



Social Barriers for the Use of Available and Accessible Public Green Spaces

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Background: Our living environment impacts on our health and wellbeing. The physical and mental benefits of interaction with nature and the ecosystem are well-established in literature. From a public health perspective, it is thus crucial that people make use of public green spaces (PGSs) in urban areas. Therefore, it is important to understand why they are potentially under-used.

Methods: In this research, we identified social barriers that prevent the (full) use of PGSs in the Brussels Capital Region (BCR). We applied a qualitative research methodology. Insights were generated through 51 individual face-to-face in-depth interviews with a group of PGS users diversified in terms of age, gender, migration background, and socioeconomic situation. Questions were open-ended, and the interview guide was semi-structured.

Results: Our research identified three social barriers for the use of available and accessible PGSs: (1) perceived dangers due to bad precedents, the presence of socially frightening elements, or a lack of social control, (2) not feeling in place because of the dominance of a specific group of users or because of community perceptions, and (3) not fulfilling one's social needs. These barriers were different in their manifestations (barriers to go—barriers to stay—barriers for integral use) and resulted in a differential degree of PSG-use. We distinguished three different dimensions of the completeness or integrality (understood as full or optimal use) by which PGSs are used; the spatial integrality (using all the different parts of the PGS), the temporal integrality (using PGSs at all moments of the day), and the social integrality of PGS use (without any restriction concerning social interaction).

Conclusions: While there are many benefits associated with PGSs, a continuous social evaluation of these physical places might generate social barriers resulting in a decline of their use, a more superficial use, or even in complete avoidance. Both the social context and social needs of individuals result in specific social barriers.

Keywords: public green space, perceptions, qualitative research, Brussels-Capital Region, social barriers for use

INTRODUCTION

The future is urban. Today, over 55% of the population worldwide is estimated to live in urban areas, a proportion that is expected to increase to 68% by 2030 (United Nations Department of Economic Social Affairs PD, 2018). The environment we live in impacts on our health and wellbeing, and living in an urban environment might expose us to “environmental negatives” (e.g., noise pollution, air pollution, soil pollution, light pollution, heat, etc.). In such an urban context, public green spaces (PGSs) are generally perceived as the most significant “environmental positives,” strongly affecting the quality of life in urban settings.

The physical and mental benefits of interaction with nature are well established in literature. In particular, a large body of literature highlights the importance of PGSs (in urban settings) for self-perceived health (Maas et al., 2006; Mitchell and Popham, 2007; Bowler et al., 2010; de Jong et al., 2012), morbidity (Mitchell and Popham, 2008; Pereira et al., 2013; Astell-Burt et al., 2014), and mortality (Gascon et al., 2016).

To explain the association between health and PGSs, several explanations have been given. First, PGSs provide opportunities for physical activity, which is associated with reduced physical and mental disorders (Pretty et al., 2005). Second, social interaction is facilitated by the availability of green spaces (Maas et al., 2009). Third, exposure to green promotes psychological restoration (Hartig et al., 1991; Carter and Horwitz, 2014). Last, green areas are associated with a mitigation of environmental hazards such as air pollution, noise pollution, and heat.

Given the growing evidence of a positive association between PGS use and human well-being, it is important to generate insights in the use (or under-use) of PGSs especially in the context of increasing urbanisation which might lead to a degradation of the quality and quantity of PGS exposure. Therefore, the aim of this paper is to better understand why PGSs are used or rather under-used and to identify social barriers for PGS use experienced by potential users.

Earlier research has identified multiple barriers or constraints for PGS use (Giles-Corti et al., 2005; Wright Wendel et al., 2012; Rushing et al., 2019). A frequently applied categorisation distinguishes intrapersonal, interpersonal, and structural barriers. Intrapersonal barriers relate to an individual’s psychological state, interpersonal barriers relate to the relationship between individuals, and structural barriers relate to external factors (Godbey, 1987). In their literature review, Croy and Glover (2009) identified intrapersonal barriers such as the lack of interest or meaningfulness in visiting PGSs, language barriers (difficulties to communicate with others), personal safety concerns, physical/health constraints, and the preference to spend leisure time doing other things. Similarly, they pinpointed different interpersonal barriers: no one to go with, not knowing other park users, difficulty in mixing with others, and too many male visitors. Finally, the authors classified the lack of accessible PGSs, not having enough money (for paid parking), not having enough time, poor park management quality, having other options, lack of information, overcrowding, not wanting to disrupt the daily routines, and the weather were mentioned as structural barriers.

The categorisation of barriers in interpersonal, intrapersonal, and structural is not the only one in literature. Biernacka and Kronenberg (2018) for instance, focus on three aspects of PGS provision: availability, accessibility, and attractiveness. The authors claim that these dimensions are hierarchal. Only when a specific level of availability is realised, can accessibility be evaluated and only when a PGS is accessible, can attractiveness be evaluated. Studies largely focused on the availability and accessibility of PGSs suggesting that greater opportunities to visit such spaces will lead to increased use (Lin et al., 2014). A distance of 300–400 m is often mentioned as a threshold after which PGS use declines (Coles and Bussey, 2000; Giles-Corti et al., 2005). The idea that PGSs should be close to people’s living place is implemented in various health and city planning policies. For instance, the Brussels government (Brusselse Regering, 2019) stipulated in its policy statement for the period 2019–2024 that every Brussels citizen should have access to a PGS at a maximum distance of 10 min walking.

The exclusive focus on the availability and accessibility of PGSs in these studies poorly captures other personal and social dimensions that drive PGS use. Improving access will only partially result in greater PGS use since attractiveness is a prerequisite for accessible PGSs to be used. So, in order to be used, PGSs should be attractive. In addition, most studies make use of quantitative research methods. Few attempts have been made to apply qualitative methodologies and more particularly inductive analyses of qualitative research to this field of study. A limited number of qualitative studies focuses exclusively on barriers for PGS use; most consider barriers in a superficial or indirect way—without an explicit focus on them—however. An exception is the study of Seaman et al. (2010) showing that physical availability of PGSs interacts with the community context and that a holistic understanding of access is required. They identify four key categories shaping decisions about PGS use thereby underlining the importance of the social dimensions that drive PGS use: availability of physical community resources, lifestyle and life-stage factors, individual values, and levels of experienced integration and inclusion by individuals in their communities. Gidlow and Ellis (2011) identified socially interpreted elements as a primary barrier for PGS use such as litter, broken glass, and vandalism, all associated with antisocial behaviour. Cronin-de-Chavez et al. (2019) integrate barriers (and enablers) at different levels—the structural, social, and personal level—and underline both physical and social barriers in their model of PGS use.

To develop effective strategies to increase the use of PGSs—and more particularly the under-used ones—it is fundamental to develop a more profound understanding of the barriers encountered by (potential) users. The aim of our research is therefore to improve knowledge about self-perceived social barriers that prevent people from using available and accessible PGSs. We will focus on the subjective reasons why people in the BCR choose not to use available and accessible PGSs or why they use them rather superficially. More concretely, we will try to answer the following question: what barriers related to the social environment prevent potential users to use available and accessible PGSs or that prevent them to use PGSs in an integral

way within the BCR? Barriers for use are defined broadly as all elements that prevent people from going to PGSs, use and stay there as long as intended, and use them in an integral way, meaning that they are fully or optimally used (all the different parts of the PGS, at all moments of the day, without any restriction concerning social interaction). Potential users in this study concern individuals who are motivated to visit PGSs, thereby excluding those who encounter intrapersonal barriers to visit PGSs, and who have (self-perceived) available and accessible PGSs at their disposal.

Our analysis of perceptions will provide support for PGS management and governance in favour of inclusive PGSs. Perceptions of the quality or attractiveness of PGSs with city and urban planners may indeed differ from the perceptions prevailing in different social groups that use them. Compared with earlier research, the novel aspects of our study consist in (i) an explicit focus on attractiveness and social barriers; (ii) the application of qualitative research methods and an inductive approach to understand the how and why of PGS-related behaviour; and (iii) the focus on the Brussels-Capital Region (BCR).

Attractiveness consists of both a physical—the natural and built environment—and a social component. Given the fact that the role of the social dimension has been under-investigated, we will exclusively focus on this social component of attractiveness.

METHODS

Study Setting

The BCR, situated in the heart of Belgium, consists of 19 municipalities with an area of 162 km². The BCR is a rather

green region. In 2008, 54% of its surface was covered with vegetation and in 2009, there was 28 m² of accessible public green and recreational space per capita (Brussels Environment, 2020). These PGSs are unevenly distributed over the 19 municipalities within the BCR, with the densely populated and poorer communities clearly facing a lack of available PGSs. In addition, there are also big differences in the quality of PGSs throughout the BCR (Brussels Environment, 2020). The use of the PGSs in the BCR is free of charge. They are open every day (weekdays/weekends) but some of them have closing times. On January 1, 2019, the BCR counted 1,208,542 officially registered inhabitants. By 2070, population is expected to increase by 15%. The population is unevenly distributed with higher population concentrations in the municipalities in the centre and lower ones in the peripheral municipalities. Unemployment rates are relatively high (13% in 2017) (Brussels Environment, 2020) and poverty rates are higher than the Belgian average. A third of the population lives with an income below the poverty line and lives in bad housing conditions (Observatorium Voor Gezondheid en Welzijn, 2006; Gezondheid and Welzijn, 2011). The population of the BCR is very cosmopolitan in terms of its social composition. On January 1, 2018, 35% of the population had a foreign nationality (Gezondheid and Welzijn, 2011).

Fieldwork

The study adhered to a symbolic interactionist perspective, viewing social interaction in terms of the meaning that social actors attach to action and things (Bryman, 2004). Thereby the individual is continually interpreting the symbolic meaning of her or his environment and acts on the basis of these imputed meanings (Bryman, 2004, p. 14). In line with this perspective, we used a qualitative research methodology since qualitative research and more particularly individual face-to-face in-depth interviews allow for a profound exploration of motivations and barriers through indirect questions and association exercises.

Data collection was accomplished through individual face-to-face in-depth interviews. Questions were open-ended, and the interview guide was semi-structured. To test the completeness, comprehensiveness, and duration of the interview guide, it was first piloted through two interviews, one with a highly educated and one with a lower educated person. The interviews covered several related topics—barriers for PGS use were only one of these topics—and lasted for about 90 min. We started the interview with some associative questions to focus thereafter more concretely on the needs related to PGSs, their use, and evaluation (see **Annex 1** for the detailed questionnaire). Respondents were interviewed at the Vrije Universiteit Brussel, at their homes, in public places, or in the location of the intermediary civil society organisations (such as schools, elderly organisations, community houses, etc.) that helped us with the recruitment.

We considered PGSs any public outdoor space with green elements without restrictions on size or form. We recruited respondents that perceived themselves as living near at least one PGS in the BCR. As encountered barriers for PGS use might differ according to stratification criteria such as age, sex, migration background, and socioeconomic

TABLE 1 | Demographics of recruited respondents.

Overview (n = 51)

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Age	16–25	20
	26–65	23
	Over 65	8
Gender	Female (F)	39
	Male (M)	12
Migration background	Belgian	27
	Northern Europe	1
	Southern Europe	1
	Turkey	4
	Northern Afrika	10
	Sub-Saharan-Afrika	6
	Middle East	1
	Asia	1
Socio-economic situation	Low socio-economic classes (L)	19
	Middle and high socio-economic classes (MH)	32

position, we recruited a diverse group of respondents reflecting predetermined quota for these characteristics. We mainly recruited *via* intermediary organisations that disposed of demographic information about the respondents that were recruited. When other recruitment channels were used, we asked potential respondents' demographics beforehand. We deemed it especially important to include adolescents in our sample, as their PGS use might be determined by other factors than with adults. Moreover, it is known from chronic disease epidemiology that lifestyles established at young age and adolescence are important health determinants in later life (Hallal et al., 2006).

Respondents were recruited through flyers with our contact details distributed in the mailboxes of houses in the vicinity of parks, through a Brussel's Facebook group, intermediary civil society organisations, and snowball recruitment. Once individuals showed interest to participate in an interview, we asked the respondent to propose a day, time, and place to meet. The interviews were conducted before the COVID-19 pandemic outbreak, between October 2019 and March 2020, in Dutch or in French. An incentive of 15 euros cash, payed with project and research group money, was granted to respondents after participation to the interview. This proved particularly important for the recruitment of profiles that were not intrinsically motivated to contribute to a study on PGSs and deprived profiles.

We recruited and interviewed 51 respondents aged 16 to 80 (see **Table 1** for details about the demographics of the recruited respondents). Indicators such as educational level, professional situation, living conditions, and leisure activities were used as a proxy for determining the socioeconomic position of respondents. We also obtained indirect information on socioeconomic situation of the respondents through civil society organisations and schools that helped us with the recruitment. For adolescents, the parental socioeconomic position was used. Sociocultural background was determined by the native country of the respondent or their parents.

The interview guide, fieldwork, and data processing approach were approved by the Ethical Commission of the Vrije Universiteit Brussel (ECHW_160).

Analyses

The interviews were audiorecorded and transcribed for thematical analysis (Braun et al., 2017). An inductive approach was used whereby the respondents' views and experiences in the form of raw unstructured data were the starting point to identify key themes and to structure the analysis. The first author performed the coding and developed the structure of the analysis. Only data/results relevant to our research questions are presented in this manuscript, generated through two specific questions about barriers for PGS use: (1) What are barriers or problems that prevent you from using specific PGSs or prevent you from using PGSs as often as you would like (Q2.10.) and (2) Are there PGSs you proactively avoid (Q2.11.)? Additional questions (which PGSs, why, when, under which circumstances, evolutions, etc.) were asked to obtain context and a more profound understanding of self-perceived barriers. Other relevant insights and barriers for PGS use were indirectly generated through discussions resulting from the other questions

in the questionnaire related to perceptions, experiences, and use of PGSs.

The analysis is supplemented with quotations of respondents characterised through an anonymous identification code that refers to some main characteristics such as age, gender, migration background, and socioeconomic situation (see **Annex 2**).

RESULTS

The thematic analysis of all interviews resulted in the identification of three main themes representing different social barriers: (1) (perceived) danger, (2) not feeling in place, and (3) not fulfilling (social) needs. These themes are subdivided in several subthemes (**Figure 1**).

(Perceived) Danger

A prerequisite for PGSs to be used is that they are perceived as safe places. Some PGSs were perceived as unsafe because of past experiences or because of a subjective feeling of insecurity. Although most respondents had not experienced unsafe situations themselves, they felt insecure because of storeys of bad precedents that occurred in the PGS, the presence of socially frightening elements, or the lack of social control.

Bad Precedents

A recurrent storey that popped-up during the interviews was that of a dead body found in a PGS. This precedent constituted a barrier for some respondents to use this PGS or to go out there on their own. A young woman explained it as follows:

"I remember, but I don't know if it's true, but a few years ago, they found a body in the Josaphat park and something happened, and since that day I avoid going to this park." (R41)

Respondents reasoned that similar or other frightening events could happen again in these PGSs. The fact that bad things had already happened there thus negatively impacted on the idea of the PGS as a safe place.

Presence of Socially Frightening Elements

The presence of socially frightening elements of all kinds evoked feelings of insecurity as well. In the first place, specific groups of people were associated with possible danger. Especially groups of male adolescents, assumed refugees, homeless people, and people consuming alcohol and drugs were perceived as a potential danger. A mother of three children elaborated on the mixed feelings she experienced when watching refugees that shelter in the park in front of her apartment:

"The park is a meeting place. Young people who smoke cannabis. That's what I don't like. And recently with the refugees too, under the roof down there, at nine in the evening, there are refugees sleeping there. It's crowded. They sleep right here, across the street, under the roof. Sometimes, there is no room for everyone. ... These are people who have no place to sleep, it's hard for them to sleep at night, it's cold, it's raining and everything. But, it gives me a feeling of fear. These are people we don't know. Maybe they are using drugs, and I am afraid for my daughter sometimes. When she

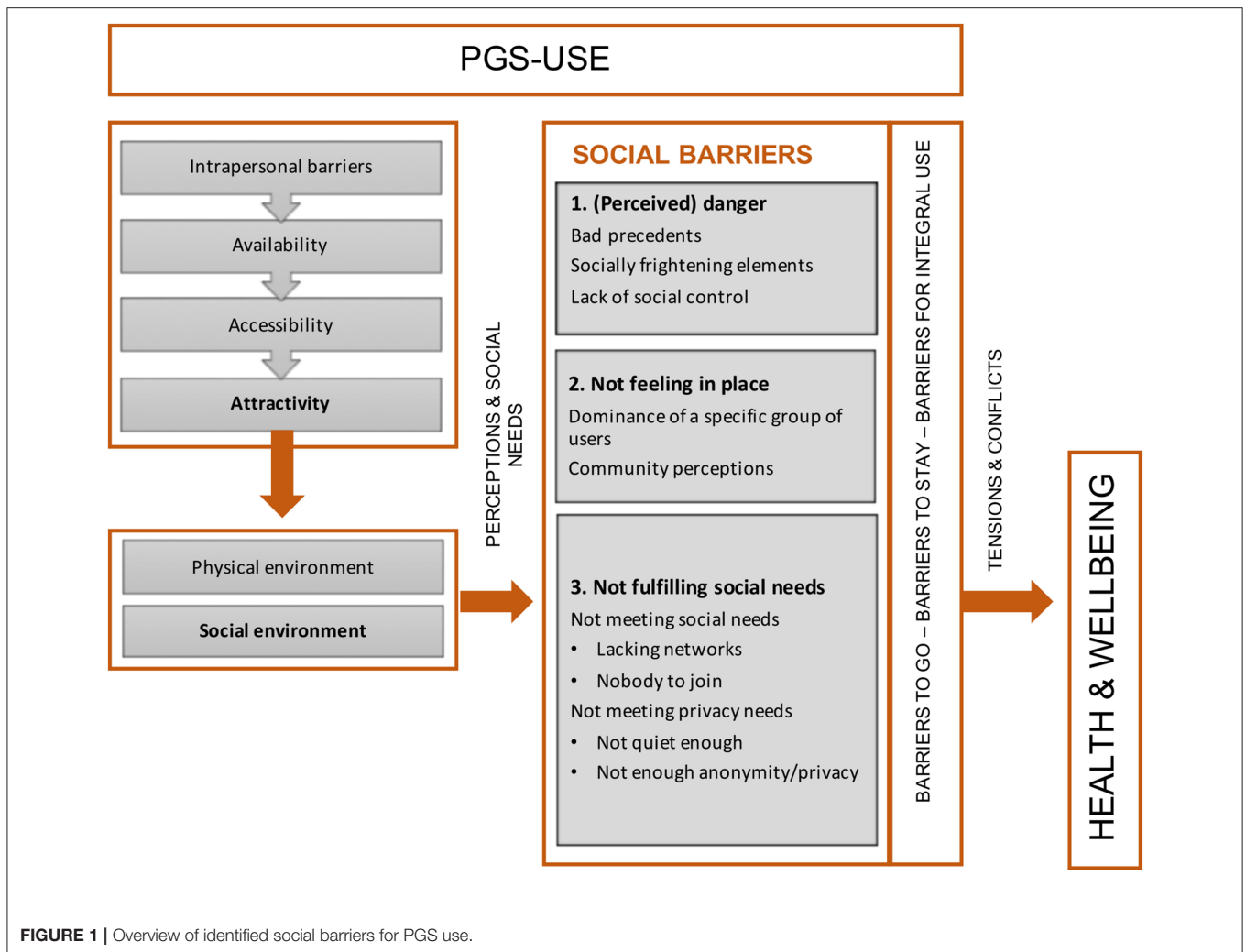


FIGURE 1 | Overview of identified social barriers for PGS use.

comes home from school on her own. I have this fear. I'm not saying we should drive them out, but this is not a good place for them. It hurts my heart a bit that they have to come every night and sleep on boxes." (R26)

Another mother explained why she dislikes the presence of drunk or drugged people.

"I don't like it when there are drunk or drugged people in places where there are many children. Because you don't know what will happen to those people. They are often people who can be potentially strange.... People who are heavy users, they can also be psychotic or crazy actually. You can't assess them.... And it's not a good example for children either." (R32)

Several women avoided PGSs where people and particularly men displayed rude behaviours. The presence of male groups evoked associations with rape.

"Sometimes I cheque who is present and if there are people present that I don't like, I don't mean that I really dislike them but rather

that they are being rude, then I go back home. . . . Those are usually guys who hang out in groups. That is scary. If you watch the news, you will see that there are many people being raped." (R3)

The presence of these people constituted a barrier to stay in the PGS or to use it in an integral way for many respondents. Integral use—understood as full or optimal use (all the different parts of the PGS, at all moments of the day, without any restriction)—of the PGS was compromised geographically, temporally, and socially. Specific places within PGSs where these “avoided groups of people” usually sat, depending on material infrastructure such as fitness equipment or benches, became places to avoid (spatial integrality). PGSs where migrants and homeless people sheltered at night were dodged once they arrived in the PGS (temporal integrality). When crossing these groups, social interaction was shunned by keeping physical distance and recoiling from eye contact or even by putting a headphone on to discourage interaction (social integrality).

Material elements such as vandalism, graffiti, tags, and litter, especially drug needles, empty cans, and cigarette butts, were associated with the idea that the place is not well maintained and

deteriorating, that there is a lack of respect for the place and its visitors, and a lack of (social) control contributing to a feeling of insecurity. A young woman described how the presence of specific material elements symbolised the presence of frightening social groups:

“There is a new park, and in <2weeks, you have those tags and all. They didn’t make that for you to put tags on. Some people just produce graffiti to show that they were the first in that place. They say, this is our property, you cannot touch it. I just think that’s only dirty. That’s why I don’t go anymore to parks where there is a lot of graffiti. I don’t go there anymore because that is ugly. . . . It feels uncomfortable. Usually in parks where there is graffiti, you have people who also drink and do stuff there. And that is not meant to be rude, but they pollute a bit the park with their presence.” (R3)

Lack of Social Control

The lack of social control formed a barrier for respondents to visit PGSs as well. Most respondents defined social control in a “passive” way, as the presence of other people who can undertake action when antisocial behaviour occurs or as a factor that reduces antisocial behaviour tout court. Other respondents understood social control as an active construct, a “protective” network that actively looks over the security of its “protegees.” When this “protective network” was felt to be absent, security was perceived as not being guaranteed and PGSs were avoided. The protective network consisted of a local network of people from the neighbourhood community, most often men who actively look over the security of the people from the neighbourhood, especially young women. A young woman explained it as follows:

“I don’t go there because there are now big boys from everywhere, also from outside the neighbourhood. . . . The guys from the neighbourhood have something to say about us. For example, one time I’ve been in a snack at night, my dad had asked me to, so, I went there, and someone called my dad and said, why is your child here? And my father said, no, that’s no problem, I sent her. Men outside the neighbourhood are not allowed to say anything. Men from the neighbourhood do because they are protectors because they know that I don’t have a brother. All big brothers are always together. It gives me a safe feeling that the men from the neighbourhood watch me.” (R22)

The lack of social control not only prevents people from using PGS, it also prevents integral PGS use. Barriers for spatial integrality arise when specific places in the PGS become “avoided places,” especially when aforementioned socially frightening elements are present as well. A young respondent explained that the combination of the lack of social control and the presence of potentially dangerous male groups withhold her from using the PGS.

“I went there, but there the entrance to the park is more isolated. And you don’t have many people going there. I went there to run with my classmates and that was ok, but with time it has gotten darker and darker. There are also a lot of bushes. Also, to enter the park, you first have to pass by some benches and fitness equipment. To enter the park, you have to take a slope through the forest and that is not so safe because there are always boys who stand there.

You feel less safe going there. . . . You don’t know if people are going to stand there, why they are there and what they can do. It is more, it’s just to prevent something from happening that I don’t go there.” (R21)

From a temporal point of view, PGSs are neither used in an integral way, meaning that they are not used during specific times of the day. While in many (often southern) countries, PGS are frequently or even mainly used when it is dark, most of the respondents in the BCR tended to avoid them during darkness due to the lack of social control. Respondents often associated the limited visibility as potentially fostering antisocial and illegal activities that contribute to a feeling of insecurity. A male adolescent says:

“At night it is not really an area where you want to be because of your safety. You never know. The park is actually not properly lit, so, you don’t really see who is there, what is there.” (R10)

This quote illustrates that the association between darkness and feelings of insecurity is here again rather a case of subjective perception than of a lived experience.

Barriers related to safety concerns were experienced by all social groups, by people of all ages and by people with different socioeconomic and/or migration backgrounds. Women seemed to experience slightly more safety barriers than men, especially when they had children. This was expressed through a more explicit intention to avoid PGSs where bad things had happened and a higher sensitivity to frightening elements, especially the presence of specific groups of people. A protective network also seemed a more important prerequisite to use PGSs for women, especially for young women in neighbourhoods with congested PGSs, where public space in general and PGSs in particular are limited relative to the high proportion of young people who depend largely on public spaces for their social life and who use PGSs mainly for socialising. Other mechanisms to mitigate the subjective feeling of insecurity consisted of the presence of wardens (direct mechanism) or the attraction of specific social groups (such as woman and children) through physical adjustments such as the development of playgrounds or the presence of animals (indirect mechanism). Two female respondents sensed:

“Sometimes you have those wardens that are present in the park and then I feel safe. Then I know that there are people present who will take care of my safety, so I can go here.” (R10)

“From the moment you see women with children, you are perfectly safe. So, if there are playgrounds, that attracts women and children and that contributes to a sense of security. It is possible to attract women and children through playgrounds and animals.” (R2)

Not Feeling in Place

Apart of being safe, a PGS should be perceived as a place where one “fits,” as a place where one feels “in place.”

Dominance of Specific Social Groups

For PGSs to be a welcoming place, people must feel in place. This feeling of being in place should be understood in relation to other

persons in the PGS. Respondents mainly did not feel in place when there was a dominance of a specific group of users such as young children, adolescent men, or asylum seekers. This feeling was not necessarily related to a feeling of insecurity, but rather to a sense of being a minority in a specific social environment resulting in the feeling that one's presence is inappropriate in some way.

This was often mentioned regarding the Maximilian Park, a PGS where many refugees and transmigrants reside. Respondents perceived this place as “the village” or “the home” of these social groups. Entering this PGS felt like entering their dwelling unauthorised and evoked the feeling of being an intruder.

“Yes, the Maximilian Park, which is actually close to here, but a large park, we try to avoid it. Since the migration crisis the park has actually become a hotspot for migrants and again, they have never done anything wrong to me and I assume that they are friendly people, but still, it gives, they are there with hundreds, there is a lot of rubbish, all the grass in the park has gone due to the constant presence of people. That gives a bit a bleak, unsafe feeling. They also pee there and pop there so there is also some odour nuisance here and there.” (R29)

“In the Maximilian Park, you also violate their privacy when you come there. They all sit together listening to music. I no longer feel welcome there. No one does. They have taken it over.” (R18)

In the same line, PGSs that were designed for children and therefore attracted many children with their parents were not perceived as welcoming for those without children. The dominance of a specific group influenced the integral use of the PGSs, resulting in specific places that were avoided in the PGSs. Two respondents explained how they avoid places where such fitness equipment is present:

“There is also a place with fitness equipment and these groups are always hanging around there. I must say, I have never used the fitness equipment even though my children wanted to play there. Because of the groups hanging there. You don't really feel at home there being around them. They are hanging around the fitness equipment so it is not free for use.” (R1)

“Personally, I don't really like doing fitness, but when there are all those tough men sitting there, then I will not dare to hang around with them and to lift only ones.” (R13)

Community Perceptions

Feelings of not being in place also resulted from community perceptions. Behaviours perceived as shameful and inappropriate to watch by some communities were mentioned as a reason to avoid the PGS. One of our respondents mentioned, for example, that a nearby PGS was seen as a dating park. Therefore, going there, and being seen there by community members in this particular PGS would bring her in a difficult situation:

“Everyone says that this park, is a park for couples. There are couples on every bench, which is embarrassing. Sometimes they are really young, then you are in shock. I feel not at ease in this park, but I am not the only one having this feeling. If I would say, I will go to that park, then they would say, ah, you are going to this park (thinking, you are going to date in this park).” (R22)

Another respondent mentioned that in her Moroccan community, the presence of PGS users that were too intimate or wearing little clothes formed a barrier for visiting PGSs:

“It's true that there are places where there are a lot of Belgians, that are sometimes free to wear a bikini during the summer. Maybe there are Moroccans who are embarrassed by this and who prefer not to go to this place or prefer not to frequent these places. Sometimes we see people kissing each other. For those people who still have a bit of the (old/traditional) mentality, it might be difficult. It can be very disturbing for some.” (R26)

Barriers for PGS use resulting from the feeling of not being in place were experienced by all respondents. The dominance of a specific social group was perceived as problematic by all those not belonging to that social group. This dominance seemed to be perceived more problematic in PGSs that were small and more congested probably due to the higher density of use in combination with a higher visibility. Barriers resulting from community perceptions of specific PGSs were experienced within specific communities and not so much linked to age and sex, but rather to migration background.

Not Fulfilling Social Needs

To become attractive, a PGS should not only feel safe and “in place,” it should also fulfil social needs. Based on the thematic analysis, we distinguish two categories of PGS visitors, each with specific and often conflicting social needs. The first profile sees PGSs as a place to meet and socialise with others and values the presence of other people positively and as attractive. The second profile seeks for a private space in PGSs and wishes to avoid other visitors. These categories do not have an absolute character though; their needs are often situational and not exclusively linked to the respondent's character. So one day, the dominant need can be to meet others; while the other day, the need is to find some privacy and quietness within PGSs.

Fulfilling Socialisation Needs

The socialising profile uses PGSs predominantly for socialising and perceives quiet, non-populated PGSs as not interesting, boring, and therefore not attractive. PGSs become attractive once they convert into a place where one can meet people and socialise.

For some, the sole presence—physically and/or auditive—of people is enough. A fairly socially isolated mother said:

“Later, when I will be a little bit in my sixties, then I will maybe prefer quiet parks but now, when there's no one in the park, it doesn't make me want to go out. When there are people, kids playing, you say, come on we're going out for a walk or we're going to sit there. . . . It gives the feeling of not being all alone. That is very important.” (R26)

For others, meeting people really implies to interact through conversations or playing games. For this user profile, the lack of a network in the PGS is a barrier for use.

“This park is good to just play with friends or have fun, but personally, I don't have much to look for there. I can't really meet

up with friends there because they all live very scattered but even as an 18-years old it is a bit difficult to go there alone and ask, hey, can I play with you?” (R15)

A young adolescent respondent elaborated that in the past, before the PGS was renovated, she used to go there every day after school. The PGS was a local meeting point, a reference point, for her and the other youngsters in the neighbourhood. She was sure that when going to this PGS, she would meet friends there. With the renovation of the PGS, this is no longer the case. The local network has been damaged, and she is not sure about the presence of her network anymore, which is a barrier to go there as often as before.

“What prevents me to go to the park is that there are fewer people that I know compared to before the park was renovated. It is not like it used to be. Everyone is scattered now. Some people don’t come anymore, some people are always there, some people come so now and then.” (R22)

Several respondents also mentioned that having to go alone to a PGS was a barrier to visit them.

“I want to talk to someone, share the beautiful moments with someone. That is important. I can eat alone, but I can’t go to the park alone.” (R25)

This barrier is not so much related to safety reasons but rather to not being able to enjoy a pleasant visit. The lack of opportunities to socialise is a barrier not only to visit PGSs but also to stay for a longer while in PGSs. If social needs of the visitor are not fulfilled, people will leave the PGS.

Fulfilling Privacy and Tranquillity Needs

The profile that seeks for a private space within PGSs perceives the presence of other people as unpleasant or disturbing, as a barrier to go to PGSs. What they are looking for is a private space within public space. For these respondents, a PGS becomes attractive when it is a place where they can be alone, enjoy some privacy, and find quietness as is illustrated by the following quotations:

“Sometimes you want to go to a public place but due to the fact that there are too many people there, you might say I’m not going there because there are too many people. I’m just going to stay at home. Sometimes I feel like being with people but sometimes I also feel like being with myself. With my own thoughts and to be really focussed on myself.” (R3)

“I know that that is a public place and that it is a place where people gather. But, in my opinion, this should be done in peace because I am such a person, when I go into a park, I still have the idea that it should calm you down. I don’t think it’s antisocial, but I still think that people should get there in no stressful way and that in my case, I prefer that there are few people but if there are people that they are calm.” (R5)

“If they are playing football in the park, I will not stay. I’m really looking for quietness.” (R24)

The risk of coming across acquaintances was identified as a barrier for PGS use in case respondents were longing for privacy.

“When I need some privacy, I have to go to another place because people always come to the same parks and there aren’t many parks in Molenbeek. ... A park where you don’t know anyone would be great because too many people that you know is sometimes annoying. For example, we are going to take the Elisabethpark. You want to be alone with someone there but there are people you know on those benches in the park. You cannot be there alone. I just wanted to go out with a boy but there were people we knew who might think that we are dating but they were sitting there with a boy themselves.” (R22)

A female respondent shared that she felt attracted to girls. As it was a well-kept secret, especially for her family and community who would never approve her sexual orientation, PGSs were the best places to date as far as they were at distance from her social network and could offer some privacy and anonymity:

“The Boudewijnpark is my dating park. ... For several reasons. It’s not very far but still far enough from my house so no one is going to see me and because I know that park good enough not to get lost there.” (R20)

The need for quietness and privacy also impacts on the duration of the stay and on the integrality of use. When it is too crowded or when quietness is hard to find, people will not stay and leave the PGS. People also actively reflect on when they plan to go to PGSs in order to find privacy and quietness, therefore restricting themselves to specific moments of the day. A man explained that in order to avoid the crowd, he frequents PGSs at night:

“I really appreciate the quietness. Not because noise bothers me but often when I need to go the park, I try to go to places where it won’t be crowded so I go to the park at night. Especially lately since I need it. Because it helps to think more calmly. And being in nature calms me down. It does make me feel better.” (R31)

Barriers related to social needs of people were experienced by all social groups. As mentioned before, these social needs are not fixed, but rather situational and therefore variable. Based on our data, it is hard to make firm conclusions about whether and which social groups align with which kind of social needs.

However, concerning the characteristics of PGSs and the social profiles they attracted, we observed that smaller, more recreative PGSs were more often frequented by respondents that wanted to socialise and avoided by those in search of privacy and/or anonymity. Respondents in search of more privacy or anonymity, frequented larger, more natural PGSs. This is logic since the design of PGSs and the services/infrastructure they provide impact on how they are used. Congestion occurs more easily in small PGSs, therefore not attracting those in search of peace.

DISCUSSION AND CONCLUSION

Through in-depth interviews with Brussels citizens residing in different neighbourhoods, we aimed to improve our knowledge

about social barriers that prevent people from using available and accessible PGSs. Barriers for use were defined broadly as all elements that prevent people from going to PGSs, stay there as long as intended, and use them in an integral way. The social barriers that were identified were (1) perceived dangers, (2) not feeling in place, and (3) not fulfilling one's social needs.

Our research showed that the physical and the social are continuously interacting with each other and impacting on each other. Specific physical elements such as fitness equipment or play infrastructure attract specific social groups that are valued by some and avoided by others. In line with *Gidlow and Ellis (2011)*, our results confirm that physical traces of social activities impact on the appearance of PGSs through litter, vandalism, and tags for instance, resulting in visual clues that are socially evaluated and interpreted. So, although PGSs are physical spaces, they are continuously socially evaluated. This process is not universal but coloured by the demographic characteristics or social needs that people have and by the social contexts they live in. Given its subjective nature, it is not surprising that different social groups evaluate environments such as PGSs differently and in doing so, identify different social barriers.

Barriers for PGS use are observed at different levels; barriers to go, barriers to stay, and barriers to use the PGS in an integral way “barriers to go” results in non-use while “barriers to stay” and “barriers to use the PGS in an integral way” result in a wide range of “modalities of usage,” varying between more superficial use to more intensive use. Measures to stimulate PGS use should not exclusively focus on eliminating the barriers to go to PGSs but also take into account barriers at other levels as they may impact on the potential benefits of PGSs on health and wellbeing. Indeed, previous studies have suggested that it is not only the frequency but also the duration of exposure to nature that significantly affects the benefits afforded by green elements (*Shanahan et al., 2016; Yang et al., 2020*). The more prolonged the exposure, the more the positive effects.

We distinguished different dimensions of the integrality by which PGSs are used; the spatial integrality, the temporal integrality, and the social integrality. Spatial Integrality is compromised by barriers that prevent people to use all different parts of the PGS (e.g., not feeling welcome when a place within a PGS is dominated by a particular social group). Temporal integrality is compromised by barriers that prevent people to use the PGS at all moments of the day, also at night (e.g., going when it is dark to find quietness and being able to be alone or avoiding PGS after sunset because of a lack of social control). Social integrality is compromised by barriers that prevent people to open all their senses (e.g., making no eye-contact with others present, not talking with others, etc.).

Barriers resulting from specific needs or preferences of different user groups are often conflicting. For instance, the need for a social network vs. the need for anonymity, the need for ambiance vs. the need for quietness, the need for social control vs. the need for privacy are difficult to unite within one single PGS. Such conflicts are more pronounced in the case of smaller PGS in combination with intensive use by visitors with different, conflicting needs.

If actors at all levels succeed in making PGSs more attractive, it can be expected that they will attract more users thereby leading to an increase of conflicting needs and of barriers for specific users. It is therefore not only key to increase the attractiveness of existing public green spaces but to enlarge existing public green spaces, create new ones, or better connect the existing ones, even though we need to admit this is difficult due to the lack of space in combination with other urgent needs (e.g., building schools, social housing, etc.).

An important issue is how many conflicting needs one single PGS can fulfil successfully. Especially in the case of small PGSs, how many needs can be combined? How can we combine the need for quietness and privacy with recreational needs in a small urban pocket park? What could be the impact of infrastructural adaptations and enforcements? In practise, it might come to making deliberate choices about the designation of smaller PGSs to fulfil the needs of a specific user profile. This is not without consequences of course. Especially in the light of popular concepts such as the 15-min city in which all city residents should be able to meet most of their daily living, working, and entertainment needs within a short walk or bicycle or public transit ride from their homes (*O'Sullivan and Bliss, 2020*). In line with this concept, people should not only have a PGS at their availability but an attractive PGS available at a distance of 15 min, one that is able to fulfil their needs. Since attractiveness is a subjective issue, neighbourhoods should be provided with different kinds of PGSs capable of answering the needs of different user profiles.

As PGS consumption is mainly local consumption due to the lack of time, the distance, inaccessibility, limited knowledge about, and curiosity towards other PGSs, close PGSs that do not fulfil the needs might be avoided and not necessarily be replaced by others. When there are no alternative available and accessible PGSs in the direct environment, this often ends up in the non-use of PGSs. From a health perspective, this is a missed opportunity for urbanites to benefit from the positive impact of being in natural environments for health.

Recommendations

Our and earlier research clearly shows that PGSs are fully used when people face no intrapersonal barriers, when public green spaces are available, when people perceive the available public green spaces as accessible, and last but not least when these PGSs are also perceived as attractive. Available and accessible PGSs that are not perceived as attractive will therefore not be used or not reach their full potential of use. City planners and local authorities should therefore not only increase the availability and accessibility but also the attractiveness of PGSs. Apart from the physical component of attractiveness—the natural and built environment—policy should also focus on the social component of the attractiveness of PGSs and on the interactions between the physical and social and the resulting impacts. For instance, when fitness equipment tends to attract groups of men, when groups of men are perceived—mainly by women—as frightening, placing this infrastructure at the entrance of a PGS where there is little social control prevents women from using the PGSs and prevents the PGS to be inclusive.

Furthermore, it is important that PGSs are nearby. This is not only from a user's perspective but also from a city-planners' perspective (in line with the concept of the 15-min city). These nearby PGSs should be able to answer the different social needs that users may have. Since social barriers resulting from social needs or preferences of different user groups are often conflicting and therefore difficult to unite in a single space—especially in smaller PGSs—city planners and local authorities should reflect on how to organise the available space and consider to develop more small PGSs or enlarge or better connect the existing ones.

To increase the attractiveness of PGSs by removing barriers, the knowledge and participation of different actors is needed. Different disciplines should be involved (urban development, social sciences, architecture, etc.) and a bottom-up approach is needed (local organisations, civilians, etc.) to confront or validate academic insights to lived experiences and *vice versa*, to translate lived experiences and needs for efficient PGS—designs and management. Hereby, it is important to involve the different and diverse social groups within society, thus, also women, people that are not highly educated, people with a migration background, youngsters and children, and people with a reduced mobility. This interdisciplinary and multilevel approach should prevent adverse social consequences of initiatives aimed at physically improving PGSs, for example. Furthermore, when a PGS is a reference point for many people, a meeting point to which local networks and the social community fabric are attached, breaking up this PGS could mean that social ties collapse. Lost physical space results in lost social ties and a possible decline of community cohesion (depending on the quality of the initial social ties). It also follows that when renovated PGS open to public, it might be appropriated by specific social groups that are or will become dominant. To avoid this, PGS development and management should be embedded in the local social community.

Our results also showed that respondents appreciated PGSs as attractive when a diversity of social profiles was present, both to feel safe (social control) and to feel in place (avoiding the dominance of a specific social group). Related to safety feelings, the presence of women and children was perceived as an indication of a “safe” social environment. Respondents believed that play infrastructure and animals attracted women and children. Therefore, these are important to implement when PGSs are developed or renovated. The presence of “park guard monitors” was perceived as enhancing safety, especially when they are familiar with the neighbourhood, as well as increase social control and stimulate social cohesion through play.

Limitations

Our research has several limitations. The recruitment of respondents was based on PGS use; people who did not use PGSs were excluded. Insights into the barriers they experience were consequently not identified. However, as users of an available and accessible PGS are non-users of other PGSs, we indirectly collected barriers for non-use of PGSs. It is moreover plausible to suppose that people who never use PGSs are facing intrapersonal barriers, which make them illegible for our research. We globally succeeded to recruit diverse respondents in terms of age, sex, migration background, and socioeconomic position. Older men

with a lower socioeconomic position and older men with a migration background seemed difficult to reach however. Ideally, we would have recruited more elderly people and more men, but the COVID-19 epidemic prevented us to continue with the recruitment of these profiles. Another remark is that data collection took place just before the COVID-19 epidemic. It is plausible that other social barriers would have been identified during the epidemic and that the identified barriers would be evaluated differently (e.g., more appreciation or need for low density and calm PGSs or the contrary, more need to meet other people to break through social isolation) (Noël et al., 2021).

Further Research

Although some social barriers seemed more important for specific social groups than for others, we found no strong evidence for the alignment between the social profiles of our respondents and specific social barriers. Most social barriers seemed to be linked to social needs rather than to demographic profiles. Future research might further quantify these profiles and/or investigate whether they are correlated with specific social profiles.

We believe that the focus of this research—the attractiveness of PGSs and social barriers to use them—is a pertinent one in any urban context in which contact with natural environments is limited and its beneficial impact on health and wellbeing proven. We also believe that the identified social barriers and their impacts are not specific to the BCR context alone and that therefore the results of this research can be generalised to other settings as well. However, since we conclude that the physical and the social are continuously interacting with each other, and both the physical and social situation in different settings might be different, a replication of this research in different context might reveal other, site-specific social barriers and is therefore worthwhile doing.

Conclusion

Through qualitative research (51 individual face-to-face in-depth interviews), we investigated the self-perceived social barriers that prevent people from using available and accessible PGSs within the BCR. A continuous social evaluation of these physical places produced social barriers. We identified three social barriers: (1) perceived dangers due to bad precedents, the presence of socially frightening elements or a lack of social control, (2) not feeling in place because of the dominance of a specific group of users or because of community perceptions, and (3) not fulfilling one's social needs. These barriers were different in their manifestations (barriers to go—barriers to stay—barriers for integral use) and resulted in a differential degree of PSG-use (decline of their use, a more superficial use, or even in their avoidance). We distinguished three different dimensions of the completeness or integrality (understood as full or optimal use) by which PGSs are used; the spatial integrality (using all the different parts of the PGS), the temporal integrality (using PGSs at all moments of the day), and the social integrality of PGS use (without any restriction concerning social interaction). It is both one's social context and one's social needs that result in the identification of specific social barriers. We hope that the results of our study contribute to an identification and a better understanding of these social barriers

and that policy makers will take them into account when making decisions about the creation, modification, or management of these PGSs.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethical committee VUB. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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