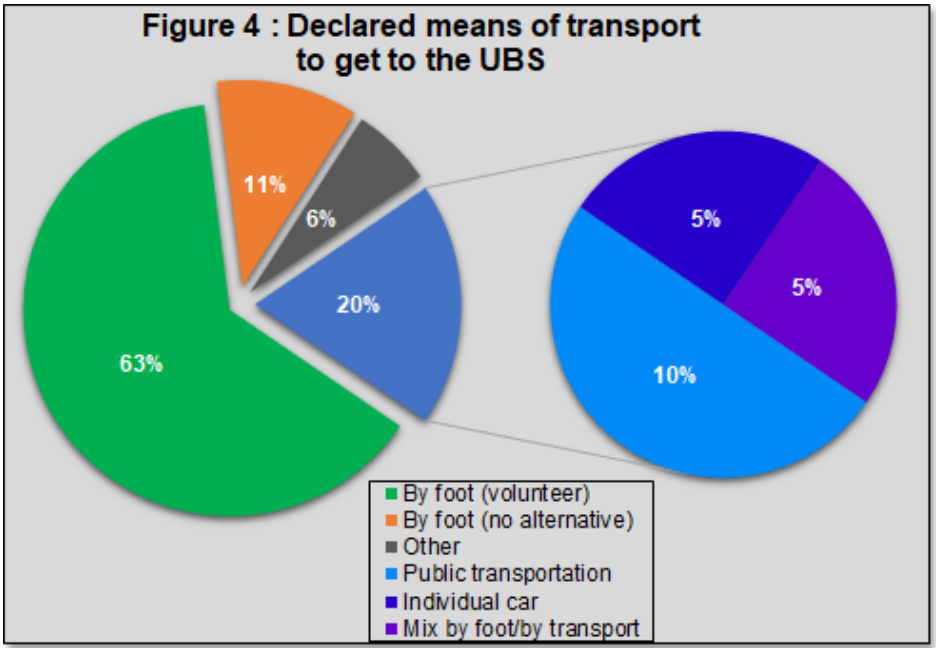

Figure 4 shows the means of transport reported by the interviewees (63 responses) to get to their primary health facility. Although a majority (63%) of them walk to their UBS, 20% of them use sometimes (5%) or systematically (15%) a motorized transportation. Of the latter, 10% use public transport, 5% use private cars.

In addition, a significant proportion of the users that were interviewed (11%, 7 people) walk to the UBS, not by choice but because they have no other alternative. These users report a lack of buses: "*For me, [the UBS] in Bom Retiro is very far away, because there is no transport to get there, you know?".* Moreover, even when buses exist, their dimension or organization can be a problem. In the Vila Clara district in particular, the buses serving the UBS are high, which prevents some elderly people from climbing into them.

An interview led with an old woman from Vila Clara highlights the cross-constraints that can result from a poor physical condition, an uneven topography and the lack of suitable public

transport lines. This 68-year-old user, living on a sloping street, is no longer physically able to walk to the UBS on her own (pain, loss of balance, short breath). Since there are no bus directly connecting her street to the UBS, when she goes there without her daughter, she has to take two buses: the first one starts in front of her house, but it leaves the neighbourhood and serves the nearest metro station, *Jabaquara*. There, she has to take a second bus that brings her back to the UBS. The alternative to the walk between her home and the UBS, which is only a few hundred metres by foot, involves almost an hour of travel and a change of transport outside her neighbourhood. Moreover, this solution is no longer possible, due to the inadequacy of the minibuses to her growing mobility issues*: "I can't anymore [...] the other day, I took the bus here, and I fell! On the bus! [...] They stop the bus at the highest place [out of the sidewalk]. I tried to lift my leg, I couldn't. [...] I told the driver "just put the bus a little lower so I can get on [...] and he left! He left me all alone!"*

The second problem has to do with the sidewalks. Three users with reduced mobility (wheelchair, walker or blind person's cane) report difficulties to get to the UBS because of the sidewalks (see the photograph on the right - figure 2).

Territorialisation and dissatisfaction at the edges of the catchment areas

Most of the people who are not satisfied with the geographical proximity of the UBS actually regret the territorialisation of care, rather than the absolute location of their health care facility. A majority of them live close to the borders of the catchment areas and to other neighbouring UBSs, which sometimes seem closer to them, more accessible, or more in line with their daily spatial practices.
The users who complain about the location of care belong mostly to three family health teams. In Vila Clara, more than half of them (6 out of 11) depend on team 4, shown in yellow on the map (figure 3). In Bom Retiro, 4 of the 8 dissatisfied interviewees also belong to the *yellow team*, and 2 belong to the *black* one (figure 5). The other complaints are evenly distributed among the other teams.

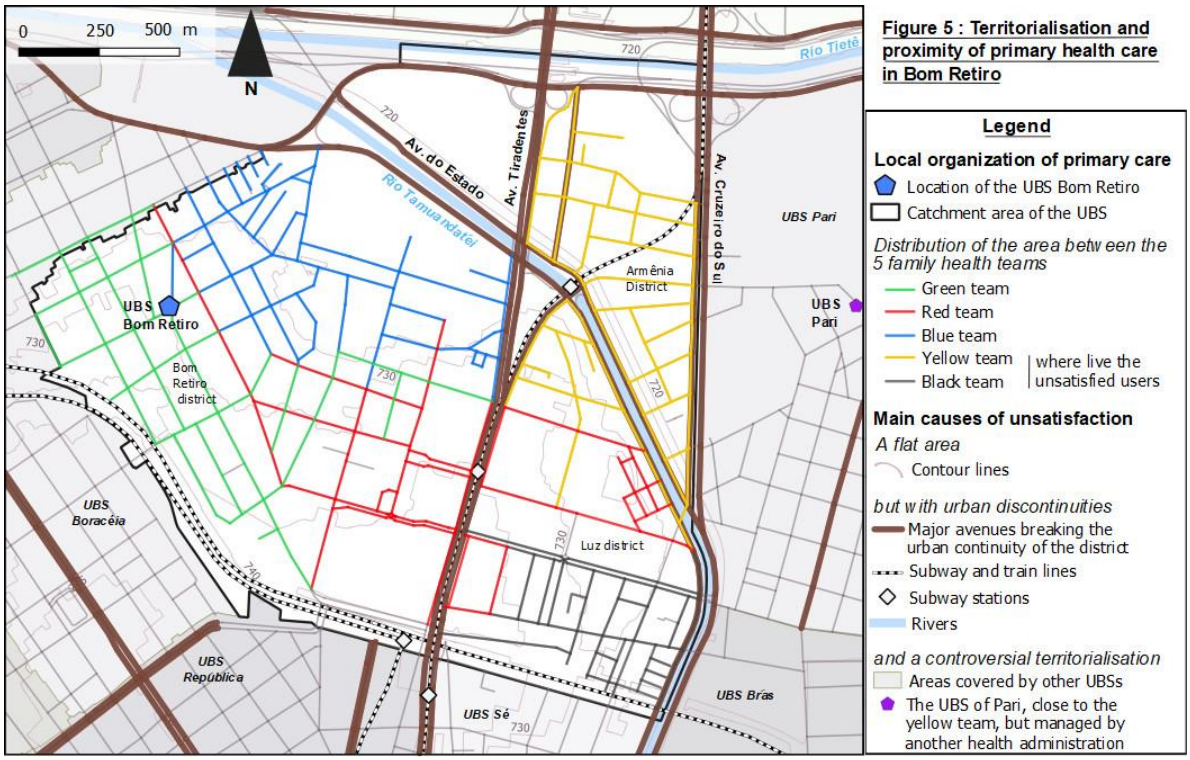

Figure 5 : Territorialisation and proximity of primary health care in Bom Retiro

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Several causes of dissatisfaction were discussed during the interviews.
First, it should be noted that the teams that concentrate the highest number of dissatisfied users are the furthest from their respective UBSs. However, this geographical distance is accentuated by the configuration of the rest of the urban space.

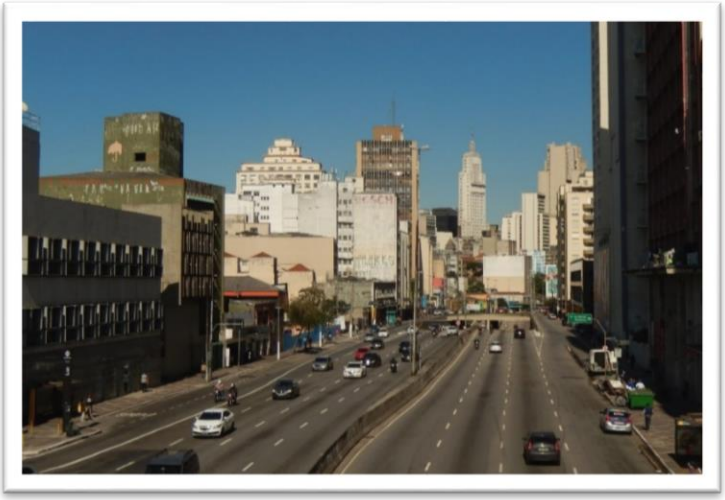

Figure 6: Photograph of the avenida Tiradentes from a pedestrian foot-bridge, near "Luz" metro station (07.05.2017). *The avenue widens further north, at the Tiradentes station.*

In Bom Retiro, for instance, Avenida Tiradentes (figures 5 and 6) splits the catchment area of the UBS in two. Although it was not explicitly mentioned as an obstacle during the interviews, we can presume that this avenue exacerbates the perceived distance between the historic district of Bom Retiro itself, where the UBS is located, and the neighbouring districts of *Luz* and *Armênia*, covered by the black and yellow teams. Moreover, the *Rio Tamuandateí* isolates even more a part of the yellow area from the rest of the territory and from the UBS (Figure 5).
This dissatisfaction is also linked to the fact that both of these teams have only been covered by the FHS for a few years. Previously, most of the local residents used the neighbouring UBS of Pari, geographically closer to the yellow zone. The territorialisation of care has therefore made access to care more difficult for part of the residents: *"Why has it changed? Because the one here [of Pari] is much closer... this post [of Bom Retiro] is very far away for us! [...] My God, it's much further away, here it's very close, right next door, there it's far away!"*.
In reality, the yellow zone could not be attached to the UBS of Pari because of the municipal health administration boundaries. Pari depends on one health administration (the Regional Coordination of *Sudeste*), and Bom Retiro depends on another (*Centro*), but this administrative barrier is invisible - and incomprehensible - for the local residents who go to the *Pari* neighbourhood on a daily basis.

In Vila Clara, the logic is different: the presence of a large avenue at the border of the area covered by Team 4 (*Avenida Engenheiro Armando de Arruda Pereira*) does not break the urban continuity of the territory. Yet, it creates a direct connection towards two nearby areas: the *Jabaquara* district in the northwest – where the metro is located – and the close municipality of *Diadema* in the southeast. These are two lively and commercial districts, well served and concentrating transport and shops. Hence, those who live near the avenue usually spend more time there, than in the poorer Vila Clara district. The topography accentuates this dissatisfaction, since the UBS Vila Clara is located at the bottom of the hill, while two other UBS are located along the flat avenue[2]: *"The people from this area at the top, they should send us to Jardim Lourdes on the avenue, not down there to Vila Clara! I don't agree with that! I think this health facility [Vila Clara] should cover this region [below]. It shouldn't cover the people here, from the avenue, it doesn't make sense to send people walking down these [hills]."*

We then tried to see how the two UBSs compensated for these accessibility problems by two forms of non-geographical proximity: an *organized* proximity and a relational one.

[2] The UBS *Jardim Lourdes*, and the UBS *Geraldo da Silva Ferreira*. The latter is located further away from Vila Clara, but it is the historical health care facility of the neighbourhood, and it offers some specialized care.

An organized proximity: the UBS as a local actor

The UBSs are using their local anchoring and the territorialisation of health care as tools for implementing community health care. This local scale makes it possible for the teams to diagnose the local health needs and to adapt their action to them, through transversal and preventive programs aimed at the whole community and not only at individuals. It allows each UBS to create what we could define as an *organized proximity*, defined by André Torre as the activation of a non-geographical proximity by local actors, driven by a logic of belonging or by a logic of similarity (Torre, 2009). Indeed, both of the UBSs have set up preventive and curative groups, focusing on their own health priorities and on the needs of their respective populations.

Figure 7: A list of some of the local activities organized by the UBSs

Figure 7		Common to both UBS	Organized in Bom Retiro	Organized in Vila Clara
Health vulnerabilities	***Chronical conditions and follow-up of the elderly***	♦ Walking groups ♦ Medical activities organized by a specialized team : *psychology, physiotherapy, auriculotherapy...*	♦ Group of prevention : medicinal tea ♦ Group of pain management ♦ Lian Gong group ♦ Punctual groups of prevention in buildings	♦ Group of *"hiperdia" (hypertension-diabetes)* : weekly follow-up of chronical conditions
	Mother and child health	♦ Family planning ♦ Follow-up of pregnant women ♦ National women day : *"pink october" (& "blue november")*		♦ In project : group of prevention and monitoring of early pregnancies *(<18)*
Social vulnerabilities		♦ Prevention and medical screening in vulnerable buildings or areas (favelas, occupied buildings and tenements) ♦ Follow-up of the environmental vulnerabilities *(through a program called PAVS)*	♦ Groups of football & rapid screening actions in the homeless shelters ♦ Green team : one monthly visit of the whole team to a sewing workshop *(medical follow-up, prevention, screening, prescriptions...)*	♦ Thematic groups of prevention & screening : - Men's health (in the street or in bars) - Women's health - Children's health *(head lice, vaccine, in schools or buildings)* ♦ Screening groups for children with behavioural disorders
Other activities		♦ Occasional conferences on health issues ♦ Manual activities (pill dispensers, etc.).	♦ Participation in local festivities and sports events through screening ♦ Communication on the local Bolivian radio	♦ In the existing groups, a day of *get-together* every month (snacks, *bingo*)

This list is not thorough, but it permits to visualize some of the activities organized by the UBSs, as well as their goals and target populations. Indirectly, it also indicates the main missions of a comprehensive primary health care system: screening, prevention, monitoring of mother and child health and of chronic diseases, and more broadly, global follow-up of the whole local population.

The table also shows that the medical teams try to adapt their action to local vulnerabilities: for instance, the presence of men's health groups in Vila Clara is explained by their low compliance to care in the area, while the groups called "*hiperdia*" (hypertension-diabetes), are a way of monitoring chronic diseases while compensating for the problems of access related

to the topography. In Bom Retiro, the activities organized for the homeless or for Bolivians working in the sewing workshops are a response to the specific needs of these vulnerable populations, concentrated in the historic centre.

Nonetheless, the actual impact of these groups on local health must be moderated by their frequency and their location, for both these elements play a major role in the continuity of care and for the accessibility of these activities. On these matters, our field observations showed significant variations between the two health care facilities.

First, there are wide variations in the locations where these activities are organized. In Bom Retiro, the UBS had trouble finding places large enough and available to organize group activities. For a while, a group (the Lian Gong) was organized in a church of the yellow team (where live most of the users complaining about the location of the UBS). However, since this area is mainly inhabited by young populations of working age, the group came to an end, due to a lack of participation. Apart from occasional prevention and screening activities organised in a few buildings concentrating target populations, and from a monthly visit to the sewing workshops, organized only by one of the teams, most of the weekly groups took place, until 2018, in the *Museu de Saúde Pública*, beside the UBS: therefore, it raises the same accessibility issues as the access to the regular medical care.
On the contrary, in Vila Clara, various places have been found for the weekly groups of chronic disease monitoring (*hiperdia* groups are located in figure 3): churches, schools, or even in some patients' garages. A user declares: *"In the [red] area, they choose a place that is easily accessible to everyone, and they hold a meeting, in this community [church], or in a school, or in a place offered by the community [...] In general it is there, in the community, because it is the most central and everyone in our zone can go there*". In addition, in Vila Clara, these *hiperdia* groups, as well as the thematic groups (women's and men's health) are organized by the family health teams themselves, for the patients of their own territory[3]. For that reason, they fully participate to the monitoring of the local population by their referent teams, to the screening of diseases, to the weekly monitoring of their blood pressure and blood sugar levels, and to the renewal of their prescriptions.

In addition, the number of people actively attending these groups is reduced. Most of the groups organized in Bom Retiro are attended by the same people – about 20 elderly women who have become friends. The groups play an important role for the health but also for the sociability of these people, but there are few of them. In Vila Clara, a similar observation is made by one of the doctors that was interviewed: *"Sometimes, in the UBS, we organize vaginal smear operations, [...] we open [on weekends], so that those who want to carry out a smear can come between 7am and 7pm, and samples are taken. But statistically, who comes to take it? The patient who comes to me every six months to take her smear! The people who go there are the same people who come here! And in the bar too! [...] Compliance [to care] is very low, it is very, very low"*.
Thus, the organized proximity is valuable, but only for a part of the inhabitants: the one whose health needs are targeted as priorities by the health teams, and above all, the motivated patients, whose preventive health practices would be regular, even without these activities.

For the doctor interviewed above, these organized forms of proximity are ineffective attempts to respond to local health vulnerabilities. For him, answering local needs would require more teams, more time and more resources, in order to create an individual link with each patient (especially with the ones who are the most reluctant to care), which only a relational proximity between medical teams and local populations can allow.

[3] In Bom Retiro, most of the activities are organized by mixed members of each team, or by a supplementary health team, from a program called NASF – *Núcleo de Apoio à Saúde da Família* – even though some punctual activities are driven by the teams themselves too.

Relational proximity and access to care

In the interviews that were led, emotional and relational proximity appeared to be appreciated elements of primary health care. It is through the creation of a relationship with the local population that the UBSs implement a truly community-based, preventive and cross-cutting approach to health. The main tool of this emotional proximity is the territorialisation of care, because it implies that the family health teams are responsible for a defined number of families, which allows the creation of a strong connexion between them. It plays a triple role in the populations' health.

To begin with, relational proximity is a tool which is used both by the teams and by the users themselves, in order to ease their access to care. Three examples illustrate this role.
The first example is a man of Vila Clara. He was diagnosed with cancer in Belo Horizonte a few months before, but did not manage to get treated. He migrated to his sister's home in São Paulo hoping to receive faster care, of better quality. His sister explained the situation to her community worker, who is also her neighbour, a few days before her brother arrived. The agent came to their home on the day of his arrival to register him, and she organized a home visit with the doctor four days later. It hastened the process, since several weeks of waiting were needed for a classic appointment at the UBS. It is her intimate knowledge of her local families that allowed that patient to begin the follow-up of his cancer within the week of his arrival.
The second example takes place in Bom Retiro, which is an immigration district, where come many South American migrants – Bolivians and Paraguayans. To ensure that the language and cultural barriers do not prevent their access to care - especially since some of them are illegal - three Bolivian community workers and some Spanish-speaking doctors were hired by the UBS.
Lastly, it is thanks to the personal involvement of community workers that some interviewees using the private health system started to use public care. A resident of Vila Clara explains that her husband and son recently saw the UBS's doctor for the first time, thanks to the initiative of their health worker, who had made the appointment for them: *"Ah, it's because there is this girl here, who is a saint, who makes everything easier for us... She helps us a lot".*

Secondly, the existence of an emotional proximity plays an important role in the creation of a strong bond between the locals and their UBS of reference. The role of the health community workers is once again essential. To be hired, agents must live in their reference territory. These agents therefore belong both to the local population and to the medical teams. As such, they contribute to strengthening the connexion between users and their health teams. A user of Vila Clara explains: *"[…] these girls from the UBS, that's a blessing! I'm crazy about these girls. You know, to me, they're part of the house. Because there are people there, people who work, people I have known for over 20 years, before they worked there, I already knew them. They're already my friends, my neighbours are working there!".*

Finally, the relational proximity is crucial for the continuity of the patient-doctor relationship. It makes the users accept to see their doctors on a regular basis and to comply to the care they recommend. Emotional proximity and "habit" are also quoted as important justifications for users of private health care who continue to frequent their local UBS simultaneously. An elderly user of Bom Retiro, who has had a health plan for several years, explains that she never left the UBS so as not to break the continuity of the bond she has with her doctor: *"[because] I was already [treated] here, I was with the Doctor X, and with another doctor before him, I feel good here!"*. It is also thanks to this relational bond that health workers agree to bypass the established rules, in order to allow continuity of care. Thus, in theory, when a patient moves to another place, he has to change of team or of health care facility, but several people reported that they managed to stay in their prior UBS. A community worker explains: *"Sometimes there are families, we get so attached to them [...] there is always one of our users we love, who leaves the area, and asks us [to stay], because they love the doctor, they love us, and they keep coming here. If it's a nice person, who never misses any consult, who does things right,*

then we accept [...]". This interpersonal link is all the more crucial to these negotiations that they result from an informal arrangement between agent and patient.

However, although emotional proximity is appreciated in the majority of the interviews, it can be problematic for some users. This overlaps once again with the question of territorialisation of care: indeed, no one is dissatisfied with a quality human bond, however, some users complain that they are forced to frequent only one team and one doctor. These complaints usually arise either when they don't like their referent medical staff, when their own doctor has a long waiting list compared to other teams, or when a medical team has a high turnover, which automatically breaks the medical continuity for all the residents of the area.
Nevertheless, on the whole, on a mere relational level, users accept the territorialisation of primary care relatively well, because it involves strong relationships, and a broad conception of health, taking into account the local territory and the social integration of each individual.

Discussion

Successes and limits of these three forms of proximity in implementing a comprehensive primary health-care system

These two case studies allow us to identify three types of proximity that are implemented by the family health teams in São Paulo, and to evaluate their respective impact on access to primary care and on the local users' satisfaction.

Of the three proximities that were studied, it is the relational and emotional one that seems to be the most valued by the interviewees. It involves a strong relationship between health teams and local populations, which is made possible by the territorialisation of care and by the dual local and medical belonging of the health community workers. For the teams, this proximity is a tool used to ensure that local populations are committed to their health, and that permits to facilitate their follow-up. For the users, it also represents a mean of obtaining more adapted or faster care, because it allows them to bypass, with the support of their referring team, the theoretical functioning of the health care system. This confirms pre-existing results. The role of the Bolivian health workers in improving the access to care of the immigrant populations of Bom Retiro has been demonstrated, for example, by Aguiar & Mota (2004). Costa & Carvalho (2012) have also shown the major role of community agents in overcoming the social and cultural barriers that separate local populations from the medical teams – which is particularly significant in the most vulnerable neighbourhoods. The presence of a relational proximity therefore participates to the construction of a comprehensive primary health care system. However, this result is partly biased by the way we met the interviewees (through the UBSs). The role of the emotional proximity may have been exaggerated by our choice to meet the interviewees through, and most often in the presence of, their community agents. It certainly permitted to facilitate the first contact, and to meet people who had interesting health experiences, but the agents often chose users they had known for a long time and that they liked. However, most of the interviewees did not hesitate to criticize the health care system in the presence, and sometimes with the active participation, of their community workers, who remain first and foremost their neighbours.

The UBSs also use their local anchorage in order to implement forms of organized proximity, according to a logic of belonging (groups are open to the residents living in the catchment area) and to a logic of similarity (they address to some populations, depending on their age, on their health condition or needs) (Torre, 2009). This choice is consistent with existing studies that have shown the role of community contexts on the individual and collective health status (e.g. Santos & Barcellos, 2008), and it seems to fully contribute to the reorientation of the health care systems towards a more collective and preventive approach. Nevertheless, our results nuance the real impact of these activities on the local populations' health and access to care. Some teams successfully implement diverse and adapted activities, but there are major differences between the territories and the teams. Moreover, the overall local populations' participation to the groups is weak, and their target audience is reduced and mostly in line with traditional primary care goals.

Finally, geographical proximity, which seemed to be the most obvious kind of proximity, is actually problematic. The UBSs are generally perceived as close and accessible by most of the populations, but it is mostly the dispersion of primary care – or, in other words, the presence of a health facility close to their home – that is appreciated. Existing research has established the positive impact of the dispersion of primary care on its accessibility (Vigneron, 2001). On the other hand, the territorialisation itself, forcing the local resident to frequent a single and pre-set facility, has a more mitigated impact on access to health care: the conclusions of Azevedo & Monteiro Costa (2010), affirming that the family health programme suppressed the physical barriers to access to care, needs to be nuanced.

In fact, this contribution does not question the relevance of these geographical, emotional or organized proximities on the implementation of a comprehensive primary health care system. These proximities are generally desired and valued by the users, even if their actual application is problematic. But it does question the choice of implementing these proximities through a territorialisation of health care, as well as the criteria that were used for the distribution of these health territories.

The challenges of the territorialisation of primary health care

The territorialisation of primary care is a problem because it does not allow the individuals to choose their own place of care, but also because the limits that were chosen by the municipality are not adapted to the practices and spatial constraints of the users, for three reasons.

Firstly, the presence of neighbouring UBSs that sometimes appear to be closer or more accessible to some people creates a strong dissatisfaction at the margins of the catchment area. The geographical proximity of health care facilities should therefore be considered not in absolute terms – as the crow flies, or according to a predefined number of families to be covered – but in relation to the other potential places of care.

Secondly, the fragmentation of the urban territory has a significant impact on spatial practices, which can only be understood using a cognitive approach to distance. For example, while the barrier created by the widening of the *Avenida Tiradentes* since the 1970s has been identified in existing researches (e. g. Prosperi Meyer, 2014), it has not been taken into account in the territorialisation of primary care in Bom Retiro – due to the existence of other administrative constraints. The example of Vila Clara also proves the limits of an area-based approach of proximity, that does not take into account the presence of a structuring artery that organize the daily practices and mobilities of the residents towards other places.

Finally, these results show the problems created by the mismatch between the division of health territories, and the public transportation policy. In Vila Clara, despite a reduced catchment area, the lack of public transport in some areas represents a barrier to access, especially for the elderly or for those with limited mobility, even though their health needs are the greatest. These conclusions are in line with the results of other South American studies, showing that to improve access to care for populations (especially for more complex care), health and transport policies should be thought together (López, Aón, Giglio, Freaza, & Cola, 2019).

In fact, a part of these problems seems to result from the limited vision of territory that is being used by the health administrations. They conceive territory as a simple support for dividing work between each UBS and between each team, according to a number of families to be covered. A study of Pereira & Barcellos (2006) has shown that this quantitative conception of territory was adopted by the family health strategy and by the teams themselves. It leads to a cartographic vision of distances that is not in line with the experience of proximity lived by the users. These results are in line with existing researches, stressing the importance of taking into account the populations' practices, in order to divide health territories in a relevant way (Vigneron, 1999). This difficulty in considering the territory in a comprehensive and qualitative way extends the observation made by Costa et al (2009), that showed how complex it was to transform the pre-existing Brazilian curative care model into a truly preventive one, rooted in local communities.
Therefore, the territorialisation of care is certainly a tool for community care, because it facilitates the implementation of an organized and a relational proximity, but it can also create forms of forced proximity for some populations.

In fact, the benefits of territorialisation (and of the proximities it contributes to create) depend on the profile of the users and on their health needs. Territorialisation represents a benefit mostly for the target populations of primary care, either because they are not mobile, or because they need regular or long-term care and support. For older people in particular, the community approach not only permits a good health monitoring, but it also promotes social integration and breaks isolation. However, for those who use primary health care more occasionally or for acute health needs, the speed and the quality of care may be considered as more important than the continuity of the medical relationship or than the geographical proximity of the facility. For these people, the potential benefits of territorialisation of primary care do not necessarily compensate for the constraints it imposes.

Conclusion

Territorialisation of primary care raises even more questions. For instance, the list of the complex care facilities that are available to an individual depend upon its point of entry in the system, moreover, access to secondary care is managed by the UBSs themselves. This leads to a second type of territorialisation: a territorialisation of access to complex health care, that raises specific issues. To go further, it would be interesting to compare the relative impact of these two forms of territorialisation on access to health care, and to question to which extent the local population really submit to them.

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