

## RESEARCH ARTICLE



# Perceptions, preferences and barriers: A qualitative study of greenspace and under-representation in Leeds, UK

C. Ward<sup>1,2</sup> | A. K. Palmer<sup>3</sup> | B. F. T. Brockett<sup>4,5</sup> | R. Costanza<sup>1,6</sup> | J. Hatfield<sup>1,7</sup> | I. Kubiszewski<sup>1,6</sup> | P. Langford<sup>4</sup> | K. Pickett<sup>1,2</sup> | C. Willis<sup>8</sup>

<sup>1</sup>Leverhulme Centre for Anthropocene Biodiversity, University of York, York, UK; <sup>2</sup>Department of Health Sciences, University of York, York, UK; <sup>3</sup>Geography and Planning, The University of Liverpool, Liverpool, UK; <sup>4</sup>Chief Scientist's Directorate, Natural England, Worcester, UK; <sup>5</sup>Forest Research, Delamere Forest, Cheshire, UK; <sup>6</sup>Institute for Global Prosperity, University College London, London, UK; <sup>7</sup>Department of Biology, University of York, York, UK and <sup>8</sup>Connecting People with Nature Programme, Natural England, Worcester, UK

## Correspondence

C. Ward

Email: [caroline.ward@york.ac.uk](mailto:caroline.ward@york.ac.uk)

## Funding information

Leverhulme Centre for Anthropocene Biodiversity, Grant/Award Number: RC-2018-021

Handling Editor: Russell Hitchings

## Abstract

1. Greenspaces facilitate well-being benefits for humans in several ways including through cognitive restoration, physical exercise and social interaction. However, some groups are under-represented in greenspaces, including women, older people, those with health conditions, people with lower socioeconomic status and people from ethnic minority backgrounds, and so are less likely to accrue these benefits.
2. Using thematic analysis and semi-structured interviews with 40 individuals from under-represented groups in Leeds, UK, we explore (1) a range of perceived barriers to greenspace access, (2) how spending time in greenspace contributes to well-being for these groups, (3) the perceived positive and negative aspects of greenspace, (4) what impact COVID-19 had on access to greenspace and (5) how greenspaces could be improved.
3. We also highlight inter-group differences and how some barriers disproportionately affect some of the groups in this study. Safety concerns were particularly important for women and people with low incomes, which included problems with anti-social behaviour (e.g. incivilities and disorder). Cultural barriers were also evident with ethnic minority participants often citing concerns about dogs and issues with visibility and prejudice. Participants desired physical improvements to the quality of greenspaces, along with easier access and transport options, changes in policy regarding dogs and increased security and park wardens to limit anti-social behaviour.
4. We argue that to increase visitation for under-represented groups, upgrades in the physical environment must be coupled with harnessing community involvement and co-design. Some group differences and tensions in greenspaces, and problems with anti-social behaviours and safety concerns might be limited by

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2023 The Authors. *People and Nature* published by John Wiley & Sons Ltd on behalf of British Ecological Society.

more considerate planning and incorporating research findings that address these tensions through intergroup contact.

#### KEYWORDS

ableism, COVID-19, inclusion, inequality, nature, qualitative, UK, well-being

## 1 | INTRODUCTION

A substantial body of research suggests that spending time in natural environments, described in this paper as greenspaces, is associated with physical and mental well-being benefits (Bowler et al., 2010; Collins et al., 2020; Douglas, 2012; Pritchard et al., 2020). The mechanisms driving these outcomes in greenspaces include increases in physical activity (Schipperijn et al., 2013; White et al., 2016), facilitating social interaction (Maas et al., 2009) and enabling 'cognitive restoration' (Markevych et al., 2017), that is the reduction of stress or renewal of spent cognitive resources (Kaplan, 1995; Ulrich et al., 1991). Yet alongside these studies, there is evidence indicating that there are inequalities in accessing or using greenspaces and therefore in the ability for some people to accrue these benefits.

The purpose of this research was to investigate the perceptions and experiences of greenspace, including the barriers, by under-represented groups. The policy implications of these barriers have been highlighted by health and environmental departments in the UK, with Public Health England recently estimating that £2.1 billion per year could be saved in health costs from increased physical activity if everyone had equal access to greenspaces (Public Health England, 2020) and Natural England estimating that parks and greenspaces in England deliver £6.6 billion of health, climate change and environmental benefits every year (GOV.UK, 2023). In an effort to address these health and economic costs, England is one country exploring policy initiatives that recommend nature-based health interventions, such as 'green prescribing' (Public Health England, 2020; Robinson et al., 2020), new research initiatives to better understand existing barriers and associated action on research recommendations to encourage access (Public Health England, 2020), and improving access to quality greenspace in deprived urban areas as part of the government's levelling up agenda (GOV.UK, 2022).

Since 2009, Natural England's cross-sectional surveys—such as the Monitoring of Engagement with the Natural Environment (MENE) and more recently, the People and Nature Survey (PANS)—have provided clear evidence that women, older people, those with health conditions, people with lower socioeconomic status and people from ethnic minority backgrounds are less likely to visit or spend time in greenspaces (Natural England, 2017, 2020). It has also been highlighted that it is often the groups who may benefit the most from spending time in greenspaces, for example those living in deprived areas or on low incomes, are the least likely to do so (Cronin-de-Chavez et al., 2019; Roe et al., 2016).

A recent report commissioned by Natural England compiles much of the evidence regarding barriers to nature and natural space access in the UK, grouping these barriers into four categories:

structural, experiential, cultural and those relating to the planning, design and management of natural environments (Rishbeth et al., 2022). Structural barriers refer to constraints inhibiting access to greenspace due to a shortage of nearby accessible greenspace, the low quality of available greenspaces and the costs involved in visiting distant greenspaces. Those who are particularly affected are those on low incomes and people from ethnic minority groups who are overrepresented in areas with a lack of well-resourced and safe greenspace (CABE, 2010; Friends of the Earth, 2020).

Experiential barriers stem from experiences in and perceptions of greenspaces including safety concerns such as anxiety about 'anti-social behaviour' (e.g. incivilities and disorder such as noise, shouting, or drug taking) and racism and hate crime (Gidlow & Ellis, 2011; Noël et al., 2021; Rishbeth et al., 2018). These concerns not only function as a barrier to people accessing greenspaces but are said to interfere with the benefits people accrue even if they do visit (Weimann et al., 2017). Julian Glover in his review to consider the next steps for National Parks and Areas of Outstanding Natural Beauty (AONBs) in England identified other, more practical concerns of some potential visitors. These included lack of information and knowledge about the locations of greenspaces or worries about getting lost or not having enough to do when they get there (Glover, 2019).

Cultural barriers are faced by minority groups who may feel as though they do not belong or have ownership of greenspaces. 'Representational barriers' are a subset of cultural barriers that most likely affect people from ethnic minority backgrounds, people with migrant status, people with disabilities and working-class groups because these groups are less seen in these spaces and so do not fit into what is normative (Neal, 2002; Rishbeth & Birch, 2021; Rishbeth et al., 2019). A sense of greenspace exclusion has also been highlighted in rural areas, where people from ethnic minority backgrounds feel more visible, and in some cases, experience direct racism (Neal & Agyeman, 2006).

Barriers relating to planning, design and management refer to infrastructural barriers including access and proximity to greenspace and lack of availability of amenities such as toilets, cafes and information (Edwards & Larson, 2022; Gould et al., 2018). These barriers tend to overlap with structural barriers, which collectively affect a group and perpetuate or maintain disparities.

In relation to the above barriers, a noticeable gap within the literature are intersectional approaches when investigating under-representation in nature (Colley et al., 2022; Henderson & Gibson, 2013; Powers et al., 2020; Rishbeth et al., 2022). The concept of intersectionality (Crenshaw, 1991) recognises how different aspects of people's identity can be "mutually constitutive" forms of

oppression (Hopkins, 2019). Most studies do not highlight how these barriers might be shared across groups because researchers tend to focus on singular barriers to specific groups instead of investigating cross-cutting themes and addressing the internal diversity of the groups under examination. It has been shown that ethnic minority groups are over-represented in urban areas and in lower income categories (Collier, 2020), while people with disabilities, might have specific spatial and sensory needs which are confounded by structural, infrastructural and representational barriers (see Bell, 2019 for a discussion of 'ableism').

Several studies have also highlighted issues around social cohesion and conflict in greenspaces. Differences in cultural practices, motivations, preferences and perceptions can lead to tensions and struggles over the meanings of greenspace and therefore the exclusion of some groups (Dinnie et al., 2013). For example, people originating from non-western cultures often enjoy using greenspaces for food sharing and barbecuing (Edwards et al., 2022; Kloeck, 2015), which may not be provisioned for or may be associated with litter and waste by other park users and so result in conflict (Schrammeijer et al., 2021). Older users may perceive younger users as intimidating or unruly, which leads to the older users not visiting specific greenspaces (Seaman et al., 2010). Another common reason for conflict relates to unleashed dogs, which may cause concern to other users, runners for example (Arnberger & Eder, 2015; Westgarth et al., 2019), or people from ethnic minorities, who may have particular religious or cultural beliefs regarding dogs and their cleanliness (Berglund, 2014; Edwards et al., 2022; Rishbeth, 2001).

Evidently, beyond the more overt physical barriers under-represented groups face, many are perceptual. Studies investigating preferences of natural environments have often found that groups differ in their appreciation for landscapes depending on their culture and background (Buijs et al., 2009; Herzog et al., 2000). Buijs et al. (2009) demonstrated these differences in their study that highlighted that perceived ecological quality and perceived aesthetic beauty may be group-dependent, as those participants with migrant status did not share the western view that natural and wild settings are equated with beauty. These ideas point toward a 'culturally determined' perception of landscape (Kienast et al., 2015).

Perceptions might also be influenced by people's social environment. A striking example is how greenspace users, often from deprived areas, might believe greenspaces are further away than they actually are and, accordingly, places they do not think to visit (Jones et al., 2009; Macintyre et al., 2008). There is a sense in this literature that people might perceive that places are further away because they are not 'for them', or that perceptions of accessibility are attenuated by experiential barriers such as safety concerns (Jones et al., 2009; Macintyre et al., 2008).

It would be presumptive to assume that those who do not visit greenspaces are constrained from doing so. Being either 'not interested' or having 'no particular reason' are common responses for people who do not regularly visit greenspaces (Natural England, 2017). In their analyses of the MENE data, Boyd et al. (2018) found being 'not interested' is associated with area level deprivation, whereas

'no particular reason' was associated with individual level socio-economic status. The authors suggest that interventions encouraging engagement may be more successful if they are targeted, for example, at the community level or particular types of employment. They also suggest that qualitative and longitudinal research may provide greater detail and understanding but that these choices and reasons stated are "perfectly reasonable" (Boyd et al., 2018, p. 110).

As it is mentioned above, qualitative methodologies can be a complementary method of investigation to surveys such as Natural England's MENE and PANS (Natural England, 2017, 2020), which have been instructive in demonstrating greenspace visitation patterns and quantifying levels of engagement (see Morris et al., 2022 regarding the environmental sector's preference for quantitative evidence). Qualitative designs can be seen as a way of refocusing the researcher's lens to zoom in and explore these issues in more detail, enabling participants to provide vivid accounts and lived experiences that allow a greater depth of understanding than is possible through visitation frequencies and statistics (Fossey et al., 2002). Alvesson (2010, p. 19) stresses that "people are not reporting external events but producing situated accounts, drawing upon cultural resources in order to produce morally adequate accounts". This is particularly relevant for researchers working with the 'hard-to-reach' or marginalised groups where participants may face social and cultural barriers such as literacy level, social class and language (Peroff et al., 2020).

The emergence of visual research methods such as photo-elicitation (Bates et al., 2017) and photovoice (Catalani & Minkler, 2010) are also said to enable participants to take an active role in the research by, for example, assessing or contributing images that depict aspects of their surroundings (Wang et al., 2004). Using these images within interviews can provide a platform to minimise social barriers between participant and researcher (Peroff et al., 2020) and work as a 'memory anchor' (Loeffler, 2004) to elicit more concrete information, trigger memories and complex emotional responses (Croghan et al., 2008).

The research reported here focuses on barriers to accessing greenspaces for under-represented groups in Leeds, UK which emerged from a collaboration between the public sector and academia. It was conducted between July and October 2020, during which there were varying degrees of restrictions placed on the public due to the COVID-19 pandemic, which is important to bear in mind when putting this study into context. The impacts of COVID-19 have been said to have exposed and accentuated existing health and socio-economic inequalities (Marmot & Allen, 2020), increased social isolation across age groups (Clair et al., 2021) and been linked to increased depression and anxiety (Hawes et al., 2022). Movement restrictions and avoidance or reduced interpersonal contact related to the COVID-19 pandemic, affected people's practices regarding accessing greenspaces (Burnett et al., 2021), or exploring new nearby greenspaces for health and well-being benefits (King & Dickinson, 2022). However, the purpose of this paper is not to undertake a detailed analysis of how COVID-19 impacted people's interactions with nature. Instead, the focus and strength of this paper,

is to further understand the perceptions, preferences and barriers in relation to greenspace use for a diverse cohort of under-represented greenspace users, and to “dig into” the drivers behind this inequality which occurred within the unique context of the pandemic. The following research questions were answered with a focus on groups of people least likely to spend time in greenspaces:

1. What are the perceived barriers to greenspace access?
2. (How) does spending time in greenspace contribute to well-being?
3. What aspects of greenspace are considered to be positive and negative?
4. What impact did COVID-19 restrictions have on access to greenspace?
5. What improvements are needed in local greenspaces?

## 2 | METHODS

We adopted an approach involving photo-elicitation interviews with participants from Leeds, in Northern England. Leeds is the seventh largest city in the UK (population of 812,000 in 2021 according to Census data) and has a diverse population, including 18.9% from ethnic minority groups. In 2019 Leeds ranked 33 out of 317 local authorities on the proportion of Lower Super Output Areas; in the most deprived 10% nationally (Leeds Observatory, 2019). It has around 4000ha of council-managed public greenspace—described as “excellent provision” by Leeds City Council (2021), and is situated close to the Yorkshire Dales National Park. We follow Natural England's (2017, 2020) People and Nature Survey definition of a greenspace to include any area of vegetated land, urban or rural but focus specifically on publicly accessible areas, and ensured this definition was communicated to participants throughout the study. We used this definition as an objective description of greenspace, which would generate insight and policy ideas for improving greenspaces in the public remit.

### 2.1 | Sampling

To meet the study's aim of gathering a range of views from groups known to visit greenspaces less frequently, we recruited 40 participants using purposive and snowballing approaches. Snowball methods are particularly beneficial to help recruit participants who are often described as ‘hard to reach’. Such participants are often hard to reach due to the absence of a sampling frame to draw from or they are difficult to identify due to their marginalised status (Raifman et al., 2022; Tourangeau, 2014). Participants were recruited through emails to several housing/resident association email lists in Leeds. We highlighted that we wanted to hear voices from groups often left out in research and that participants did not need to have any interest in the environment or nature. We also asked participants to pass on details of the study to their contacts who fulfilled the same criteria. Using multiple entry points to recruit participants helped

address some of the reported biases in snowball and purposive sampling approaches (Newing et al., 2011).

Participants were offered a £20 e-voucher to take part in the research to compensate people's time and to avoid excluding groups with lower incomes. Interested participants were sent an information sheet and consent form (Supporting Information). We also collected information on each participant's gender, ethnicity, any disability, car access, postcode and whether they were receiving social welfare payments<sup>1</sup> as a proxy for low-income. As we had more interested participants than needed for our sample size, this information was also used to ensure representation across these characteristics.

#### Participant information

Gender	Male: 12 Female: 28
Age	18–29: 9 30–49: 18 50–69: 11 70+: 2
Ethnicity	Ethnic minority backgrounds*: 23 *Asian/British Asian (6), Black/African/ Caribbean/Black British (7), Mixed/ multiple ethnic groups (10). White British/Irish/European: 17
Employment status	Employed (full-time/part-time/self): 22 Not working—due to a disability: 5 Not working—parent/carer: 3 Retired: 2 Unemployed: 7 Student: 1
Low-income	Yes: 15 No: 25
Car access	Yes: 21 No: 19
Garden access	Yes: 29 No: 11
People with long-term health conditions or disabilities*	Yes: 10 No: 30 *This included a range of physical disabilities and long-term health conditions with mobility impacts

### 2.2 | Photo-elicitation interviews

We employed a participant-led photo-elicitation technique where we asked participants to send a maximum of 5 photos showing positive and negative aspects of a recent visit they had taken to a greenspace. Participants who were shielding or unable to visit a greenspace, were asked to take photos of their garden or any greenspace they could see from their home. The aim of this approach was to add images to the research to elicit more or different kinds of information (Harper, 2002). We wanted to get participants thinking about greenspaces, and how they felt about them before the interview, during which they were used as a visual

trigger (not as a source of data for analysis; Copes et al., 2018). Use of visual aids also helped us stimulate conversation about greenspace barriers and partially mitigate for any language or cultural barriers (Van Auken et al., 2010).

Semi-structured interviews were conducted by the lead author and a research assistant through the Zoom video conferencing software or telephone and lasted between 30 and 60 min. Participant photos were used as an introduction to the conversation, either through screen sharing in Zoom or by the participant and interviewer separately looking at the photos provided. Interview questions focused on the barriers to visiting greenspaces, perceived positives and negatives of greenspaces and the impact of COVID-19 restrictions and we left interviews as open as possible to allow participants to articulate the issues most important to them (interview questions are available in [Supporting Information](#)).

We adopted Braun and Clarke's (2006) thematic analysis to produce themes derived from the interview transcripts relating to the research questions. This process comprises six iterative methodological stages: familiarisation, generating initial codes, theme development, reviewing themes and defining and naming themes (see Braun & Clarke, 2006). The transcripts were manually transcribed and pseudonymised using alphabetical numbering (e.g. A, B, C) before being imported into NVivo 12 for analysis by the lead author. Each transcript was then coded individually before themes were developed across the data corpus. These analyses were undertaken in close reference to research questions and aimed to reflect the lived experience of the participants.

## 2.3 | Ethics

Ethical approval was granted by the University of York, Department for Health Sciences (HSRGC/2020/400/B). Written informed consent was received from all participants before they took part in the study. Participants were able to withdraw from the study up until 2 weeks after their interview had taken place (although none chose to), and participants were reminded of this at the end of each interview (this information was also included in their information sheet).

## 3 | RESULTS AND DISCUSSION

We present our combined results and discussion in reference to our research questions which focused on the barriers to greenspace, the impact of greenspaces on well-being, the positive aspects, the negative aspects, the impact of COVID-19 restrictions, and what could improve greenspaces. For illustrative purposes, we include copies of some of the photos that were provided by the research participants. The photographs were effective ice breakers in our interviews and led to discussions about their experiences in greenspaces. Participants were often able capture aspects of their experience within the photographs but some aspects such as antisocial behaviour and problems with dogs were noted as difficult to capture.

Other authors have noted how it is sometimes challenging to capture what is in the 'mind's eye' (cf. Loeffler, 2004).

### 3.1 | Barriers to accessing greenspaces

There were a broad range of barriers articulated by our participants, including in relation to safety concerns, accessibility and issues around feeling unwelcome. This theme was particularly rich in data, especially for participants from ethnic minorities. Safety-related responses focussed on concerns about being isolated in greenspaces or encountering antisocial or criminal behaviours: "I don't think I'd ever go in that park... Because there's just too many dodgy people... people are regularly mugged and stuff. So, it's just not somewhere that I'd go." (R: Female, ethnic minority background, low-income). Safety concerns were also connected to weather or seasonality, such as day length and darkness, which exacerbated fears for some participants and were also mentioned in relation to woodlands with a reputation for being dangerous. Safety was a particular concern for female participants, a finding which is reflected in the wider literature (Braçe et al., 2021). Studies have found that men tend to congregate in greenspaces (Kondo et al., 2021), which can increase fear among women (Sreetheran & van den Bosch, 2014). One participant explained: "In the parks that are near here you get groups of people kind of just... I want to say 'loitering' but it doesn't make me feel safe as a woman by myself" (C: Female). Safety was also proportionately more of a concern for people with low-incomes, reflected in other research which found an avoidance of greenspace in low-income areas due to fears about safety (Cronin-de-Chavez et al., 2019).

Concerns about presence of dogs, and lack of dog control by owners, was cited a number of times as a barrier. While it is important to recognise that these groups are not homogenous, there was a clear observation this issue was especially concerning for people from ethnic minority backgrounds. Some participants described coming from cultural backgrounds where dogs were feared or only kept as guard dogs, rather than pets:

I have tried to go there to enjoy myself, and dogs just running up to you, owners not thinking they need to put them on their leads... But this is a real problem, and I am talking about my own experience but I can generalise this to a lot of the African Caribbean population of my age, sort of like 50. We were not brought up to have dogs sort of as pets. If people had dogs, and there were not many people that had dogs when we were younger growing up in Leeds, you had them outdoors, they were to guard, and that has come from the West Indies and it has been brought here.

(O: Female, ethnic minority background, low-income, disability).

The concerns outlined by O have been echoed in research, which found people of African-Caribbean and South Asian heritage tend

to have more fear of dogs in public parks than other ethnic groups (Madge, 1997). With an estimated 10.2 million pet dogs in the UK (PDSA, 2022), this could be a difficult barrier to address. Policies which aim to increase access to greenspace, such as the UK Government's Environmental Improvement Plan (GOV.UK, 2023), which includes a (laudable) commitment that the public should be able to access green space or water within a 15-min walk from their home, fail to recognise 'hidden' barriers such as safety concerns and fear of uncontrolled dogs and therefore will only ever be partially successful.

Some participants from ethnic minority backgrounds revealed that they had not grown up with a culture or family traditions relating to spending time in greenspace. Research by Buijs et al. (2009) suggests that groups from non-western cultures might hold different views of or values in relation to nature, compared to westerners. They may hold more utilitarian values in relation to such spaces, for example focused on food production (Buijs et al., 2009). As such, some dominant framings relating to promotion of leisure in greenspace within the UK and other western nations may need to be re-thought if they are to appeal to a diversity of cultures and family backgrounds.

It was not only ethnic minority groups who described cultural barriers to greenspace. Around half of participants who received social welfare payments alluded to not being from a family where going on walks or spending time outdoors was encouraged or seen as 'the norm': "My parents didn't do walking, a walk was what you did from the back door to the car, or possibly from the campsite at the top of a hill down into Robin Hood's Bay to get the fish and chips and the pint at lunchtime. Or go to the bakery, but it wasn't, "It's a nice day, let's go for a walk." (AK: Female, low-income, disability). Some scholars are now using sociological theory to understand how socialisation through community or family influences health-enhancing practices. A recent study on physical exercise demonstrates how practices (and inequalities) can be constrained or enabled within social class contexts and therefore 'reproduced' intergenerationally (Wiltshire et al., 2019).

Representational barriers were a pervasive issue for ethnic minority participants. The majority of our participants from ethnic minority backgrounds cited feeling unwelcome and uncomfortable due to experiencing racism and harassment in greenspaces: "You don't necessarily encounter it, but you feel a little uneasy sometimes the further away from home you are. People don't always say things, sometimes it's looks as if to say, "Hmm, why are you here?" as if you don't have a right to be in that space" (R: Female, ethnic minority background, low-income). Many of these participants mentioned incidents of racist behaviour toward them in greenspaces: "it was a little primary school kid and he was really nasty and rude and giving aggro, and I was just stunned... because he was only a child" (F: Female) or having to alter their behaviour due to concerns about their appearance: "With me, I'd think twice about going to parks in certain areas, because I'm Asian. I wear a headscarf. I'm Muslim. So, you know, I'd be a bit wary about going to certain areas of the city, certain parks" (F: Female, ethnic minority background, low-income).

Accessibility was the only barrier that was alluded to across all demographic groups in our study. Our data demonstrates that, as

well as more (and so closer) greenspaces, improving affordability and convenience of transportation to greenspace would improve accessibility for a range of people: "accessing greenspace basically is all about public transport and that's why I find that I'm usually in [] Park because ...it is usually two buses to anywhere else and two buses back home" (Q: Female, low-income). Similarly, the entrance and parking fees associated with visiting some greenspaces were also noted: "anyone whose parents can afford to go to these [National Trust] parks, have access to these really beautiful massive climbing frames and structures" (AA: Female, disability).

Some participants who raised accessibility issues often also mentioned the need to travel to more distanced greenspaces due to the poor quality, small size or the presence of anti-social behaviours in local greenspaces. Considering that we also found lack of transport was a barrier for a number of participants, in combination these 'double barriers' could make visits very difficult for some. In recent study comparing urban greenspace visits across three European cities, Schindler et al. (2022) found that people travelled unexpectedly far to visit greenspaces, which they surmise is down to greenspace visitation being part of a complex set of activities. However, complementing our findings, they show that people satisfied with the provision and quality of their nearby greenspaces travel shorter distances.

Other participants were unable to walk to local greenspaces due to disabilities, health conditions or having small children. This theme tied in with another set of responses indicating that there was a lack of inclusive infrastructure such as paths and entrances that were accessible for participants with limited mobility. Participants with a disability or condition that affected their mobility highlighted a wide range of barriers, all of them relating to design and infrastructure, including entrances and pathways not being wheelchair accessible, a lack of benches or other facilities, and a lack of signposting to which trails/pathways might be inaccessible to them:

Getting somewhere that you can get a power chair or a wheelchair through. They're trying to encourage people to go out and get fresh air and that sort of thing and yes, I'm on my own, but I know families where one person's in a wheelchair and if they want to go for a family walk, it's got to be accessible. And it's just appalling that so little is. And yes, I can understand totally that I can't go and do a Coniston Old Man or whatever, but in an area that is being designed as a pathway and a walk, that should be accessible. And often the only thing that's stopping it being accessible is the entry point.

(AK: Female, low-income, disability).

AK's experience reflects previous research findings around physical accessibility barriers, such as park entrances not being wheelchair-friendly (Boyd et al., 2018; Burns et al., 2009; Ramirez-Rubio et al., 2019). Despite this being a well-known issue, it is clear that more needs to be done to ensure that public greenspaces adhere to the UK's

Equality Act 2010 (GOV.UK, 2013, 2022) as a minimum, to ensure the benefits of spending time in greenspaces is available to all.

### 3.2 | How spending time in greenspaces contributes to perceived well-being

Most participants revealed that they believed spending time in greenspaces was important for their well-being. Three dominant themes arose, centred around cognitive restoration, physical health and social interaction. This speaks to existing literature, which emphasises the importance of greenspace for these well-reported well-being outcomes, that is cognitive restoration (Kaplan, 1995; Ulrich et al., 1991), physical exercise (Bowler et al., 2010) and social interaction (Maas et al., 2009). It also supports similar literature highlighting the importance of greenspaces as a health resources for low income and multiethnic groups (Cronin-de-Chavez et al., 2019).

Cognitive restoration was alluded to by references to mental health benefits, including visiting greenspace to facilitate the alleviation of stress (c.f. Ulrich et al., 1991) and references to replenished mental and attentional capacity (cf. Kaplan, 1995): "I don't know, it's just very relaxing. And, I think, if you're going for a walk-in nature or sitting, you know, in green spaces, you're less likely to be thinking about work related things. It feels like a proper break from work... people say it's good for the soul... yes, it's a bit of a generalisation but I think it is." (W: Female). There was also a sense of escapism or 'getting away', which was sometimes related to the COVID-19 pandemic: "I'd say we need to go somewhere for a walk and then I got really kind of strict about it. Actually it's the only time [during COVID] that I felt that my brain was calm and that I could breathe properly" (AA: Female, disability).

Physical health benefits were linked to exercising, such as walking or participants generally being more active in greenspaces than they would be in other environments. For example, W explains how visiting greenspaces formed part of her daily routine and step counting targets: "I suppose physically, in terms of getting the exercise.... I try to do... so many steps per day... I don't, kind of, set myself... unrealistic goals or whatever. But having it... encourages me to go out. So, yes, I think physically, in terms of the exercise, it has really helped." (W: Female).

Some participants, across all demographic groups, also talked about the importance of greenspaces for socialising with others and preventing isolation. Sometimes these interactions were planned with friends and family, or incidentally with strangers: "Even if it's just a case of saying, "Afternoon," or "Morning," or whatever. It is quite strange, I have always found that happening. It's nice... sometimes people stop and have a chat" (A: Male).

### 3.3 | The positive elements of greenspaces

'Nature' was commonly discussed in relation to positive elements of greenspaces. This is despite the term 'nature' being purposefully

excluded from interview questions (so as to reduce possibility of leading the participants to answer in a certain way and recognising culturally specific conceptualisations of nature, Oh et al., 2021; Taylor, 2018, 2022). This included the enjoyment of seeing plants or wildlife in greenspaces, often in relation to being less likely to observe them near their houses: "going to that park, seeing wildflowers is... there's just something really nice about it, it's really pretty, and it's just nice to look at. It makes you feel like you're connected with the outdoors." (C: Female). Managing greenspaces to include 'space for nature' was also discussed by different participants. For example, in relation to leaving a patch of wildflowers, trees for birds and squirrels or allowing parts of greenspaces to be less managed and 'wild': "they've let the wilderness grow... they used to mow the grass... but now you see dragonflies, butterflies, and I'm glad to see they just let it grow" (S: Male, low-income).

These findings reflect the importance of perceived 'natural elements' for participants and other research has outlined the well-being benefits of biodiversity in this sense (Sandifer et al., 2015). Indeed, many participants linked these natural elements with perceived benefit for their mental health. However, it was found that a higher proportion of White participants mentioned nature as a positive element of greenspaces compared to participants from ethnic minority backgrounds. Unfortunately, we were unable to identify a reason for this in the interview transcripts and suggest it is a topic for further research.

Other positive aspects mentioned by participants were open spaces that were desirable from an aesthetic perspective but provide spaces to relax and for the activities of young people. Water and beauty were also mentioned along with the experience of sounds (or quiet), which were often discussed in their contrast to the soundscape near the participants own homes. These experiences mentioned in relation to the positive aspects were also often related and discussed in tandem with the well-being benefits of these spaces.

The photographs contributed by the users that provided the basis for this theme often captured scenes demonstrating elements of nature, open spaces and water (Figure 1).

### 3.4 | The negative elements of greenspaces

The negative elements occurring in greenspaces often played an instrumental role in producing the barriers that stopped some participants from visiting or visiting as often as they would like. These elements often related to feeling unsafe. Participants referred to seeing or experiencing anti-social and undesirable behaviours including drug-taking, drinking, setting off fireworks and vandalism, which were often discussed alongside the theme of safety. Such negative elements were more frequently referred to by participants receiving benefits and participants living in more deprived areas; some of whom stated that this led to them visiting greenspaces further away from where they live: "If I think closer to home there's a park just around the corner which would be lovely to go and sit in if it was well maintained but people smash things up or leave drug

**FIGURE 1** Positive aspects that were captured often featured natural elements, water and open views.



paraphernalia around or not clear up after their dogs, things like that" (H: Female, low-income, disability). These anti-social elements were mentioned more frequently by female participants: "I don't want to walk around that park at a certain time of night when I know that man's been stood there all day drinking, and still sat there drinking now, hiya, love, and all that, I can't be bothered with it" (L: Female, ethnic minority background, low-income). CABE (2005) reports 'non-functional' greenspaces that are lacking in 'vitality' are more likely to attract vandalism and antisocial behaviour—a vicious circle.

Another theme frequently raised by participants related to the lack of greenspace cleanliness, for example, the presence of litter, or illegally dumped waste or rubbish. These elements were frequently captured in participant photographs. Participants stated that this prevented them enjoying greenspaces and caused frustration: "then you're sitting amongst litter and it ruins the experience totally because you're just watching where you're stepping and it's really grim" (J: Female, ethnic minority background). A related element was

perceived lack of maintenance of flower beds and facilities. This was sometimes discussed in comparison to 'wealthier' areas, which participants perceived to be in receipt of more investment and/or attention. Indeed, even when there is adequate provision of greenspace, and good accessibility local residents still are more likely to report perceptions of poor safety and less frequent use (Jones et al., 2009). These problems have led for calls to "level up" local parks in deprived areas (CPRE, 2022; Figure 2).

### 3.5 | The impact of the COVID-19 pandemic on visits to greenspaces

The majority of respondents stated that lockdown restrictions had led to them taking more visits to greenspaces than usual which reflected results of the People and Nature survey finding that nearly half of adults reported spending more time outdoors than before



**FIGURE 2** Negative aspects that were captured often featured litter, overflowing bins and a lack of maintenance.

the pandemic (Marshall, 2022). For some this was a direct result of the government advice on taking daily exercise, while for others it was facilitated by reduced commuting time or being on furlough: “during lockdown, I’ve been able to increase my time outside by a hundred per cent because I wasn’t working. So normally in my daily routine I would leave for work at seven and usually come home at seven and by then I’m tired, I can’t even be bothered to cook my tea, let alone go outside for a walk or a jog” (C: Female). These comments were often coupled with references to greenspaces as being important for their well-being during the COVID-19 pandemic. There is evidence of higher rates of depression and other mental health conditions during the pandemic (Hawes et al., 2022) and this supports other evidence that access to greenspaces (including viewing greenspace from inside) provided an important way for people to cope (e.g. Pouso et al., 2020). Other reasons cited for increasing visits related to opportunities for socialising and discovering/exploring the local area.

In contrast, several participants limited their use of greenspace because they were shielding or just felt unsafe visiting greenspaces due to increased risk of infection: “because of the virus and there’s just too many people in the parks... I’m still officially shielding... I just didn’t dare risk going out at all” (AK: Female, low-income, disability). Reduced public transport or increased time constraints because of increased caring duties (due to the pandemic) were also factors in decreased visitation: “Well, you know it’s phone calls, there were concerns and so I was speaking to relatives, and it meant that you know 6:30pm came around and I was exhausted and I had missed my opportunity” (AD: Male, disability). Issues relating to shielding and transport were particularly cited by those participants with a disability, while participants with a low-income were less likely to have access to transport to visit higher quality greenspaces. This supports the results of the People and Nature Survey, which suggest that the pandemic increased existing inequalities in access to and benefit from greenspaces (Natural England, 2021).

The COVID-19 pandemic saw an increase in how busy some greenspaces were compared to pre-pandemic (Burnett et al., 2021). From within our participant sample, there was a mixed response to this, with some participants pleased to see more people and diverse groups using greenspaces: "it's been wonderful, actually, and I've been very conscious of this during lockdown, that I've seen a much more diverse group of people in the woods and in the parks at various times of day as well" (AI: Female, ethnic minority background). Others were concerned about risk of COVID-19 transmission and difficulties in ensuring social distance, for example "you felt like you were having to dance around a lot, you know, to maintain the 2m distancing at some points, even though it's quite a vast park" (W: Female), and a few saying that more people in greenspaces made it less enjoyable as it was not as calm or peaceful, for example "if I went somewhere and it was full of people and like the radio was blaring really loud or something then I'd think, oh, I don't like this, this is not what I was after" (K: Female).

The points regarding overcrowding do indicate that, as we and others, achieve the result of making greenspaces more inclusive and accessible, overcrowding might become more of an issue (Lennon, 2021). Some commentators have suggested this indicates a need for an increase in greenspace provision, especially in dense urban areas (Kleinschroth & Kowarik, 2020)—a request responded to in England via the government's Environmental Improvement Plan (DEFRA, 2023), which includes a commitment that the public should be able to access green space or water, such as woodlands, wetlands, parks and rivers, within a 15-min walk from their home. Although no commitment is made relating to quality.

A report from the nature agencies of England, Scotland and Wales, along with Forest Research, highlighted some of the issues arising from increased 'footfall' in greenspaces during the pandemic, including those which are more ecologically vulnerable (Armstrong et al., 2021). A 'refresh' of England and Wales' Countryside Code sought to encourage more enjoyment of nature, while ensuring it is respected (GOV.UK, 2021).

### 3.6 | How greenspaces could be improved

Participants suggested improvements in relation to greenspaces they knew of and/or visited. A popular suggestion, especially among female participants, was for an increased presence of security guards or park wardens, to address anti-social behaviour: "somebody kind of patrolling the park, just to make people think. Because I think that when someone is there, people are a little bit more reticent... and I think it starts to change the whole narrative of what parks are for" (O: Female, ethnic minority background, low-income, disability). Seaman et al. (2010) also found that participants from deprived areas wanted more surveillance (CCTV and park wardens) to address anti-social behaviour, however, they suggest a focus on supporting multiple groups to co-exist within community spaces is more sustainable. Recent research by Powers et al. (2021) focused on fostering conditions which encouraged positive intergroup within

greenspaces co-inhabited by a diversity of groups from within a community, where conflict had been an issue. This research is based on the premise that facilitating enhanced interpersonal contact is effective in reducing prejudice and perceived difference between conflicting groups (Allport, 1954).

Participants, particularly those from ethnic minority backgrounds, wanted restrictions on dog exercising in greenspaces. Suggestions included requirements to keep dogs on leads or providing dog-free areas and signage highlighting that some people have concerns about unleashed dogs. These suggestions also dovetail with those made by The Wildlife Trusts (2023) who are concerned about dogs' disturbance upon wildlife, such as nesting birds and livestock, and the negative impacts of dog poo and urine. However, other research has found that dogs often contribute to their owners' well-being (White et al., 2018) and that dog owners have concerns about anti-dog legislation (Westgarth et al., 2019), or indeed such restrictions may prove difficult to implement. In this respect, it is regretful that we did not hear from more dog owners to provide more balanced account and to understand their experiences. Clearly, there are no easy solutions but some have suggested the use of "dog parks" purposed only for dogs and their owners could be one approach (Graham & Glover, 2014).

An increase in the provision of bins and the frequency of cleaning, emptying and general maintenance were desired to address the poor cleanliness of some greenspaces. Other suggested improvements included better facilities in greenspaces such as play and exercise equipment, benches and initiatives or projects to get local communities more involved in their local greenspaces. Both the improved facilities and local community project suggestions were also often linked to helping reduce anti-social behaviours by providing better facilities and/or helping communities feel more ownership of their local greenspaces: "get the community involved if they're upgrading a green space or anything so we appreciate the work that's gone into it and feel some ownership of it then people might appreciate the greenspace more" (AJ: Female). Such initiatives have been piloted in some areas, such as research undertaken by Make Space for Girls (Make Space for Girls, 2022; Seims et al., 2022) to encourage more involvement and use of greenspace by teenage girls in greenspaces often said to be dominated by boys.

Some of the solutions presented by the participants would require significant investment in 'upgrading' local greenspaces. As Mell (2018) concludes, within the UK, funding for greenspace management has been systematically cut in recent years, leaving local authorities, often the owners and/or managers for such spaces, with much smaller budgets for maintenance and improvement. Yet, they argue that there are opportunities for such authorities to adopt models that harness collaboration with non-traditional sources such as business investment districts. These opportunities coupled with community initiatives such as 'friends of parks' groups may help to address this shortfall and with consultation could make a positive difference to local greenspaces users and potential users (CABE, 2005; Richardson et al., 2013). Although

as pointed out by Rishbeth et al. (2022) friends of groups “tend to have good representation of older, middle class and White British groups but an underrepresentation of those identifying as belonging to Black, ethnic minority, disabled and working-class groups” (p. 10). Therefore, relying on such groups may in fact increase greenspace inequalities.

## 4 | CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

Although it is encouraging to see renewed policy focus on access to greenspace, this research has highlighted that proximity is not the only, nor necessarily, the most important factor in enabling access to and benefits from greenspace, particularly for those groups of people traditionally least likely to visit. This research investigated the perceptions of greenspace by under-represented groups during the COVID-19 pandemic and included consideration of positive and negative elements, which constitute the ‘quality’ of such spaces and relate to participants’ preferences and barriers to visiting and/or benefiting.

We identified numerous barriers to access and brought attention to how some of these disproportionately impact some groups of people and the often-intersectional nature of these barriers. Safety concerns were particularly important for women, indicating that more care might be taken in designing greenspaces to make them inclusive by being conscious of the social dimensions of greenspace, and how they might facilitate concerns for women. If we take into account other co-constituting factors such as ethnicity and area level deprivation, it is clear how vital these interventions are in densely populated, multiethnic and low-income areas.

Despite these barriers, the majority of participants did increase their use of such greenspaces during the COVID-19 pandemic. While it remains unclear if such behaviours have persisted among the population post-pandemic, a focus on the ‘pull’ and ‘push’ factors identified by participants (e.g. nature, social spaces, dogs, litter and other people) are as important to consider as factors that have received more research attention (such as proximity, green social prescribing and other formal activities aimed at increasing usage).

In the face of scarce resources for improving greenspaces, an increase in participatory approaches to greenspace design and management could work in tandem with new research agendas employing intergroup contact theory to decrease conflict in greenspaces that host multiple, conflicting, groups of users. These ideas are particularly relevant in the need to address experiences of exclusion due to prejudice, or feelings of being ‘othered’ in these spaces. While local interventions, such as organised group visits, may benefit these potential greenspace users, we also need to address cultural and structural barriers and encourage everyone, especially from a young age, to experience a society where visiting greenspace for leisure is the norm. Research that addresses these issues through a sociological lens may lead to more informed interventions including community and employment-level initiatives. Providing culturally relevant

greenspaces might also be of benefit to some communities by first understanding the variation in people’s different desires and their conceptualisations of nature and other elements pertaining to ‘quality’ of greenspace.

We suggest that future research might focus on specific communities to provide more sensitivity and nuance and enable more intersectional understanding. For example, while we heard from several participants with disabilities, more qualitative research to build on the work by Bell (2020) and others is needed to better understand and highlight how different impairments and combinations of impairments might exacerbate existing barriers to access and, for example, how being a female with a certain disability may affect greenspace experience differently. It would also be valuable to explore perceptions and experiences of different ethnic groups and intra-group heterogeneity.

There is also a need for a broader conversation about greenspace ‘quality’ and the differences in peoples’ perceptions and preferences for natural environments because there are variations in cultural practices concerning greenspace. More research might focus on the social and cultural influences that shape these practices and how this might fit into the current landscape of greenspace policy and management. Moreover, we framed our study with a focus on publicly accessible greenspace, as per Natural England’s definition, we suggest that future research explores and ‘plays with’ other definitions and concepts of greenspace and blue space (e.g. informal, domestic, institutional), to open-up new ways of thinking about how people might access associated benefits.

## AUTHOR CONTRIBUTIONS

C. Ward designed the study, collected and analysed the data and wrote the first submitted manuscript. A. K. Palmer responded to reviewer comments and substantially revised the final manuscript. J. Hatfield contributed to data analysis and provided comments on the draft and revised manuscripts. B. F. T. Brockett, R. Costanza, I. Kubiszewski, P. Langford, K. Pickett and C. Willis contributed to study design, inputting on interview questions and analysis and made substantial comments and edits to the draft and revised manuscripts.

## ACKNOWLEDGEMENTS

This work was funded by a Leverhulme Trust Research Centre—the Leverhulme Centre for Anthropocene Biodiversity (RC-2018-021). We would like to thank all the research participants for taking part.

## CONFLICT OF INTEREST STATEMENT

None of the authors have any conflicts of interest.

## DATA AVAILABILITY STATEMENT

The archiving requirement for this journal has been waived, and interview data is not publicly available. This is because it was not possible to fully anonymise interview data, and participants did not give permission for their interview data to be shared beyond this study.

## ORCID

C. Ward  <https://orcid.org/0000-0001-8362-4713>

A. K. Palmer  <https://orcid.org/0000-0003-4789-1464>

J. Hatfield  <https://orcid.org/0000-0002-6361-0629>

C. Willis  <https://orcid.org/0000-0002-8909-8424>

## ENDNOTE

<sup>1</sup> Payments included universal income (A UK-wide monetary payment for those on low or no income, including child support) and jobseekers' allowance (a payment for people currently unemployed).

## REFERENCES

- Allport, G. (1954). *The nature of prejudice*. Addison-Wesley.
- Alvesson, M. (2010). *Interpreting interviews*. SAGE.
- Armstrong, A., Brockett, B. F. T., Eustice, T., Lorentzon, A., & O'Brien, L. (2021). *Why society needs nature: Lessons from research during Covid-19*. Forest Research. Retrieved from Forest Research website: [https://cdn.forestresearch.gov.uk/2021/04/why\\_society\\_needs\\_nature\\_4fuc2gt.pdf](https://cdn.forestresearch.gov.uk/2021/04/why_society_needs_nature_4fuc2gt.pdf)
- Arnberger, A., & Eder, R. (2015). Are urban visitors' general preferences for green-spaces similar to their preferences when seeking stress relief? *Urban Forestry & Urban Greening*, 14(4), 872–882. <https://doi.org/10.1016/j.ufug.2015.07.005>
- Bates, E. A., McCann, J. J., Kaye, L. K., & Taylor, J. C. (2017). "Beyond words": A researcher's guide to using photo elicitation in psychology. *Qualitative Research in Psychology*, 14(4), 459–481. <https://doi.org/10.1080/14780887.2017.1359352>
- Bell, S. (2020). Sensing nature: Unravelling metanarratives of nature and blindness. In S. Atkinson & R. Hunt (Eds.), *GeoHumanities and health* (pp. 85–98). Springer International Publishing. [https://doi.org/10.1007/978-3-030-21406-7\\_6](https://doi.org/10.1007/978-3-030-21406-7_6)
- Bell, S. L. (2019). Experiencing nature with sight impairment: Seeking freedom from ableism. *Environment and Planning E: Nature and Space*, 2(2), 304–322. <https://doi.org/10.1177/2514848619835720>
- Berglund, J. (2014). Princely companion or object of offense? The dog's ambiguous status in Islam. *Society & Animals*, 22(6), 545–559. <https://doi.org/10.1163/15685306-12341357>
- Bowler, D. E., Buyung-Ali, L. M., Knight, T. M., & Pullin, A. S. (2010). A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health*, 10(1), 456. <https://doi.org/10.1186/1471-2458-10-456>
- Boyd, F., White, M. P., Bell, S. L., & Burt, J. (2018). Who doesn't visit natural environments for recreation and why: A population representative analysis of spatial, individual and temporal factors among adults in England. *Landscape and Urban Planning*, 175, 102–113. <https://doi.org/10.1016/j.landurbplan.2018.03.016>
- Braçe, O., Garrido-Cumbrera, M., & Correa-Fernández, J. (2021). Gender differences in the perceptions of green spaces characteristics. *Social Science Quarterly*, 102(6), 2640–2648. <https://doi.org/10.1111/ssqu.13074>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Buijs, A. E., Elands, B. H. M., & Langers, F. (2009). No wilderness for immigrants: Cultural differences in images of nature and landscape preferences. *Landscape and Urban Planning*, 91(3), 113–123. <https://doi.org/10.1016/j.landurbplan.2008.12.003>
- Burnett, H., Olsen, J. R., Nicholls, N., & Mitchell, R. (2021). Change in time spent visiting and experiences of green space following restrictions on movement during the COVID-19 pandemic: A nationally representative cross-sectional study of UK adults. *BMJ Open*, 11(3), e044067. <https://doi.org/10.1136/bmjopen-2020-044067>
- Burns, N., Paterson, K., & Watson, N. (2009). An inclusive outdoors? Disabled people's experiences of countryside leisure services. *Leisure Studies*, 28(4), 403–417.
- CABE. (2005). *Start with the park: Creating sustainable urban green spaces in areas of housing growth and renewal*.
- CABE. (2010). *Urban green nation: Building the evidence base [research summary]*. Commission for Architecture and the Built Environment. Retrieved from [https://webarchive.nationalarchives.gov.uk/ukgwa/20110118110352mp\\_/http://www.cabe.org.uk/files/urban-green-nation-summary.pdf](https://webarchive.nationalarchives.gov.uk/ukgwa/20110118110352mp_/http://www.cabe.org.uk/files/urban-green-nation-summary.pdf)
- Catalani, C., & Minkler, M. (2010). Photovoice: A review of the literature in health and public health. *Health Education & Behavior*, 37(3), 424–451.
- Clair, R., Gordon, M., Kroon, M., & Reilly, C. (2021). The effects of social isolation on well-being and life satisfaction during pandemic. *Humanities and Social Sciences Communications*, 8(1), 1–6. <https://doi.org/10.1057/s41599-021-00710-3>
- Colley, K., Irvine, K. N., & Currie, M. (2022). Who benefits from nature? A quantitative intersectional perspective on inequalities in contact with nature and the gender gap outdoors. *Landscape and Urban Planning*, 223, 104420. <https://doi.org/10.1016/j.landurbplan.2022.104420>
- Collier, B. (2020, September 5). *The race factor in access to green space*. The Runnymede Trust Retrieved from <https://www.runnymedetrust.org/blog/the-race-factor-in-access-to-green-space>
- Collins, R. M., Spake, R., Brown, K. A., Ogotu, B. O., Smith, D., & Eigenbrod, F. (2020). A systematic map of research exploring the effect of greenspace on mental health. *Landscape and Urban Planning*, 201, 103823. <https://doi.org/10.1016/j.landurbplan.2020.103823>
- Copes, H., Tchoula, W., Brookman, F., & Ragland, J. (2018). Photo-elicitation interviews with vulnerable populations: Practical and ethical considerations. *Deviant Behavior*, 39, 1–20. <https://doi.org/10.1080/01639625.2017.1407109>
- CPRE. (2022). *Local green space: A tool for people and nature's wellbeing*. Council for the Protection of Rural England. Retrieved from [https://www.cpre.org.uk/wp-content/uploads/2022/01/Feb-2022\\_CPRLocal-Green-Spaces-full-report-1.pdf](https://www.cpre.org.uk/wp-content/uploads/2022/01/Feb-2022_CPRLocal-Green-Spaces-full-report-1.pdf)
- Crenshaw, K. (1991). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. In *Feminist legal theories* (pp. 23–51). Routledge.
- Croghan, R., Griffin, C., Hunter, J., & Phoenix, A. (2008). Young people's constructions of self: Notes on the use and analysis of the photo-elicitation methods. *International Journal of Social Research Methodology*, 11(4), 345–356. <https://doi.org/10.1080/13645570701605707>
- Cronin-de-Chavez, A., Islam, S., & McEachan, R. R. C. (2019). Not a level playing field: A qualitative study exploring structural, community and individual determinants of greenspace use amongst low-income multi-ethnic families. *Health & Place*, 56, 118–126. <https://doi.org/10.1016/j.healthplace.2019.01.018>
- DEFRA. (2023). *Environmental improvement plan 2023: First revision of the 25 year environment plan*. Department for Environment, Food and Rural Affairs. Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1133967/environmental-improvement-plan-2023.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf)
- Dinnie, E., Brown, K. M., & Morris, S. (2013). Community, cooperation and conflict: Negotiating the social well-being benefits of urban greenspace experiences. *Landscape and Urban Planning*, 112, 1–9. <https://doi.org/10.1016/j.landurbplan.2012.12.012>
- Douglas, I. (2012). Urban ecology and urban ecosystems: Understanding the links to human health and well-being. *Current Opinion in Environmental Sustainability*, 4(4), 385–392. <https://doi.org/10.1016/j.cosust.2012.07.005>
- Edwards, R. C., & Larson, B. M. H. (2022). Accounting for diversity: Exploring the inclusivity of recreation planning in the United

- Kingdom's protected areas. *Landscape and Urban Planning*, 221, 104361. <https://doi.org/10.1016/j.landurbplan.2022.104361>
- Edwards, R. C., Larson, B. M. H., & Church, A. (2022). A "magic tele-  
portation machine": Ethnically diverse green space users derive  
similar cultural ecosystem benefits from urban nature. *Urban  
Forestry & Urban Greening*, 67, 127409. <https://doi.org/10.1016/j.ufug.2021.127409>
- Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002).  
Understanding and evaluating qualitative research. *Australian and  
New Zealand Journal of Psychiatry*, 36, 717–732.
- Friends of the Earth. (2020). *England's greenspace gap—How to end green  
space deprivation in England*. Retrieved from [https://policy.friends  
oftheearth.uk/sites/default/files/documents/2020-10/Green\\_  
space\\_gap\\_full\\_report\\_1.pdf](https://policy.friendsoftheearth.uk/sites/default/files/documents/2020-10/Green_space_gap_full_report_1.pdf)
- Gidlow, C. J., & Ellis, N. J. (2011). Neighbourhood green space in de-  
prived urban communities: Issues and barriers to use. *Local  
Environment*, 16(10), 989–1002. [https://doi.org/10.1080/13549  
839.2011.582861](https://doi.org/10.1080/13549839.2011.582861)
- Glover, J. (2019). *Landscapes review: National Parks and AONBs*.  
Department for Environment, Food and Rural Affairs. Retrieved  
from [https://assets.publishing.service.gov.uk/government/uploa  
ds/system/uploads/attachment\\_data/file/833726/landscapes  
-review-final-report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/833726/landscapes-review-final-report.pdf)
- Gould, R. K., Phukan, I., Mendoza, M. E., Ardoin, N. M., & Panikkar,  
B. (2018). Seizing opportunities to diversify conservation.  
*Conservation Letters*, 11(4), e12431.
- GOV.UK. (2013). Equality Act 2010: Guidance. Retrieved from [https://  
www.gov.uk/guidance/equality-act-2010-guidance#:~:tex  
t=The%20Equality%20Act%202010%20includes,an%20exceptio  
n%20from%20the%20ban](https://www.gov.uk/guidance/equality-act-2010-guidance#:~:text=The%20Equality%20Act%202010%20includes,an%20exceptio,n%20from%20the%20ban)
- GOV.UK. (2021). New countryside code launched to help people enjoy  
the outdoors. Retrieved from [https://www.gov.uk/government/  
news/new-countryside-code-launched-to-help-people-enjoy  
-the-outdoors](https://www.gov.uk/government/news/new-countryside-code-launched-to-help-people-enjoy-the-outdoors)
- GOV.UK. (2022). Levelling Up Parks Fund: Prospectus [Policy Paper].  
Retrieved from [https://www.gov.uk/government/publications/  
levelling-up-parks-fund-prospectus/levelling-up-parks-fund-prosp  
ectus](https://www.gov.uk/government/publications/levelling-up-parks-fund-prospectus/levelling-up-parks-fund-prospectus)
- GOV.UK. (2023). Natural England unveils new Green Infrastructure  
Framework. Retrieved from: [https://www.gov.uk/government/  
news/natural-england-unveils-new-green-infrastructure-frame  
work](https://www.gov.uk/government/news/natural-england-unveils-new-green-infrastructure-framework)
- Graham, T., & Glover, T. (2014). On the fence: Dog parks in the (un)leash-  
ing of community and social capital. *Leisure Sciences*, 36, 217–234.  
<https://doi.org/10.1080/01490400.2014.888020>
- Harper, D. (2002). Talking about pictures: A case for photo elicitation.  
*Visual Studies*, 17(1), 13–26. [https://doi.org/10.1080/1472586022  
0137345](https://doi.org/10.1080/14725860220137345)
- Hawes, M. T., Szenczy, A. K., Klein, D. N., Hajcak, G., & Nelson, B. D. (2022).  
Increases in depression and anxiety symptoms in adolescents  
and young adults during the COVID-19 pandemic. *Psychological  
Medicine*, 52(14), 3222–3230. [https://doi.org/10.1017/S0033  
291720005358](https://doi.org/10.1017/S0033291720005358)
- Henderson, K. A., & Gibson, H. J. (2013). An integrative review of  
women, gender, and leisure: Increasing complexities. *Journal of  
Leisure Research*, 45(2), 115–135.
- Herzog, T. R., Herbert, E. J., Kaplan, R., & Crooks, C. L. (2000). Cultural  
and developmental comparisons of landscape perceptions and  
preferences. *Environment and Behavior*, 32(3), 323–346.
- Hopkins, P. (2019). Social geography I: Intersectionality. *Progress in  
Human Geography*, 43(5), 937–947. [https://doi.org/10.1177/03091  
32517743677](https://doi.org/10.1177/0309132517743677)
- Jones, A., Hillsdon, M., & Coombes, E. (2009). Greenspace access, use,  
and physical activity: Understanding the effects of area depriva-  
tion. *Preventive Medicine*, 49(6), 500–505. [https://doi.org/10.1016/j.  
ypmed.2009.10.012](https://doi.org/10.1016/j.ypmed.2009.10.012)
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integra-  
tive framework. *Journal of Environmental Psychology*, 15(3), 169–  
182. [https://doi.org/10.1016/0272-4944\(95\)90001-2](https://doi.org/10.1016/0272-4944(95)90001-2)
- Kienast, F., Frick, J., van Strien, M. J., & Hunziker, M. (2015). The Swiss  
landscape monitoring program—A comprehensive indicator set to  
measure landscape change. *Ecological Modelling*, 295, 136–150.  
<https://doi.org/10.1016/j.ecolmodel.2014.08.008>
- King, K., & Dickinson, J. (2022). Nearby nature in lockdown: Practices  
and affordances for leisure in urban green spaces. *Leisure Studies*,  
42, 1–18. <https://doi.org/10.1080/02614367.2022.2092646>
- 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>
- Kloek, M. E. (2015). Colourful green: Immigrants' and non-immigrants'  
recreational use of greenspace and their perceptions of nature.
- Kondo, M. C., Clougherty, J. E., Hohl, B. C., & Branas, C. C. (2021).  
Gender differences in impacts of place-based neighborhood green-  
ing interventions on fear of violence based on a cluster-randomized  
controlled trial. *Journal of Urban Health*, 98(6), 812–821. [https://doi.  
org/10.1007/s11524-021-00580-9](https://doi.org/10.1007/s11524-021-00580-9)
- Leeds City Council. (2021). *Parks and Green spaces strategy 2022–2023*.  
Leeds City Council. Retrieved from [https://www.leeds.gov.uk/  
docs/Parks%20and%20Green%20Spaces%20Strategy.pdf](https://www.leeds.gov.uk/docs/Parks%20and%20Green%20Spaces%20Strategy.pdf)
- Leeds Observatory. (2019). *Leeds index of multiple deprivation 2019*. Leeds  
City Council. Retrieved from [https://observatory.leeds.gov.uk/wp-  
content/uploads/2019/10/IMD2019KeyFindings.pdf](https://observatory.leeds.gov.uk/wp-content/uploads/2019/10/IMD2019KeyFindings.pdf)
- Lennon, M. (2021). Green space and the compact city: Planning issues  
for a 'new normal'. *Cities & Health*, 5(sup1), S212–S215. [https://doi.  
org/10.1080/23748834.2020.1778843](https://doi.org/10.1080/23748834.2020.1778843)
- Loeffler, T. A. (2004). A photo elicitation study of the meanings of out-  
door adventure experiences. *Journal of Leisure Research*, 36(4), 536–  
556. <https://doi.org/10.1080/00222216.2004.11950035>
- Maas, J., van Dillen, S. M. E., Verheij, R. A., & Groenewegen, P. P. (2009).  
Social contacts as a possible mechanism behind the relation be-  
tween green space and health. *Health & Place*, 15(2), 586–595.  
<https://doi.org/10.1016/j.healthplace.2008.09.006>
- Macintyre, S., Macdonald, L., & Ellaway, A. (2008). Lack of agree-  
ment between measured and self-reported distance from pub-  
lic green parks in Glasgow, Scotland. *International Journal of  
Behavioral Nutrition and Physical Activity*, 5(1), 26. [https://doi.  
org/10.1186/1479-5868-5-26](https://doi.org/10.1186/1479-5868-5-26)
- Madge, C. (1997). Public parks and the geography of fear. *Tijdschrift  
Voor Economische En Sociale Geografie*, 88(3), 237–250. [https://doi.  
org/10.1111/j.1467-9663.1997.tb01601.x](https://doi.org/10.1111/j.1467-9663.1997.tb01601.x)
- Make Space for Girls. (2022). *Make space for girls: Impact report 2021–2*.  
*Make space for girls*. Make Space For Girls. Retrieved from [https://  
makespaceforgirls.co.uk/wp-content/uploads/2022/07/MSFG-  
Impact-Documents-2021-2.pdf](https://makespaceforgirls.co.uk/wp-content/uploads/2022/07/MSFG-Impact-Documents-2021-2.pdf)
- Markevych, I., Schoierer, J., Hartig, T., Chudnovsky, A., Hystad, P.,  
Dzhambov, A. M., de Vries, S., Triguero-Mas, M., Brauer, M.,  
Nieuwenhuijsen, M. J., Lupp, G., Richardson, E. A., Astell-Burt,  
T., Dimitrova, D., Feng, X., Sadeh, M., Standl, M., Heinrich,  
J., & Fuertes, E. (2017). Exploring pathways linking green-  
space to health: Theoretical and methodological guidance.  
*Environmental Research*, 158, 301–317. [https://doi.org/10.1016/j.  
envres.2017.06.028](https://doi.org/10.1016/j.envres.2017.06.028)
- Marmot, M., & Allen, J. (2020). COVID-19: Exposing and amplifying in-  
equalities. *Journal of Epidemiology and Community Health*, 74(9),  
681–682. <https://doi.org/10.1136/jech-2020-214720>
- Marshall, T. (2022). *People and Nature Survey: How has COVID-19  
changed the way we engage with nature?* [GOV.UK]. Natural England  
Retrieved from [https://naturalengland.blog.gov.uk/2022/05/18/  
people-and-nature-survey-how-has-covid-19-changed-the-way-  
we-engage-with-nature/](https://naturalengland.blog.gov.uk/2022/05/18/people-and-nature-survey-how-has-covid-19-changed-the-way-we-engage-with-nature/)
- Mell, I. (2018). Establishing the costs of poor green space manage-  
ment: Mistrust, financing and future development options in

- the UK. *People, Place and Policy Online*, 12, 137–157. <https://doi.org/10.3351/ppp.2018.7698488596>
- Morris, C., Brockett, B. F. T., & Green, S. (2022). *Social Science in the Natural Environment (SSINE): Moving towards interdisciplinarity—Integrating social and natural science in UK environmental organisations* (No. Natural England Joint Publication JP045). Natural England.
- Natural England. (2017). *Monitor of Engagement with the Natural Environment Survey (2017): Developing a method to measure nature connection across the English population (adults and children)* [Natural England NECR233]. Natural England. Retrieved from <http://publications.naturalengland.org.uk/publication/5337609808642048>
- Natural England. (2020). *The People and Nature Survey for England: Adult data Y1Q1 (April–June 2020) (Experimental Statistics)*. Retrieved from <https://www.gov.uk/government/statistics/the-people-and-nature-survey-for-england-adult-data-y1q1-april-june-2020-experimental-statistics/the-people-and-nature-survey-for-england-adult-data-y1q1-april-june-2020-experimental-statistics>
- Natural England. (2021). *Natural England Annual Report and Accounts 2020–2021*.
- Neal, S. (2002). Rural landscapes, representations and racism: Examining multicultural citizenship and policy-making in the English countryside. *Ethnic and Racial Studies*, 25(3), 442–461.
- Neal, S., & Agyeman, J. (2006). *The new countryside? Ethnicity, nation and exclusion in contemporary rural Britain*. Policy Press.
- Newing, H., Eagle, C., Puri, R. K., & Watson, C. W. (2011). *Conducting research in conservation* (Vol. 775). Routledge Oxfordshire.
- Noël, C., Landschoot, L. V., Vanroelen, C., & Gadeyne, S. (2021). Social barriers for the use of available and accessible public green spaces. *Frontiers in Sustainable Cities*, 3, 744766. Retrieved from <https://www.frontiersin.org/articles/10.3389/frsc.2021.744766>
- Oh, R. R. Y., Fielding, K. S., Nghiem, L. T. P., Chang, C. C., Carrasco, L. R., & Fuller, R. A. (2021). Connection to nature is predicted by family values, social norms and personal experiences of nature. *Global Ecology and Conservation*, 28, e01632.
- PDSA. (2022). *PDSA Animal Wellbeing Report 2022: The essential insight into the wellbeing of UK pets*. Retrieved from <https://www.pdsa.org.uk/media/12965/pdsa-paw-report-2022.pdf>
- Peroff, D. M., Morais, D. B., Seekamp, E., Sills, E., & Wallace, T. (2020). Assessing residents' place attachment to the Guatemalan Maya landscape through mixed methods photo elicitation. *Journal of Mixed Methods Research*, 14(3), 379–402. <https://doi.org/10.1177/1558689819845800>
- Pouso, S., Borja, A., Fleming, L., Gómez-Baggethun, E., White, M. P., & Uyarra, M. C. (2020, July 29). Maintaining contact with blue-green spaces during the COVID-19 pandemic associated with positive mental health. *SocArXiv*. <https://doi.org/10.31235/osf.io/gpt3r>
- Powers, S., Graefe, A., Benfield, J., Hickerson, B., Baker, B., Mullenbach, L., & Mowen, A. (2021). Exploring the conditions that promote intergroup contact at urban parks. *Journal of Leisure Research*, 53, 1–24. <https://doi.org/10.1080/00222216.2021.1910089>
- Powers, S. L., Lee, K. J., Pitas, N. A., Graefe, A. R., & Mowen, A. J. (2020). Understanding access and use of municipal parks and recreation through an intersectionality perspective. *Journal of Leisure Research*, 51(4), 377–396. <https://doi.org/10.1080/00222216.2019.1701965>
- Pritchard, A., Richardson, M., Sheffield, D., & McEwan, K. (2020). The relationship between nature connectedness and Eudaimonic well-being: A meta-analysis. *Journal of Happiness Studies*, 21(3), 1145–1167. <https://doi.org/10.1007/s10902-019-00118-6>
- Public Health England. (2020). *Improving access to greenspace: A new review for 2020*. Public Health England. Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/904439/Improving\\_access\\_to\\_green\\_space\\_2020\\_review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904439/Improving_access_to_green_space_2020_review.pdf)
- Raifman, S., DeVost, M. A., Digitale, J. C., Chen, Y.-H., & Morris, M. D. (2022). Respondent-driven sampling: A sampling method for hard-to-reach populations and beyond. *Current Epidemiology Reports*, 9(1), 38–47. <https://doi.org/10.1007/s40471-022-00287-8>
- Ramirez-Rubio, O., Daher, C., Fanjul, G., Gascon, M., Mueller, N., Pajín, L., Plasencia, A., Rojas-Rueda, D., Thondoo, M., & Nieuwenhuijsen, M. J. (2019). Urban health: An example of a "health in all policies" approach in the context of SDGs implementation. *Globalization and Health*, 15, 1–21.
- Richardson, J., Goss, Z., Pratt, A., Sharman, J., & Tighe, M. (2013). Building HIA approaches into strategies for green space use: An example from Plymouth's (UK) stepping stones to nature project. *Health Promotion International*, 28(4), 502–511. <https://doi.org/10.1093/heapro/das033>
- Rishbeth, C. (2001). Ethnic minority groups and the design of public open space: An inclusive landscape? *Landscape Research*, 26(4), 351–366. <https://doi.org/10.1080/01426390120090148>
- Rishbeth, C., & Birch, J. (2021). Urban nature and transnational lives. *Population, Space and Place*, 27(4), e2416. <https://doi.org/10.1002/psp.2416>
- Rishbeth, C., Blachnicka-Ciacek, D., & Darling, J. (2019). Participation and wellbeing in urban greenspace: 'Curating sociability' for refugees and asylum seekers. *Geoforum*, 106, 125–134. <https://doi.org/10.1016/j.geoforum.2019.07.014>
- Rishbeth, C., Ganji, F., & Vodicka, G. (2018). Ethnographic understandings of ethnically diverse neighbourhoods to inform urban design practice. *Local Environment*, 23(1), 36–53. <https://doi.org/10.1080/13549839.2017.1385000>
- Rishbeth, C., Neal, S., French, M., & Snaith, B. (2022). *Included outside: Evidence synthesis for engaging under-represented groups in nature* (p. 27) [Summary Report]. Natural England.
- Robinson, J. M., Jorgensen, A., Cameron, R., & Brindley, P. (2020). Let nature be thy medicine: A socioecological exploration of green prescribing in the UK. *International Journal of Environmental Research and Public Health*, 17(10), 3460. <https://doi.org/10.3390/ijerph17103460>
- Roe, J., Aspinall, P., & Ward Thompson, C. (2016). Understanding relationships between health, ethnicity, place and the role of urban green space in deprived urban. *Communities*, 13(681), 1–21. <https://doi.org/10.3390/ijerph13070681>
- Sandifer, P. A., Sutton-Grier, A. E., & Ward, B. P. (2015). Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation. *Ecosystem Services*, 12, 1–15. <https://doi.org/10.1016/j.ecoser.2014.12.007>
- Schindler, M., Le Texier, M., & Caruso, G. (2022). How far do people travel to use urban green space? A comparison of three European cities. *Applied Geography*, 141, 102673. <https://doi.org/10.1016/j.apgeog.2022.102673>
- Schipperijn, J., Bentsen, P., Troelsen, J., Toftager, M., & Stigsdottir, U. K. (2013). Associations between physical activity and characteristics of urban green space. *Urban Forestry & Urban Greening*, 12(1), 109–116. <https://doi.org/10.1016/j.ufug.2012.12.002>
- Schrammeijer, E. A., van Zanten, B. T., & Verburg, P. H. (2021). Whose park? Crowdsourcing citizen's urban green space preferences to inform needs-based management decisions. *Sustainable Cities and Society*, 74, 103249. <https://doi.org/10.1016/j.scs.2021.103249>
- Seaman, P. J., Jones, R., & Ellaway, A. (2010). It's not just about the park, it's about integration too: Why people choose to use or not use urban greenspaces. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 78. <https://doi.org/10.1186/1479-5868-7-78>
- Seims, A., Walker, S., Clark, I., & Dogra, S. A. (2022). Make space for girls: Designing greenspace and other public spaces to reflect the needs of teenage girls. In *Designing interventions to address complex societal issues*. Routledge.
- Sreetheran, M., & van den Bosch, C. C. K. (2014). A socio-ecological exploration of fear of crime in urban green spaces—A systematic review. *Urban Forestry & Urban Greening*, 13(1), 1–18. <https://doi.org/10.1016/j.ufug.2013.11.006>

- Taylor, D. E. (2018). Racial and ethnic differences in connectedness to nature and landscape preferences among college students. *Environmental Justice*, 11(3), 118–136.
- Taylor, D. E. (2022). Understanding Black, Asian, Latinx, and White College Students' views of nature: Frequent thoughts about wild, remote, rural, and urban landscapes. *American Behavioral Scientist*, 66(7), 989–1031. <https://doi.org/10.1177/00027642211013403>
- The Wildlife Trusts. (2023, February 22). Pet owners urged to help keep wildlife and livestock safe this spring|The Wildlife Trusts. Retrieved from <https://www.wildlifetrusts.org/news/pet-owners-help-wildlife>
- Tourangeau, R. (2014). Defining hard-to-survey populations. In R. Tourangeau, B. Edwards, T. P. Johnson, K. M. Wolter, & N. Bates (Eds.), *Hard-to-survey populations* (pp. 3–20). Cambridge University Press. <https://doi.org/10.1017/CBO9781139381635.003>
- Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*, 11(3), 201–230. [https://doi.org/10.1016/S0272-4944\(05\)80184-7](https://doi.org/10.1016/S0272-4944(05)80184-7)
- Van Auken, P. M., Frisvoll, S. J., & Stewart, S. I. (2010). Visualising community: Using participant-driven photo-elicitation for research and application. *Local Environment*, 15(4), 373–388. <https://doi.org/10.1080/13549831003677670>
- Wang, C. C., Morrel-Samuels, S., Hutchison, P. M., Bell, L., & Pestronk, R. M. (2004). Flint Photovoice: Community building among youths, adults, and policymakers. *American Journal of Public Health*, 94(6), 911–913. <https://doi.org/10.2105/AJPH.94.6.911>
- Weimann, H., Rylander, L., van den Bosch, M. A., Albin, M., Skärbäck, E., Grahn, P., & Björk, J. (2017). Perception of safety is a prerequisite for the association between neighbourhood green qualities and physical activity: Results from a cross-sectional study in Sweden. *Health & Place*, 45, 124–130. <https://doi.org/10.1016/j.healthplace.2017.03.011>
- Westgarth, C., Christley, R. M., Jewell, C., German, A. J., Boddy, L. M., & Christian, H. E. (2019). Dog owners are more likely to meet physical activity guidelines than people without a dog: An investigation of the association between dog ownership and physical activity levels in a UK community. *Scientific Reports*, 9(1), 5704. <https://doi.org/10.1038/s41598-019-41254-6>
- White, M. P., Elliott, L. R., Taylor, T., Wheeler, B. W., Spencer, A., Bone, A., Depledge, M. H., & Fleming, L. E. (2016). Recreational physical activity in natural environments and implications for health: A population based cross-sectional study in England. *Preventive Medicine*, 91, 383–388. <https://doi.org/10.1016/j.ypmed.2016.08.023>
- White, M. P., Elliott, L. R., Wheeler, B. W., & Fleming, L. E. (2018). Neighbourhood greenspace is related to physical activity in England, but only for dog owners. *Landscape and Urban Planning*, 174, 18–23. <https://doi.org/10.1016/j.landurbplan.2018.01.004>
- Wiltshire, G., Lee, J., & Williams, O. (2019). Understanding the reproduction of health inequalities: Physical activity, social class and Bourdieu's habitus. *Sport, Education and Society*, 24(3), 226–240. <https://doi.org/10.1080/13573322.2017.1367657>

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**Table S1.** Barriers to accessing greenspaces—themes, descriptions, frequencies and example quotes.

**Table S2.** Perceived impact of greenspaces on wellbeing—themes, descriptions, frequencies and example quotes.

**Table S3.** Positive aspects of greenspace visits—themes, descriptions, frequencies and example quotes.

**Table S4.** Perceived negative aspects of greenspace visits—themes, descriptions, frequency and example quotes.

**Table S5.** Suggested improvements to greenspaces.

**Table S6.** Perceived impacts of COVID-19 lockdown and associated restrictions on greenspace access.

**How to cite this article:** Ward, C., Palmer, A. K., Brockett, B. F. T., Costanza, R., Hatfield, J., Kubiszewski, I., Langford, P., Pickett, K., & Willis, C. (2023). Perceptions, preferences and barriers: A qualitative study of greenspace and under-representation in Leeds, UK. *People and Nature*, 5, 1284–1298. <https://doi.org/10.1002/pan3.10507>