Territorialization of care and proximities in a community-based primary care system: What are the results on access to care and resident satisfaction? A case study from São Paulo

Pauline Iosti

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Abstract

The aim of this contribution is to evaluate the results of proximity and territorialization as organizational principles for community-based primary health care, on the declared access to care and satisfaction of local residents.
Two community health care facilities of the city of São Paulo, Brazil, were compared using a qualitative approach.
It appears that geographical, relational and organized proximities are valued by the local residents, and are helpful tools for a community health approach. However, the choice of implementing these proximities through a territorialization of health care, as well as the criteria that were used for the division of health territories, are potential barriers for access to primary care.

Keywords: Proximity; Community health care; Territorialization; Access; Brazil

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Manuscript page file

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Introduction

Since the Alma Ata conference of 1978, the World Health Organization (WHO) has called primary care to be the first and main level of organization of health care systems (WHO, 1978). The WHO uses a comprehensive definition of primary health care : the primary level must be the main entry point into the health care system, it must ensure a longitudinal monitoring of individual and collective health conditions and it must take into account a variety of social and medical determinants (Giovanella and Mendonça, 2012, from Starfield, 1998).
Community care is one of the possible organizations of a comprehensive primary health care system. The community approach is based on local territories. This anchoring at a local scale must allow medical staffs to diagnose health needs and to adapt their offer to the collective needs of the local population. It also aims at taking into account the individual in a holistic way, including its social, community and family integration (Picheral, 2001).

Adopting this comprehensive vision of primary and community care, Brazil created the Family Health Strategy (FHS – *Estratégia de Saúde da Família*) in 1994, a few years after the creation of a free and universal public health system in 1988[1]. Community care facilities (known as UBS, *Unidades Básicas de Saúde* – Basic Health Units) host multidisciplinary teams, including a doctor, paramedical staff and four to six health community workers, who must be local residents and whose goal is to create a bond between the medical teams and the local inhabitants (Costa et Carvalho, 2012), through daily visits to the residences of their target population.
This community-based program was designed as a mean to address the country's health challenges (Paim, 2015). Indeed, Brazil faces a complex social and urban context, characterized by strong spatialized inequalities and by the fragmentation of cities (Marques, 2004). Moreover, even though the city of São Paulo has a dense health care offer, private and complex public care are still unevenly distributed in the city (SMS-SP et Instituto Via Pública, 2011, p. 80). Thus, for the local populations, especially for the vulnerable ones, having access

[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).

to resolutive primary care facilities, locally based and responding to their needs is a major challenge.

The Family Health Strategy has been widely studied and has shown positive results: overall improvement of health indicators (Paim et al., 2011), decline in avoidable hospitalizations (Macinko et al., 2010), it has also contributed to improving access to care for populations. In São Paulo, for instance, the FHS has been implemented primarily in the most vulnerable and peripheric areas (Bousquat, Cohn et 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 et Mota, 2004) or in overcoming social barriers (Costa et Carvalho, 2012 ; Pinto, da Silva et Soriano, 2012).
However, the geographical organization of care that enables this local anchoring still needs to be addressed, as well as its effects on access to care.
Indeed, the FHS is organized on a territorial basis: each UBS covers a catchment area corresponding, in São Paulo, to the scale of the existing neighbourhoods, and forming the support for two types of territorialization. First, it allows a territorialization of care, “in the sense that each territory [is] well-defined and clearly delimited” (Fleuret, 2015). This enables a planification of the health care offer: the UBSs diagnose local needs and organize their action on a territorial and community basis. However, it is also the basis for a territorialization of *access to health care,* which means that the individuals cannot choose the health facility they use – it is assigned to them, depending on where they live.
This geographical organization must create three different types of proximity. First, it is a way of ensuring geographical proximity and physical accessibility to primary care (Lucas-Gabrielli, 2001), by "[bringing] health care as close as possible to where people live and work" (WHO, 1978). Territorialization of care also allows an *organized* proximity (Rallet et Torre, 2008), which can be defined as the use, by health actors, of geographical proximity as a tool to create local interactions and to "enable planning, decentralized programming and the development of sectoral and intersectoral actions" (Brazil et al., 2012, p. 20). Finally, territorialization implies that the medical teams are responsible for the health of an assigned population, which creates a relational proximity between them.
This territorialization is made by various actors: the municipality of São Paulo, through its regional administrations (*Coordenadorias regionais* and *Supervisões técnicas de saúde*), is responsible for the cut of the catchment areas of the UBSs. Locally, it is the UBSs themselves that are in charge of dividing their territory between each health team and between each Community Health Workers, in order to respond to local needs.
Territorialization is supposed to be a tool for the community approach. However, its actual implementation faces significant challenges, since existing studies have shown that the inadequate cut of health territories created obstacles to access to care for the local populations. Indeed, at the municipal scale, the cut is mainly made according to quantitative criteria, such as spatial contiguity of the catchment areas or number of families, and it does not take into account the spatial practices or the health needs of the local population (Faria, 2013 ; Silva Júnior et al., 2010). Locally, the criteria used for the micro-territorialization of the community approach still need to be studied ; however, existing researches have shown the restricted and quantitative conception of territory that was used by the health teams themselves (Pereira et Barcellos, 2006).

Even though the importance of a local anchoring for the success of community health care was stressed out by existing researches at an international scale (Fleuret, 2015), the geographical organization supporting this anchoring thus appear to encounter mixed results.
Based on this case study, the aim of this article is to contribute more generally to the understanding of the role of proximities and of territorialization of primary care on local population’s health, access to care and satisfaction, addressing this topic from the point of view of the populations. It will evaluate: (a) the respective roles of each type of proximity in the satisfaction of local users, and in their reported access to care, and (b) the specific impact of a territorialized organization of access to primary health care on declared access to care.

Materials and Methods

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 UBSs, the rest with medical teams and administrations.

Two neighbourhoods have been studied, using the catchment areas of the UBSs. The first one belongs to the historical center of São Paulo, in the neighbourhood of Bom Retiro. 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, but two of them were created recently, which has led to a reterritorialization. The second one, 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. Its population is less affluent, with some very vulnerable areas (*favelas*). In Vila Clara, the UBS was built in 2005 as a FHS facility, and six health teams are covering the population of the area.

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 flat neighbourhood of Bom Retiro itself, but also the more distant ones of Armênia and Luz.

The UBSs were observed during about five months. One researcher was present on a daily basis and observed the work of the health teams (daily visits, team meetings). The goal was to understand the general organization of the community approach. A particular attention was paid to the functioning of the territorialization of care, to how health teams use the local territory in order to respond to health needs, and to the collective activities organized by them.

		Bom Retiro		Vila Clara	
		Interviews	General data on the area[2]	Interviews	General data on the area[2]
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%
Declared health status	In good health	46%	Ø	33%	Ø
	Declaring a chronical disease	32%		53%	

Figure 1 - Presentation of the interviewees

The interviews were realized at the same time as the observation. The users were met through their referent Community Health Workers. At first, the choice of the interviewees was random: the Community Workers introduced me to people they thought had an interesting experience of access to health care. Then, I defined specific profiles in advance and met the users on a

[2] GISA-CEInfo (Secretaria Municipal da Saúde de São Paulo), data 2015-2016, online, URL : http://areasdeabrangencia.blogspot.com/, (downloaded on the 06/21/2017).

case-by-case basis. The characteristics of the interviewees are detailed in Figure 1. The interviewees were met during the opening hours of the UBS, during working time, which explains the over-representation of older people and women in the sample. This can be a bias and will be taken into account, however, both of these populations have a rich experience of access to health care (frequent health needs), which is interesting for this study. The socioeconomic category of the interviewees was not systematically questioned, but it has been shown that users of public health care generally have low income and education (Silva et al., 2011). However, we interviewed people living in the areas of every health team, in order to consider if their various places of residence had an effect on their access to care.

The interviews conducted with the users covered various topics, from their practice of the neighbourhood and mobility to their use and opinion about the UBS. The interviews conducted with the professionals questioned their diagnosis of the local needs and their role in order to respond to 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 of the Health Secretariat of the Municipality of São Paulo in October 2017. The data were analyzed through a content analysis.

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

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 interviewees declared to be satisfied with the geographical location of their UBS: thus, 65% of the users who expressed their opinion about the location of primary care found it close and accessible.

Geographical proximity is even recognized by many users as one of the main positive aspects of primary care, especially by people who also pay for a private health plan. An interviewee of Bom Retiro declares: *"I use the UBS more than the health plan: 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 […]*'. In Vila Clara too, geographical proximity is praised by most of the interviewees.
This proximity also appears in the choice of the transportation used to get there: 78% of the users report that they mostly walk to go to their UBS. 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.
Thus, despite the good geographical proximity of primary health care, some of the users that were surveyed had 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, for three main reasons.

Topography, a barrier to access to care in Vila Clara

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 (04.20.2018);*
Right*: rua Fidela Campína - (12.15.2017).*

In Vila Clara, the first barrier mentioned in the interviews is the hilly topography of the area. Indeed, the furthest avenue of the UBS catchment area – *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 meters below the hills, in the center of the left photograph (Figure 2). This hilly terrain is quoted as a real barrier to health care by 16 people that were interviewed, 13 of which are above 60 years old.

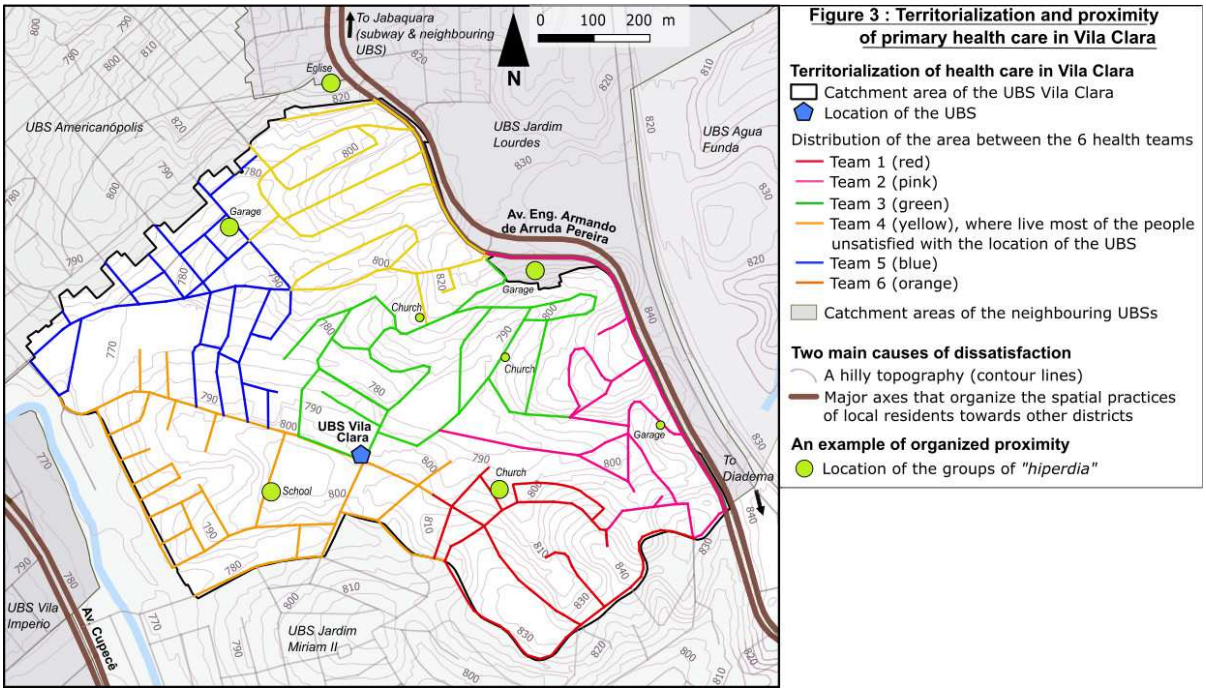


Figure 3: Territorialization and proximity of primary health care in Vila Clara

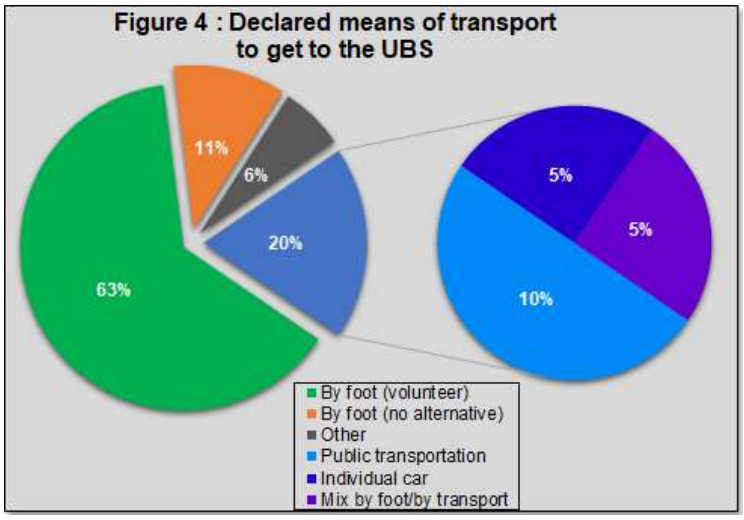
During an interview with an elderly woman from Vila Clara who declares having difficulty to get to the UBS, her community worker explains: *" […] To get there, she has to take the path we have climbed, or another one there that is also pfff... that's what I told you, for the elderly, the*

climbs, to be able to climb up to the avenue, it's difficult [...]". However, for 10 of the 16 people affected, the main problem is not the topography itself, but the choice of locating the UBS at the bottom of the area – which has to do with urban planning.

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

The geographical proximity of both the UBSs is not enough to suppress all the physical barriers to health care, because of the lack of an adequate public transportation at the scale of the neighbourhoods.
Both catchment areas are relatively small (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 care facility. Although a majority of them (63%) walks to their UBS, 20% 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%) 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 transportation 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 old lady declares: *"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 overrepresentation of the elderly in the interviewed sample might have accentuated this declared unsatisfaction. However, being one of the target populations of primary health care in Brazil, their accessibility issues are particularly problematic.



Territorialization and dissatisfaction at the edges of the catchment areas

On the whole, most of the unsatisfied people actually regret the territorialization of access to care, which means that they do not have the choice on which UBS they are allowed to use, rather than the absolute location of the health care facilities.

Indeed, most of the dissatisfied users live close to the borders of their catchment areas and close to other neighbouring UBSs, which sometimes seem closer to them, more accessible, or more in line with their daily spatial practices.

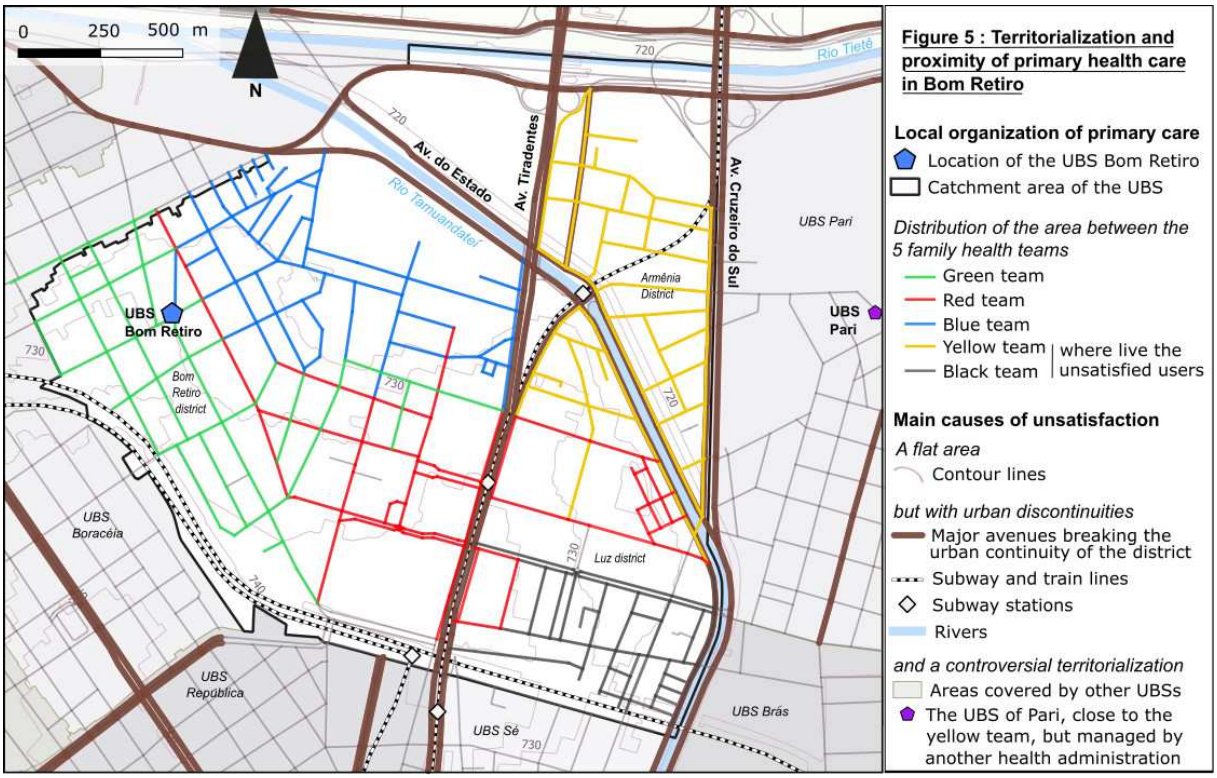


Figure 5: Territorialization and proximity of primary health care in Bom Retiro

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 (see figure 5 below). The other complaints are evenly distributed among the other teams.

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.
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 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).
One of the nurses that was interviewed declares that it sometimes leads to renunciation to care, especially for the most vulnerable populations that cannot afford to miss a few hours of work in order to go to the UBS. He quotes the example of a Bolivian couple living far from the UBS, that did not realize the medical follow-up of their new-born for this reason.

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 reterritorialization 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 […]"*.

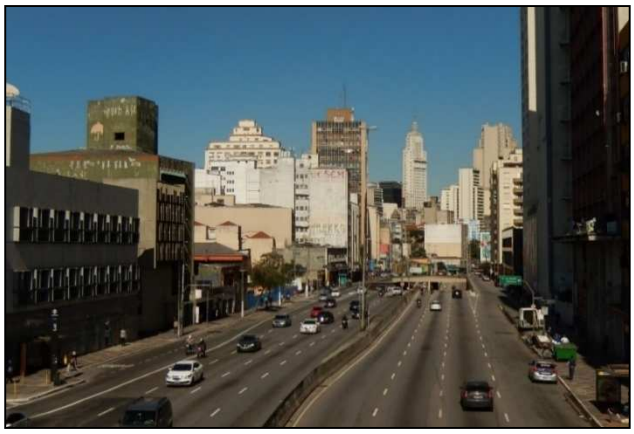


Figure 6: Photograph of the Avenida Tiradentes from a pedestrian foot- bridge, near "Luz" metro station (07.05.2017).

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 presence of a large avenue at the border of the area covered by Team 4 (*Avenida Engenheiro Armando de Arruda Pereira,* see figure 3) 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 subway is located – and the close municipality of *Diadema* in the southeast, 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. One of the interviewees explains: *"The people from this area at the top, they should send us to [UBS] 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]."*

Despite a generally appreciated geographical proximity, spatial accessibility to primary health care appears to still be an issue, particularly because of the inadequate cut of the catchment areas that is operated by the regional administrations of health, according mostly to quantitative criteria.
The house visits organized by the medical teams into the residences of their families are supposed to compensate for these geographical barriers, but they are not sufficiently frequent. Indeed, the number of medical visits varies a lot in each health team, from twice a week to a few times a year, which is not enough to see all of the local population on a regular basis. The health community workers do visit their target families once a month at least, but they have no medical formation. However, the UBSs compensate for these accessibility issues by two forms of non-geographical proximity: an organized proximity and a relational one.

An organized proximity: the UBS as a local actor

The territorialization of health care at a local scale makes it possible for the health teams to diagnose the local 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 an *organized proximity*, defined as the activation of a non-geographical proximity by local actors, through interactions (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, below, illustrates some of the group activities organized by the UBSs, as well as their goals and target populations.

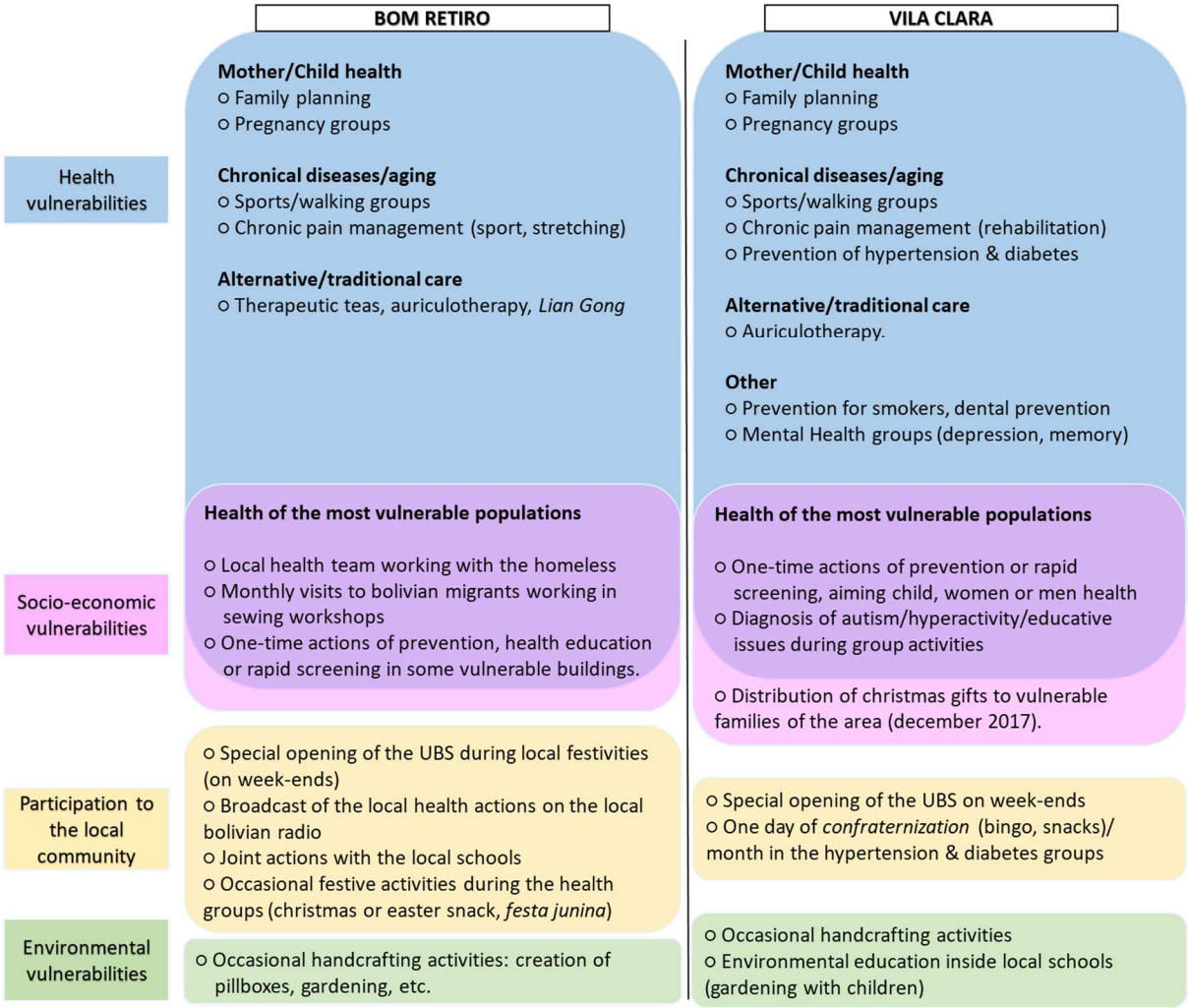


Figure 7: A non-exhaustive list of some of the group activities organized by each UBS, and of the vulnerabilities it targets

As shown by Figure 7, both the UBSs actively relate with their local populations through group actions. Indirectly, this figure illustrates 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. It also permits us to visualize the holistic definition of health adopted by the UBSs, since medical teams also target socioeconomic or environmental vulnerabilities.
Finally, the table shows how the medical teams adapt their action to specific 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 of hypertension-diabetes allow the health teams to monitor the chronic diseases of their populations, 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 center (Barata, 2015).
This organized proximity largely relies on the local anchoring of the UBSs: the UBSs are part of the local territories, which allows them to diagnose local needs and to cooperate with other local actors (schools for instance, as shown in Figure 7).

Nonetheless, the actual impact of these activities is mixed, because of the low participation of local populations to them. Thus, most of the groups organized in Bom Retiro are attended by the same people – about twenty elderly people who have become friends. 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! [...] Compliance [to care] is very low, it is very, very low".
Thus, 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.

Moreover, the criteria used by both the UBSs for distributing the local populations between each health team at a local scale are paradoxically an obstacle for this organized proximity. Thus, this division is made on a strictly quantitative basis (number of inhabitants) and disregards the epidemiological or social characteristics of the territory, the intensity of their health needs or the characteristics of their health practices (access to private health care), which makes it more difficult for the health teams to adequately responding to local needs. For instance, in Vila Clara, in January 2018, the health team that covered the most affluent area of the territory only took care of 967 families, when the health team covering the most vulnerable area was in charge of 1221 families.

Relational proximity and access to care

Territorialization of care implies that the family health teams are responsible for a defined number of families. Therefore, it allows the creation of a strong connection between health teams and local populations. In the interviews that were led, this relational proximity appeared to be strongly appreciated.
This relational proximity is not just an indirect consequence of territorialization, but it is used as a tool for the community health approach, in four different ways.

First, relational proximity is a tool used by the health teams in order to educate the local population to health.
Secondly, this interpersonal bond is crucial for the continuity of the patient-doctor relationship. For instance, an elderly woman of Bom Retiro, who has had a private 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!"*.
Thirdly, this relationship also allows the UBSs to anticipate the health needs of local populations and to respond to it. For instance, an interviewee declares: "*My Community Agent, she is very helpful with me […] if you need to renew your prescription, she'll take care of it"*.
This proximity also is a tool used both by the teams and by the users themselves in order to overcome existing barriers to access to care. For instance, in Bom Retiro, which is an immigration district, three Bolivian community workers and Spanish-speaking doctors were hired by the UBS, in order to ensure that the language and cultural barriers do not prevent their access to care. It is also thanks to this relational bond that health workers agree to bypass the established rules, for instance, territorialization of care, 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. However, 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.
To finish, this relational proximity plays a crucial role for the community approach, since it allows the UBSs to be anchored and fully integrated inside their local communities. The role

of the health community workers is once again essential. To be hired, these agents must live in their reference territory. Therefore, they belong both to the local population and to the medical teams. As such, they contribute to strengthening the connection 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!".*

However, although the relational proximity is appreciated by most of the interviewees, some of them complain that they are forced to frequent only one team and one doctor, as a result from territorialization of care. In fact, no one is dissatisfied with a quality human bond, but complaints arise either when a 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 a mere relational level, users accept the territorialization 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 allowed us to identify the respective impact of these three types of proximity on access to primary care and on the local users' satisfaction.

Firstly, it is the relational proximity that seemed to be the most valued by the interviewees. For the medical teams, this relational proximity is a tool used to ensure that local populations are committed to their health, and that facilitates their follow-up. For the users, it is a means of obtaining more adapted or faster care, because it allows them to bypass, with the support of their referring team, the theoretical functioning of health care. The importance of this interpersonal bond was also stressed out by other Brazilian studies. For instance, the role played by the Bolivian health workers in improving access to care for the immigrant populations of Bom Retiro has been demonstrated by Aguiar and Mota, (2004). Costa and Carvalho (2012) have also shown the major role of community agents in overcoming the social and cultural barriers between local populations and medical teams.
Even though the role of this proximity might have been exaggerated by our choice of meeting the interviewees through, and most often in the presence of their community agents, it appears that the presence of a relational proximity therefore participates to the construction of a comprehensive primary health care system.

Secondly, the UBSs successfully use their local anchorage in order to realize a diagnosis of the local needs and to respond to them adequately, through health groups, collective actions with other local actors and participation to the local community. These forms of organized proximity are a way of "building healthcare", but also a way of "building communities" (Fleuret, 2015). However, our results nuance the real impact of this organized proximity on the local populations' health and access to care, since the target population and the overall participation to these actions is reduced.

Finally, the geographical proximity, which seemed to be the most obvious kind of proximity, appeared to be problematic. In fact, the UBSs are generally perceived as close and accessible, 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 indeed established the

positive impact of the dispersion of primary care on its accessibility (Vigneron, 2001). On the other hand, the territorialization of access to health care itself, forcing the local resident to frequent a single facility, has a more mitigated impact on access. Despite its geographical proximity, the family health program does not suppress the existing physical barriers to access to care. These results contradict existing studies (Azevedo et Monteiro Costa, 2010) but they are in line with other studies that showed that the geographical organization of primary health care in Brazil created accessibility issues at a local scale, because of the local topography and of the territorialization of care (Silva Júnior et al., 2010).

Thus, this contribution does not question the relevance of these geographical, relational or organized proximities on the implementation of a comprehensive primary health care system. Even if their actual implementation can be problematic, these proximities are generally valued by the local actors, and are helpful tools for a community health approach. But it does question the choice of implementing these proximities through a territorialization of health care, as well as the criteria that were used for the division of the health territories.

The challenges of the territorialization of primary health care

This study has showed that both the forms of territorialization defined in introduction encounter limits.

Firstly, the territorialization of *access* to health care appears to be a major challenge for the geographical access to health care and for the satisfaction of local inhabitants, due to the inadequate division of the catchment areas of the UBSs.

Indeed, this division adopts a strictly area-based conception of distance. It does not take into account the prior spatial practices of the population, which are seldom limited to the neighbourhood where they live, nor does it consider the cognitive dimension of perceived distance. For instance, the presence of neighbouring UBSs, that sometimes appear to be closer or more accessible by public transportation, can create a strong dissatisfaction at the margins of the catchment area. Thus, territorialization of access to care paradoxically appears as a potential barrier to access, because the division of the catchment areas is made by health administrations at a municipal scale, using 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 that showed that, despite a rich conceptual framework, territorialization of primary care still encountered many limits in Brazil, the health care administrations creating spatial restrictions for health care access, instead of identifying prior practices and adapting to them (Faria, 2013). Other studies have indeed shown the importance of taking into account the populations' practices, in order to divide health territories in a relevant way (Vigneron, 1999). This study also illustrates the problem created by the mismatch between the division of health territories, and the public transportation policy, a fact that was also highlighted in Argentina by López, Aón, Giglio, Freaza, & Cola (2019).

If we define territorialization of care as the inscription of a health care offer inside a delimited territory, the results are more nuanced. On the one hand, this type of territorialization of care is a very effective tool for community care. Indeed, it is realized at a local scale by health teams that have a practical knowledge of the neighbourhoods, and it facilitates the implementation of an organized and a relational proximity.

However, this territorialization encounters limits, because of the limited vision of territory that is still adopted by the UBSs and the health teams themselves, considering the local territory as a mere physical support for dividing community work between each team, and for their health actions. A study of Pereira and Barcellos (2006) also showed that this quantitative conception of territory was adopted by the family health strategy and by the teams themselves.

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 and community care model, rooted in local communities and territories.

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