



Research article

Assessing inequalities in access to the city's green and blue spaces through the experiences of its residents

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Abstract: We report on the findings of a qualitative research study exploring the benefits to mental, physical, and social well-being of regular interaction with the city's green and blue spaces using a walking interview method to gauge the views of fifty frequent visitors to the city's parks. This was followed by a second phase of research consisting of four focus groups exploring the experiences of those whose access to the city's green and blue spaces is restricted, noting the effects of these limitations on their general well-being. Despite government-backed urban sustainable redesign initiatives to promote greater access to the city's biodiversity, its elderly, disabled, and poorer socio-economic communities continue to encounter restrictions regarding their access to its green and blue spaces. By highlighting these issues, our aim is to show how a partial membership of the city's sustainable development plan is enacted (i.e., a simultaneous inclusion of all community members rhetorically and an exclusion of the needs of many in practice) and reinforced in ways that reproduce socially embedded patterns of inequality. It calls for a more sociologically grounded analysis of the persistence of such inequalities as an important appendage to current discourse on the restorative benefits of the '15-minute city' and as a corrective to current public participation measures that fail to incorporate lived experiences of unequal access to the city's nature. It proposes a framework that addresses more effectively the distributive, recognition, and procedural dimensions of inclusive, sustainable city living.

Keywords: sustainable development; green and blue spaces; restorative benefits; the 15-minute city; unequal access

1. Introduction

We report on the findings of research conducted between January and December 2023, assessing the mental, social, and physical benefits to peoples' regular engagement with the city's green and blue spaces. In phase one, we examined how these benefits were experienced by those with easy access to the city's public parks through a series of walking interviews conducted with a representative sample of fifty respondents living in the city. This was followed by phase two of the research in which we explored, via four focus groups, the experiences of those with restricted access to the city's parks. Our findings suggest that the needs of some of the city's residents have not been taken sufficiently into consideration in the planning and implementation of sustainable city redevelopment plans. Our focus was the city of Cork. Situated on Ireland's southern coast, Cork is the second largest city in the Republic of Ireland. The population of Cork City is 584, 156 (Central Statistics Office, Census 2022) [1]. In 2022, the European Commission selected this city as one of one hundred 'exemplary' European cities committed to becoming a climate-neutral smart city by 2030. Inspired by international commitments to improve cities' connectivity with nature [2], Cork City Council has pledged to become a 'trailblazer' in the realization of the EU's climate-smart agenda. However, the city faces certain challenges in this regard, not least the accelerating loss of native plant and animal species in the area [3], the city's expanding population (which has grown annually by 1% since 2006, particularly in its suburban regions), rising crime rates (e.g., statistics from January to December 2022 show how robberies in public areas and assaults causing bodily harm increased by 11%), as well as the limited availability of significant green spaces in the city due to increasing competition for land and other essential resources—developments that largely mirror those occurring in other cities across the world today [4]. One of the central aims of the research reported upon was to assess how the mounting pressures posed by modern urban living, climate change, and urban redesign affect the quality of human interaction with nature and if such quality of interaction differs across cohorts. Our research findings suggest that there are differences across communities in the quality of interaction with and access to nature and its restorative benefits. The fact that these differences map onto reoccurring inequalities suggests that they are part of wider systems of injustice that need to be addressed as a matter of urgency given the importance of access to nature and wellbeing.

1.1. Literature review

The rate at which essential habitats, plants, and animals are disappearing worldwide is alarming [5]. Equally disconcerting is the steady decline in opportunities to interact with remaining wild nature due to multiple factors, including the rapid expansion of the world's urban centers [6]. In an effort to counteract these trends and limit the environmental impacts of city living, Carlos Moreno and his research team introduced the concept of 'the 15-minute city' in 2016 [7]. At its core is the idea that the urban dweller should be able to meet all their basic daily needs within a 15-minute bike ride or walk from their home. The 15 minute-city works to increase the proximity of essential services, including access to green and spaces, in ways that promote sustainable living, reduce traffic congestion and improve quality of life for all the city's inhabitants. According to Moreno, the 15-minute city serves as a 'regeneration' model to promote the rights of all age groups to health, irrespective of place of residence, socioeconomic status, or mobility capacity [8]. In the years since it was first introduced, the concept of the 15-minute city has gained considerable momentum in sustainable urban planning circles.

Today, cities such as Paris, Barcelona, Melbourne, Portland, and Vancouver are considered important examples of 15-minute cities.

Reviewing plans and accessibility studies of the city of Oslo in Norway, Akrami, Sliwa et al. [9] assessed the validity of the 15-minute city model for this city, focusing on the Hovinbyen area of the city. They found that, apart from the central part of Oslo, many of the wider suburban regions of Oslo do not fit easily into the 15-minute model and scored low on accessibility. Considering these findings, in addition to the steady rise in the population density of Oslo's suburbs, the authors concluded the 15-minute city model did not, in fact, offer a valid 'regeneration model' for many urban areas but, rather, represented a useful tool to assist city planners in the design of new urban areas. For its critics [10], the 15-minute city is wrongly presented as a 'one size fits all' model that frequently fails to balance the city's need for conservation and the protection of cultural heritage with convenience imperatives [11]. Equally, understandings of the varying capacities of urban residents to walk to amenities, depending on the age and physical health of the individual or, indeed, safety of their surroundings, is not taken sufficiently into consideration in applications of this model and sustainable urban redesign more generally [12]. By highlighting the sociological relevance of these issues, the research findings documented below draws attention to some of the ways in which the city's sustainable development project can limit the accessibility of essential resources for some in local settings [13]. The attainment of the UN's sustainable development goals continues to face serious challenges. One perhaps less well explored challenge is the restricted access of many of the city's residents to its green and blue spaces and with that, limited opportunities to avail of their health-restoring benefits.

As conservation behaviors and values have been shown to depend heavily on regular engagements with nature, this predicament is thought to represent 'a fundamental obstacle' in the way of 'halting and reversing' current alarming rates of biodiversity loss, as well as commitments to more sustainable models of development [14]. Over the last two decades, psychologists have gathered increasing evidence of a reduction in urban populations' familiarity with acoustic biodiversity (e.g., knowledge of different types of bird song, the sounds of rivers, waterfalls, etc.), as well as the aromatic dimensions of local flora (e.g., the scent of native flowers, trees, and other plant life) and their life-enriching qualities due to decreasing exposure to nature. Such developments are thought to signal the onset of an 'extinction of experience' of nature [15].

For Pyle [16], these challenges can be traced back to the era of the industrial revolution when a large-scale reorganization of human relations with nature was initiated in the interests of advancing capitalist production systems. In the period since, cycles of human interaction with nature on the material, emotional, spiritual, and intellectual levels have declined steadily, exacerbated further by the growing prevalence of sedentary lifestyles, desk-based employment, and smart phone dependency. Viewing and engaging with natural worlds occurs increasingly today through flat screens or fast-moving vehicles [17]. Consequently, behaviors crucial to maintaining good mental, physical and social health, including daily physical activities [18], exposure to sunlight and fresh air [19], as well as in-person social interaction [20] are diminishing.

Given these developments, Smalley [21] queries whether it will be possible to generate sufficient motivation amongst publics to care about the demise of nature, in spite of governments best efforts, if we no longer consciously register its presence in our daily lives. The research of Gaston and Soga [22] points to the importance of routine exposure to the soundscapes, scent, and visual displays of woodlands, parks, rivers, trees, flowers, insects, birds, etc., to the public's motivation to act to protect biodiversity. The question then is whether the ability to care about nature's wellbeing and the planet

more generally is retrievable if time spent immersed in nature continues to decline in the future. Sociologists, such as Rosa [23], see such disengagement from nature as symptomatic of our state of alienation from the wider world and from ourselves more generally (when the connections linking inner and outer nature fall into a state of disharmony). Here, the cause of our disconnection from nature is said to be sourced in deeper structural transformations occurring in society and social relations more generally (e.g., the social acceleration of cycles of capitalist production and consumption, the ‘speeding up’ of the pace of technological, cultural, and social and ecological change).

The research findings outlined below set out to test these assumptions and consider if this decline in access to and motivation to care about nature should be taken as given. In particular, the notion that the rise of sedentary lifestyles, a growing dependency on phones and other smart devices, increasing levels of obesity, and disconnection from natural settings are largely self-imposed limitations, or lifestyle choices affecting our psycho-emotional relationships with nature. Yet there is clear evidence to suggest that at least some of these are also shaped by factors linked to class, age, socio-economic background, environmental changes, and urban structural design (e.g., dense road networks, a shortage of public parks or sports facilities [24], safe walking routes, reliable transport services, etc.). For the mobility challenged, the visually impaired, the wheelchair-bound, the elderly or young children, traveling to and from city parks can be a hazardous journey due to heavy city traffic, poor air quality, rising temperatures, antisocial behavior, uneven or broken pathways, etc. [25]. For these cohorts, access to nature’s restorative health benefits may be less influenced by lifestyle choices than societally conditioned factors that determine how fast an ‘extinction of the experience of nature’ occurs and at what level of intensity.

If an ‘extinction’ of nature can be detected among city residents, it is most likely to affect some people more severely than others, depending on age, gender, level of mobility, residential area, socio-economic status, and underlining health-related factors. All have been shown to work in tandem to negatively influence access to the restorative benefits of the city’s green and blue spaces [26]. The research of Hoffman et al. [27] similarly shows how structurally embedded inequalities are reproduced in experiences of the effects of climate change on city life (e.g., heat islands created by rising temperatures, as well as an over-use of heat-retaining building materials in poorer residential areas, including asphalt and concrete). Moreover, who has easy access to nature and its restorative effects is a question that requires further investigation. As Colley et al. [28] observe, climate lives are not lived equally but vary significantly across contexts and cohorts, locally and internationally. The effects of climate change and biodiversity loss are not only felt as geological changes (changes in the physical structures and substances of the Earth), but also as powerful limitations on freedom (e.g., freedom from want, freedom of movement). The capacity to adapt one’s life conditions to a climate changing world and a sustainable redesign of one’s city is heavily conditioned by social disparities in the availability of choice [29]. A growing body of research points to problems encountered by the elderly [30], the disabled [31] and youth from poorer socio-economic communities when trying to access nature in the city. The needs of these cohorts are often not prioritized in policies aimed at strengthening communities’ climate resilience [32].

To take advantage of the health-replenishing effects of the city’s green and blue spaces, as governments and health experts recommend, further investment in a people-centered approach to climate resilience is needed, one that assesses the social impacts of ongoing structural transformations on the city’s vulnerable cohorts and acts to alleviate any disadvantages encountered. A failure to address these problems (e.g., reduced access to green spaces) may result in a situation where prevailing

sustainable development policies for the city and resource management procedures are encountered as discriminatory, especially by those with a limited capacity to avail of new services.

Inequalities arising in access to the city's green spaces are maintained through a systematic non-recognition of the needs of older citizens, the disabled, and youth, particularly in poorer socio-economic communities. One important analytic tool brought to bear on these issues by this research is the sociological concept of stratification. Here, stratification here is understood as 'a patterning' of inequalities [33] in social responses to environmental challenges and their enduring effects on the lives of those who experience them. By shifting the focus somewhat to the question of opportunity to engage with the city's green and blue spaces, attention comes to be placed on the ways in which the city's sustainable development plans are marred by certain persisting inequalities.

The point of any stratification analysis is to show how inequalities persist over time, limiting the choices available to those subject to them. Today, social stratification proves to be a defining feature of many policies aimed at realizing the city's green transition, as evidenced in their systematic failure to address the needs of vulnerable community members. In highlighting these issues, we share with Nussbaum [34] the view that factors affecting the implementation of a truly equitable development program cannot be understood sufficiently without a detailed investigation of the welfare of its subjects. Our research sought to engage with city residents to explore these issues at close range, in live or immersive social settings between January and September 2023. Supported by generous funding from the Irish Research Council's New Foundations Programme (2022), as well as the Sunflower Charitable Foundation through The Community Foundation for Ireland and in partnership with Cork Nature Network, we sought to assess how the restorative benefits to health and wellbeing of regular interaction with the city's green spaces are experienced by residents before exploring how limited access to the same exacerbates societal inequalities and feelings of not belonging to one's city. Here, belonging is understood as not only knowing the rules of social interaction in one's community but being involved in their creation [35].

1.2. Study area

The focus of our research in this instance was the city of Cork, the second largest city in the Republic of Ireland. Located on Ireland's southern coast, Cork is home to one of Ireland's largest universities, University College Cork, where both authors of this research are currently based. The history of Cork City dates back to the sixth century when it first emerged as a monastic settlement and was developed further as a trading center between 915 and 922 when Viking communities settled in the city, followed by Anglo-Norman settlers in the twelfth century. Cork's population currently stands at 584,156 (Central Statistics Office, Census 2022 results) but continues to grow as its multicultural (12% of the city's population are non-Irish citizens) and young population base expands. Females represent 295,311 of its population, while 288,845 are males. The number over the age of 65 is 89,461. A total of 128,600 of Cork's population are registered as having at least one long-lasting condition or disability that affects daily life, giving a sense of the diverse composition and needs of the communities of this city.

2. Methods

Two ‘immersive’ tools of social investigation were employed to conduct our research, specifically to (1) explore what type of benefits those with easy access to the city’s public parks derive from regular attendance and (2) document the experiences of those with restricted access to these spaces, noting how this affects their wellbeing, general health, as well as a sense of belonging to the city. Immersive methods are qualitative social research methods designed to encourage the researcher to engage with respondents in their everyday ‘lived’ environment and, on this basis, gain a deeper understanding of their research topic through additional, informal exchanges with research respondents, first-hand experiences and observations, as much as through structured interviews [36].

The first phase of this immersive qualitative research study consisted of fifty 60-minute ‘walking interviews’ with a cross-section of the city’s residential population, walking in one of eight of the city’s public parks in the spring of 2023. The interviews generated a rich body of findings on how immersion in the city’s parks enhances its residents’ sense of wellbeing and connection to the city’s eco-cultural heritage. Interviewees were selected based on criteria such as age, gender socio-economic background. A total of 15% of respondents were non-Irish and 75% were Irish. Interviews were recorded with the consent of respondents to capture accurately their views on the importance of regular contact with outdoor nature and in particular, immersion in park life, to their quality of life and general wellbeing. Moreover, to document how knowledge of climate change and biodiversity loss comes to be emplaced in everyday life and lived experiences of the city’s green and blue spaces. The walking ‘inter-view’ entails an inter-changing of views between people on the move [37]. Respondents were interviewed as they walked through one of eight of the city’s public parks in the city of Cork [38], all of which are under the jurisdiction of Cork City Council, a metropolitan district council responsible for the provision of housing, roads, public transportation, urban amenities, planning, and environmental protection [39]. The eight parks chosen for this research (listed below) are the most regularly frequented parks in the city [ibid]. Interview respondents were recruited via social media (Facebook, the webpages of various residents’ associations, that of Cork Nature Network (a partner in this research), as well as local community hall notice boards). While we recognize that these recruitment sources may be limited, we did manage to secure a good cross-representation of those who visit the city’s parks regularly. As larger parks tend to have more active residents’ associations, recruiting respondents proved easier in this instance in comparison with smaller city parks. Details of the natural features and biodiversity typically found in eight of the city’s most popular public parks are provided in Table 1 below along with details regarding the age and gender of each of the interview respondents.

Table 1. Public parks.

Park	No. of respondents	Park description
The Glen Park	11 (8 female, 3 male) Age of females: 27, 35, 36, 48, 53, 60, 62, 65 Ages of males: 20, 42, 60	Situated in a natural river valley on the north side of Cork City, this park is the largest green space in this region of the city. It is home to a rich variety of wildlife, including the white-throated dipper, moorhen, heron, kingfisher, Sparrow hawk, erns, gorse, bramble, young oak, Bell heather, the common lizard, grasshoppers, plants, and native Irish trees. It is also the site of regular cultural events celebrating the historical relevance and natural beauty of the park and Glen River to Cork heritage.

Continued on next page

Park	No. of respondents	Park description
Fitzgerald's Park	16 (5 female, 11 male) Age of females: 23, 36, 38, 52, 55 Age of males: 24, 28, 28, 32, 37, 42, 44, 54, 57, 61, 67	Originally the site of the Cork Exhibition of 1902/03, a commercial and industrial showcase for the city's economy, the grounds of Fitzgerald's Park are laid out in a formal, romantic design with a large pond and fountain at the center of the park. Prominent Wildlife in Fitzgerald's Park include Mistle Thrush, Chaffinch, and Greenfinch, mature coniferous trees favoured by Coal Tits and Goldcrests, Moorhens, and Mallards. Given its central location, south of the city center, Fitzgerald's Park is a popular meeting place for students and attracts a lot of tourists and local residents as well, especially in the summer months when an annual summer festival is staged there celebrating Cork's rich multiculturalism.
The Atlantic Pond and Marina Walkway	13 (5 female, 8 male) Age of females: 24, 31, 41, 45, 52 Age of males: 33, 45, 47, 52, 52, 54, 60, 60	The Atlantic Pond and Marina Walkway extend along the Old Passage Railway line from The Marina to Rochestown on the south side of the city. The Atlantic Pond has a large population of grey herons, Little Grebe and Little Egret which are a popular local attraction. In the winter months, Tufted Duck, Pochard and many gull species can also be seen there. As part of the Marina Walkway borders Cork Harbour, it is an especially beautiful public green and blue space, making the area very popular with families, dog walkers, and enthusiastic joggers and cyclists.
The Lough	7 (4 female, 3 male) Age of females: 25, 52, 62, 70 Age of males: 25, 30, 61	The Lough is also situated on the south side of the city. It contains a substantial lake measuring 350 m in length and 180 m in width situated in a topographical depression in the centre of the park. Common wildlife inhabitants of the Lough include brown otters, swans, and large flocks of Starlings and Shoveler ducks. Summer events at the Lough include a weekly ceile (i.e., a live, open-air traditional Irish music and dance event) in the Winter and Spring, religious events, including open-air mass, are organized at the park.
Ballinlough Park	1 (male) Age: 38	Originally a market garden in the 1840s, this small but richly historic public park lies at the eastern boundary of the city where many threatened species of wildlife live, including Swifts, red foxes, and tree varieties such as old Oak, Birch, and Maple. Ballinlough is a small but much loved, picturesque park with rich green vegetation that is cared for by the City Council and local residents who have, in more recent years, created a vegetable garden in the park and regularly organise local nature field trips for schoolchildren.
The Lee Fields	1 (female) Age: 26	The Lee Fields extend over 3.1 kilometres in the south region of the city where its primary river, the River Lee, meets the tidal estuary. The Lee Fields are home to a variety of wildlife, including red foxes, hedgehogs and occasionally, grey seals which have been spotted swimming upstream from Cork Harbour. The Lee Fields green and blue spaces are particularly popular with joggers and cyclists on account of the relatively flat terrain in this area.
Ballybrack Woods	1 (female) Age: 41	Ballybrack Woods is a small park consisting of 1.2 kilometres of wooded glen in Douglas, a southern region of the city. It is predominantly a wet willow woodland with a meadow and a river, known as the Douglas River, running through it. The river is home to brown trout and otters and is an essential food source for Leisler's bats, common pipistrelle, and soprano pipistrelles nesting in the area. The woods are frequently visited by locals and groups of school children on nature field trips.
Beaumont Quarry	1 (female) Age: 45	Beaumont Quarry was a former limestone quarry situated southeast of Cork city centre. Today, it is managed by Cork City Council in cooperation with Cork Nature Network and is home to many threatened wildlife species, including varieties of red fox, Irish hedgehog and pipistrelle, soprano pipistrelle and Leisler's bats. It is a popular park with local nature enthusiasts.

In the past, fixed indoor locations would have been considered the most appropriate setting to conduct interviews; today, the trend increasingly is to engage with the empirical subject in scenarios where daily movements, sounds, visions, and other sensory stimuli shape the production of meaning as much as the spoken word [40]. In this way, the craft of ‘walking social research’ gives equal attention to the context of the research process, noting how it enriches its texture, quality, and range [41]. Walking interviews allowed us to capture the sensory dimensions of respondents’ attentiveness to the city’s biodiversity and eco-cultural heritage (e.g., expressions of delight, amusement, contentment, nostalgia, worry, and, on occasion, sadness when reflecting on changes in the city’s green and blue spaces). Discussing such issues with regular park visitors, while walking in their world, allowed our research to explore the rich meanings people invest in the city’s parks as physical ‘places’ they regularly visit and as ‘spaces’ where identities are forged, memories are made, wellbeing restored and new insights gained on nature’s flourishing or, indeed, its demise [42].

For the second phase of the research, four 60–90-minute focus groups were organized in various residential areas of the city during the summer months of 2023 (two on the North side and two on the South side of the city) with a representative sample of the city’s population to explore, as Albanesi [43] recommends, our research questions in a group setting where key themes can be teased out discursively to facilitate the generation of further relevant insights. In this instance, focus group participants reflected on forms of limitation on access to the city’s green and blue spaces and their restorative benefits, especially those encountered by the elderly, the mobility challenged, the disabled and poorer socio-economic communities. Participants were carefully recruited to reflect the viewpoints of a sample of age categories, genders and socio-economic backgrounds.

3. Results

3.1. *Our findings of the walking interviews*

Our findings of the walking interviews drew attention to the importance of access to the city’s parks to mental health. The nature of the city’s parks was said to offer respondents reassurance that nature was doing fine (observing repeated cycles of the growth, decay and rebirth of nature), in spite of wider climate change and biodiversity loss challenges. The nature of the parks also offered comfort to those feeling isolated, anxious, stressed, and, in the case of international visiting students or members of migrant communities, lonely or homesick. The universal aspects of nature gave respondents a sense of belonging and evoked memories of family and friends. In total, 94% of respondents reported that the primary reason for them visiting a city park regularly was to protect their mental health while 76% admitted they did so to maintain good physical health. For those respondents living in the inner city, being over-exposed to a heavily grey, concrete environment with little greenery was noted as a major challenge to their mental and physical wellbeing:

‘The parks have been very beneficial to my wellbeing, especially with three young kids and living in the inner city without a garden, lots of traffic, and areas of concrete’ (Respondent 5, Female, Mexican born, Fitzgerald’s Park, Cork City).

A total of 48% of respondents in our walking interviews referred specifically to the therapeutic value of regularly visiting one of the city’s parks and hearing the sounds of nature (birdsong, the babbling of streams and rivers, etc.), noting its contribution to improving their mood and general wellbeing [44]. A further 22% of respondents recounted their pleasure from the aroma of seasonal

shrubs, woodlands, flowers, and grasses. The symbolism and positive thought associations of the sounds, smells, physical features, and cycles of nature were highlighted repeatedly, particularly in their capacity to generate a ‘feeling of being away’ from the noise and chaos of the city and allowing psychological recovery to ensue [45]. Witnessing plants grow and tree foliage bloom was said to provide many respondents with a sense of security and hope for the future. As respondents explained:

‘One of my fears is that in the future with climate change maybe the trees that we are planting here won’t be able to grow because the conditions are no longer right...I get a sense of security from seeing the trees come to life each year... and as long as this continues to happen, I feel that there is hope’ (Respondent 40, Male, Irish born, Marina Park, Cork City).

‘Spring in the park makes me feel like there is life all around us. Kind of hopeful, I guess. That’s why it’s nice to go for walks here because it makes you feel better’ (Respondent 36, Female, Irish born, Fitzgerald’s Park, Cork City).

‘Whatever issue is upsetting you may seem large in your mind, you come into nature and realize that actually it’s not so bad. So, it’s definitely interesting because the cycles of nature also kind of remind you that things will end and there will be new beginnings, you know’ (Respondent 41, Male, Irish born, Marina Park, Cork).

‘Even if I don’t talk to anybody, just to kind of see everyone going about their day, you know enjoying... or partaking in a similar moment or at least in the same environment... It does make you feel a sense of community for sure. It makes you feel not so alone, even if you are alone here and not talking to anyone’ (Respondent 31, male, US born, the Lough).

‘Sometimes when I feel overwhelmed, my studies, being away from home, sometimes I feel lonely, but when I come here I just find myself connected with home, you know you feel this place is kind of very natural. You are in an open space, you are breathing natural air and so I think that’s why I often come here’ (Respondent 45, Male, Nigerian born, Fitzgerald’s Park).

Respondents drew attention to the central importance of access to the city’s green spaces to mental and physical health and offered key insights on the meanings commonly invested in the city’s nature, not only as a physical and aesthetically pleasing entity but also as a cultural space where social rituals are developed and memory narratives are created, and a psycho-emotional experience where fears and worries are calmed and resilience is restored. The importance of these various dimensions of human interaction with nature was driven home by respondents’ accounts of the pleasure and relief immersion in the parks’ nature offers them from mental stress, fatigue, anxiety, depression, and social isolation. Figure 1 below offers a breakdown of the percentage of respondents who listed mental health, physical exercise, social engagement, fresh air, walking one’s dog or proximity to a park as reasons why they visit one of the city’s public parks on a regular basis.

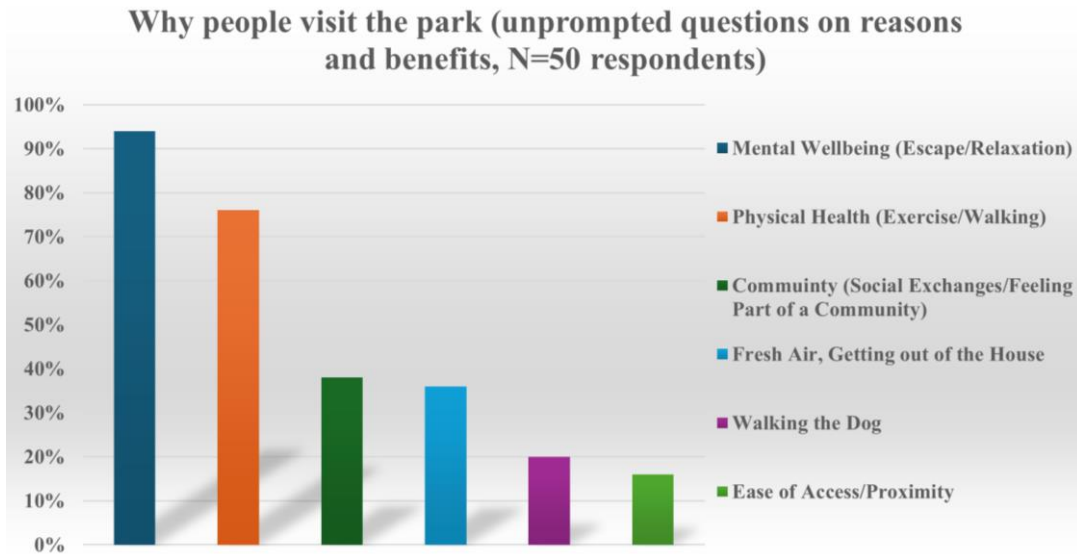


Figure 1. Summary of reasons why people visit the city’s public parks regularly.

3.2. Findings of the focus groups: Assessing differences in ease of access to the restorative benefits of the city’s green and blue spaces

In phase two of our research, four focus groups were organized in different residential areas of the city (two in the North side and two in the South side of the city). Focus group participants were recruited via social media and local community groups’ notice pages. The issue of difficulty accessing the city’s parks was noted in the invitation letter to encourage those encountering such challenges to participate. The table below outlines the profile of focus group participants. Focus groups lasted between 60 and 90 minutes, and during each session, the discussion centered on different factors affecting access. Access here was defined as:

1. Physical proximity to the city’s green and blue spaces.
2. Sensory access (the ability to hear, see, and feel a sensory awareness of nature’s presence.)
3. Socio-cultural access to nature (the ability to connect with a nature that forms a key part of the city’s identity and history).

We sought to assess how these various forms of access were facilitated or hindered by external factors. External factors included poor urban design, insufficient transport links, a lack of larger green spaces in the inner city, rising volumes of traffic, and anti-social behavior, all exacerbated by deteriorating environmental conditions. Access to nature in the city was thus explored as a relevant theme of distributive, recognition, and procedural justice. Table 2 below provides details as to the number of participants in each of the project’s four focus groups that were either male or female, as well as their age.

Table 2. Focus group details.

Focus Group	Participant	Gender	Age
1	1	F	70
	2	F	52
	3	M	44
	4	M	19
	5	M	24
	6	F	40
2	1	M	65
	2	M	40
	3	F	52
	4	F	58
	5	F	27
3	1	M	34
	2	F	70
	3	F	52
	4	M	60
	5	M	31
4	1	F	52
	2	F	42
	3	M	43
	4	F	70
	5	M	45

In terms of distributive justice, the following question was asked: Was access to designated green and blue spaces in the city distributed fairly across all communities and with that, opportunities to enjoy nature's restorative benefits? Second, was sufficient recognition granted to the different needs and capacities of various cohorts (the elderly, disabled, youth, and the economically disadvantaged) in the design and location of parks in the city and in maximizing access to cultural events occurring at city parks? Wellbeing not only requires that sufficient resources are available to achieve basic human functioning but, more importantly, that individuals have sufficient capacity to avail of them. In other words, nature must be accessible to all people to experience its benefits, physically, mentally, and culturally. Third, did focus group participants feel their concerns about the state of nature in the city and capacity to voice their views on plans to redesign the city along more sustainable lines were heard and reflected in policy actions?

Many of the participants in our focus group research (71%) drew attention to what they perceived as a serious shortfall in current efforts to address inequalities in access to the city's nature and decision-making processes. Journeying to and from city parks and nature trails, for instance, was seen as dangerous for those with physical, auditory, or visual impairments, or parents of young children, etc. Issues such as antisocial behavior, uneven footpaths, and dangerous walkways were highlighted as deterrents to walking or cycling to city parks. One respondent with a visual impairment noted:

'Last Wednesday, I can remember being really anxious to get home because you can just feel the negative energy on the roads. Especially in finer weather, drivers are more anxious to get home, they are rushing to get home to relax so they are stressing to get to a more relaxed space' (Participant One, Focus Group 2).

Heavy traffic undermines the confidence of many of the city's more vulnerable residents who question the safety of their movements through the city when it is busy. As a consequence, opportunities to enjoy the city's green and blue spaces are curtailed by a sense of being at risk. Many of our focus group respondents noted how the city's new sustainable development initiatives (e.g.,

redirected traffic flows) disadvantage those whose needs are not sufficiently taken into consideration in the design of the ‘climate-smart city’ (65%). Access to nature is a precondition for the enjoyment of many rights, including that of good health. Disrupted access to nature and its restorative benefits, therefore, was seen by many of our focus group participants as compromising basic human rights (raised by participant 1 in Focus Group 1, participant 1 in focus group 2, participants 2 and 3 in focus group 3, and participant 4 in focus group 4).

‘Everywhere you go in Ireland, there is no conception of the common good. Its changing a little, I think, but there is still a lot to be done to protect rights, a respect for and desire to protect the common assets of the city. It is still very hard to go anywhere in the city and find wild nature flourishing’ (Participant three, Focus Group Three).

Focus group participants noted how the needs of senior residents in particular were not being met by current planning policy. Rising crime rates, poorly positioned cycle lanes on narrow streets, speeding traffic, including e-bikes, and antisocial behavior were all thought to disrupt this cohort’s access to the city’s green and blue spaces and negatively impact their socialization patterns (e.g., Focus Group One. Participant 6):

‘My son can no longer pick me up for doctors’ appointments outside my front door since they put cycle lanes all along my road. It’s the same for Mary [next door neighbor]. We both have difficulties in walking. So it’s a major inconvenience for both of us’ (Focus Group One, Participant one).

Respondents observed how one of the few positive aspects of the Covid-19 pandemic was the time it gave people in their city. Emptied of traffic, crowds, and noise, people could see and hear the wildlife of the city and admire the night sky once again:

‘It gave us the opportunity to admire the night sky again and reflect more on the wildlife around us. From my bedroom window in Montenotte, we could see the swallows gathering near the Marina every day. We all loved to watch their antics’ (Focus Group Four, Participant One).

The Covid-19 lockdowns were thought to have allowed residents to rediscover the city’s everyday nature and its wellbeing-enhancing qualities (mentioned by 11% of focus group participants). Those moments with the city were thought to have since dissipated as traffic congestion, pollution, and road reconstruction work once again mark everyday experiences of the city.

Focus group participants also drew attention to differences in the quality of park facilities available to residents on the North side and South side of the city. Historically, the North side of Cork City has had a larger number of working class and socially disadvantaged communities. Persisting inequalities in access to park recreational and sports facilities on the North side of the city were noted by many focus group participants as a potential barrier to the attainment of the city’s sustainable development goals (i.e., SDG 3 Good Health and Wellbeing; SDG 10 Reduced Inequalities and SDG 11 Sustainable Cities and Communities) (raised in discussion in Focus Groups One and Three).

‘If you look at the Glen Park—That’s one of the most beautiful parks in the city and you then look at Ballincollig Regional Park. All the money that goes into that park [Ballincollig Park]. That park is so much better maintained’ (Focus Group 3, Participant One).

‘Compared to facilities, the maintenance of parks on the Southside, we are very much the poor relation. The south side gets everything. They have more parks, better services’ (Focus Group 3, Participant Five).

The failure of local government to address these issues appropriately was seen to further exacerbate class inequalities, especially when the voice of poorer socio-economic communities is repeatedly ignored:

'They are funding the kind of debates I went to recently. I mean that must've cost thousands for that thing to happen in a hotel [public meeting] but we were just spoken down to and left feeling like rubbish really at the end of it. How much money did they spend on that? You know doing this lip service thing where they are spending all this money but not actually doing anything to help lift people out of poverty and improve their quality of life' (Group 1, Participant 1).

4. Conclusion

The research of Barboza et al. [46] and that of Addas [47] point to the multiple benefits derived from green and blue spaces in the inner city, noting how they contribute to the building of more resilient and healthy communities. While we broadly agree with the arguments of both, we note how efforts to create sustainable and inclusive cities today are often hampered by a failure to address underlining inequalities. The most important inequality our research drew attention to was that of uneven access to the city's green and blue spaces due to factors including age, issues of mobility, reliable sources of public transport, safe pathways, heavy traffic, and security risks (due to rising crime and antisocial behavior in the city). Our findings would suggest that many of the city's older residents, as well as those with a disability, limited mobility options or economic resources sometimes struggle to gain regular access to the city's green and blue spaces. We believe our findings support those of Hassell and the Irish institutional Property Group (IIP) [48] who recently investigated the ten most important services Irish publics would like access to within 15 minutes of their home. Of all age cohorts, most respondents interviewed in this study that were aged 55 or above (56%, a higher percentage than any other age cohort) listed access to green and blue spaces as a priority issue, while 57% of those aged 55 and above (again, a higher percentage than any other age cohort interviewed) also listed access to public transport as a priority concern. What our findings and those of the research by Hassell and the IIP Group suggest is that while there is a strong desire amongst older cohorts to spend more time in the city's green and blue spaces and enjoy their restorative benefits, opportunities to do so can be limited by external factors (including inadequate public transport services, anti-social behavior (the risk of assault, robbery, racially motivated attack, etc.), excessive traffic and levels of pollution dangerous to health, particularly for those with heart and lung conditions). In this sense, we would argue there is a notable stratification of the experience of the city's green and blue spaces and sustainable development initiatives more generally, one that seems to affect vulnerable cohorts more readily than others. That said, we do acknowledge that to be able to illustrate the limiting power of a stratified system of access to nature in the city and its negative effects on some in more detail, a more extensive and systematic study of its institutional mechanisms is needed, one that is beyond the scope of the research reported upon here.

However, this research does highlight a need to pay more attention to the difficulties encountered by older residents, those with a disability or/and members of poorer socio-economic communities in accessing the city's green and blue spaces. Limitations on such people's opportunities to enjoy nature's restorative benefits do not feature sufficiently in current official representations of the climate-smart city [49] or the '15-minute city' model. Arguably, these omissions represent current blind spots in policies aimed at promoting more equitable and sustainable cities [50]. Thus, more careful consideration must be given to the ways in which plans to build sustainable healthy cities can, if insufficiently inclusive of the needs of all, render more vulnerable members of the community less visible. While the findings of our walking interviews pointed to the deep psychological, social, and

cultural importance of regular access to the city's green spaces for residents, those of our focus groups drew attention to the problem of access to this nature, as well as a lack of accountability for correctable restrictions on the access of some (in terms of poor city planning and non-inclusive decision-making procedures). To ensure all voices are heard, focus group participants suggested that local government representatives be brought on walking tours of the city with residents with mobility issues or special needs (visual or physical impairments, young, or low income families, etc.) to ensure that they witness first-hand the type of challenges such people face when attempting to enjoy the city's green and blue spaces and devise, on that basis, a sustainable development plan that is truly contextually grounded, 'immersive' and focused on addressing current barriers in the way of improving all peoples' access to green and blue spaces in the city. As the research of Nilsson et al. [51] makes clear, cultivating more democratic citizen participation procedures is essential for city councils if they are to 'foster a strong and transparent democratic process while benefiting municipalities by finding sustainable solutions, strengthening local action and growing support for the implementation of new ideas' in ways that respond more effectively to the differing needs of cities' diverse populations. As the authors note, sustainable development goals must be centered on informing, consulting, involving, collaborating with and empowering all people in their capacities to access and benefit from nature's life-enhancing potentials.

User of AI tools declaration

The authors declare they have not used AI tools in the creation of this article.

Acknowledgments

This research was funded by the Irish Research Council's New Foundations Programme 2022 and the Community Foundation of Ireland.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

Conceptualization, T.S and J.K; Methodology, T.S and J.K; Data curation, T.S and J.K; Writing draft, T.S and J.K; Review and Editing, T.S.

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