Recepción : 30/04/2024
Aprobación : 30/06/2024

"Right to Nature" Quality, proximity and accessibility of green infrastructure in built environments and its relationship to well-being

"Derecho a la Naturaleza" Calidad, proximidad y accesibilidad de la infraestructura verde en entornos construidos y su relación con el bienestar

[1] **Rodrigo Peña Roa**

RESUMEN

La presente investigación propone el concepto de "derecho a la naturaleza" para resaltar la importancia de la infraestructura verde en las ciudades y su impacto en el bienestar de los habitantes, considerando los aspectos de calidad, proximidad y accesibilidad. La investigación busca aportar evidencia sobre cómo la interacción de los seres humanos con la naturaleza afecta su salud, centrándose en un estudio de caso en Concepción (Chile) y su contexto urbano. El estudio demuestra que, aunque la infraestructura verde mejora la calidad de vida urbana, son los distintos enfoques de planificación que dan forma al comportamiento de los residentes y sus interacciones con estos espacios. No solo el derecho a la vivienda, a los servicios y a las oportunidades laborales, sino es fundamental mejorar también el derecho a un acceso más democrático a la infraestructura verde, de modo a integrar el bienestar como una preocupación en la planificación urbana.

Palabras clave
Infraestructura verde; Espacio público; bienestar; Naturaleza urbana.

ABSTRACT

The following research proposes the concept of "right to nature" to highlight the relationship between green infrastructure in the built environment and its impact on inhabitants' well-being considering the aspects of quality, proximity, and accessibility. The research seeks to provide further evidence that human´s interaction with nature affects their health focusing on the case study of Concepción, Chile, and its urban context. The study demonstrates that, while green infrastructure enhances urban quality of life, it is distinct planning approaches that significantly shape resident's behaviour and interaction with these spaces. Like the right to housing, amenities and job opportunities, it is fundamental to also enhance the right to better and democratic access to green infrastructure considering well-being as an urban planning concern.

Keywords
Green infrastructure; Public space; Well-being; urban nature.

[1] University of Sheffield, Sheffield, United Kingdom. Western Bank, Sheffield S10 2TN, United Kingdom.
https://orcid.org/0009-0001-6221-9257

Autor de correspondencia: Rodrigo Peña Roa.
Dirección: University of Sheffield, Sheffield, United Kingdom.
E-mail: rodrigo.arq10@gmail.com

ISSN 2735-6078 Impresa
ISSN 2735-606X on-line
DOI: 10.29393/UR18-6QPRP10006

INTRODUCTION

Contact with nature provides several benefits for human well-being, but the tendency in some built environments is to limit human contact with green spaces. From the 2000s, humanity is considered an "urban species", with more than 50% of the global population living in urban environments and where "by 2050, 75 per cent of the world projected 9 billion population will live in cities" (Li, 2018, p.?). This scenario could limit people's time spent in natural areas and increase the disconnection with these essential spaces. There is also a cultural justification of this disconnection with nature since contemporary lifestyles in cities have reoriented recreational activities towards the inside of homes with technological distractions rather than reinforcing connections with natural environments (Kesebir & Kesebir, 2017). Therefore, determining the most appropriate methodology to operationalize well-being and assessing its relationship with green urban spaces remains a topic of discussion (Navarrete-Hernandez & Laffan, 2019).

In Chile, access to green spaces for citizens is influenced by their distribution across urban areas, which is in turn linked to the allocation of green areas by municipalities and demographic factors like income and socioeconomic status. For instance, in Santiago, the wealthiest four municipalities possess 32.2% of green spaces, while the four poorest have only 4.1% (Reyes Paecke & Figueroa, 2010). This disparity is exacerbated by the absence of a comprehensive strategy to measure and monitor the quality, proximity, and accessibility of green spaces. Although there are indicators provided by the National Council of Urban Development (CNDU) to collect relevant data, the current mechanisms for analysing and utilizing this information to develop sustainable green infrastructure are inadequate (Reyes Paecke & De la Barrera, 2019).

A key aspect is analysing how green infrastructure is developed, as the design and implementation of green spaces can impact their efficiency and effectiveness, particularly in terms of proximity and accessibility for residents. Xue et al. (2017) analysed Hong Kong and Singapore as contrasting examples. Hong Kong follows a "Concrete Jungle" model,

where green spaces are separated from built-up areas, encouraging active visits with high engagement. In contrast, Singapore adopted a City Garden model, integrating green spaces with buildings leading to more passive interactions. The study demonstrates that while green infrastructure enhances urban quality of life, distinct planning approaches significantly shape resident's behaviour and interaction with these spaces.

The aim of this article is to provide evidence of the importance of nature for human well-being by analysing the case study of Concepción (Chile) as an example of urban context. The following are the main objectives considered to address the research:

1. To understand the social implications of green infrastructure by analysing the case of Concepción, and how this affects peoples' well-being considering the aspects of quality, proximity and accessibility.

2. To develop critical analysis of urban form and the way green infrastructure is considered in urban planning policies in Chile.

THEORETICAL FRAMEWORK

Looking for happier, calmer, and healthier cities

The goal of cities has arguably always been to provide a better quality of life and positively impact people's lives (Montgomery, 2013). However, the current speed of urbanisation processes and the massive development of technology that the global population is experimenting with is a phenomenon without precedents (Andrews, 2019). These urban dynamics have influenced the growth of mental disorders and psychological illnesses by increasing the risks of depression, anxiety, schizophrenia, stress, and other negative perceptions like loneliness or isolation (Andrews, 2019). For these facts, the consciousness of happy and healthy urban environments has increased in urban planning discussions. Walking is a simple yet fundamental activity to combat physical inactivity, identified by the World Health Organization (2010) as the fourth leading risk factor for global mortality. The quality and duration of walking are strongly influenced by the appeal and environmental stimulation of the route. In cities like Barcelona, residents frequently walk along pathways that connect to open spaces such as beaches, parks, and tree-lined streets, highlighting the importance of accessible and well-integrated green infrastructure in urban settings (Vich et al., 2019).

The concept of Biophilia explains that human's connection with nature has a genetic explanation; hence our levels of interaction with green

environments are crucial to maintaining body and mind health (Andrews, 2019). According to Ryan et al. (2014) and the approaches of Biophilia and Neuroscience combined, nature included in urban design can enhance productivity and performance and have a positive impact on attention restoration and stress reduction (e.g., van den Berg et al., 2007); increase positive emotions and reduce negative ones (e.g., Hartig et al., 1991); relaxation of the brain, ocular muscles and lenses; as well as lowering of diastolic blood pressure and stress hormone (i.e., cortisol) levels in the bloodstream (p. 64).

Quality of urban green areas

There are various dimensions that are important to understand the quality of green space and this study has included a diversity of approaches due to the complexity of the topic (Khan et al., 2014). However, previous research designs used to analyse components of the quality of green areas have not considered citizen's perception of green areas as robust evidence to understand and categorise these places. According to previous research, more evidence has been focused on economic valuation and financial benefits of urban green spaces (Morancho, 2003; Szczepanska et al., 2016). In contrast to this situation, Stessens et al. (2020) recognise eight main components that influence the quality of green spaces: accessibility, nature and biodiversity, quietness, historical and cultural value, spaciousness, facilities, cleanliness and maintenance, and the feeling of safety. These components can be defined by considering user´s perceptions as a tool to measure the quality of the space using the dweller's experience as an indicator. Therefore, it is fundamental for this research to consider people's perceptions to understand the relationship between the components related to the quality of green spaces and the connection with its effects on mental health and well-being. One of the findings of Stessens et al. (2020) was that according to the survey applied to citizens of Brussels to measure the quality of green areas in the capital of Belgium, "[q]uietness, spaciousness, cleanliness and maintenance, facilities and feeling of safety are identified as important qualities of public green spaces" (p. 1). Therefore, it can be presumed that the sense of safety, the lack of acoustic pollution from urban life, and a clean environment positively affect the generation of a calm state of mind. Naturalness and historical value were not considered as main factors; hence their positive effects could be less important or even unknown.

According to their research, in line with Stessens et al. (2020), Krajter Ostoic et al. (2017) also found cleanliness and maintenance, and facilities as essential qualities. The misbehaviour of other users in green areas was another main point. This can be linked with the feeling of safety if inadequate behaviour is considered a threat to people's security. These first studies show that before the qualities of connectivity, accessibility,

or naturalness, people consider the sense of safety and security as principal issues when engaging with nature in urban environments.

Related to the component of nature and biodiversity, places with a high diversity of species and tree cover in their vegetation structure, including water bodies and wildlife, enhance the interaction with nature and, therefore, the benefits of regulatory and aesthetical ecosystem services (Palliwoda et al., 2020). However, land uses of green areas are constantly being affected by current urban dynamics (Szczepanska et al., 2016). Other requirements like housing or amenities affect the green layer in the city and can suffer variations and segmentations that influence its capacity to contribute to people's quality of life. Several fragmentations of the green infrastructure would impact nature's ability to provide multifunctional ecosystem services (Palliwoda et al. 2020). Therefore, the quality of green areas can condition the user's experience and are conditioned by the urban fabric structure and other dynamics.

Proximity and accessibility: Learning from the Covid context

Proximity and accessibility are two other realms that affect people´s interaction with nature. While the term of proximity can be related to "the quality or state of being proximate" (Merriam-Webster, 2021) to green infrastructure, accessibility has to do with "the quality of being easy to obtain or use" (Oxford Dictionary, 2021) green spaces.

Both factors can influence the dweller´s experience. For example, proximity to green spaces is a factor that people consider when looking for a place to live; however, being close to these hubs also increases the land value and generates social inequality. Furthermore, green areas represent an important element for the real estate industry, which considers these spaces a market commodity (Szczepanska et al., 2016). On the other hand, how accessible the green areas are, considering physical characteristics like optimal pedestrian paths and essential amenities, will define the frequency of use and user´s behaviour.

The global situation due to the past pandemic changed the way of inhabiting cities abruptly. In every country, mobility restrictions to stop the spread of the virus directly affected dweller´s liberty of movement while the government's guidance was for people to stay at home (Day, 2020). With several non-essential services and activities restricted, the accessibility to green areas and parks was valued by users that would be able to access these places looking for recreational activities and, in that way, deal with the chaotic and uncertain global situation (Day, 2020).

According to McCormick (2020), "parks and open space [saw] dramatic increases in use during 2020 as people sought refuge and respite from

the Covid-19 pandemic" (p. 21). The limitations on outside activities made green areas more appreciated because of the necessity of physical activities and being closer to nature. The extreme situation highlighted the benefits of nature to well-being. In the US, "30% of the urban land is occupied by paved streets and parking lots. Parks and open space, by contrast, occupy only 15%" (McCormick, 2020, p. 23). These indicators and the consciousness that the pandemic generated about the importance of engaging with nature to maintain citizen´s healthiness demonstrate that the quality of naturalness, proximity, and accessibility make a difference in critical situations like in periods with mobility restrictions.

Proximity and accessibility were clear indicators of inequality to nature access. For example, in some countries, restrictions did not allow people to travel outside certain limits (Ahmadpoor & Shahab, 2020). But because green areas are not equally distributed, many dwellers could not spend time in good quality green areas. Therefore, part of the population could not receive the benefits of being in nature. In this critical context, access to nature appears to be a social right rather than an option, putting citizens with better access in a privileged position (Ahmadpoor & Shahab, 2020). Therefore, the pandemic showed that not seeing green infrastructure as a system inside the city and codifying these places as market products can generate fragmentation, influencing the green area components that city dwellers can access.

The crisis changed people's perspectives about the urban environment. The limitations of access to green areas during quarantine enhanced their essential benefits in daily life. This situation also increased the communal concern about green area management (Kleinschroth, & Kowarik, 2020).

The absence of robust planning tools for the development, distribution and management of green infrastructure, coupled with the commodification of green spaces by the real estate market, poses significant challenges to urban equity and cohesion. When green areas are treated as marketable assets rather than public goods, their accessibility often becomes limited to higher-income populations, exacerbating socio-spatial inequalities and fostering urban fragmentation (Anguelovski et al., 2018; Haase et al., 2017). This dynamic is further intensified by the prioritization of short-term economic gains over long-term environmental and social benefits undermining the integrative role that green infrastructure could play in fostering more inclusive and sustainable urban environments (Wolch et al., 2014). Without effective regulatory frameworks, green spaces risk becoming symbols of exclusivity rather than tools for urban resilience and well-being.

METHODOLOGY

To address the research topic, it was important to consider the different realms of reality that can affect urban design and planning issues. In this case, there are several elements to be studied to achieve accurate knowledge of green infrastructure and its relationship with well-being. Naess (2015) argues that a critical realist approach recognises as fundamental the "interdisciplinary integration" (p.1228) enhancing the importance of different points of view in urban planning. This idea is coherent with this research approach that seeks to evaluate the diverse components needed to understand the complexity of the topic. In addition, this research uses a case study approach to create analytical generalisations that can be used in other contexts.

Primary data was collected with a focus on Concepción, Chile, as the main case study, complemented by a comparative analysis with Sheffield, United Kingdom. This approach sought to explore the relationship between green infrastructure and well-being, emphasizing the unique context of Concepción while contrasting it with a post-industrial European city. The methodology involved the use of a standardized survey to collect qualitative data on individual's interactions with green spaces and related health factors. Although both cities share a history of industrial development and exhibit similarities in demographics and size, their geographic contexts and urban forms differ significantly. By centring the analysis on Concepción, the study aims to clarify how this city addresses "contact with nature" as a core element of urban planning and well-being, while drawing insights from a comparison with Sheffield.

Concepción (Chile)

Concepción is a post-industrial city located in the centre of Chile. It is the principal municipality of the Greater Concepción, the third biggest conurbation in the country composed by nine municipalities (Concepción, Penco, Talcahuano, Hualpén, Chiguayante, Hualqui, San Pedro de la Paz, Coronel and Lota). The municipality of Concepción has a surface of 221.6 km^2 and a population of 220,746 inhabitants, while the whole metropolitan area has a population of 1,037,170 and an area of 2,100 km^2.

Related to its geography, the city is limited by the Biobío and Andalién rivers and the central hills (including Caracol, Amarillo, and Chepe). Urban lakes and wetlands have a remarkable influence on the landscape. Also, seven of the municipalities in the metropolitan area have seashore frontage. In general, and specifically in the city centre, the urban fabric is regular with blocks of a similar measure, and, in terms of character, the University of Concepción and other educational institutions highlight its identity as a university city. Figure 1 shows

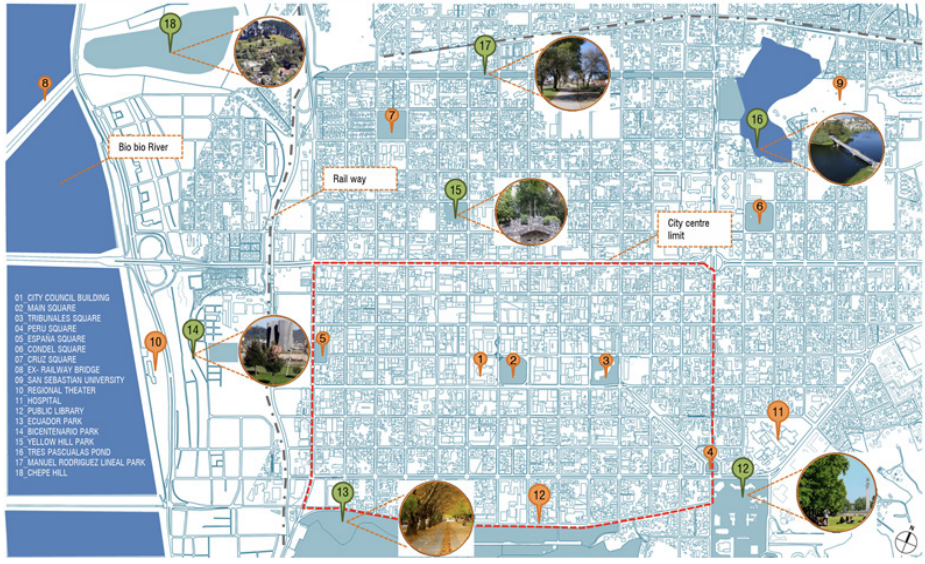
the closest green areas to the city centre including Ecuador park, metropolitan park and the university campus. Also, there are small public spaces with the presence of green infrastructure like the main square, Perú square, Amarillo hill and Tres Pascualas lake, but the size of these are more reduced.

According to the National Statistics Institute (INE), none of the municipalities counts with the expected square meters of green area surface per inhabitant. Concepción is close to achieving the desired surface (the city registers 8.74 m^2 / per inhabitant, where the standard is 10 m^2 / per inhabitant), but the conurbation territory is far from meeting this standard (INE, 2018). In relation to policy, the National Urban Development Policy (PNDU) emphasises the importance of environmental balance as outlined in its third principle. This principle establishes the objective of recognising natural systems as a fundamental basis for territorial planning and urban design processes (MINVU, 2014, p. 42). Furthermore, it stipulates that planning instruments should integrate the natural environment and its capacity to provide ecosystem services, incorporating sustainable criteria to guide interventions related to natural heritage and biodiversity within planning decisions (MINVU, 2014).

Sheffield (UK)

Sheffield is a post-industrial city located in South Yorkshire, England, and a metropolitan borough. Its surface is 227.72 km2. According to the Census, the city has a population of 575,400, the third-largest district in the UK (SCC, 2019). The city's geography comprises seven hills

Figure 1.
Main green areas and public spaces in Concepción.

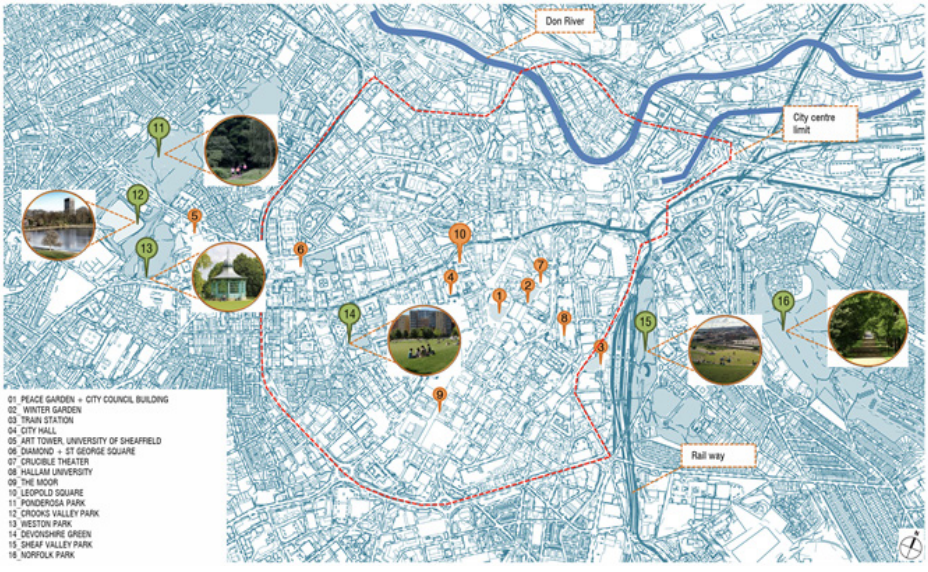


Note: *Created by the author.*

and the confluence of five rivers (the Don, Sheaf, Rivelin, Loxley and Porter). It is the city with the most trees per person in England and has "170 woodlands, 78 public parks and ten public gardens" (SCC, 2014), achieving the title of the "greenest city in the UK". Sheffield city council has 84 councillors and is responsible for the entire metropolitan district (SCC, 2014). The urban fabric structure considers the city centre, which concentrates the main amenities hubs and services, including the infrastructure related to both the Hallam University and the University of Sheffield. Surrounding the city centre are the villages and residential areas. Different parks and gardens enhance the character of some spots, like Endcliffe park and Crooks Valley Park, connecting green infrastructure with residential hubs (Figure 2). Related to policy, Sheffield Development Framework Core Strategy (2009) declares two central policies oriented to green infrastructure, Policy CS 71 Protecting the Green Belt and Policy CS 73 The Strategic Green Network (P. 127). Both provide evidence of the importance of protecting green infrastructure through planning tools and recognise the concept of a network system that connects the rivers and open spaces where citizens can engage with biodiversity.

The survey conducted in Concepción and Sheffield, as part of a complementary and comparative analysis, sought to capture resident's perceptions of urban green spaces in both cities, focusing on the quality attributes they associate with their "favourite urban green area". To achieve this, the survey began with the question: "If you could visit only one open space after quarantine (perhaps your favourite) in or around the city (e.g., squares, natural areas, parks), which place

Figure 2.
Main green areas and public spaces in Sheffield.

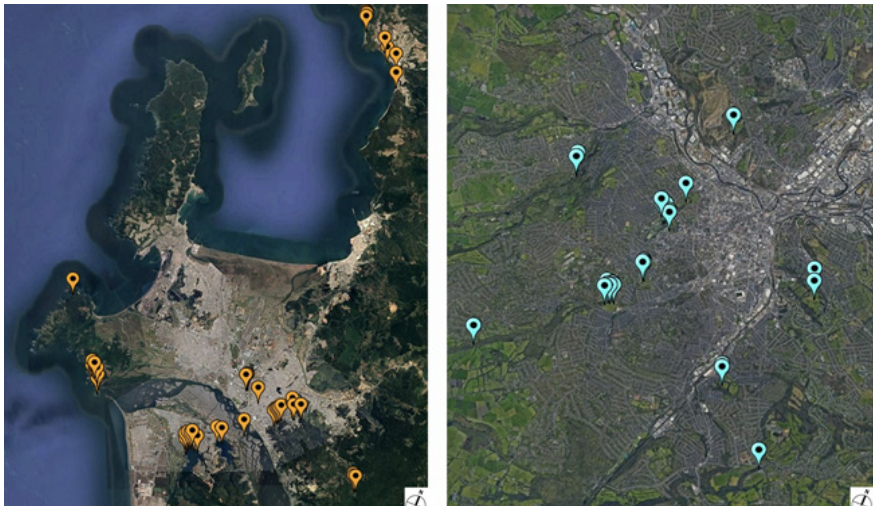


Note: *Created by the author.*

would you choose?" Participants were then asked to provide the name of the selected green space with some opting to upload a photograph as recommended by the survey guidelines. Here are the following seven questions that were included in the survey for both cases:

1. Why did you choose this place? What are the main attractions – Features?
2. What is your main activity or reason for visiting this place?
3. What is the maintenance of this place like?
4. How far is this place from your home?
5. How do you go to this place?
6. Is it easy to get to this place? What is the accessibility like?
7. Finally, how do you feel when you are there? Choose the feeling that most represents your state when you are visiting this place.

Figure 3.
Green areas selected in the Greater Concepción and Sheffield.



Note: *Created by the author.*

The second research instrument was an interview applied to Carol Andaluz, an architect and urbanist currently working as an urban project manager at the Chilean Housing and Urbanism Ministry (Ministerio de Vivienda y Urbanismo) in Concepción. The objective was to understand the policymaking process and management that affect green infrastructure and its shape in the Greater Concepción. The questions of this interview were associated with the analysis of concepts like proximity and accessibility, quality of green areas and coverage, green infrastructure model and citizen participation.

FINDINGS

The following are the main findings from the case study analysis, the survey and the interview.

Figure 3 illustrates the spatial distribution of the selected green areas, while Table 1 presents the names of these areas alongside the number of responses associated with each in both cities. Both case studies include options located near the city centre; however, in the case of Concepción (left), a significant number of participants also selected locations such as beaches, situated further from the urban core. In both cases, most participants consider landscape, vegetation, and water sources the main reasons they chose these places. Wildlife, amenities, and urban furniture were the following most selected options.

Table 1.
Chosen places in Concepción and Sheffield.

Selected places in Concepción	Responses
Lagunas de San Pedro de la Paz	10
Península de Hualpén	10
Universidad de Concepción	8
Cerro Caracol y Parque ecuador	5
Playa Cocholgue	5
Costanera Tome y Playa Bellavista	5
Reserva nacional Nonguén	3
Parque Alessandri	2
Laguna Redonda	2
Playa Coliumo	2
Puentes Rio Bio bío	1
Cerro Manquimavida	1
	57

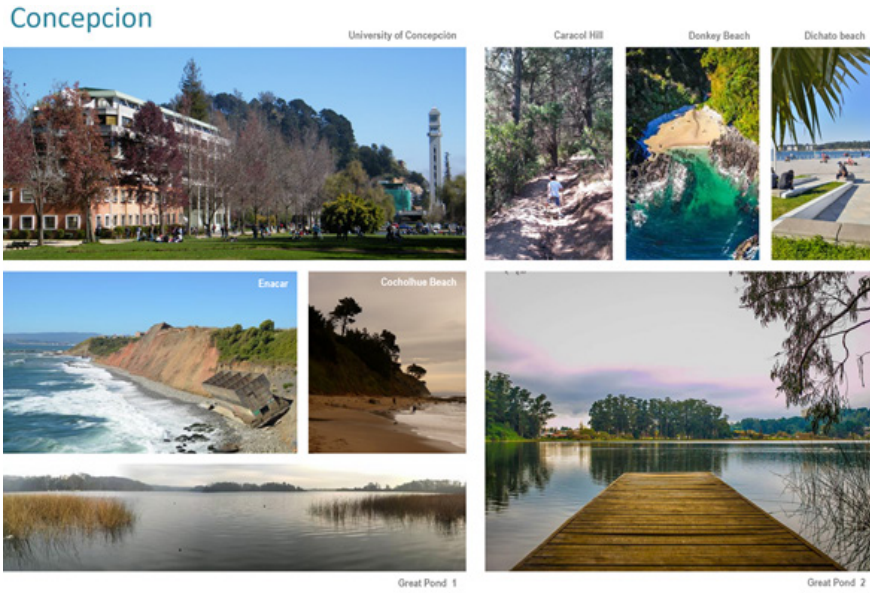
Selected places in Sheffield	Responses
Botanical garden	10
Crooks valley park	4
Redmires Reservoir	3
Peak District	2
Endcliffe Park	2
Meersbrook Park	1
Wyming Brook	1
	23

Note: *Created by the author.*

Regarding the primary activities individuals seek to engage in within these spaces, "walking" emerges as the preferred activity in both contexts, with 80.4% of participants selecting it in Concepción and 75.9% in Sheffield. "Observing nature" ranks as the second most chosen activity in both cases. In Concepción, "meditating" is identified as the third most popular activity, while in Sheffield, "practicing sports" occupies this position.

In the case of Sheffield, the maintenance of the chosen places is between "good" and "excellent" (93.1% in total). While in Concepción, only 71.4% was in this rate, and 26.8% of the places had "regular" maintenance.

Figure 4.
Green areas chosen in the Greater Concepción 01.



Note: *Created by the author.*

Related to proximity, 67.9 % of the participants in Concepción picked places more than 5 kilometres from their homes, a distance that implies a certain amount of travel time.

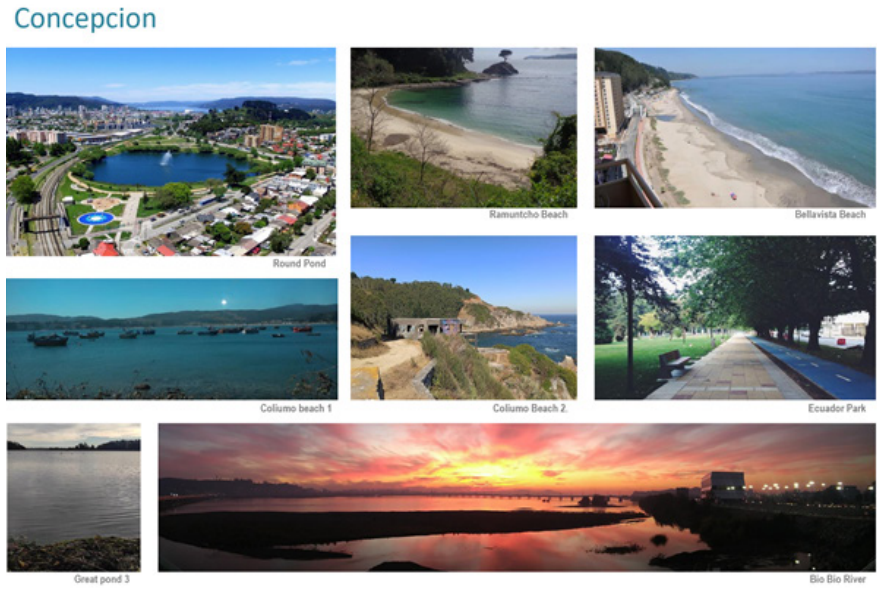
However, in the case of Sheffield, only 24.1 % of the spots are more than 5 kilometres away, assuming that to most of the sites, participants can go by walking or cycling. In line with this, most of the participants in Sheffield "walk" to these green areas (62%), in contrast with people in Concepción, where 64% of participants use motorised vehicles to go to these sites (public transport or private car).

Finally, the main feeling that participants perceive in their chosen green areas is the feeling of "calm" (58.6% in Sheffield and 51.8% in Concepción). The second was "happiness" (27.6% in Sheffield and 35.7 % in Concepción). "Motivated'' and "excited" were the other chosen feelings. The majority in both cities codify their main feelings in these places as "calm and happy", two primary emotions whose correlation with green areas was already present in the reviewed literature.

Figures 4,5 and 6 show the images uploaded by the participants related to their selected places in both cities. In relation to the key findings from the interview related to the mechanisms for assessing green infrastructure quality, The National Urban Development Council has developed a planning tool to measure the quantity of green space in square meters per inhabitant. However, there is no equivalent instrument to evaluate the quality of these spaces. At present, proposals for green space development are assessed by the Ministry

of Social Development, primarily focusing on factors such as coverage, social and economic feasibility, and efficiency. Yet, critical dimensions such as the health benefits of green spaces and resident's perceptions are notably absent from the evaluation process. As Andaluz pointed out, this lack of integration between the assessment framework and the recognition of green space's broader contributions undermines the effectiveness of urban planning. To address this gap, there is a pressing need for comprehensive evaluation tools that incorporate qualitative and human-centric dimensions, ensuring that green infrastructure serves not only spatial and economic objectives but also public health and social well-being.

Figure 5.
Green areas chosen in the Greater Concepción 02.

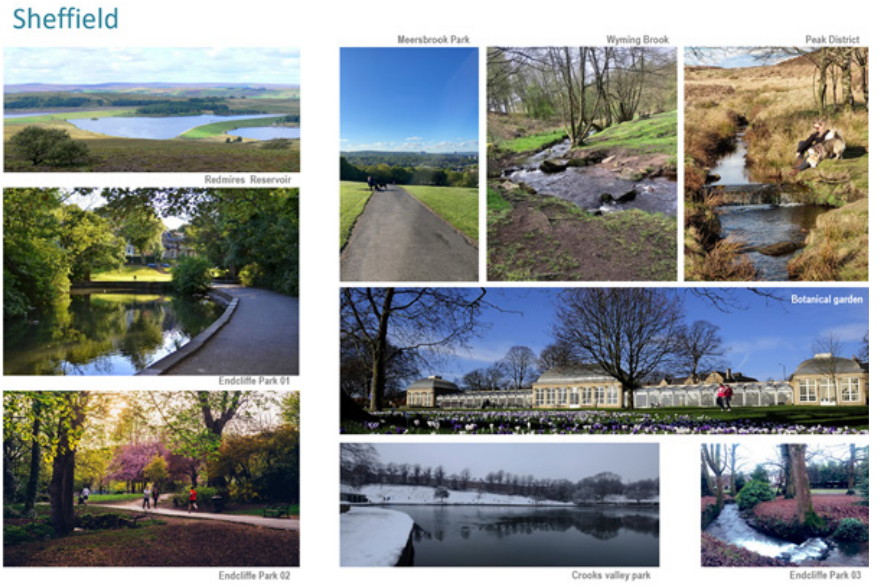


Note: *Created by the author.*

The peripheral municipalities of Greater Concepción, such as Coronel, Lota, and Chiguayante, experience a noticeable lack or low quality of green infrastructure. In contrast, municipalities like Hualpén and San Pedro de la Paz benefit from valuable natural features, such as urban lakes and beaches, which enhance the urban fabric. According to Andaluz, the core issue of inequality lies in the absence of a comprehensive planning approach that considers Greater Concepción as an interconnected system. Current planning policies fail to integrate green infrastructure across municipalities, limiting the potential to strengthen the urban structure as a cohesive whole.

Investment in green corridors or natural pathways to connect natural hubs across districts remains an unrealized opportunity. This is primarily because green infrastructure planning focuses on

Figure 6.
Green areas chosen in Sheffield.



Note: *Created by the author.*

increasing the total coverage of green spaces per inhabitant rather than prioritizing connectivity between natural areas. This fragmented approach undermines the principles of proximity and accessibility as municipalities lack alignment on a shared green infrastructure vision. Moreover, there is no established planning instrument or strategic model to guide the development of an integrated green infrastructure system.

Compounding this issue is the influence of the real estate market, which often treats green spaces as marketable commodities rather than public assets. This dynamic not only exacerbates socio-spatial inequalities but also leads to urban fragmentation as the lack of robust planning tools perpetuates disparities in access to and the distribution of green infrastructure across the metropolitan area.

DISCUSSION

According to the literature reviewed for this article, it is possible to understand the quality of green infrastructure through people's perceptions. Therefore, identifying citizens' thoughts and sensations in urban green areas as quality indicators is optimal for analysing green infrastructure and establishing an inclusive urban planning approach. The components of accessibility, nature and biodiversity, quietness, historical and cultural value, spaciousness, facilities, cleanliness and maintenance, and the feeling of safety can be used for the measurement process.

The concepts of proximity and accessibility should be crucial considerations in green infrastructure strategies and development. The pandemic demonstrated how important it is to provide optimal connections to green hubs inside the city. Therefore, one main goal considered in a planning tool should be to guarantee both components as a strategy to democratise green area access in cities.

People's main feelings in these locations were the sense of "calm" and "happiness". According to the literature review, both feelings are correlated and linked with nature contact, and the survey reinforced this link. Therefore, if nature contact is related to both feelings, well-being must be considered in urban planning management. Furthermore, when the concept of well-being is associated with green infrastructure, the impact of the interventions that integrate nature can be measured by the benefits to people's health, adding another component to the planning process.

According to the primary data, Concepción has valuable natural spots that people chose when seeking nature contact. The most common activity that people look forward to in both scenarios is "to walk". This activity in the appropriate environment, according to the survey, can represent a significant positive effect while the natural components enhance the experience and enrich it.

In the case of Sheffield, items like proximity, accessibility and maintenance had positive results compared to the Chilean conurbation. However, although there are stimulating natural landscapes near Concepción, the motorised vehicle dependency and distances are more significant than Sheffield, which points to a greater difficulty to engage with these spots in people's daily routine. In both cities, green areas close to the city centres but with a small surface were not chosen (with some specific exceptions). It could be presumed that the size of these areas and their connectivity are not as attractive and do not allow the main activities selected by the participants such "walking" and "seeing nature".

Simple facilities are considered by the participants in these areas like pedestrian paths and optimal conditions for people with disabilities. If the main objective is to "walk" and "see nature", these places have a different use-logic than other public areas and urban parks. The activity in these spots might be simply to connect with nature. In that case, people will be able to get the benefits from the natural environment through their senses which means reducing other stimulations to allow a profound interaction with that experience.

Building on the findings from other sources, a critical reflection emerges regarding the primary motivations for individuals to engage with green infrastructure, which are predominantly "to walk" and "to see nature." This raises essential questions about the interplay between quality, proximity, and accessibility in shaping urban dwellers' behaviour. If these three factors significantly influence such fundamental activities, it becomes imperative to consider how

urban planning strategies can actively strengthen the human-nature connection within cities. Beyond mere spatial distribution, planning must address the experiential qualities of green spaces, such as sensory stimulation, safety, and inclusivity, to foster regular and meaningful interactions. Moreover, the role of green infrastructure in promoting mental health highlights its potential as a tool not only for urban sustainability but also for public health. A critical challenge lies in designing policies that integrate green infrastructure into dense urban environments, ensuring equitable access while mitigating socio-spatial disparities. By doing so, cities can move beyond functional infrastructure to create therapeutic landscapes that enhance both individual well-being and collective resilience.

CONCLUSIONS

The complexities of urbanization and contemporary planning challenges highlight the need to reassess the value of nature and its influence on human well-being. Despite humanity's reliance on natural systems, modern urban lifestyles diminish awareness of this dependency, reducing advocacy for environmental health and ecosystem protection (Gómez-Baggethun, 2016). This research underscores nature's essential role for well-being, emphasizing its integration into urban planning processes to address environmental and social issues. Evidence links green spaces to emotional benefits, such as calm and happiness, with activities like "forest bathing" showcasing nature's positive impact on health. However, urban planning often fails to fully incorporate this knowledge, failing to take advantage of a critical opportunity to design sustainable, inclusive cities that ensure equitable access to green spaces.

The findings reveal that green urban areas are often treated as market commodities, turning quality, proximity, and accessibility into privileges for a limited segment of the population. This contradicts evidence underscoring the importance of fostering stronger connections with nature and biodiversity for human health. While each urban context has unique social, political, and physical characteristics, human dependence on nature is a universal condition that must be integrated into urban planning.

Access to nature should be viewed as a social right rather than an economic asset. The case of Sheffield illustrates how embedding green infrastructure in urban policy and vision can positively influence collective well-being and civic identity. The city's branding as "the greenest city in the UK" has been embraced by its residents, demonstrating how policies aimed at improving quality of life can enhance citizens' sense of belonging and appreciation for their urban environment.

In Concepción, the primary case study, Chilean planning policy demonstrates a fragmented approach to green infrastructure and environmental balance within urban planning. While the National Urban Development Policy promotes the integration of natural systems, its non-binding nature limits its effectiveness. This lack of enforceability and alignment with other planning regulations results in disconnected public investment strategies, restricting the development of more integrated and collaborative initiatives across municipalities.

In conclusion, the research highlights the need for an integrated framework in urban policymaking that recognizes the interdependence between urban environments and nature. It stresses the importance of ensuring equitable access to ecosystem services while prioritizing urban design indicators such as quality, proximity, and accessibility. By adopting innovative strategies, policymakers can foster healthier and more sustainable urban spaces promoting both environmental sustainability and social equity.

REFERENCES

Ahmadpoor, N., Shahab, S., (2020). Realising the value of green space: a planner´s perspective on the COVID-19 pandemic. *Cloud publishes,* 49-56.

Andrews, S. (2019). Planning for "Well-beings". Conscious Cities Anthology 2019: Science-Informed Architecture and Urbanism The centre of conscious design. *https://doi.org/10.33797/CCA19.01.20. https://theccd.org/article/24/planning-for-well-beings/*

Anguelovski, I., Connolly, J., & Brand, A. L. (2018). From landscapes of utopia to the margins of the green urban life: For whom is the new green city? *City, 22(3),* 417–436. *https://doi.org/10.1080/13604813.2018.1473126*

Day, B. (2020). The Value of Greenspace Under Pandemic Lockdown. *Environmental and Resource Economics, 76,* 1161–1185. *https://doi.org/10.1007/s10640-020-00489-y*

Kleinschroth, F., & Kowarik, I. (2020). COVID-19 crisis demonstrates the urgent need for urban greenspaces. Frontiers in ecology and the environment, 18(6), 318–319. *https://doi.org/10.1002/fee.2230*

Gomez-Baggathun, E. [TEDx Talks]. (May 21, 2016). *Reclaim your right to nature* [Video]. Youtube. *https://www.youtube.com/watch?v=EtxYDiyoMRo*

Haase, D., Kabisch, S., Haase, A., Andersson, E., Banzhaf, E., Baró, F., Brenck, M., Fischer, L. K., Frantzeskaki, N., Kabisch, N., Krellenberg, K., Kremer, P., Kronenberg, J., Larondelle, N., Mathey, J., Pauleit, S., Ring, I., Rink, D., Schwarz, N., & Wolff, M. (2017). Greening cities – To be socially inclusive? About the alleged paradox of society and ecology in cities. *Habitat International, 64,* 41-48. *https://doi.org/10.1016/j.habitatint.2017.04.005*

Instituto Nacional de Estadísticas. (2018). Sistema de Indicadores y Estándares de Desarrollo Urbano. [online]. Instituto Nacional de Estadísticas. [Viewed 01 Aug 2021]. *https://www.ine.cl/herramientas/portal-de mapas/siedu*

Kesebir, P., & Kesebir, S. (2017). A Growing Disconnection from Nature Is Evident in Cultural Products. *Perspectives on Psychological Science, 12(2)* 258–269.*https://doi.org/10.1177/1745691616662473*

Khan, A., Moulaert, F., Schreurs, J., & Miciukiewicz, K. (2014). Integrative Spatial Quality: A Relational Epistemology of Space and Transdisciplinary in Urban Design and Planning. *Journal of Urban Design, 19(4),* 393-411. *https://doi.org/10.1080/13574809.2014.93614*

Krajter Ostoic, S., Konijnendijk van den Boschb, C., Vuletic, D., Stevanov, M., Zivojinovi, I., Mutabdzija-Becirovi, S., Lazarevicg, J., Stojanova, B., Blagojevici, D., Stojanovskaj, B., Nevenick, R., & Pezdevsek Malovrh, S. (2017). Citizens- perception of and satisfaction with urban forests and green space: Results from selected Southeast European cities. *Urban Forestry & Urban Greening, 23,* 93–103.

Li, Q. (2018). *"Into the nature", How trees can help you find health and happiness*. 1st. Ed. The United Kingdom, Penguin books.

MacCormick, K. (2020). The Pandemic Has Underscored the Need for More Urban Parks. So What Comes Next? Roam to Roam. *https://www.lincolninst.edu/publications/articles/2020-10-room-roam-pandemic-urban-parks-what-comes-next/*

Ministerio de Vivienda y Urbanismo [MINVU]. (2014). *Política Nacional de Desarrollo Urbano*

Montgomery, C. (2013). Happy city, transforming our lives through urban design. 2nd ed. Penguin books [online].

Municipalidad de Concepción. (2021). Introducción. [online]. Municipalidad de Concepción. *https://concepcion.cl*

Naess, P. (2015). Critical Realism, Urban Planning and Urban Research. *European Planning Studies, 23(6)*, 1228 1244. *https://doi.org/10.1080/09654313.2014.994091*

Navarrete-Hernandez, P., & Laffan, K. (2019). A greener urban environment: Designing green infrastructure interventions to promote citizens' subjective wellbeing. *Landscape And Urban Planning, 191,* 103618. *https://doi.org/10.1016/j.landurbplan.2019.103618*

Palliwoda, J., Banzhaf, E., & Priess, J., (2020). How do the green components of urban green infrastructure influence the use of ecosystem services? Examples from Leipzig, Germany. *Landscape Ecol, 35,* 1127–1142. *https://doi.org/10.1007/s10980-020-01004-w*

Reyes Paecke, S., & Figueroa Aldunce, I. M. (2010). Distribución, superficie y accesibilidad de las áreas verdes en Santiago de Chile. *EURE, 36(109)*, 89-110.

Reyes Paecke, S., & De la Barrera Melgarejo, F. (2019). Monitoreo de los avances en desarrollo urbano: análisis de los catastros de áreas verdes urbanas en el Área Metropolitana de Santiago, Chile. *Revista invi, 34(96)*, 129-150.

Ryan, C., Browning, W., Clancy, J., Andrews, S., & Kalianpurkar, N. (2014). Biophilic Design Patterns: Emerging Nature-Based Parameters for Health and Well-Being in the Built Environment. *Archnet-IJAR, 8(2),* 62-76.

Sheffield City Council. (2014). Sheffield's introduction [online]. Sheffield City Council. *https://www.sheffield.gov.uk/your-city-council-sheffield -profile/introduction.html*

Sheffield City Council. (2019). *Sheffield's Population*. Sheffield City Council. *https://www.sheffield.gov.uk/home/your-city-councilpopulation-in-sheffield*

Sheffield Development Framework Core Strategy. (2009). *CS71 Protecting the Green Belt*. 127. *https://conservationcorridor.org/cpb/Sheffield_City_Council_2009.pdf*

Stessens, P., Cantersb, F., Huysmansc, M., & Khana, A., (2020). Urban green space qualities: An integrated approach towards GIS-based assessment reflecting user perception. *Land Use Policy, 91,* 1-15. *https://doi.org/10.1016/j.landusepol.2019.104319*

Szczepanska, A., Krzywnicka, I., & Lemański, G. (2016). Urban Greenery as a component of real estate value. *Real Estate Management and Valuation, 24(4),*79-87. *https://doi.org/10.1515/remav-2016-0032*

Vich, G. Marquet, O. & Miralles-Guasch, C. (2019). Green streetscape and walking: Exploring active mobility patterns in dense and compact cities. *Journal of Transport & Health. 12(1),* 50-59.

Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape And Urban Planning, 125*, 234-244. *https://doi.org/10.1016/j.landurbplan.2014.01.017*

World Health Organization [WHO]. (2010). *Global Recommendations on Physical Activity for Health. WHO Press.*

Xue, F., Gou, Z., & Lau, S., (2017). The green open space development model and associated use behaviours in dense urban settings: Lessons from Hong Kong and Singapore. *URBAN DESIGN International 22,* 287–302. *https://doi.org/10.1057/s41289-017-0049-5*