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Understanding greenspace attachment across the life-course: the role of personal history in establishing spatial meaning amongst older people in the Netherlands

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Introduction: Greenspaces facilitate bonds between people and place and may hold meaning in improving health and wellbeing. Studies indicate that contact with nature can promote health, but the evidence relies on cross-sectional study designs and lacks studies incorporating a life-course perspective. Understanding greenspace attachment across a lifetime may hold meaning in improving lifelong health and wellbeing. It remains unclear how and why people, independent of their life-stage, develop and maintain an attachment to greenspace.

Methods: This exploratory study explores the role of personal experiences and memories in developing and nurturing greenspace attachment across a lifetime, focusing on older adults' personal histories. Semi-structured, oral history focused interviews ($n = 20$) were conducted in 2019 with residents living in Breda and Tilburg (the Netherlands).

Results: The findings suggest that significant personal experiences helped participants to form attachments to various types of greenspaces regardless of their life stage and greenspace typology. The childhood life phase is a crucial phase for participants to develop greenspace attachment and their attachment varies through their lifetime. Everyday greenery is perceived as an essential part to their local environment and assists in maintaining attachments and restoration.

Discussion: Understanding the creation and fostering of greenspace attachment can inform urban planning initiatives, streetscape design, and greenspace management to prioritise the design and planning of multifunctional, intergenerational, and inclusive greenspaces that cater to the needs, interests, and values for people across all age groups.

KEYWORDS

place attachment, greenspace, life-course, older people, personal histories, childhood, the Netherlands

1 Introduction

Greenspace attachment refers to the emotional and psychological connection that individuals have with natural spaces, such as parks, gardens, and open areas. Existing literature highlights the positive impacts of greenspace attachment on people's health and wellbeing, encourage environmental stewardship, and strengthen social cohesion (Maurer et al., 2021; Rishbeth and Powell, 2013). Given that people perceive, use, and value greenspace differently throughout their

lives, policymakers, environmental planners and landscape architects can prioritise the creation of multifunctional and intergenerational environments that support health, community, and sustainability, making greenspaces integral to daily life and urban resilience (Douglas et al., 2017). The evidence of greenspace and health indicators has been well-documented especially since the COVID-19 pandemic (Berdejo-Espinola et al., 2021; Maurer et al., 2021; Wortzel et al., 2021). Moreover, the place attachment literature is also narrowly focused and does not readily examine issues of attachments of greenspace over a person's life-course (Dasgupta et al., 2022). Thus, the understanding of people-greenspace relations across the life-course and the factors influencing this remains incomplete. Greenspaces can serve as multifunctional sites providing opportunities for intergenerational interaction across age groups (Douglas et al., 2017), results are often varied by population cohort and their perceptions of greenspace which makes translating public health knowledge into urban planning and design interventions problematic (Pearce et al., 2016). Analysing personal histories can help us track attachment development and evolution and identify key life events and experiences over a lifetime. To address this gap this exploratory study analyses older people's personal histories in the Netherlands to understand the development and evolution of greenspace attachment over a lifetime.

1.1 Place experience in natural environments

Researchers have explored numerous concepts and measurements to human-place relationships, with place attachment being widely studied (Lewicka, 2011; Low and Altman, 1992; Scannell and Gifford, 2010). Place attachment is conceptualised as an emotional bond people establish with significant places and strongly influenced by personal experiences (Hidalgo and Hernández, 2001; Pretty et al., 2003). While scholars including Brown and Raymond (2007), Korpela (1989), and Korpela and Hartig (1996) have addressed the role of personal significant experiences, familiarity, and meaning to attachment to natural environments, few have addressed the development trajectory and nurturing of greenspace attachment over a lifetime. The place attachment framework proposed by Jennifer Eileen Cross suggest that attachment is forged through seven interactive processes that continuously develop over time (Cross, 2015). Studies investigated the effects of greenery on place attachment and wellbeing with attachment mediating the naturalness and wellbeing relationship (Knez et al., 2018). For example, people may have fond memories of spending time in greenspaces with loved ones or engaging in activities that brought them joy. These experiences create a positive emotional connection to greenspaces, leading to a stronger sense of attachment. Cross (2015) identified that spiritual and sensory processes are often linked to places offering restorative experiences, like greenspaces. From early childhood experiences such as fishing in ponds to contemplative walks in retirement, these personal narratives reflect a deepening attachment to nature, but the role of life events remains less clear (Cherrie et al., 2019; Cross, 2015). As more people grow up and live in urban areas with limited access and availability of nearby greenspaces, they may endure psychological stress and reduced sense of wellbeing. Knez et al. (2018) states that residents perceive higher levels of wellbeing because they have developed a stronger place attachment to high naturalness urban greenery, but it less clear if that is the case for all age groups (Pearce

et al., 2016). Personal histories on natural environments can serve as narratives of nature and wellbeing identifying people's connections across a lifetime, but there is a limited debate applying oral history as a technique to better understand the development of attachment to greenspace (Lauwerijssen, 2021), in which this study would contribute to. Incorporating personal histories as a methodological approach can provide a deeper understanding of how personal experiences and memories shape greenspace attachment over time, highlighting the emotional and psychological significance of these connections.

1.2 Life-course perspective on greenspaces

Greenspace connections can change throughout an individual's life, influenced by life events, changing needs, and life stages (Cherrie et al., 2019; Douglas et al., 2017). For each life stage, greenspaces may hold specific meaning as providing opportunities for play for children, or relaxation and recreation for older people. In addition to the individual perspective, the relations people build with friends, family, neighbours, and acquaintances over time may also offer insights into how attachments to greenspaces are developed and sustained in older age (Degnen, 2016). As individuals transition into later life stages from childhood, greenspaces may become associated with physical activity or community engagement. A life-course perspective on attachment can help policymakers and planners to design greenspaces with multi-generational appeal and prioritise accessibility for all age groups. It remains unclear if greenspace attachment may change during life stages with their lifestyle or when priorities shift to health and relaxation. People's needs are influenced by design, access, and layout of greenspaces, and the presence of natural features and facilities (Colley and Craig, 2019; Jennings and Bamkole, 2019; Zhang et al., 2015). People are increasingly receptive to visit greenspaces more frequently when naturalistic and diverse features such as native flora, bluespaces, or wildflower meadows are present (Hoyle et al., 2017; Rishbeth and Powell, 2013). Naturalistic environments are open to interpretation, which means that people bring their own stories, experiences, and culture to a space to create meaning (Southon et al., 2017). The location of greenspace, along with its features and naturalness, influence how people use and perceive the space, and develop meaning to. This promotes the view of a transformation towards "green places" instead of "greenspaces" (Dasgupta et al., 2022; Douglas et al., 2017). Attachments are often developed in childhood, where greenspaces serve as sites for exploration, play, and socialisation. Louv's (2008) proposition of Nature-Deficit Disorder (NDD), for example, is one approach that explicitly situates favourable perceptions of the environment for use as a child. Such experiences create a deep-rooted attachment to greenspaces, which continues to shape their attitudes and behaviours towards nature as they age. Urbanisation and densification put pressure on existing greenspaces and can reduce opportunities for children to play and explore (Dasgupta et al., 2022). Research has shown that exposure to greenspaces during childhood can have long-lasting effects on physical and mental wellbeing in later life (Cleary et al., 2020). It remains unclear when individuals are unable to develop greenspace attachment during childhood, they can develop attachments in later life stages, and how attachment or detachment influences their lifelong health and wellbeing.

This review highlights the significance of understanding the long-term relationships between place and health to identify causal relationships and whether there are accumulative effects over the

life-course that influence attachment or detachment to greenspace. Given the knowledge gaps outlined above there is an expectation that personal experiences and life events influence greenspace attachment. To develop a deeper insight into this phenomena, this study's objective is to explore the development and nurturing of greenspace attachment across a lifetime, focussing on older peoples' personal histories in the Netherlands. This was guided by the following questions which seek:

- To understand how personal experiences in greenspaces during different life stages contribute to the development of attachment in older individuals;
- To determine the role of memories of significant life events in greenspaces play in fostering attachment.

By employing an oral testimony approach, researchers can explore the multifaceted relationships individuals may have developed with greenspaces, providing valuable insights for academic research and practical urban planning considerations. Such discussions would contribute to ongoing debates in fields like environmental psychology, environmental gerontology, neighbourhood planning, human geography, and green infrastructure literature, examining the evolving significance of greenspaces over time.

2 Materials and methods

2.1 Research design and context

The study participants were drawn from two geographically proximate, yet distinctly different medium-sized municipalities located in the southern Dutch province of Noord-Brabant: Breda (approximate population: 184,000) and Tilburg (approximate population: 222,000). Across the Netherlands, medium and small-sized cities are the most prominent urban form. By focussing on these representative locations we provide evidence that is transferable to a wider set of other urban locations in Europe. The population aged over 60 years in Breda were approximately 34,000 (18.5% in comparison to the general population) and 38,000 (17.1%) for Tilburg. Within the elderly population, the non-White population is approximately 1,400 (0.7% in comparison to the general population) in Breda and 3,200 (1.4%) in Tilburg (CBS, 2021).

Breda is characterised by its historic association with the nobility, while Tilburg primarily identified as a working-class city focused on transportation and distribution industries. Their city centres have fewer greenspaces compared to the suburban areas where large parks and urban forests such as Haagse Beemden in Breda and Oude Warande in Tilburg are located. The metropolitan area of Breda is predominately surrounded by agricultural land, while Tilburg is surrounded by a combination of natural areas and agricultural lands. We worked with a broad definition of greenspace set by the Dutch Ministry of Health, Wellbeing, and Sport (den Hertog et al., 2022), by which we refer to all green elements, irrespective of size and composition, such as public parks, forests, nature reserves, green roofs, etc.

2.2 Data collection

The purpose of the study was to explore how people develop and nurture attachments to greenspaces over their lifetime. Since the

COVID-19 pandemic, a significant proportion of "greenspace" research has focused on their role in health and wellbeing (Berdejo-Espinola et al., 2021; Maurer et al., 2021; Poortinga et al., 2021; Wortzel et al., 2021) with more limited attention being placed on attachment (Dasgupta et al., 2022; Liu et al., 2021). As noted by van Dinter et al. (2022) greenspace use has gained popularity among Dutch households, thus warranting further investigation into their value within Dutch society. A qualitative approach was employed, purposefully leaving the concept of greenspace open to interpretation to capture the diverse meanings attributed to these spaces by each participant.

The human geography and planning literature emphasises life-course perspectives as providing nuanced understandings of how individuals develop connections to places over time, shaped by diverse social and physical environments (Hanson et al., 2021). Older people were selected as participant group for this study, as their experiences enable a deeper comprehension of attachment trajectories across a lifetime. Examining diverse life experiences, family backgrounds, and formative environments can enhance our understanding of the interrelated nature of environment, quality of life, and sense of place over the lifespan (St. Jacques and Levine, 2007). This study investigates participants' personal experiences with greenspaces during childhood, teenage, adult, and later life stages through semi-structured, oral history-focused interviews (Abrams, 2010; Sloan and Cave, 2023). Oral history-focused interviews can disentangle the interactions and relationships people have with the environment, examine how they make sense of their surroundings, and the role of the environment in shaping identities (Williams and Riley, 2020). Such insights can be useful to understand people's perceptions and experiences of the local environment. Given that all participants have utilised greenspaces throughout their lives, they were able to reflect on and discuss the evolving nature of their connections to these spaces, offering critical insights into the tacit understandings and assumptions surrounding greenspace use and appreciation.

The study comprised data from 20 semi-structured, oral history-focused interviews involving 9 participants from Breda, and 11 from Tilburg. This sample size is consistent with the range of 10–30 participants commonly used in environmental and oral history research to gather in-depth data while maintaining manageability (Thompson and Bornat, 2017; Winiwarter et al., 2016). All participants were over 60 years old and self-identified as White. The interviews were conducted in the participants' homes during January and February 2019, lasting approximately 40–90 min. Hajek (2014) found that participants were more likely to share personal information in a safe and trustworthy home environment. Each participant had the cognitive capacity and health status to provide informed consent. At the start of the interviews, participants provided information about their place of residence, sex, and age, which was used to develop unique anonymised identifiers (see Table 1). Recruitment took place at community centres, senior homes, and through personal and professional networks. Due to limited access granted by senior home management for health and safety reasons, only one person was recruited from a senior home. The lack of ethnic diversity in the sample aligned with the predominately White older population in 2019 (76% nationally, 72% in Tilburg, and 76% in Breda), as the majority of non-White individuals were younger than 60 and thus outside the study's age criteria (CBS, 2021). All elderly participants recruited at community centres were White because no

non-White elderly people were present. Another limitation was the lower-than-expected participant recruitment, which may have affected the generalizability of the findings. Future research should focus on establishing stronger relationships with gatekeepers at senior homes and community centres to recruit a more diverse participant pool.

The study included participants from diverse socioeconomic backgrounds, as evidenced by their discussions of their current or previous occupations, lifestyles, and childhood household environments. The interviewer reported the place of growing up (rural, suburban or urban settlements) (see Table 1). The sample spanned a range from working-class to upper-middle-class individuals. Some participants utilised visual aids, such as photographs, to explain their thoughts and relive experiences—a common technique in oral history research (Thompson and Bornat, 2017; Winiwarter et al., 2016). During the interview, all participants were asked the following two lines of questioning and five specific questions (see Table 2), and field notes were taken to summarise the main responses as well as personal thoughts.

The five questions were adjusted according to responses from a pilot interview study with three older family members to ensure the questions were understood and enabled us to explore meaning. The open-ended nature of the interview questions helped the participants to establish their own view and reflection with greenspace and place. During the interview, the interviewer used additional probing questions to (1) explore the origin of greenspace attachment, (2) to investigate how and why greenspace use and appreciation change over time and between life stages, and (3) to discuss the social and spatial circumstances that influence human-greenspace relationships.

2.3 Data analysis

We conducted a qualitative analysis using the thematic analysis approach (Braun and Clarke, 2006), to explore the meanings and interpretations of greenspace, which aligns with the principles of oral history research (Thompson and Bornat, 2017; Winiwarter et al., 2016). The interviews were audio-recorded and transcribed word-for-word. The interviews were conducted in Dutch, transcribed, and then summarised in English. The interview transcripts were analysed without pre-determined themes or codes. There are six main themes that emerged from the data analysis that helped to understand how older people create and foster greenspace attachment over time, visualised in Figure 1. The first theme, *Environment growing up*, explores how participants' childhood experiences influence current greenspace attachments. The second theme, *Landscape type preference*, relates their personal connection to restorative landscapes. The third theme, *Childhood family visits to blue- and greenspaces*, explores how attachments to spaces beyond the neighbourhood borders are developed. The fourth theme, *Frequency of greenspace visits*, focusses on life events which increase or decrease greenspace attachments. *Greenspace perceptions and psychological and wellbeing benefits*, the fifth theme, focusses on participants' motivations and appreciation to greenspaces. The final theme, *Local flora and fauna*, emphasises the role of biodiversity to attachment. As a result, a thematic map in Figure 1 was drawn to illustrate the relationships between themes.

TABLE 1 Older people characteristics.

Personal identifier	Place of residence	Gender	Age	Place of growing up
O1-BR-M-69	Breda	Male	69	Rural
O2-TI-M-75	Tilburg	Male	75	Suburban
O3-BR-M-64	Breda	Male	64	Rural
O4-TI-M-61	Tilburg	Male	61	Rural
O5-TI-F-63	Tilburg	Female	63	Urban
O6-BR-M-67	Breda	Male	67	Rural
O7-BR-F-62	Breda	Female	62	Rural
O8-BR-F-62	Breda	Female	62	Urban
O9-TI-M-68	Tilburg	Male	68	Rural
O10-TI-F-68	Tilburg	Female	68	Suburban
O11-TI-M-70	Tilburg	Male	70	Suburban
O12-BR-M-63	Breda	Male	63	Rural
O13-BR-M-66	Breda	Male	66	Urban
O14-TI-F-79	Tilburg	Female	79	Urban
O15-TI-M-83	Tilburg	Male	83	Rural
O16-BR-M-70	Breda	Male	70	Urban
O17-TI-M-62	Tilburg	Male	62	Urban
O18-TI-F-71	Tilburg	Female	71	Urban
O19-TI-M-71	Tilburg	Male	71	Urban
O20-BR-M-80	Breda	Male	80	Urban

TABLE 2 Interview questions.

Greenspace attachment	a) Is there a park, tree or greenspace that holds a personal meaning to you? b) What and why do you value this place so much? c) Has your use of greenspace and usage frequency changed as you got older? If so, what influenced your usage frequency?
Appreciation of greenspace	a) What do you like or dislike about greenspaces? b) Has your perception changed over the years?

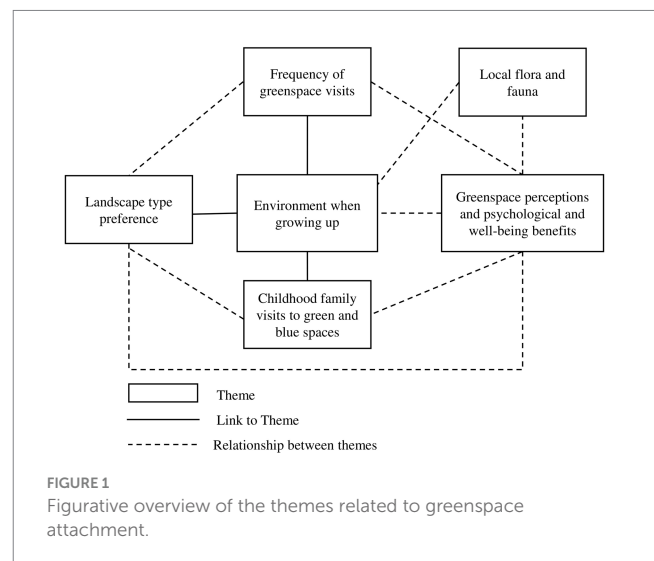


FIGURE 1 Figurative overview of the themes related to greenspace attachment.

3 Results

All participants reported developing an attachment to greenspace across the life-course, independent of their life-stage and greenspace typology. Participants developed attachments to the sea, (urban) forests, national parks, urban parks, and specific (woodland) lots or trees. For example, participant O18-TI-F-71 developed an attachment to the beach during childhood because of family visits (Figure 2A) and an attachment to Vondelpark in Amsterdam (Figure 2B) in later life stage where her eldest son learned to walk. Participant O13-BR-M-66 developed attachments to different greenspaces in Breda, because he uses each of these local greenspaces for different activities and each greenspace is equally as important to him. In the last example,

participant O4-TI-M-61 developed an attachment to a woodland lot in the countryside of Weert where he buried the ashes of his mother. His mother had strong memories and nostalgia for the woodland lot and the surrounding pastures and woodlands. Her wishes to be buried in her favourite place makes the woodland an important place of remembrance for him.

Participant O2-TI-M-75 developed an attachment to Galgeven (Figure 3), a shallow lake on sandy soils in nature reserve Oisterwijkse Bossen en Vennen, located nearby Tilburg. He developed his connection during childhood and maintained this connection through occasional walks with his wife. In later life, he and his wife scattered the ashes of her mother and sister there. This suggests that attachments to greenspaces can be multi-layered within an individual: through personal experiences,

A



B



FIGURE 2
Impression of the beach (A), and Vondelpark (B).



FIGURE 3
Impression of Galgeven.

through shared experiences with others (in this case with his wife and family), and through experiences across different life stages (childhood, and (older) adult life stage). These observations show the complexity in which memory and personal experiences are interwoven into the concept of greenspace attachment across the life-course.

What I personally like so much in the fall is that when I am in bed and I hear the wind blowing through the trees, I can still recognize that sound when I lived at [my parents] home. We had two colossal Canadian trees, and I thought that [sound] was wonderful and that is the same story here—O3-BR-M-64.

This quote promotes that memories and experiences of greenery are interrelated with weather and seasonal events. Changing seasons, especially spring and autumn, are experienced consciously by participant O14-TI-F-79 and her husband because of ecological changes such as nesting of the birds and trees sprouting in spring on their balcony and in the courtyard garden. Ecological changes due to changing seasons are often experienced in one's back garden (Lauwerijssen et al., 2024), on the street, or in nearby greenspaces presenting the multilayering of greenspace memories connecting to climate and sense of belonging.

Personal histories promote the view that:

- 1) People can develop multiple attachments to different greenspaces across the life-course.
- 2) Attachments to green- and bluespaces are developed by meaningful life experiences.
- 3) Attachments can be intertwined with memories to the weather and seasonal events.
- 4) Attachments are developed and maintained through frequent visits to chosen greenspaces.
- 5) Attachments to greenspaces are developed and/or maintained by feelings of remembrance and nostalgia, by oneself and shared by or with others.

The stories connected to greenspace suggest that it does not matter where or to what type of greenspace a person has valuable memories to, as participants believe that their connection is part of their personal identity and understanding of wellbeing. The following thematic subsections are derived from the thematic analysis (Figure 1) of participant personal histories and explore different avenues of when and why greenspace attachment was developed and the reasons to why greenspace attachments are maintained during the life-course.

3.1 Environment when growing up

The environment where one grows up was a foundational space for participants to develop an attachment to greenspace. Most participants grew up in a local environment surrounded by pastures, forests, and agricultural land, while a small proportion of participants grew up in an urban environment without greenery. Participant O8-BR-F-62 and others, for example O16-BR-M-70, developed a connection to greenery in later life stages because they did not have the opportunity to develop an attachment in their childhood. Greenspace attachment therefore seems to connect to the roles that greenspace holds within their lives independent of the life stage that they are presently experiencing.

We used to play on the street, we had no idea that there was no green. That we went to a park was not because we wanted to see green, but because it was something else. I came to appreciate it more [greenery], while you used to not think about why there is no grass around here—O8-BR-F-62.

Participants who grew up around different greenspaces developed a greater level of engagement with nature through exploration of a wider (urban) area in search for their preferred greenspace type. This means that people have the opportunity to choose which (green) environment they used for their activities. Opportunities to explore the wider area around home helped participants to develop an interest in nature activities during childhood. For example, participant O1-BR-M-69 used to fish in the ditches near his home and developed an interest in (sea) fishing. Participant O7-BR-F-62 gathered mushrooms, but due to police surveillance and current conservation policies, she is not able to continue this activity.

Participants also mentioned that they were forced by their parents to play outside with other children as the prevalent cultural understanding was that playing outside and getting dirty boosted health and reduced the risk of getting ill. When their children had children themselves, they adopted the ways of their parents repeating the view that playing outside is “healthy.” This is a common understanding in Dutch culture.

I was born and raised here [Liesbos] and I know almost every path in Liesbos because we used to play nowhere else and then you explore everywhere—O12-BR-M-66.

Over time, participants experienced their play areas being urbanised and they relocated to areas further from their homes or stayed in the back garden as a safe alternative location. Contemporary urban development also locates a greater proportion of people in apartment blocks with an associated decreased level of space available for play and exploration. Moreover, spaces in Breda and Tilburg were reported to be fenced off, less accessible, whilst traffic has increased, and fewer people now own a private garden. As a result, fewer children can play safely outside and explore natural environments limiting the opportunities to interact with nature or generate the long-term relationships proposed by Louv (2008). This, in conjunction with the changing social dynamics in Dutch families with parents working more, children going to day-care or to their grandparents leads to more limited opportunities to interact with nature. Such changes are likely to influence a child's connection to greenery from a young age.

Thus, the environment when growing up impacts the preference of a landscape type to use for activities, and for restoration. This is influenced by two elements: First, the location one grows up (an urban, rural, or suburban environment), and second, the personal preference for a landscape type to use for activities and/or restoration. The personal preference creates a bond to which people feel attached or detached from. The attachment or detachment to certain environments meant that (a) participants develop a connection to “open” or “closed” spaces (Figures 4A,B), and (b) participants who grew up in a visibly green environment perceive “greenery” as part of their local environment. Their continued use of their preferred green environment strengthens this attachment and assists in developing an appreciation to greenery and its benefits for health and wellbeing over time.

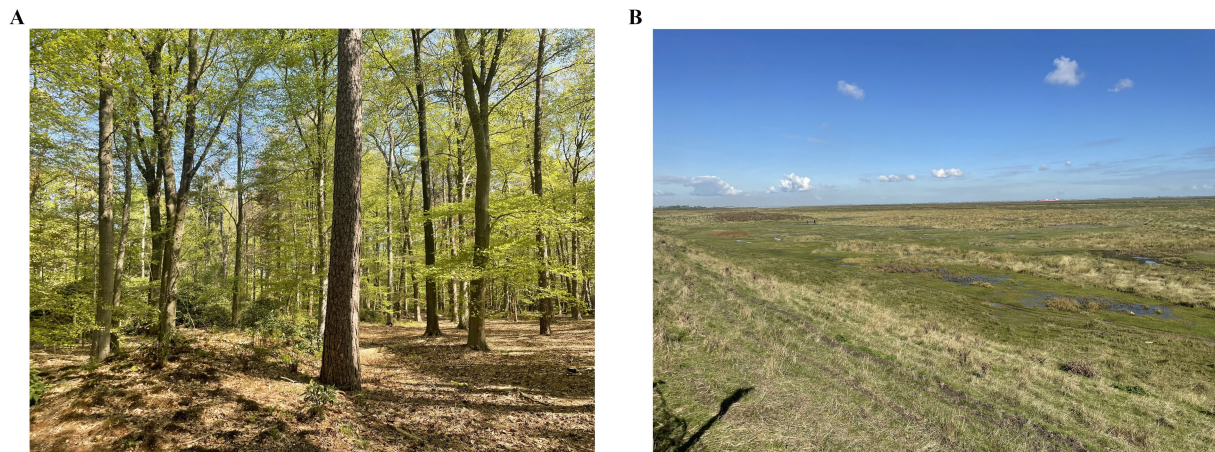


FIGURE 4
Impression of “closed spaces”, a forest (A), and “open spaces”, a meadow (B).

3.2 Landscape type preference

Participants developed a preference for certain greenspaces to which they felt connected to: “closed greenspaces” such as forests or “open green/bluespaces” such as pastures or the beach (see Figures 4A,B for impressions). Participant couple O18-TI-F-71 and O19-TI-M-71 both developed a preference for different landscapes: O18-TI-F-71 developed an attachment to the beach while O19-TI-M-71 developed an attachment to forests because of the different environments they grew up. Participant O18-TI-F-71 mentioned that “my parents lived on the edge of the village, and you could see very far. I could sit there for hours and watch the view.” Participant O19-TI-M-71 believed that his preference for “closed greenspaces” came from growing up in the city “because you are more locked up between houses.” Landscape type preference seems to be strongly related to the environment when growing up, and thus a fundamental variable to developing greenspace attachment from a young age.

When I walk in a forest, I feel like I’m suffocating, that everything grabs me, and I have to watch out for every tree stump—O18-TI-F-71.

A forest gives me peace, trees are still there when you are dead and were there before you were born, life goes on. She says that every tree is the same, but I see that every tree is different. I can appreciate the open landscape that it is beautiful, but it is not something I feel comfortable with, and I have that more with a wooded environment—O19-TI-M-71.

Most participants developed a preference for a landscape type during childhood and maintained their preference during the life-course. Participant O9-TI-M-68 grew up in the outskirts of Bergen op Zoom nearby the Oosterschelde. He developed a strong connection to the sea: “The vastness, the openness of the space. Perhaps it is a remnant of my youth when I had such a wonderful view over the Oosterschelde.” He enjoys swimming in the sea and he and his wife have a holiday home close to the sea in Zeeland. On the contrary, he has no connection to forests: “I would not want a holiday home in

the forest, that’s too limited for me, too small, it does not appeal to me.” Participants experienced feelings of tranquillity, safety, and nostalgia when visiting their preferred landscapes. Landscape preference influences the spiritual connection and psychological attachment participants develop with greenery. Moreover, a visit to their preferred landscape would maximise their mental restoration.

What I really miss is the beach. I sometimes dream of walking along the beach, and I could feel the sand between my toes and at my feet. We never go there anymore but [the beach] has a very special place for me—O18-TI-F-71.

Since participants are unable to visit the beach and the sea frequently due to distance from home, accessibility, and the necessity to plan an itinerary to the beach, they choose to visit similar “open spaces” such as polders or meadows (Figures 5A,B) to meet comparable feelings of satisfaction. However, their restoration would not meet similar levels as they receive from a visit to their favourite places, meaning that not every greenspace has the same restorative effect on people. Consequently, some respondents feel more connected and restored to their preferred landscape because it has a resonance that reminds them of the natural environment they grew up in, to family visits, or significant life events.

3.3 Childhood family visits to green- and bluespaces

The personal histories of the participants revealed that childhood family visits to greenspaces were the main reason to develop a connection to green- and bluespaces beyond the neighbourhood, such as the beach or national parks. Traditionally in Dutch culture, frequent visits to the beach, the sea, and the forest are representative of a healthy lifestyle (Beugelsdijk et al., 2019). Every year as a child, O11-TI-M-70 visited the beach and the sea in Vrouwenpolder with his parents. In later life, he still visits the beach and the sea for health and restorative benefits. In the Netherlands, beach visits remain popular with families with young children because children like to play on the beach with shovels and buckets and dig canals or construct

sandcastles or play football or frisbee. As a child, the parents of O8-BR-F-62 would take her and her sister every year to the beach in Zandvoort and they would stay in a beach house for the entire duration of the summer break. Yearly visits to the beach assisted in her developing a spiritual connection to the beach.

I actually prefer the seawater to the forest. That is my preference for the beach, so sometimes we drive towards the beach, whether you go to Vlissingen or Scheveningen, as long as you see the beach—O8-BR-F-62.

Her quote reveals that visiting blue- or greenspaces for restorative reasons, the landscape type is more important than the location. She mentioned the beach at Zandvoort for her childhood memories, although she is indifferent in visiting beaches elsewhere, placing nostalgia and remembrance secondary to mental restoration. This observation was verified by stories of other participants including O5-TI-F-63, O9-TI-M-68 and O11-TI-M-70. Other participants, such as O17-TI-M-62 and O19-TI-M-71, developed an attachment to forests or national parks. As a

child, the parents of O17-TI-M-62 took him every Sunday afternoon on a walk in a national park named the Meinweg (Figure 6A). He developed a fascination for mushrooms (Figure 6B), which were only found in the Meinweg: “Those mould cultures have an atmosphere of transience- mould smells like rot, but it is still beautiful and that fascinated me. The combination of transience to beauty.” When he moved to Amersfoort as an adult, he developed an attachment to the Hoge Veluwe national park and to the Kröller-Müller Museum because of his profound interest in art. Once he moved to Tilburg, he stopped visiting the Meinweg but continue to visit the Hoge Veluwe in combination to the Kröller-Müller Museum. Although he no longer visits the Meinweg, the place remains important to him due to fond childhood memories from visits with his family:

I come here [the Veluwe] every year two or three times in combination with a visit to the museum. I am also an art lover, so there [the Veluwe] has my preference—O17-TI-M-62.

Participants who visited the beach, the sea, and forests frequently during childhood have positive memories and experiences and thus

A



B



FIGURE 5
Impression of “open spaces”, pastures (A) and meadows (B).

A



B



FIGURE 6
Impression of the Meinweg (A) and mushrooms (B).

developed a strong attachment to those places. Continued visits to these places' foster feelings of nostalgia, restoration, and pleasure, which are crucial to uphold attachment. However, the availability, accessibility, and distance from home to places meaningful to participants play a critical role in how frequently people can use or visit these spaces to support their personal or emotional needs.

3.4 Frequency of greenspace visits

The personal histories of the participants revealed that their attachment or detachment to greenspaces are influenced by the frequency of visits to their preferred greenspaces. Participants reported changes in frequency of greenspace visits between and in-between the child phase, teenager phase, adult phase, and older adult phase. Participant O15-TI-M-83 mentioned that his frequency of greenspace visits was influenced by his physical inability to walk, and his wife is unable to push his wheelchair due to her physical limitations. The only times he visits the Leijpark in Tilburg is when his son is visiting. Participants O14-TI-F-79 and O17-TI-M-62 mentioned that asphalt paths in local parks are more accessible for wheelchairs compared to unpaved paths in forests which limit their greenspace visitation.

Figure 7 present a figurative visualisation of perceived frequency of greenspace visits across different life stages based on the past and present life experiences of the participants. Per life phase, participants reported social changes that influenced their present or past greenspace use. For example, in the older adult phase entering retirement is a major social change that positively influences frequency of greenspace visits. In the adult phase, having children and pursuing a career/work-life balance are major social factors that increase or decrease greenspace use. Female participants reported that their frequency of greenspace visits changed according to the age of their children: as a young mother, participant O10-TI-F-68 took her children regularly on a walk around the park, but when her children grew older, they prefer to spend more time with friends and not in nature. Therefore, the

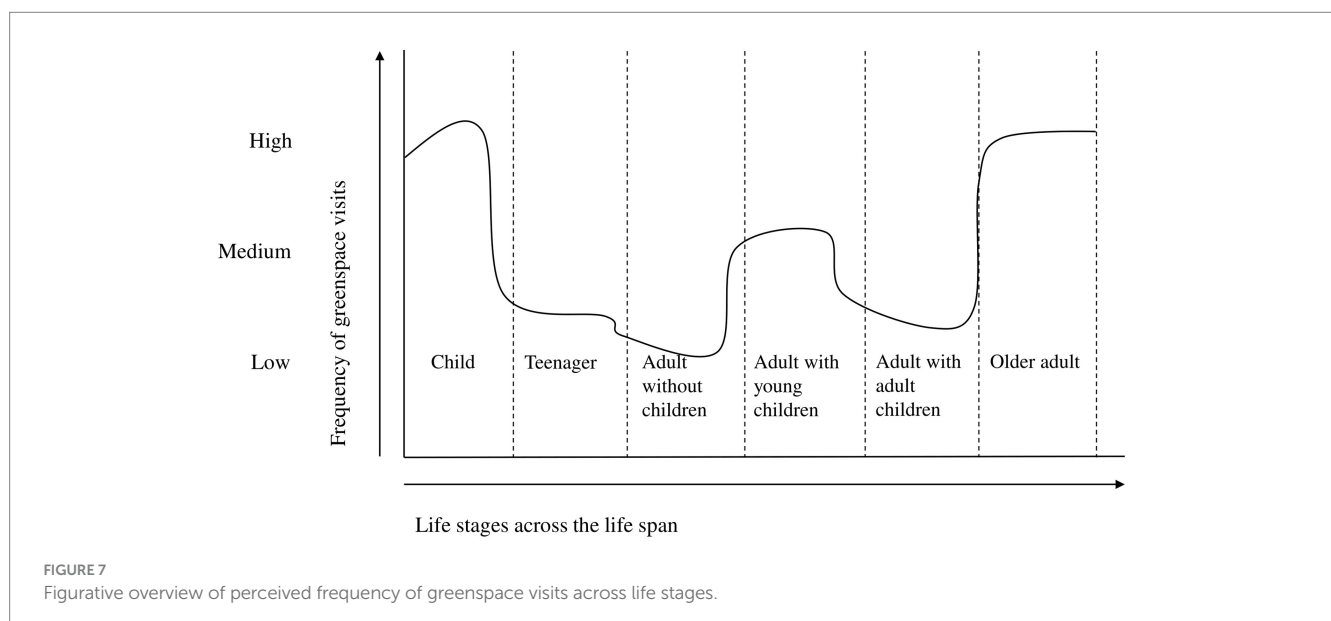
adult life phase was divided into having no children, having young children, and having older children. Other social factors reported by participants were having a dog, personal interests or hobbies within nature, and volunteering. For example, participant O5-TI-F-63 goes out on daily walks in local greenspaces walking her dog. The changes regarding the frequency of greenspace visits across the life-course suggests that greenspaces should be designed in a multifunctional and intergenerational manner that serves the need/s of local communities to strengthen attachment.

3.5 Greenspace perceptions and psychological and wellbeing benefits

Participants perceive “green” as a vital part of human life and their local environment. How participants perceive greenspace, and if participants being aware of the psychological and wellbeing benefits greenspace has in their lives is a direct consequence of their greenspace attachment. Participants such as O1-BR-M-69 and O3-BR-M-64 mentioned that they continuously had a form of greenery around them across the life-course. When being asked why greenery plays a role in their lives, participants struggled to explain why greenery is a significant part of their lives. However, they became more aware of its psychological and wellbeing benefits when growing older.

The living environment was green, but I didn't use it in my opinion. What you used to take for granted in your youth, you didn't think about it then but then you think about it now, I am happy that it's there [greenery]—O9-TI-M-68.

During childhood and as teenagers, their value and appreciation of green was limited because they did not think about “greenspaces” as places of health, wellbeing, or social inclusion. As (older) adults, participants O11-TI-M-70, O20-BR-M-80 and others stated that they became more aware of what greenery means to their health and wellbeing, and experience greenspace more consciously.



As a child, you are busy in your own world and when you are a young adult, you are way too busy with your own things like work and your children and so you have other things that distract from nature. Every age has its own experience—O10-TI-F-68.

Participants mentioned that they never thought about what it would be like to see or experience no “green” in their everyday lives, stating that they would miss it if it was no longer present. Consequently, participants appear to appreciate the value of greenery around them, however, they also seem to be unaware that seeing and experiencing streetscape greenery might be critical in maintaining their attachment to greenery more generally. It may be the case that seeing streetscape greenery has a subconscious restorative function via proximity and/or amenity which is supported by [de Vries et al. \(2013\)](#), but they may not be aware of the indirect restorative function of everyday greenery because it is a matter of normality.

I think green is one of the most important happiness factors that a person does not experience on a day-to-day basis but would experience if it is not present anymore—O11-TI-M-70.

All participants appreciated greenspaces, although for different reasons, and enjoyed the perceived positive psychological and wellbeing feelings that flowed when using them. These feelings help to both develop and maintain a bond to greenery. Participants believed that their appreciation of greenspace was highest in older age, i.e., those over 60 years old, because they had gained knowledge of what greenery means to them, what it means for their liveability and wellbeing, and what characteristics they value when visiting greenspaces.

3.6 Local flora and fauna

Biodiversity has a prominent role in maintaining greenspace attachment. Participants reported that biodiversity positively enhances

their nature experience and appreciation of greenspaces more generally. Some participants prefer to visit greenspaces where they can see a variety of colourful flora, as seeing only “green” can become monotonous and unexciting, supported by [Hoyle et al. \(2018\)](#). Beautification of greenspaces, such as adding wildflowers and flowerbeds in parks, was said to instil a sense of belonging, inner peace, and restoration. Birds were also identified as an important enhancer to the nature experience ([Buxton et al., 2021](#)). For participants O10-TI-F-68, O14-TI-F-79 and O15-TI-M-83, hearing bird sounds in the countryside or forests evoked a sense of belonging to the world and happiness. A profound interest in birds motivated participant O12-BR-M-63 to volunteer at the local bird sanctuary.

When I hear the birds in the forest, I feel like I am really outside—O10-TI-F-68.

Participants also reported observing a decline in biodiversity in forests and countryside compared to the past. Participant O12-BR-M-63 noted fewer bird species in the fields, and participant O19-TI-M-71 noticed a decrease of insect abundance during forest walks. This observation was made by participants who grew up in the countryside. Participants O1-BR-M-69, O6-BR-M-67, and O7-BR-F-62 argued that land consolidation and intensive farming practices, are the main contributors to the disappearance of biodiverse landscape elements like hedgerows and wildflower meadows, to make way for arable land and livestock pastures, which is supported by [van der Woud \(2020\)](#).

Back in the days, the fields had different flora and fauna, and it has changed; water management has changed, ditches were straightened. Ditch sides were colourful and flowerful, but now there is an obligation to mow. It is a very different sight from what it used to be—O6-BR-M-67.

Former farmers, O1-BR-M-69 and O6-BR-M-67 did not appreciate local flora and fauna because their livelihoods depended on

TABLE 3 Overview of the results divided by themes.

Themes	Summary points per theme
Environment when growing up	<ul style="list-style-type: none"> • Foundational space to develop greenspace attachment during childhood. • People growing up in rural areas are more likely to be exposed to different types of greenspaces compared to urban areas. • People can develop attachments to multiple greenspaces independent of their life stage and typology.
Landscape type preference	<ul style="list-style-type: none"> • Most people developed preference during childhood. • Exposure to “open” (pastures) and “closed” (forests) spaces invites people to develop connections to their preferred space. • Restorative benefits are greater when visiting their preferred landscape type.
Childhood family visits to green- and bluespaces	<ul style="list-style-type: none"> • Possibility for children to develop attachment to spaces beyond the neighbourhood borders. • Distance from home and availability could impact the connection to these spaces in later life. • Traditionally, Dutch parents would bring their children to the beach or forests and thus they develop an attachment to these spaces. • Parents might prefer to use forests or beach, thus influences children preference for landscape.
Frequency of greenspace visits	<ul style="list-style-type: none"> • Frequency of greenspace visits changes across the lifespan and influence attachment or detachment to greenspaces. • Life stages children, adults with young children, and adults entering retirement report highest frequency of greenspace visits. • Personal and socioeconomic variables can increase or decrease frequency of greenspace visits.
Greenspace perceptions and psychological and wellbeing benefits	<ul style="list-style-type: none"> • “Green” is perceived as a vital and essential part of human life and the living environment. • Appreciation for greenery develops over time. • Being around greenery becomes a normality, but people would miss it when it is not present anymore.
Local flora and fauna	<ul style="list-style-type: none"> • Biodiversity enhances nature experience and restoration. • Changes in fauna are observed through frequent greenspace visits over time.

yield from their farmlands. They chopped down the trees next to their farmland because falling leaves get stuck between crops endangering their livelihoods. When retired, their appreciation for flora and fauna became stronger because of their knowledge and interest in plants.

An overview table of the key findings per theme is presented in Table 3.

4 Discussion

This exploratory qualitative study explored the development trajectory of greenspace attachment across the lifetime. By evaluating older people's lived experiences and recollections on their relationships with nature over time, environmental planners and landscape professionals can better understand the factors influencing the development and maintenance of emotional connections to greenspace and the complex relationships in-between age, place, and types of greenspace. Place attachment and life-course theories provide valuable frameworks to explore how people, independent of their life stage, develop and maintain emotional and psychological connections to greenspaces through personal experiences, upbringing, social interactions, and cultural significance (Cross, 2015; Korpela and Hartig, 1996; Pearce et al., 2016; Roe et al., 2017). Within these debates greenery holds a significant role within people's lives through their life-course and is reported as being directly connected to their perceived liveability, sense of self, and preferred locations for mental restoration (Douglas et al., 2017; Li et al., 2021). Participants' personal histories made it possible to explore the various reasons people feel connected to a space over time as well as identifying crucial life stages and life events to develop a deep sense of attachment to greenery.

Crucial factors that promote the development of greenspace attachment from a young age were environment growing up, the childhood life stage, and childhood family visits to blue- and greenspaces. To maintain their emotional bond to greenspaces, frequent visits to spaces that participants' have built a connection with and to their preferred landscape type for mental restoration. Spatial factors such as exposure to local flora and fauna, experiences of weather and seasonal events, to different types of natural environments, and accessibility and visibility of local greenery, and social factors like entering retirement, having young children also influence both the development and fostering of attachment to greenspace. These spatial and social factors are key areas to be actioned by decision-makers. This exploratory study showcased the complexity of spatial and social variables, as well as personal experiences and life events that positively or negatively influence greenspace attachment over a lifetime. A major finding in this study is that the lifespan approach reveals variations in the frequency of greenspace visits across different life stages (see Figure 7). The paper's discussion highlighted that within the adult life stage there are distinct differences in greenspace visits between families with young children, childless families, and families with older children as confirmed by Dasgupta et al. (2022). This study showed that older people use greenspaces more frequently than in other life stages, particularly when entering retirement. This study has expanded the relational perspectives on how greenspace attachments are developed and sustained in later life, capturing the social aspects that are not always addressed in place literature (Degnen, 2016). Through an examination of everyday experiences, social memory, and senses of belonging, this study provides a richer understanding of how

these factors contribute to the fostering of greenspace attachments in older individuals, as argued in Degnen (2016). Participants reported enjoying visits with their partner, grandchildren, neighbours, or dogs, rather than visiting alone, as corroborated by Arnberger et al. (2022) and Enssle and Kabisch (2020). Some participants noted barriers to accessibility, such as a lack of wheelchair friendly paths or poorly maintained pavements which can discourage people from using local greenspaces (Freeman et al., 2022; Hand et al., 2018). This was the case for urban forests Liesbos and Mastbos in Breda, and Oude Warande in Tilburg. Urban parks like park Valkenberg in Breda and Leijpark in Tilburg feature paved paths making them accessible for individuals in wheelchairs and with prams. Both parks have a variety of elements such as ponds, flower beds, shrubs, trees, and well-maintained grass areas to use for activities such as play and socialising. A variety of greenspace attributes and colours positively influence people's use and aesthetic response (Hoyle et al., 2018). Colley and Craig (2019) discussed that an awareness is needed within design and management of greenspaces to ensure their functionality for users. Participants also mentioned that over time most of their childhood environments have been built upon and the distance to natural environments has increased, making it more difficult for children in the present day to develop an attachment to greenery. This is problematic since strong attachments could lead to environmental stewardship, pursuing careers in the environment and sustainability (Stedman, 2002), and improved health and wellbeing (De Keijzer et al., 2020). Environmental planners and designers should identify gaps in current neighbourhood greenspace provision to ensure equitability and accessibility for all community members within walking distance, i.e., 300 m, from people's homes (Gilroy, 2021). Increased engagement and feedback to local authorities could help them to design in well-maintained, safe, and accessible outdoor spaces for all (Garrido-Cumbrera et al., 2020). Such provisions would enable older people, regardless of their physical abilities, to continue enjoying greenspaces as long as their health permits. This has important implications for policy, especially in the context of rapidly ageing societies like the Netherlands. Planners and landscape architects should be aware of these aspects when it comes to developing and designing multi-functional, inclusive, and intergenerational greenspaces that promote life-long physical and psychological wellbeing.

Another finding of this study is that greenspace plays an essential role in each of the participants' lives and they recognise its restorative benefits when getting older. Moreover, their personal histories revealed that, independent of greenspace type and participant life stage, people continue to develop attachments to greenspace. Some develop attachments to more than one blue- or greenspace across their lifespan. The lifespan approach helped us to explore how and why greenspace attachment evolved over time reinforced by personal experiences, memories, preferences, life events, hobbies and interests. The data in this study revealed several key processes within the place attachment framework of Cross (2015): (1) the power of sensory experiences, where meaning develops and expands through ongoing interactions; (2) the power of spiritual experiences, as participants express deep personal feelings and belonging to green and blue environments like the sea, beach or forests; and (3) the role of narrative storytelling and key life events in shaping place attachments. The sample included arable farmers, who developed a strong attachment to greenery due to their occupation and interests in the living environment, although their appreciation for greenery grew when

retired. Future research should invest in gathering a wide range of participants with agricultural and environmental occupations and non-environmental occupations to investigate the role of environmental occupations to stronger attachments. Scholars argued that personal experiences and memories of greenspaces positively influence people's sense of liveability and self (Clark et al., 2017; Dasgupta et al., 2022), and potentially their psychological connection. Oral testimonies as methodological approaches have provided a deeper understanding into how personal experiences and memories shape attachments and identities over time (Thompson and Bornat, 2017), offering valuable insights for academic research, practical urban planning considerations, and design strategies that prioritise the multi-dimensional nature of greenspace attachment. In Breda and Tilburg, while participants perceived greenery as an important part of their local environment, many were less aware of its role in their day-to-day lives but would miss it if it wasn't there anymore. This study and other research illustrate that streetscape greenery is therefore important to people's mental wellbeing and restoration, sense of belonging, and therefore, promote liveability (de Vries et al., 2013; Zhang et al., 2015). The personal stories also revealed that people might be restored by all types of greenery, but personal preferences for landscape type potentially have a stronger restorative power than non-preferred spaces. This confirms that observing greenery unconsciously helps mental restoration and attachment (Egner et al., 2020; Kaplan and Kaplan, 1989; Ulrich, 1984). Besides streetscape greenery, green gardens can also strengthen attachments (Lauwerijssen et al., 2024). This could mean that independent of their typology, greenery assists in unconscious restoration which can help urban designers and environmental planners to make comprehensive decisions to green streets with cost-effective solutions such as shrubs and wildflower beds compared to more expensive solutions like street trees and grass meadows that require regular maintenance. Consequently, Dutch local governments should embed streetscape greenery in planning legislation to promote interactivity and liveability within their urban design. However, contradicting the positive associations with greenspaces and sense of place, only four participants stated that they would actively seek homes near greenspaces if relocating. This suggests that a universal appreciation of greenspace remains elusive, even within a predominately supportive community. Consequently, we argue that personal experiences of greenspace helped participants develop a conscious understanding and awareness of greenery's role in supporting their liveability and sense of belonging throughout their lives.

We also found that the childhood life phase and the environment one grows up are crucial in developing an emotional connection to greenspace from a young age (Louv, 2008). This greenspace attachment forged in childhood acts as a grounding for the continued (although variable) use of greenspace across the lifespan and the growing awareness of its psychological and wellbeing benefits (Cleary et al., 2020). The majority of participants developed an attachment to greenspace during their childhood, influenced by factors such as proximity, accessibility, frequency of usage, availability as spaces for play or visits with parents and family, factors confirmed in the research of Calogiuri (2016) and Colley and Craig (2019). Exploration and play help participants to develop an attachment to greenspaces near the parental home, while family visits help to connect to blue- and greenspaces beyond the neighbourhood borders (Bauer et al., 2012;

Hand et al., 2018). In Dutch culture, people often visit forests, mountainous landscapes or the sea for physical and psychological benefits (Beugelsdijk et al., 2019), and potentially create attachment to these spaces. In these cases, the choices of green- or bluespaces to which participants from childhood are to an extent structured by family resources, social class, and or lifestyle practices (Ambrasat et al., 2016; Reay, 2015). Future research should explore the role of lifestyle practices and class in shaping attachments in locations beyond just the neighbourhood. Some participants who had developed an attachment to the beach during childhood were unable to maintain this connection in later life due to distance from home and reduced (physical) mobility. This observation highlights the lasting, spiritual connection individuals can develop with a place (Cross, 2015). Instead, they sought out similar landscapes such as pastures or open fields that evoked memories of beach visits, though they did not experience the same restorative feelings reported by Game and Metcalfe (2011). Few participants mentioned that when they visit the beach and the sea, they took off their shoes to feel the sand between their toes, confirming the findings from Rickard and White (2021) that barefoot walkers had higher connectedness and restoration. Future research could focus on visual and auditory experiences in relation to greenspace attachment.

Most participants grew up in an environment surrounded by multiple landscape types and greenery, allowing them to choose spaces for their activities. Their preference for certain landscapes continued throughout their lives, and frequent visits and usage of these preferred spaces helped to sustain their attachment across a lifetime. Growing up in a home environment surrounded by different types of greenspaces such as pastures and forests aiding individual connections and interactivity with/to nature can have a positive impact on health and wellbeing (Łaszkiwicz et al., 2018; McGrath et al., 2024). This knowledge can assist planners and landscape architects in designing inclusive greenspaces that enable people with preferences for "closed or open" natural environments to experience feelings of restoration and/or safety. In contrast, participants who grew up in urban areas often lacked access to diverse greenspaces nearby, and their parents were less inclined to take them to larger or more diverse greenspaces, preventing the development of similar attachments (Colley and Craig, 2019; Roe et al., 2017). This highlights the importance of ensuring accessible and equitably distributed urban greenspace, as the quality of people's relationship with nature can be impacted by poor provision (Douglas et al., 2017; Hand et al., 2018). Understanding the motivations underpinning why people feel connected to greenspace can help planners (and academia more generally) to strategize regarding the siting of future greenspaces to facilitate more sustainable urban development.

4.1 Limitations and directions for future research

A key limitation of this study was the lack of ethnic diversity in the sample. The older generation in the Netherlands is predominantly White, with most non-White individuals being younger than 60 and thus outside the study's age criteria (CBS, 2021). Greenspaces have been perceived as spaces that can foster racial exclusion (Haycox et al., 2025) and segregation (Kephart, 2022), underscoring the importance

to capturing the diverse experiences of individuals from various racial and ethnic backgrounds. Previous research has shown that ethnic minority groups, such as those of Turkish or East Asian descent, can have different perspectives on greenspaces compared to White individuals (Özgüner, 2011; Wu et al., 2014). Future research should aim to include participants from diverse cultural backgrounds to investigate how, for example, cultural heritage and environmental justice issues relate to greenspace attachment. Other directions for future research could explore greenspace attachment from the perspective of rural residents, or conduct comparative studies between urban and rural areas, different cities in the Netherlands, or even international comparisons.

Additionally, the study had fewer participants than expected, which may have affected the generalizability of the findings. The management of several senior homes denied access due to safety concerns for their residents, while access to community centres was gained through gatekeepers. At the community centres, more older people expressed interest in the study but chose not to participate, believing their life stories were unimportant and would not be beneficial and influential for policy or research. After the interview, participants disclosed they felt empowered and heard as they were given a platform to share their stories and experiences. To address these limitations, future research should invest in participant recruitment by (1) utilizing gatekeepers to access a more diverse participant pool, and (2) building trust with senior home management to facilitate access to explore cultural contexts.

4.2 Implications and conclusion

This exploratory study has revealed crucial spatial and social factors, life stages, and life events that are associated with the development and nurturing of greenspace attachment across a lifetime. The findings emphasise the importance of the childhood life stage, the environment one's growing up, and parents' interest in nature as crucial factors for the development of greenspace attachment at a young age, and frequent visits to preferred greenspace, significant life events, and landscape type preference as crucial factors to nurture greenspace attachment over a lifetime. Despite these enabling factors, significant challenges exist such as greenspace accessibility and availability for preferred activities pose ongoing hurdles to greenspace usage and forming attachments. The research findings emphasise the significance of childhood exposure to and appreciation of greenspaces. With more children being born and raised in urbanised areas with limited access to greenery, policymakers, urban planners and designers face the challenge of enhancing the availability and accessibility of greenspaces within cities. Moreover, this study revealed the diverse personal and socio-economic variables that influence attachment or detachment to greenspaces, affecting their individual and community health and wellbeing.

Policymakers can support the development of this greenspace attachment by prioritising the creation and preservation of high-quality green infrastructure in and outside urban environments. These spaces should foster lifelong interactions and usage through intergenerational design to accommodate the needs of all. This may entail initiatives such as expanding neighbourhood parks, improving accessibility for older adults with mobility limitations, improving street design by planting streetscape greenery, and designing green

features that encourage active use and exploration. Furthermore, public education initiatives can raise awareness of the health and social advantages associated with greenspaces, empowering residents to serve as stewards of their local environments (Dacks et al., 2021). A policy focus on nurturing greenspace attachment has the potential to foster more liveable, sustainable, and equitable communities that promote the overall wellbeing of their residents.

Our exploratory study contributes to the literature in ways by illustrating:

- Highlighting that independent of greenspace type and participant life stage that people develop attachments to greenspace;
- Supporting the view that greenspace attachment developed during childhood can continue to develop over time towards a greater appreciation of greenspace within a person's life;
- Examining the role that parents play in developing childhood greenspace attachment to places beyond the local neighbourhood;
- Showing how and why the frequency of greenspace visits changes between life stages;
- Illustrating that people develop a spiritual connection to a landscape type rather than to greenspace per se;
- Showing the value of oral testimony method in investigating people's connection to greenspaces across the lifespan.

Moving forward, it is important to recognise the lifelong impact of these connections and to continue exploring how greenspace attachment can inform design, planning, and management to create inclusive and supportive greenspaces to better cater to the needs and preferences of all age groups, ultimately contributing to a more age-friendly and inclusive urban environment.

Data availability statement

The datasets presented in this article are not readily available due to ethical restrictions. Requests to access the datasets should be directed to Rachel Lauwerijssen, rachel.lauwerijssen@manchester.ac.uk.

Ethics statement

The studies involving humans were approved by the Institutional Review Board of The University of Manchester (2018-5822-7720). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

RL: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Visualization, Writing – original draft, Writing – review & editing. IM: Conceptualization, Supervision, Writing – original draft,

Writing – review & editing. AB: Conceptualization, Supervision, Writing – original draft, Writing – review & editing.

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