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Nature as Place Attachment: An Analysis of Immigrant Women's Relation to Urban Green Spaces in Lisbon

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Master in Psychology of Intercultural Relations

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CIÊNCIAS SOCIAIS
E HUMANAS

Department of Psychology

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In memoriam of Edward Czerwinski, whose insight and kindness continue to guide me, and my cat Vladislav, whose steady and loving companionship carried me through many long nights.

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Resumo

A integração bem-sucedida das populações imigrantes está a tornar-se um tema cada vez mais importante entre os decisores políticos da União Europeia. Os imigrantes enfrentam desafios distintos, incluindo riscos elevados para a saúde mental e física, o que justifica uma maior atenção aos fatores ambientais que podem apoiar a adaptação ao país de destino. Pesquisas anteriores estabeleceram que a exposição à natureza promove maior vinculação ao lugar entre os imigrantes, mas o impacto de fatores como a inclusão percebida (especificamente relevantes para mulheres migrantes) e a conexão com a natureza nessa relação, ainda são pouco explorados. Este estudo investiga como a exposição à natureza se relaciona com a vinculação ao lugarentre mulheres imigrantes em Lisboa, Portugal, e se as percepções de inclusão ou conexão com a natureza moderam essa relação. Foi realizada um inquérito com 158 mulheres migrantes que vivem em Lisboa. Os resultados indicaram que a inclusão percebida moderou significativamente a relação em níveis baixos, sugerindo que as mulheres que se sentem menos incluídas obtiveram mais benefícios da vinculação ao lugar, com a exposição à natureza. Os resultados destacam como a inclusão social proporcionada pelos espaços verdes molda criticamente a vinculação, oferecendo informações para a formulação de políticas urbanas e a compreensão conceitual do papel da natureza na integração das mulheres imigrantes.

Palavras-chave: Vinculação ao lugar; Exposição à Natureza; Mulheres imigrantes; Inclusão; espaços verdes de Lisboa

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Abstract

Successful integration for immigrant populations is becoming an increasingly important topic among European Union policymakers. Immigrants face distinct challenges, including heightened risks to mental and physical health issues, warranting greater attention to the environmental factors that may support adaptation. Previous research has established that nature exposure promotes place attachment among immigrants more broadly, yet factors such as perceived inclusivity and connectedness to nature are underexplored. The present study delves into how nature exposure relates to place attachment among immigrant women in Lisbon, Portugal, and whether perceptions of inclusivity or connectedness to nature moderate this relationship. A cross-sectional survey of 158 migrant women living in Lisbon was conducted. Results indicated that perceived inclusivity significantly moderated the relationship at low levels, suggesting that women who feel less included derived more attachment benefits from nature exposure. The findings highlight how the social inclusivity of green spaces critically shape attachment, offering insight into urban policy making and the conceptual understanding of the role of nature in the integration of immigrant women.

Keywords: Place Attachment; Nature Exposure; Immigrant Women; Inclusivity; Lisbon Urban Green Spaces

PsycINFO Classification Codes:
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Introduction

As the number of global migrants has been increasing over the past five decades, with an estimated number of 304 million people living outside of their home country (Nations, n.d.), recent literature has focused on immigrant populations that are increasingly susceptible to negative mental health outcomes. The need for governments to invest resources towards mitigating migrant health consequences is crucial to intercultural success.

The International Organization for Migration (IOM) describes a migrant as "a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons," (International Organization for Migration, n.d.). The United Nations (UN) defines an immigrant in the European Union (EU) as "a person who establishes their usual residence in the territory of an EU Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another EU Member State or a third country." (Migration and Home Affairs, n.d.). Although international consensus on these definitions remains to be solidified, the present study uses the terms migrant and immigrant to refer to foreign-born individuals who have established temporary or permanent residence in another country.

Migration itself is often accompanied by heightened stress, marginalization, and discrimination, all of which impact psychological well-being (Berry, 2005; García-Cid et al, 2020; Leirias et al., 2024; Schmitt et al., 2014). Restorative green spaces such as parks, gardens, wildlife areas, natural reserves can provide continuity across life changes (Gao, Bosman, & Dupre, 2020) and serve as spaces of belonging and recovery from the strains of displacement. In fact, recent literature suggests greater exposure to natural environments (e.g. parks, woodlands, community gardens, street trees, and beaches) is associated with better health and well-being outcomes across generations (Gao, Bosman, & Dupre, 2020; Hartig & Kahn, 2016; Jimenez et al., 2021; White et al., 2019).

Living in greener urban areas has been associated with lower cardiovascular and mental health risks, including reduced depression and anxiety and improved well-being (Astell-Burt, Feng, & Kolt, 2013; Gascon et al., 2016; Halonen et al., 2014; Jimenez et al., 2021; Kardan et al., 2015; Mitchell et al., 2015; Reuben et al., 2022; Yao et al., 2021). Accordingly, green spaces like urban parks and gardens may provide critical support for migrants' well-being while navigating their new territory and experiences, including discrimination. Given rising anti-

immigration and anti-climate change sentiments in parts of Europe and the United States, integrating migrants through inclusive, nature-based initiatives is increasingly vital (Forchtner & Lubarda, 2023; Lockwood & Lockwood, 2022). The European Commission has accordingly prioritized programs that encourage the integration of migrants through the promotion of activity in natural environments to foster social cohesion, particularly targeting migrant women who often face intersecting barriers to inclusion and access to public spaces in host countries (European Migration Network, 2021; European Institute for Gender Equality, 2023). Lisbon, a rapidly diversifying European capital, provides an important context for examining how everyday environments foster belonging and connection to place.

Place attachment, the connection between person and place, supports the acculturation process (Ager & Strang, 2008; Albers et al., 2021; Lovelock et al., 2011). While place attachment is linked to a higher quality of life and community involvement (Manzo & Perkins, 2006; Rollero & De Piccoli, 2010; Scannell & Gifford, 2017), immigrants often experience weaker attachment compared to native-born residents (Lewicka, 2010). Understanding the factors that can foster place attachment among immigrants is thus important for both theory and practice. This thesis acknowledges that the most important measures to support migrants' integration in a new country are inclusive and progressive policies that support equal opportunities, rights, and access to social, economic and civic life (Solano & Huddleston, 2020; Solano et al., 2024), as well as targeted public interventions such as language training, labor market access, and education systems that support integration (Council of Europe, 2020). However, this thesis aims to explore how nature's influence may augment successful migrant integration via place attachment, particularly for migrant women. The distinction of migrant women is warranted because their experiences differ from those of men, shaped by intersecting vulnerabilities such as gender-based violence, limited support networks, and spatial exclusion (Crawford et al., 2024; Gonçalves & Matos, 2016; Linares, 2004; Rozanova-Smith et al., 2025).

In sum, there is minimal research from a social and environmental psychology perspective on the impact of connectedness to nature and perceptions of inclusivity on the nature-attachment relationship. Accordingly, this thesis examines perceived inclusivity (through the lens of environmental justice) and connectedness to nature as gateways to integration.

Chapter 1

Literature review

1.1 Environmental Psychology Frameworks

With the progressively alarming realities of climate change, climate refugees could reach upwards of 1.2 billion people displaced by ecological threats and natural disasters in the near future (Joanna Apap & Sami James Harju, 2023). Environmental change has a clear influence on the well-being of immigrants as they are driven to change their homes, social networks, employment, and relationships with familiar environments. Such disruptions highlight the importance of understanding how people psychologically adapt to new environments.

Environmental psychology theories provide the framework for understanding how nature exposure might impact individuals' perceptions and feelings of place. Kaplan's (1995) attention restoration theory posits that solely seeing nature is an effective way of de-stressing and improving well-being through replenishing attentional capacity and restoring directed attention and reducing mental fatigue. Stress recovery theory posits that viewing or being in nature triggers a positive affective response that lowers stress and physiological arousal (Ulrich, 1991). Dose-response research has further illustrated that some of the benefits of nature depend on the amount of exposure. For example, large-scale studies show that spending at least 120 minutes per week in nature is associated with significantly higher well-being and health (Shanahan et al., 2016; White et al., 2019). Interaction with the natural environment may also improve mood (Bowler et al., 2010), attention, mental fatigue, stress (Hansmann et al., 2007), social cohesion and well-being (Lorentzen & Viken, 2022). Park et al. (2010) found that forest bathing, or Shinrin-yoku, could lower concentrations of cortisol, lower pulse rate and blood pressure, increase parasympathetic nerve activity and lower sympathetic nerve activity. These set the foundations of theory in how spending time in nature can improve mood and cognitive function, which may in turn make people feel more positive about the environment in which these experiences occur. Positive restorative experiences as such could potentially help strengthen emotional bonds to that location.

First popularized by E.O. Wilson (1984), the concept of biophilia refers to humans' innate affinity for nature. Further explored by Kellert and Wilson (1993) emphasizing humans' gravitation towards environments that fulfilled adaptive needs. In modern research, the biophilia concept explores social and environmental psychology to broaden the scope of the term to

include cultural and experiential dimensions. Scholars argue that biophilia is not only hard-wired, but can be nurtured (Panagopoulos et al., 2021). For example, architecture has embraced biophilic design, the practice of consciously incorporating nature into urban architecture to promote well-being (Hung & Chang, 2024). Urban planning choices shape who benefits from green infrastructure. Recent literature points to how greening projects can contribute to gentrification dynamics and consequences (Anguelovski et al., 2022), making mitigations techniques like inclusive infrastructure and policies more important.

These global discussions around inclusive urban design are particularly relevant in cities undergoing rapid diversification. In the last thirty years, Portugal has transitioned from one of the strictest immigration countries, to one of the most inclusive (Arantes Zanetti, Cogo, & Luvizotto, 2025). The Portuguese agency for Integration, Migration and Asylum (AIMA) reported that the immigrant population in Portugal reached over 1 million migrants in 2023, up 33% from the year before (Lopes & Sousa, 2024; Arantes Zanetti, Cogo, & Luvizotto, 2025), and cities like Lisbon are experiencing a major increase in diversity with growing immigrant communities (Tang et al., 2021; Koncz, 2024). This demographic transformation makes it essential to examine how everyday environments foster belonging and connection to place.

1.2 Place Attachment

Place attachment can be viewed as the emotional, affective, and cognitive bond between a person and a place (Boley et al., 2021; Lewicka, 2005; Low & Altman, 1992). Much like the international definitions for immigrant and migrant, place attachment is not consensually and unequivocally defined across disciplines (Cushing & Miller, 2019; Lewicka, 2011). Place attachment can be developed at multiple geographical scales from neighborhoods, to cities, to nations (Devine-Wright & Batel, 2017). Some find parallels in concepts such as rootedness, sense of place, and urban attachment (Hernandez, Hidalgo, & Ruiz, 2014; Inalhan et al., 2021). Place attachment has been often considered as being composed by place identity and place dependence (Boley et al., 2021). Place identity refers to the way a specific place becomes part of an individual's sense of self, while place dependence refers to how well a specific place serves an individual's goals or activity needs (Williams & Vaske, 2003). Some authors have also proposed a tripartite model that also includes the dimension of social bonding alongside place identity and place dependence (Fikri & Wahyudie 2025; Maricchiolo et al., 2021). Others advocate for separating this dimension as a separate component of place attachment (Fikri &

Wahyudie, 2025; Ramkissoon, 2016; Safarkhani, 2025), highlighting that focusing on the material and place components are ways to sharpen theory and measurement when researching physical environment attributes connected to psychological effects (Cushings & Miller, 2019). For the purposes of the present study, we will define place attachment as the attachment between people and physical locations (Inalhan et al., 2021) through the lens of environmental spaces such as parks, gardens, or neighborhoods (Freundschuh & Egenhofer, 1997).

Across migrant samples, attachment develops through repeated, valued activities that create continuity and meaning in new settings (Alhusban et al., 2025; Alirhayim, 2025). Research shows that visualization of place is enough to form an attachment to place and increase psychological benefits like need satisfaction and mood (Scannell & Gifford, 2017). Place visualization increased self-esteem, meaning, and belonging in settings where participants were ostracized (Scannell & Gifford, 2017). Identifying and implementing nature interventions for migrants may help alleviate feelings of loneliness, depression, and social ostracism, notwithstanding the structural and support needs of integration such as jobs, housing, and healthcare.

Well-being has been linked to place in a multitude of contexts (Manzo, 2014; Rollero & Piccoli, 2010; Scannell & Gifford, 2017) and can stem from memories, community, cultural and social significance (Fried,1963; Manzo, 2003). Several studies have shown that migrants' health, particularly mental health, is more at risk than non-migrants due to the multitude of unique stressors that they face (Apers et al., 2023; Hajak et al., 2021). In Europe, migrants are particularly vulnerable to negative health outcomes in the areas of maternal care, occupational health, and mental health (Rechel et al., 2013). Immigrants are linked to a higher risk of acculturative stress, poor social support, negative life events, and deprived socioeconomic conditions (Abebe et al., 2014). The variable backgrounds of migrant populations make up a heterogeneous group, which may contribute to stressors being incurred. This variability means migrants may have culturally informed conceptions of mental health preventing them from seeking proper assistance (Davy et al., 2023). Notably, The World Health Organization establishes mental health as not only a prevailing health concern, but also one that we should strive for in our international Sustainable Development Goals (SDG). These goals have been agreed upon by all UN members, including Portugal. Through goals 3.4 and 3.5, the organization hopes to reduce substance abuse and noncommunicable diseases, and promote mental health and

well-being by 2030 (WHO, 2024). Improvement in the natural environment, as distinguished in the SDG's, potentially acts as dual-improvement for the population as nature impacts mental health. While the present study recognizes that critical components of migrants' well-being lie in creating and implementing sustainable public policies, legislation, and infrastructure that welcome and support the lives of migrants (Perreira & Pedroza, 2019), the present study focuses on how urban green spaces may lessen impact from common barriers and challenges.

Place attachment and community engagement are deeply intertwined, with parallels in interpersonal dynamics and connections to community restoration and cultural involvement that drive community success. People with higher levels of place attachment are more likely to get involved in local activities, take pride in the neighborhood, and engage to improve it (Manzo & Perkins, 2006; Lewicka, 2005). Place attachment is shaped by experiences and social context, for example, length of residence and social ties have been shown to strengthen attachment to place (Lewicka, 2011). For immigrants with fewer local ties and shorter residence, this contributes to lower attachment (Lewicka, 2011). Jay and Schraml (2009) found that Turkish immigrants in Germany urban green spaces brought a sense of peace, nostalgia, and belonging, helping them identify with their new homeland. In their 2014 study, Jay and Schraml found that migrants' perceptions of their home landscapes influence how migrants perceive and use their newfound natural spaces. Drawing on interviews with Turkish and Russian-German immigrants in Germany, they found that recreation behavior is shaped by intersecting factors such as ethnicity, age, gender, and lifestyle.

Past experiences in nature, particularly those grounded in home country memories, have a positive relationship with current nature connection levels and may influence attitudes towards nature (Cleary et al., 2020; Lorentzen & Viken, 2020). In Lorentzen's (2020, 2021, 2022) qualitative analysis of 14 first-generation immigrant women in Norway, contact with nature was linked to improved well-being and emerging feelings of mastery, attachment, and belonging. Women highlighted the importance of social support, cultural sensitivity, and nostalgia in shaping their recreation (Lorentzen & Viken, 2020; 2022).

Research by Lovelock et al. (2011) on new and settled immigrants in New Zealand similarly identified the need of immigrants to "locate one's self in nature-based settings" as a pathway to migrant integration and sense of belonging. However, barriers such as unfamiliarity or exclusion can limit this process. Kloek et al., (2013) found that Muslim immigrant women in the

Netherlands often negotiated discrimination in outdoor spaces, which affected their capacity to form place bonds. Such findings highlight that attachment to place is entwined with identity, gender, and social positioning. For instance, in Lisbon's Mouraria, short and long-term mobilities co-occur and shape residents' attachments and community dynamics (Alba & Batel, 2024). This helps explain the more heterogeneous attachment pathways among migrants whose daily routes and durations differ not only from more settled residents, but also other migrants, highlighting the need for deeper and more specialized studies of immigrant subpopulations.

1.3 Immigrant Women and Intersectionality

Feminist geography, which examines how gendered power relations shape spatial experiences, emphasizes that place experiences are not uniform. Gender, ethnicity, culture, and other social positions intersect to shape how one feels in a place. Immigrant women in particular struggle with different health challenges, including but not limited to; depression, maternal care issues, exposure to violence, PTSD, cultural alienation, and abuse (Kirmayer et al., 2011; Chandra, 2010; Silva & Pereira, 2023). It is important to study women distinctively to best understand the negative impacts on mental health that are specific and pervasive in this subset of the population.

Women face more barriers than men in participation of outdoor recreation. Similar to general immigrant populations, they face additional barriers to safety (Lovelock et al., 2011), fear of persecution, as well as cultural and religious standards and restrictions (Jay & Schraml, 2014). Having a companion as a woman may enhance the perceived safety of an outdoor visit, in turn encouraging social and physical health. While immigrant men are more likely to visit green spaces alone or with friends, immigrant women are more likely to visit with family or in larger groups (Kloek, Peters, & Sijtsma, 2013).

Lorentzen and Viken's (2020) study found that women reported mood enhancement and positive effects of nature on mental state. Additionally, Lorentzen's (2020, 2022) data shows that nature significantly counteracted negative emotions or challenges experienced by migrants. Lorentzen's (2022) study builds on Scannell and Gifford's (2017) data showing the potential of nature to mitigate feelings of ostracism. Even without social interaction in nature spaces, just being in the natural site could benefit immigrant women because they can see and be surrounded by other people (Jennings & Bamkole, 2019; Lee et al., 2015b) Addressing issues of safety and inclusion can empower these women to partake in natural recreation, laying groundwork for strong place attachment. However, safety is only one element of a broader perception of

inclusion, the perceptions of these green spaces and who feels welcome, represented, and valued becomes equally important in shaping how nature is experienced.

1.4 Perceived Inclusivity of Green Spaces

Despite the general link between connectedness to nature, place attachment and well-being, recent work in critical urban geography and environmental psychology argue that "nature" and urban green spaces are socio-material constructs shaped by unequal power relations in neoliberal contexts, and as a result, can reproduce patriarchal, discriminatory, and exclusionary dynamics, particularly for vulnerable populations such as migrant women (Espinoza Suarez et al., 2024; Huang et al., 2024; Nguyen & Batel, 2021; Calderón-Argelich et al., 2023; Nobles & Moore, 2024). Further, heterogeneous populations of immigrants complicate research findings, as many of these studies operate with predominant WEIRD (Western Educated, Industrialized, Rich, Democratic) samples. Culturally specific norms in western nations are propped up as the 'correct' way to practice nature (Gobster, 2002; Henrich, Heine, Norenzayan, 2010; Kloek et al., 2013).

When it comes to participation in green spaces, barriers such as socio-economic constraints, perceived discrimination, unfamiliarity, lack of safety, and mental and physical fatigue may decrease likelihood of participation (Jay & Schraml, 2014; Kloek et al., 2013; Lovelock et al., 2011). However, in general, immigrants are shown to prefer managed green spaces over wilder landscapes (Byrne et al., 2009), highlighting the importance of equity and cultural sensitivity for vulnerable populations in these natural spaces. Social and cultural factors likely drive immigrants' preference for managed urban green spaces as immigrants seem to perceive and participate in greenspace recreation as an opportunity for socializing. (Kloek et al., 2013).

These patterns are evident in cities like Lisbon, where most urban green spaces were designed and built decades ago, not accounting for issues of diversity and inclusion leading to some groups feeling unwelcome (Gobster, 2002; Byrne et al., 2009). Moreover, some of the city's more recent green developments have raised concerns about green gentrification, a phenomenon where creating new parks or other green spaces can inadvertently push out lower-income residents (Anguelovski et al., 2022; Gould & Lewis, 2016). For example, the regeneration of waterfront districts in Lisbon has improved environmental quality but also attracted wealthier residents and pushed out lower-income communities (Anguelovski et al., 2022).

Perceptions of inclusivity include user's understanding of a park as safe, welcoming, and relevant to their cultural practices. Research shows that migrants may feel unwelcome in green spaces that prioritize the cultural norm (Edge et al., 2023; Gorodzeisky & Semyonov, 2019; Palmer et al., 2025). Some barriers to participation include perceptions of discrimination, language or information gaps, culturally misaligned facilities or habits, and safety issues (Kloek et al., 2013; Gobster, 2002; Edwards & Weldon, 2006; Rishbeth & Finney, 2006). Cues that evoke home, nostalgia, and new experiences or novelty, have been shown to shape migrants experiences, where familiar landscapes or social practices can influence belonging, while unfamiliarity can inhibit their use (Rishbeth & Finney, 2006). For recently arrived women, clear information and pro-inclusion cues like multilingual signage and diversity of users can increase comfort (Lorentzen & Viken, 2022; Peters, 2010). Internationally in the United States, urban green spaces were redesigned to bring nature to socio-economically disadvantaged populations. However, patrons of these spaces are still predominantly white, affluent, local, and underserve minority populations (Byrne et al., 2009), indicating there is more work to do. Unfamiliarity of culture and language surrounding the use of green spaces plays a role in participation. For example, minorities are less likely to use natural spaces when signs are not inclusive of their language (Byrne, 2012). A language barrier could inflame hesitancies and increase the socio-ecological exclusion of minorities. Immigrants that visit urban green spaces more often than non-urban green spaces cite a proximity to and knowledge of the green space as an indicator for participation (Kloek et al., 2013).

The present study focuses specifically on immigrant women in urban green spaces because migration related factors may uniquely influence how this group perceives inclusivity, safety, and belonging in these environments. When parks meet the criteria of perceptions of safety for the self and family (Lorentzen & Viken, 2022; Peters, 2010), representation of what they value in recreational spaces (Kloek et al., 2013), accommodation of cultural practices (Kloek et al., 2013; Gobster, 2002), and a lack of perceived exclusions due to ethnicity (Gobster, 2002), migrant women are more likely to visit and gain positive, meaningful experiences that may support attachment to the location. On the other hand, if immigrant women perceive the spaces as exclusionary, it may hinder participation and nature exposure (Kloek et al., 2013; Gobster, 2002; Rishbeth & Finney, 2006; Lorentzen & Viken, 2022; Peters, 2010).

From a psychosocial lens, inclusivity entails the recognition of marginalized voices and awareness of how power relations shape access to environmental participation (Batel & Castro, 2018; Batel & Guerra, 2019). What this means is that inclusivity may be incumbent on the wardens of that green space, and it is societies responsibility to foster inclusivity. When societies prioritize inclusion of vulnerable populations and where individuals perceive openness and recognition, natural spaces may foster processes of identification that extend to broader feelings of attachment and belonging, feelings central to the notion of connectedness to nature.

1.5 Connectedness to Nature

Connectedness to nature refers to an individual's enduring sense of closeness to and identification with the natural world. Considered the extent to which people include nature as part of their self-concept (Mayer & Frantz, 2004; Tam, 2013), the connectedness to nature scale gauges individual's feeling of being "in community" with nature. Higher connectedness to nature is associated with higher frequency of nature contact, more pro-environmental behaviors, and higher subjective well-being (Navarro, Olivos, & Fleury-Bahi, 2017). Individuals with a strong bond with nature tend to experience more positive emotions and less stress when in natural settings (Chang et al., 2024). Programs and designs that emphasize nature connectedness tend to deepen participants' bonds with local communities (Scannell & Gifford, 2010).

In prior research, connectedness to nature has been found as a mediator linking the relationship between nature exposure and psychosocial outcomes such as positive affect, life satisfaction, and well-being (Capaldi, Dopko & Zelenski, 2014; Mayer et al., 2009; Nisbet & Zelenski, 2011). In these models, nature contact enhances one's sense of connection to the natural world, leading to improved emotional and cognitive functioning. However, existing literature treats connectedness to nature as a mechanism that transmits the benefits of nature, rather than as an individual difference that may change the strength of these effects.

Given the relatively stable disposition of connectedness to nature (Tam, 2013), it may not only mediate nature's psychological impacts, but also moderate. People who already feel deeply connected to nature might derive stronger affective and identity-based rewards from nature encounters, whereas those low in connectedness could remain less responsive to nature encounters. A study of 89 students by McMahan et al. (2018) in the United States found that nature connectedness moderated the explicit and implicit emotional impact of nature exposure, with higher positive outcomes linked to high connectedness to nature. That study showcased how

nature interactions can be particularly beneficial for those who already feel a strong connection to the natural world. The present study explores whether connectedness to nature moderates the association between nature exposure and place attachment. Specifically, if a person with higher nature connectedness has more meaningful or intense benefits from each encounter with nature, therefore more rapidly building positive emotional associations with their place. Conversely, someone low in connectedness to nature might be less attentive to or affected by dosages of nature, leading to a weaker connection to place. Studies of whether this holds true of immigrant women's experiences are scarce, so specifically dissecting the moderation on their relationships with nature will provide valuable insight into this unique and vulnerable sect of the population. If immigrant women with high nature connectedness form emotional bonds to urban green spaces more easily, that provides us with actionable insight into fostering place attachment and belonging.

1.6 Present research

Regular engagement in nature is shown to be related to mental, physical and social health across populations. Nature's relationship with mental health in women (Lorentzen & Viken, 2020) and immigrant populations (Bowler et al., 2010; Hunter et al., 2019; Jay & Schraml, 2014; Kloek et al., 2013) may be connected to place attachment (Gentin et al., 2019). Becoming acquainted with the new country's culture, geography, climate and environment, and language through interactions with nature may be associated with benefits in immigrants' mental health and relate attachment to their new locations (Lorentzen & Viken, 2020). The present study aims to examine the relationship between frequency of nature visits and place attachment and explore two potential moderators (see Figure 1 for the conceptual model). It is hypothesized that:

> *H1:* The frequency of nature visits (Nature exposure) is positively associated to place attachment.

In a review of literature, Gentin et al. (2019) found that the environment offers more opportunities for place attachment and thus is a medium for integration. Urban geographers show that attachment is co-produced by power, mobility, and governance, shaping who feels entitled to occupy and narrate public space (Antonsich, 2010; Kamani Fard & Paydar, 2024; Qi, Mazumdar, & Vasconcelos, 2024). This positions place attachment as socially produced, not only environmentally afforded, and anticipates moderation by perceived inclusivity in urban parks. Considering that immigrants prefer urban nature settings (Byrne et al., 2009) and that men and

women immigrants participate in nature differently, with men feeling more independent and secure in their exploration of natural spaces (Jay & Schraml, 2014; Kloek, Peters, & Sijtsma, 2013; Lorentzen & Viken, 2022; Lovelock et al., 2011), it is hypothesized that:

H2: The positive relationship between nature exposure and place attachment will be stronger for immigrant women who perceive the natural space as inclusive.

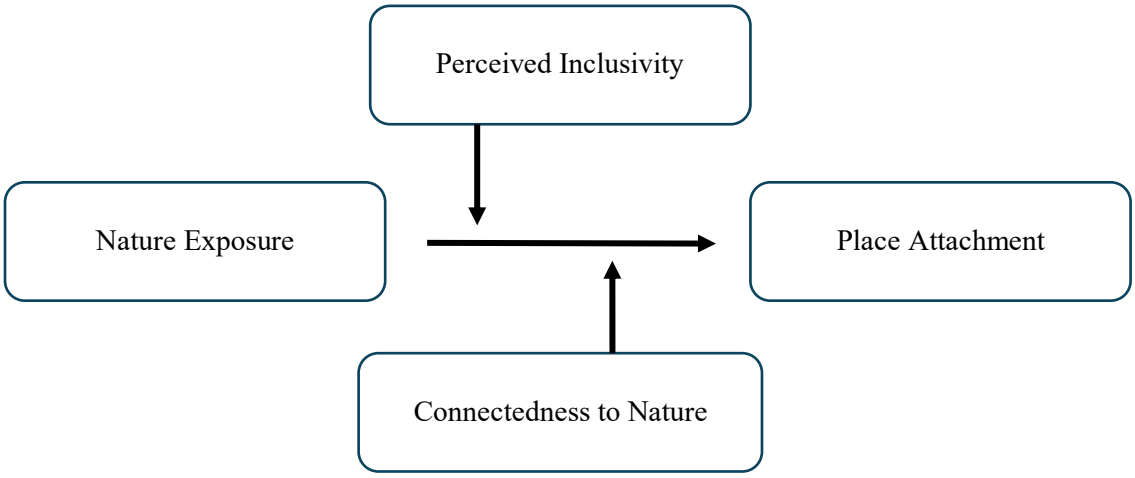
H3: The positive relationship between nature exposure and place attachment will be stronger for immigrant women with high levels of connectedness to nature.

In addition to these hypotheses, we specified an exploratory qualitative objective: to examine, via four open-ended questions, how immigrant women experience Lisbon's urban parks in terms of ethnic inclusion (or lack thereof), safety, and accommodation of cultural practices. These analyses are descriptive and interpretive, not tests of the hypotheses but instead intended to contextualize the quantitative results.

Taken together, the reviewed evidence suggests that in Lisbon, where immigrant women's contact with nature is primarily urban, exposure will predict place attachment mainly when they perceive nature as inclusive, and when experiences are registered as meaningful. Lisbon's urban planning choices like safety features, multilingual signage, and culturally adaptative infrastructure, are not only amenities, but pivotal in converting contact into belonging.

Figure 1

Conceptual Model



Chapter 2

Methods

2.1 Design

The present study employed a cross-sectional survey designed to examine the relationship between nature exposure and place attachment among immigrant women in Lisbon, Portugal. Additionally, the study explored whether perceived inclusivity and connectedness to nature moderates this relationship. The survey included quantitative assessment of the core variables supplemented by four open-ended questions to deepen the understanding of participants' experiences past perceived inclusivity's Likert-scale ratings.

2.2 Participants

G*Power (Faul et al., 2009) was used to calculate an approximate number (N=159) of participants needed to get a small-to-medium effect size of f^2 =.05 with power of 0.80 at α=.05. This compromise value was adopted under supervisory guidance and is consistent with Cohen's (1988) benchmarks and the modest associations typically observed between human-nature constructs and outcomes in related literature (e.g., Capaldi, Dopko, & Zelenski, 2014; Picanço et al., 2024, Kamitsis & Francis, 2013; Swami et al., 2016; Wood, Barron, & Smyth, 2019). Participants were adult (>18) immigrant women living in Lisbon for at least 6 months. The study focused on first generation migrants; thus, participants were required to identify as foreign-born from any nation outside of Portugal. Participants were required to speak or understand English or Portuguese as the survey was provided in both languages. A total of 208 survey responses were recorded via the Qualtrics platform. Responses were excluded if they were duplicates or from participants who did not properly consent, were not female identifying, were born in Portugal, were under the age of 18, their survey progress was less than 40% complete, they completed the survey in less than 60 seconds, or they had been living in Lisbon for less than 6 months. Participants who had lived in Lisbon for less than six months were excluded to ensure sufficient exposure to the city's urban parks and neighborhoods. See Table 2.1 for participant flow with exclusion flow at each step and sociodemographic data. Participant tags follow the format "Country, age." When a value was not provided, it is marked as NR (not reported). A total of 158 valid responses were collected, see detailed demographics in Table 2.2.

Table 2.1

Exclusion Criteria Applied to Participant Sample

	Number Excluded in this Step	N Remaining
Did not consent	4	204
Not Female identifying	36	168
Born in Portugal	4	164
Progress less than 40%	2	162
Speeders (<60s)	3	159
Dupes	0	158
Lived in Lisbon <6 months	1	158
Total excluded	50	

Table 2.2

Sociodemographic Characteristics of Participants

	Total	
	N=158	
Time Living In Portugal		
1-3 years	54	34.2%
3-5 years	38	24.1%
6 months – 1 year	11	7.0%
6+ years	55	34.8%
Portuguese Citizen		
Yes	25	15.8%
No	133	84.2%
Employment Status		
Employed	96	60.8%
Retired	4	2.5%
Student	27	17.1%
Unemployed	15	9.5%
Other	16	10.1%
Education		

High School	9	5.7%
Bachelor's Degree	53	33.5%
Master's Degree	85	53.8%
PhD	7	4.4%
Other	4	2.5%
Income Status		
Finding it very difficult on present income	15	9.5%
Finding it difficult on present income	28	17.7%
Coping on present income	61	38.6%
Living comfortably on present income	54	34.2%
Political Leaning 1= Left, 5= Right		
1	49	31.0%
2	67	42.4%
3	32	30.3%
4	9	5.7%
5	0	0.0%
Religious Status		
Yes	28	17.7%
No	130	82.3%
Type of Religion		
Catholic	6	21.4%
Islam/Muslim	3	10.7%
Orthodox	2	7.1%
Protestant	8	28.6%
Other	9	32.1%
Ethnicity		
Asian/Asian Origin	18	10.8%
Black/Afrodescendent/African Origin	8	4.8%
White/European Origin	87	52.4%
Roma/Roma Origin	1	0.6%
Mixed/Other Origin	52	34.8%

Landscape of Origin		
Mostly Rural	12	7.6%
Semi-Rural	22	13.9%
Suburban	29	18.4%
Urban	92	58.2%
Citizenship		
Africa	4	2.5%
Asia	16	10.1%
Europe	49	31.0%
North America	18	11.4%
South America	38	24.1%
Multiple Nationalities	5	3.2%
Not Reported	26	16.5%

Note. Percentages are based on the total sample (N=158) unless otherwise indicated. "Not Reported" includes blank/missing and "prefer not to say.". Type of religion percentages are valid % among participants who reported religious affiliation (n=28). Ethnic origin was a multiple-response item, therefore totals across ethnic categories can exceed 100%. Participants who selected "Mixed/Other Origin" (n=55; 31.4%) provided a range of free-text responses, including combinations such as "Portuguese and Italian roots", "Native American, Black, and European", "European and Asian", "Mixed Slavic Asian jewish", and identifications such as Latin American, Hispanic, Indigena, Italian, Brazilian, and Mestiça identities. Full responses are available upon request.

2.3 Procedure

Ethics for this study were approved by the ISCTE ethics committee on March 17, 2025, with project number: 72/2025. Data were collected using an online survey developed and distributed using the platform Qualtrics (Provo, UT, 2025). As materials were available in both English and Portuguese, survey questions were translated from English into Portuguese using the online tool DeepL SE (2024). Translations were checked by the research team.

Participants were recruited through convenience sampling methods including physical flyers in public spaces, outreach to local migrant, nature, and religious organizations (e.g. Casa Do Brasil, Conselho Português para os Refugiados, International Women in Lisbon, Liga para a Protecção da Natureza, Lisbon Project), networking at meetup events, outreach to local universities and psychologists, QR-code distribution, and social media promotion. Paid

advertisements were run to enhance recruitment through the social media advertising platforms Instagram and Facebook. Ads were targeted to women aged 18 or older residing in the Lisbon metropolitan area, with content available in both English and Portuguese. No compensation was offered. Clicking on the advertisement directed participants to the Qualtrics informed consent page of the survey. See Appendix I for detailed advertisement materials.

Participants were first presented with an informed consent form detailing the purpose of the study, expected duration, contacts of the research team, and the voluntary, anonymous nature of the research. After consenting, participants completed demographic information followed by the research scales in a randomized order: connectedness to nature scale (CNS), nature exposure scale (NES), abbreviated place attachment scale (APAS), perceived inclusivity scale (PI) and 4 open-ended questions. All participants were debriefed, thanked for their participation, and provided links to additional migrant resources at the end of the survey (see full materials in Appendix A-H).

2.4 Materials and Measures

2.4.1 Demographics

Demographic data related to participants' age, gender, nationality, religious status, political orientation, education level, employment, subjective income, citizenship status, ethnicity, and home landscape were collected (See Table 2.2).

2.4.2. Abbreviated Place Attachment Scale

Place Attachment was measured using the 6-item abbreviated place attachment scale (APAS) outlined by Boley et al. (2021). APAS is a 6-item, 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) comprised of 3 place identity items (“I feel very attached to”, “is very special to me”, “I identify strongly with”) and 3 place dependence items (“The best place”, “No other place can compare”, “I would not substitute any other area”). Demonstrated as reliable across cross-cultural research, the abbreviated place attachment scale (APAS) provides a brief, validated scale valuable for measuring place attachment without overburdening participants (Boley et al., 2021). In the present study, items were localized to Lisbon.

APAS is commonly summarized into place identity and place dependence subscales (Williams & Vaske, 2003). We evaluated the theorized two-subscale structure, but an EFA with principal-axis factoring and oblimin rotation supported a single factor solution (KMO = .89, Bartlett’s $X^2(15) = 450.44$, $p < .001$, eigenvalue = 3.93, 58.79% variance). A total place

attachment (APAS) score was used with higher levels equating to stronger place attachment. Internal consistency for the 6-item aggregated solution was very good (α= .89). See full scale in Appendix D.

2.4.3. Nature Exposure Scale

Participants completed a four-item Nature Exposure scale adapted from Kamitsis and Francis (2013) and the Portuguese context via Picanço et al. (2024). Items assessed exposure and attention to natural environments in various contexts. Each item was rated on a 5-point Likert scale, with response anchors varying by item (e.g., 1 = *Very little of my everyday* – 5 = *Most of my everyday*; 1 = *Less often* – 5 = *More often*). Higher scores indicated greater exposure to nature.

The internal consistency for the 4-item scale was not acceptable (α=.66) and was further assessed using the "Cronbach's alpha if item deleted" diagnostic in SPSS, identifying one item that would improve overall reliability. After removing the suggested item, reliability increased to α=.73.[1] Composite scores were created with the 3-items where higher values indicate higher levels of exposure to natural environments. See full scale in Appendix C.

2.4.4. Perceived Inclusivity

Perceived inclusivity was measured with six items developed by the research team, based on prior research on migrant and minority communities' experiences in green spaces. The six items captured personal and family safety, cultural fit, accommodation of cultural practices, nostalgia, and ethnic exclusion. Items were reviewed by the research team for clarity and content coverage and localized to Lisbon. The 6-item scale showed adequate reliability (α =.72). Responses were on a 5-point Likert scale from 1= s*trongly disagree* to 5 = *strongly agree*, where higher scores indicated higher perceptions of inclusivity. An example item is: "Lisbon's urban parks...Represent what I value in natural recreation spaces.". See Appendix F for the full scale and Appendix K for item-by-item provenance.

2.4.5. Connectedness to Nature Scale

Connectedness to nature was measured using the Mayer and McPherson Frantz (2004) 14-item, 5-point Likert scale (1= *strongly disagree* to 5 = *strongly agree*). The scale measures to what degree people feel a part of nature. Items Q19_4, Q19_12, and Q19_14 were reverse-coded ("I

[1] Additional exploratory factor analysis supported a single-factor solution, *KMO* = .58, Bartlett's $X^2(3) = 128.77$, $p < .001$, eigenvalue = 1.99, explaining 66% of the variance.

often feel disconnected from nature.", "When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.", "My personal welfare is independent of the welfare of the natural world."). Internal consistency was very good (α = .81). Higher values are equated to stronger connectedness to nature. See full scale in Appendix E.

2.4.6 Supplementary Questions

Immediately following the perceived inclusivity scale, participants were invited to answer four open-ended prompts aligned with the perceived inclusivity items (ethnic exclusion, safety as a migrant woman, familial safety, accommodation of cultural practices); full wording in Appendix G. For the qualitative analysis, all respondents who provided at least one open-ended answer were included. The N=89 qualitative responses were coded and analyzed through reflexive thematic analysis (Braun & Clark, 2021) and then put into themes to contextualize and offer further insight on the quantitative results and for future research.

Results

IBM SPSS Statistics (v29) was used to conduct statistical analysis to test the study's hypotheses. H1 was tested with a simple linear regression. H2 and H3 were tested using Hayes (2018) PROCESS macro, Model 1.

3.1 Preliminary Analyses

Descriptive statistics, reliability, and Pearson correlations for study variables and age are shown in Table 3.1. Participants reported moderate levels of place attachment (APAS), nature exposure (NES), perceived inclusivity (PI), and connectedness to nature (CNS). Place attachment was positively correlated with nature exposure and perceived inclusivity. Place attachment's correlation to connectedness to nature was not significant. Nature exposure was positively correlated with perceived inclusivity and connectedness to nature, and perceived inclusivity was positively correlated with connectedness to nature. Age correlated with nature exposure and modestly with connectedness to nature, but not with place attachment or perceived inclusivity.

Assumptions for the regression of place attachment on nature exposure, as well as the moderation models with perceived inclusivity and connectedness to nature, were evaluated using the model's standardized residuals. Shapiro-Wilk and Kolmogorov-Smirnov tests of the residuals were nonsignificant (W= .99, p = .18, D = .04, p = .20). Visual inspection of histograms, boxplots and Q-Q plots suggested that residuals were approximately normally distributed, and no extreme outliers were observed. The ZPRED-ZRESID scatterplot indicated linearity and homoscedasticity. Independence of errors was supported (Durbin-Watson = 2.01). No evidence of multicollinearity was observed (tolerance = 1.00, VIF = 1.00). Case diagnostics revealed no influential observations, maximum Cook's distance was .06, and maximum centered leverage value was .03, below the recommended cutoff (<1) and within acceptable limits.

Table 3.1

Descriptive Statistics, Reliabilities, and Correlations Among Variables and Age

Variable	*N*	*M*	*SD*	Min	Max	α	APAS	NES	PI	CNS	Age
APAS	143	3.13	0.93	1.00	5.00	.89	-				
NES	143	3.41	0.84	1.67	5.00	.73	.26**	-			
PI	143	3.60	0.69	1.00	4.83	.72	.29**	.41**	-		
CNS	138	3.86	0.51	2.57	5.00	.81	.07	.36**	.32**	-	
Age (years)	156	34.88	8.86	20	64	-	.11	.27**	.19*	.17*	-
Religious Intensity	28	3.89	1.03	2	5	-	.33	.06	.36	-.30	.11

Note. Pearson correlations (pairwise deletion) appear on the right. APAS = Abbreviated Place Attachment Scale; NES = Nature Exposure Scale; PI = Perceived Inclusivity Scale; CNS = Connectedness to Nature Scale; Religious Intensity = "How much do you identify with your religious group?" (1 = *Not at all* – 5 = *Very much*). Ns by pair: APAS-NES = 139, APAS-PI = 140, APAS-CNS = 137, NES-PI = 139, NES-CNS = 136, PI-CNS = 136, APAS-Age = 141, PI-Age = 141, NES-Age = 141, CNS-Age =136, Religious Intensity-APAS = 25, Religious Intensity-NES = 25, Religious Intensity-PI = 25, Religious Intensity-CNS = 25, Religious Intensity-Age = 28. Sample N = 158. ** $p < 0.01$, * $p < .05$ (2-tailed).

3.2 Nature Exposure and Place Attachment

To test H1 we conducted a simple linear regression predicting place attachment (APAS) from nature exposure (NES). The model was significant, $F(1,137) = 10.05$, $p = .002$, explaining 6.8% of the variance in place attachment ($R^2 = .07$). In line with the hypothesis, nature exposure was a significant positive predictor of place attachment ($\beta = .26$, B= .29, SE = .09, $t = 3.17$, $p = .002$, 95% CI [0.11, 0.47]).

3.3 The Moderator Perceived Inclusivity

To test H2 we used Hayes (2018) PROCESS Model 1. Nature exposure (NES) was the predictor, perceived inclusivity (PI) was the moderator, and place attachment (APAS) the outcome. Results indicated the overall model was significant, explaining 13.3% of the variance in place attachment ($F(3,134) = 6.85$, $p < .001$). As shown in Table 3.2, perceived inclusivity was positively related to place attachment, however, nature exposure's relationship with place attachment, albeit positive, only approached significance. The interaction between nature exposure and perceived inclusivity was significant. Simple slopes indicated that nature exposure predicted place attachment at low levels of perceived inclusivity ($b = .367$, $p = .007$), but not at average ($b =$

.169, p = .092) or high levels of perceived inclusivity (b = -.029, p = .843). Thus, perceived inclusivity moderates the relationship between nature exposure and place attachment, but in the opposite direction hypothesized (H2).

3.4 The Moderator Connectedness to Nature

A second PROCESS (Hayes, 2018) Model 1 analysis tested H3; nature exposure (NES) was the predictor, connectedness to nature (CNS) was the moderator, and place attachment (APAS) was the outcome. Results indicated the model accounted for 6.93% of the variance in place attachment (F(3,131) = 3.25, p = .024, N = 135). As shown in Table 3.2, nature exposure was positively related to place attachment, however, connectedness to nature was not significant. The interaction between nature exposure and connectedness to nature was also not significant. Thus, H3 was not supported as connectedness to nature did not moderate the relationship between nature exposure and place attachment.

Table 3.2

Moderation Analysis of Connectedness to Nature and Perceived Inclusivity on Nature Exposure – Place Attachment Association

					R^2		
	Coeff.	SE	*t*	*p*		*LLCI*	*ULCI*
	Moderator: PI						
NES	.18	.10	1.84	.067		-.013	.379
PI	.26	.13	1.99	.048		.002	.508
NES x PI	-.30	.15	-2.01	.047	.133	-.589	-.005
	Moderator: CNS						
NES	.27	.11	2.57	.011		.063	.480
CNS	-.05	.16	-.29	.774		-.372	.278
NES x CNS	-.19	.19	-.98	.329	.07	-.565	.191

Note. NES = Nature Exposure Scale, PI = Perceived Inclusivity, CNS = Connectedness to Nature.

3.5 Analysis of Survey Supplementary Questions

To supplement the perceived inclusivity (PI) scale items and explore the relations between migrant women connections with nature and how perceptions of inclusion in urban parks shape those relations, participants were asked four open-ended questions about perceptions of ethnic

exclusion, migrant women safety, familial safety, and cultural accommodation in Lisbon's urban parks. Each question was analyzed, and five broad themes were identified: experiences of exclusion, belonging and cultural match, barriers or challenges, nature space preferences, and neutrality or no issue.

3.5.1. Ethnic Exclusion

This section presents qualitative findings comparing participants who reported feeling excluded in Lisbon's urban parks with those who did not feel excluded, based on their responses to Q25_6 from the perceived inclusivity scale. Q26 asked participants to "elaborate on how Lisbon's urban parks do or do not make you feel excluded because of your ethnic background?".

Most of the respondents did not report feelings of ethnic exclusion (N=130). However, among participants who alleged ethnic exclusion (N=13), they referenced experiences of cultural mismatches and xenophobia, often describing differences in social atmosphere and in how people behave in park settings. One participant noted, "It doesn't have the same vibe that I'm used to. Both in terms of nature and people" (Brazil, 40).[23] Another participant simply stated, "There is xenophobia." (Brazil, 52). This comment about xenophobia reinforces the growing body of research examining the issue of xenophobia in Portugal (Casquilho-Martins, Belchior-Rocha, & Alves, 2022; Elias et al., 2021) and specifically the growing racism and xenophobia impacting certain migrant communities like Brazilians more so than others (Marcelino, 2019).

In contrast, participants' lack of perceived ethnic exclusion on the PI scale does not necessarily preclude an absence of feeling structural or cultural issues related with discrimination and exclusion. Among those who reported feeling included, many expressed broader experiences of exclusion related to gender, accessibility, or cultural mismatches. As one participant noted, "I've never felt like I can't be in a park because I am white. Sometimes I feel uncomfortable in a park because I am a woman, but not because I am white." (United States, 29). Reflecting the broader pattern that inclusion can be multifaceted and reflective of more than just ethnic barriers.

Distinctively, those who felt excluded cited no feelings of belonging or cultural match, whereas those who felt included reported higher levels of both (N=15). Many participants

[2] The information included at the end of each extract in parentheses refers to (country, age) of the participant uttering the presented extract. NR indicates not reported.

[3] For consistency, all participant quotations are presented in English. The original Portuguese excerpts are provided in Appendix J. Translations were produced by the author assisted by DeepL SE (2024), and checked for accuracy by the research team.

highlighted their cultural match, “For my culture, parks are for sharing, exploring & spending quality time! Even drink some coffee or beers, so perfectly matched.” (NR, NR). Those who felt included also tended to label Lisbon’s urban green spaces as diverse and integrated, one participant stating, “I see different kind of people chilling at the park, everyone minding their own business, no one pays special attention.” (Bolivia, 34). While another participant notes the white dominance but finds nuance in the diversity, “I’m white, but I do frequent parks with racially/ethnically diverse friends. We interact without tension and without aggression or judgement from others.” (United States, 33). Much alike the above, several participants highlighted the Eurocentric or white dominance of the parks, “I am a white woman from Germany. I live in a western mostly white country. The culture in the park is often based of white culture (drinking, reading, talking), so I don’t feel excluded.” (NR, NR) and “As a white women, I don’t feel remotely excluded because of my ethnicity.” (Germany, 28). Though not explicitly critiquing the Eurocentricity, these responses echo literature on Lisbon’s policies overlooking inequalities through an environmental justice lens (Verheij & Nunes, 2020).

Some participants who felt included also noted that on top of Eurocentric norms, feelings of exclusion could emerge when they were identified as foreign through speech, similar to the responses noting xenophobia from those who felt excluded,

Extract 1.

> I feel no exclusion based on my ethnicity as I belong to the dominant ethnic group (I am white and am mistaken for European until people hear me speak). I do sometimes experience xenophobia, stereotyping and discrimination based on my accent, however thankfully in nature I don’t have to do much talking. Most conversations on nature walks are short and people are relaxed. (Brazil, 25).

Participants who did not feel excluded also tended to highlight the positive emotional value of parks, describing them as restorative and inclusive. One participant referred to Lisbon’s parks as the “green lungs of the city” (Poland, 38) while another noted that “urban parks and contact with nature bring me a sense of peace and comfort, so that ethnic origin ceases to have the relevance it has in other spaces—I feel “at home”.” (NR, 27).

Despite the noted benefits amongst those feeling included, participants’ responses echoed literature on structural barriers and challenges that prevail in park visitation:

Extract 2.

> There are translinguistic, accessibility, and mapping aspects that prevent me from easily connecting with the space or park, for example, to find the bathroom or feel safe during the journey, even if I am talking about natural environments. (NR, 34)

Similarly, some participants noted the differences in nature preferences and familiarity, "I don't feel excluded, because I can go to the urban park any time. But I feel different (somehow excluded), like a guest, because I don't recognize most of the plants and they bloom on different time." (Russia, 36). Aligning with Lorentzen & Viken's (2020; 2022) literature regarding how immigrant women's participation in nature can be impacted by nostalgia and familiarity. Another participant noted their how their nostalgia shapes their preferences:

Extract 3.

> I like urban parks that have more dense vegetation and taller trees (for example, Gulbenkian) than parks that are just lawns. Parks with more trees remind me of Brazil, my native country. I don't like overly planned French-style parks. I like the sea and the presence of the Tagus River and the constant view of the water throughout the city of Lisbon. We can always see the sea/Tagus on the horizon, which reminds me of Rio de Janeiro. (Brazil & Italy, 35).

Overall, explicit references to feelings of ethnic exclusion were relatively rare, yet subtle themes of exclusion were present across groups. Participants' descriptions tied to language, gender, cultural practices, navigation issues, and natural space familiarity suggests that there are several dimensions to feeling included or excluded, that inclusion is then conditional and context dependent. Additionally, even if participants do not recognize blatant exclusion in Lisbon's urban parks, they emphasize that exclusion does happen, even in subtle or non-recognizable ways, in those and other spaces. This further justifies research on existent structural racism and xenophobia in Portugal (Casquilho-Martins, Belchior-Rocha, & Alves, 2022; Raposo et al., 2019).

3.5.2. Migrant Women and Familial Safety

This section presents a theme around safety, comparing participants who reported feeling safe as a migrant woman in Lisbon's urban parks (N=127) and those who felt their families were safe (N=134) vs. participants who reported feeling unsafe themselves (N=16) or for their families (N=9) based on their responses to Q25_2 and Q25_3 from the perceived inclusivity scale. Q27 asks "Can you please elaborate on how Lisbon's urban parks do or do not make you feel safe as

a migrant woman?" and directly relates to item Q25_2 on the perceived inclusivity scale. Q28 was connected to Q25_3 on the perceived inclusivity scale and asked participants to elaborate on how Lisbon's urban parks "are or are not safe for your family?".

Most respondents described Lisbon's parks as safe for themselves and their families, highlighting perks like lighting, child-safe infrastructure, maintained spaces, and the presence of other families. Framing local culture as a form of social infrastructure, where other parents may watch out for each other's children. Participants described family safety as part of Lisbon's broader urban character. For example, "They are safe for my family, if we consider safety to be synonymous with caring for nature, maintaining the environment and private areas, as well as the prevalence of spaces for group seating and permanent lighting." (NR, 34).

However, regardless of individually reported perceived safety levels on the perceived inclusivity scale, gendered safety concerns appeared frequently within their responses. Women who felt unsafe often framed their vulnerability as both situational and structural, citing issues such as limited lighting, isolation, and lack of support systems. For example, one participant wrote:

Extract 4.

> I feel unsafe because of men. Especially the ones who ask for money or stare at me or don't mind their business. I can't enjoy reading, listening to music, without letting down my guard. Even when I'm with female friends. (Italy, 32).

As another participant emphasized, migrancy can compound these risks, "I think that as a woman, any place that doesn't have many people is dangerous. As a migrant woman, it's even worse because you have a smaller support network." (Brazil, 25). Some women explicitly linked their experiences to broader patterns of harassment and structural inequality:

Extract 5.

> They don't make me feel safe, not necessarily as an immigrant woman, but as a woman. Being a woman is often scary, and unfortunately, that feeling hasn't been getting any better in today's climate. I personally, but also many of the people I know who identify as women and are Portuguese, are constantly harassed and subjected to unwanted interactions (in the overwhelming majority of cases, from male individuals, regardless of their ethnicity). Urban parks are also a place where this phenomenon occurs, especially if it is a more isolated location, or if you are there in the afternoon/evening. (NR, 22).

Extract 6.

> I think that as a woman living in a patriarchal society like Portuguese society, it is impossible to feel completely safe, especially if I am alone in a park. Because harassment and sexual assault can occur in different places due to the education and impunity that men have. Even more so knowing that Portuguese legislation is very lenient with crimes of femicide and abuse, where a woman's word has less value. Something totally backward and frightening as an immigrant. When it comes to racialized women or women from former colonies, this structural violence is even greater, as if such women deserved less respect and were at the disposal of others. (Brazil, 49)

Another participant highlighted how certain vulnerable groups, particularly transgender and non-binary people, may face unique risks in parks:

Extract 7.

> Transgender and non-binary people are often harassed in some way in public spaces. The likelihood also exists in urban parks. (Germany, 28).

Despite these challenges, many participants described Lisbon as comparatively safer than their countries of origin. Women who felt safe often referred to improved public lighting, social presence, and lower crime rates, "Most of the time, I feel safe in Lisbon's parks. Sometimes I feel a little afraid when I'm alone and a man walks by, reminding me of the violence in Brazil." (NR, 29) and "Overall, I feel safe because my standards are very low, given that I used to live in a very violent city, but I think what makes the biggest difference is the lighting." (Brazil, 40). Some described the city's parks as symbols of calm, companionship, sense of peace, and independence:

Extract 8.

> I consider parks to be a reflection of the sense of security I have experienced in Lisbon: familiar environments, with caregivers and spaces that embrace a culture of sports and walking. People convey this sense of temporary companionship to me, even if it is not necessarily one of security. (NR, 34)

These patterns suggest gendered safety concerns shape park use across both those who felt excluded and those who did not. Safety was tied to things like lighting, crowds, and routines rather than the absence of risk. While participants often described Lisbon's urban parks as welcoming and peaceful, parents often anchored their sense of family safety in the presence of

other families, playgrounds, and mutual care. Responses indicate that safety is not a fixed condition, but rather something women must consistently navigate. Moments of unease highlight how easily this safety can be disrupted by things like the lack of nighttime security, compounded discrimination, or incidents of crime. As migrants are more likely to use parks with their families (Yazdani, 2024), these risks underscore the importance of an environment that supports both individual and familial safety.

3.5.3. Accommodation of Cultural Practices

This section presents the qualitative findings around accommodation of cultural practices, comparing participants who reported that Lisbon's urban parks accommodate their cultural practices well (N=126) to those who did not feel they accommodated their cultural practices well (N=17). Q29 related to Q25_5 on the perceived inclusivity scale and asked participants "Can you please elaborate on how Lisbon's urban parks do or do not accommodate your cultural practices well?".

Most participants felt that Lisbon's urban parks accommodated their cultural practices and described accommodation in practical terms, centering on everyday social use like picnics, attending fairs, exercising, meeting friends, and listening to music. For many participants cultural practice was expressed through informal social use, rather than specifics. One participant complimented how Lisbon's green space both fit their lifestyle and even surpassed their experiences from home:

Extract 9.

> By cultural practices I am considering everyday activities and ways of doing, and in this sense actually Lisbon's urban parks go beyond my cultural practices in a very positive way. The integration of green to the urban life has something that has been decreasing from my home city, so Lisbon actually makes me feel nostalgic and at times at home. (Turkey, 29).

Others emphasized the similarities and familiarity between Lisbon and their home countries, due to the history of colonization of Brazil by Portugal:

Extract 10.

> The culture of Portugal is very similar to that of my country, as we were colonized by Portugal. It is very easy for me to feel at home, and I identify with the way people appropriate urban cultural spaces for cultural practices. (Brazil, 51).

Those that did not feel accommodated pointed to a discrepancy between regulations and what they typically do. For example, some noted less open space for gathering, limited or broken amenities, gradual loss of green space, and cultural mismatches. Several participants mentioned missing practices that are prohibited locally like "picking up mushrooms and berries, light fires and it's a part of how we celebrate things, but it's not allowed in Portugal". (Russia, 34). Highlighting the connection to Lorentzen & Viken's (2022) in which immigrant women sought out natural experiences similar to their fond memory of cultivating gardens back home. Others described broader cultural differences in how parks are used and the atmosphere within them, "I believe that the whole thing is very different and therefore does not fit in with cultural practices. Both the spaces and the people." (Brazil, 40) and "I miss listening to music without headphones." (Brazil, 49).

Aligning with research about how immigrants use and perceive nature impacts their belonging, integration, and place attachment (Charles-Rodriguez et al., 2023; Lorentzen & Viken, 2022; Mazumdar & Mazumdar, 2012; Onyango et al., 2025). Responses indicate that social, recreational, and food accommodations play a large role in both those who do and those do not feel accommodated, with the latter group often noting the inflexible park rules and lack of infrastructure. When accommodated, cultural practices are described as seamlessly integrated into park life.

3.5.4. Perpetrator Responses and Written Questions Summary

Two participants gave responses more akin to being the perpetrator of exclusion rather than the victim. One wrote that parks felt unsafe because of "areas with too many South Asians" and added that they do not feel accommodated due to parks being used by religions they don't belong to. The other described the parks as unsafe due to "other types of nationalities that have different behavior with women". Both cases reported a relative average composite score (3.5) on the PI scale. These two cases show how higher levels of perceived inclusivity can co-exist with attitudes that restrict inclusion for others, highlighting that PI reflects one's own perceived inclusivity and does not reflect inclusiveness towards other groups.

In summary, the four open-ended questions added depth to the quantitative results, providing insights to the perceived inclusivity scale findings. Themes of gendered safety, social and food accommodations, infrastructure negatives and positives, and comparisons to country of origin were consistently present. These responses show how people judge inclusion through perceptions

of exclusion/inclusion and accommodation. Due to the responses being short and unevenly distributed, they cannot provide a complete picture, but rather additional insight into the context of the quantitative results. Implications are considered in the discussion below.

Chapter 4

Discussion

The current study examined the association between nature exposure and place attachment in immigrant women and explored whether this association is shaped by perceived inclusivity and connectedness to nature in natural spaces.

Overall, the results of the present study partially supported our hypotheses. Consistent with dose-response framework, we found support for the relationship between nature exposure and place attachment: women who spent more time in nature reported stronger emotional bonds in their new city. Importantly, perceived inclusivity significantly moderated this relationship. Specifically, the positive association between nature exposure and place attachment was significant only for women who reported low levels of perceived inclusivity. For women who perceived average or high inclusivity the relationship between nature exposure and place attachment was not significant, suggesting that when individuals feel less included in natural spaces, time spent in nature may play a stronger role in fostering emotional attachment to place. In contrast, we did not find evidence to support connectedness to nature as a moderator of the association between nature exposure and place attachment. Indicating that the strength of one's bond to nature did not alter this relationship.

Although the relationship between nature exposure and place attachment was significant, the model explained a relatively small portion of variance (6.8%). This suggests that while exposure to nature contributes to stronger place attachment, additional factors likely play important roles. Exposure alone may not always be sufficient to foster strong attachment unless accompanied by positive, inclusive, or personally meaningful experiences within those environments. These results extend nature-attachment research and contribute novel insights into how perceptions of inclusivity shape migrants' emotional connections to urban natural spaces.

4.1 Nature Exposure and Place Attachment

The positive association between nature exposure and place attachment aligns with the emerging dose-response evidence on this matter in environmental psychology literature. Thresholds of per week exposure associated with optimal health and well-being (Hartig et al., 2014; Shanahan et al., 2016; White et al., 2019). Our findings reinforce the idea that higher exposure to nature yields stronger benefits and extends this model to the construct of place attachment. Among immigrant communities, spending time in local parks and green spaces may gradually build

familiarity and comfort (Bazrafshan et al., 2023; Vaughan et al., 2018). Place attachment models emphasize that repeated contact and continuity over time builds attachment (Lewicka, 2011). The consistency of our results with established thresholds suggests that the amount of nature contact needed for psychological benefits is comparable for immigrant women. It appears that nature dosage experiences are a significant factor in fostering attachment to place.

Beyond quantitative measures, qualitative mechanisms such as attention restoration theory explain why nature exposure may encourage place attachment. The theory assumes that nature is equipped to replenish an individual's ability to concentrate or direct attention (Joye & Dewitte, 2018). In our study, many participants reported the restorative benefits Lisbon's green spaces brought them, citing moments of mental clarity, calm, or renewed focus while spending time in parks. While these restorative processes highlight the individual benefits of nature exposure, social dynamics also play a central role in development of place attachment in among migrants. For migrants, the benefits of urban green spaces are conditioned on social experiences (Cheng et al., 2024), and repeated experiences in green spaces may lead to growing positive association with that place, fostering familiarity and emotional bonds. This was evident among the participants who described Lisbon's parks as open and socially welcoming spaces, often associating their experiences with gatherings such as picnics, celebrations, or informal encounters.

Anthropological studies of migration reveal that everyday practices of care, movement, and purposeful memory in green spaces serve as ways of negotiating identity and belonging in new cities (Rishbeth & Powell, 2013). Qualitative research by Lovelock et al., (2011) found that immigrant women retained emotional ties to their country of origin while using outdoor settings to search for belonging. Our findings suggest that spending time in Lisbon's urban green spaces may help immigrant women feel at home in Portugal by creating routine and comfort, complimenting theories of acculturation that emphasize integrations. Berry (2005) noted the importance of maintaining aspects of original identity while forming new connections in the host country. For example, an immigrant from Brazil may cherish memories of parks back home but also come to love urban parks in Lisbon where they relax routinely. Immersion in nature may also facilitate identity processes, where women begin to identify as more outdoors-orientated or as members of local communities via park-based activities. Our finding supports theoretical

frameworks in which nature exposure is associated with place attachment through restorative experiences, repeated positive interactions, and opportunities for personal development.

4.2 Perceived Inclusivity of Natural Spaces

Access to nature has not always been equal for all. Factors like gender, race, disability, immigrant status, and more can influence people's perceptions of park inclusion (Gentin et al., 2019). Byrne and Wolch (2009) argued that urban parks reflect structural inequalities. Das (2017) found that park usage patterns differed by race and immigrant status, largely due to differences in perceived safety and feeling welcome. Environmental justice theories emphasize not just the importance of physical access, but the quality of access and absence of sociocultural barriers (Gentin et al., 2019).

Our findings showed that perceived inclusivity in natural spaces significantly moderated the association between nature exposure and place attachment. Specifically, the positive relationship between nature exposure and place attachment was significant only for women who reported low levels of perceived inclusivity. The perceived inclusivity scale tapped into immigrant women's feelings of safety, cultural accommodation, nostalgia, and ethnic exclusions in parks. For women who already perceived the parks as inclusive, nature exposure did not substantially increase attachment. Our findings add to prior research by emphasizing inclusivity as a facilitator of positive nature experiences (Byrne & Wolch, 2009; Gentin et al., 2019). Rather than a straightforward effect, inclusivity appears to condition how exposure relates to place attachment mainly for women who report low perceived inclusivity. Perhaps those who feel excluded rely more heavily on restorative or familiar aspects of nature to achieve their sense of attachment. This aligns with studies showing that green spaces can serve as symbolic refuges when social inclusion is limited (Jay & Schraml, 2009; Rishbeth & Powell, 2013).

The supplementary open-ended responses help explain why perceived inclusivity moderated the association between nature exposure and place attachment at low levels of perceived inclusivity. Women who felt less included described xenophobia, cultural mismatch, language navigation barriers, and rule constraints. Time in green spaces seemed to help them feel more grounded. Conversely, women who felt included discussed the positives of their everyday social uses of parks despite the barriers and challenges they still encounter, noting that they feel at home in the parks. This helps clarify why additional exposure didn't add much attachment at average or high levels of perceived inclusivity. When the park context feels exclusionary, each

moment of exposure seems more important for building attachment. When it feels inclusive, there is marginal gain from extra exposure.

Environmental justice research highlights that the benefits of nature contact depend not only on physical availability, but also on whether individuals feel socially and culturally welcome (Gentin et al., 2019). In agricultural research, immigrants form place bonds through acts of cultivation and care despite broader social exclusion (Cabannes & Raposo 2013). The perceived inclusivity scale also aligns with cultural landscape theory. Immigrants carry their cultural habits and expectations of public spaces into their new context (Yazdani, 2024). If local parks are too different from what immigrants find familiar or comfortable, they may feel alienated from using those parks. A diversity of landscapes that honor a diversity of cultures can become critical sites of cross-cultural exchange and identification (Gentin et al., 2019). An example by Li (2014) shows how urban parks in Chinatowns were tailored with design elements to accommodate Chinese cultural preferences, improving usage and community. Such details underscore the importance of diversifying cultural representation in urban park design. More than integrating flora and fauna, accommodations of varying leisure activities or enhancing multilingual accessibility can improve the likelihood of participation and encourage attachment. The implication that when parks feel less inclusive, exposure matters more for attachment is also consistent with anthropological research on the resilient, solitary pathways to belonging under exclusion (Anguilovski, 2013; Korpela, 1989). When safety, cultural fit, and facilities are limited, attachment may rest on sensory communion and routine (van den Brekel et al., 2024; Duden et al., 2024).

The moderating role of perceived Inclusivity reflects a complex Interplay between access, representation, and identity in urban nature. For immigrant women in Lisbon, inclusivity did not amplify the benefits. Instead, urban nature appeared to function as a compensatory resource. This was evident in the data, as even at lower levels of perceived inclusivity, participants still demonstrated meaningful place attachment. In Lisbon and other southern European cities, park design and governance may reproduce inequalities through cultural invisibility, language barriers, or gendered safety concerns (Buhr & McGarrigle, 2017; Hoffimann, Barros, & Ribeiro, 2017). Safety and facilities are gatekeeping factors for marginalized groups (Kamani Fard & Paydar, 2024). Urban political ecology shows that migrants often engage in nature as a form of resilience, finding emotional restoration in places they may still feel out of place (Finney, 2014;

Rishbeth & Birch, 2021). The link between nature exposure and place attachment at low levels of perceived inclusivity aligns with psychosocial interpretations of resilience, when social inclusion is limited, migrants may turn inward, forming restorative and personal bonds with nature itself (Batel, 2023; Abed & Aljibarat, 2025).

4.3 Connectedness to Nature: Null Moderation

Connectedness to nature did not significantly moderate the effect of nature exposure on place attachment, challenging the assumption that individuals with higher connectedness to nature automatically gain more attachment from their nature experiences. While previous research often links connectedness to nature with positive emotional or restorative outcomes, it has more commonly been modeled as a mediating pathway of nature's benefits on attachment rather than a moderator (Basu et al., 2020; Ma, Zhao, Zhang, 2025; Mayer et al., 2009; Tam, 2013). For example, one study found that incorporating natural design elements in a sports venue increased users' place attachment through higher nature connectedness (Zhang et al., 2025). Findings as such frame connectedness to nature as an internal process through which nature contact yields psychological benefits, not as a factor that alters the strength of those benefits externally. By framing connectedness to nature as a moderator, the present study expected that participants already attuned to the environment would form stronger place attachment with each instance of exposure, as supported by prior findings (McMahan et al., 2018). The study's null moderation result suggests that connectedness to nature functions more as a stable disposition influencing one's general engagement with nature (Capaldi, Dopko, & Zelenski, 2014), rather than intensifying the effects of nature exposure. It's also possible that this lack of moderation reflects our sample characteristics, individuals with high nature connectedness may have already been benefiting from nature, or the range of connectedness scores in the sample was too narrow to detect interaction effects.

For first-generation immigrants especially, place bonds often grow from community ties and practical engagement in their new city, factors that can overshadow nature orientation (Kohlbacher, Reeger, & Schnell, 2015). Becoming attached to a specific place likely requires additional social and cultural cues beyond what connectedness to nature provides, like perceived inclusivity. In other words, a person may identify as a "nature person" and enjoy individual experiences from nature but still feel little attachment to an urban green space unless other inclusive or place-based experiences come into play.

Methodological and cultural factors may also explain the lack of significance, as known measurement limitations of the connectedness to nature scale across cultures could impact the results. The scale was originally developed in western contexts, with a few studies raising concerns about cross-cultural validity and comparability (Davidov et al., 2014; Pasca et al., 2018; Swami et al., 2024). Even with a high connection to nature, the form of nature available in an urban environment might not meet immigrant women's needs or resonate with their idea of nature. This is consistent with calls for culturally responsive urban design to provide diverse and relatable urban spaces so that people of varying backgrounds can express their nature orientations (Sharma-Brymer, Brymer, & Loynes, 2025). Without those changes, individuals with high connectedness to nature levels individuals may enjoy the personal benefits from nature contact but still feel weakly attached to the place around them. Overall, the null finding suggests that connectedness to nature does not necessarily strengthen the emotional bonds formed with places, particularly within culturally diverse urban contexts such as Lisbon.

4.4 Implications

This present study's findings contribute to existing research highlighting the important role of nature in urban planning, public health, migrant relations, environmental psychology, and cultural integration in Lisbon. While urban planners in Lisbon have made improvements in expanding green infrastructure, planning has largely focused on quantity and distribution of green spaces. Lisbon's greening strategy, much alike many other cities, often overlooks social barriers to access. Green gentrification assumptions that greening automatically benefits local belonging is misguided; without attention to care, greening can reproduce the same exclusions flagged in green gentrification research (Fernandez, 2021; Van den Brekel et al., 2024). The present study's results underscore that the quality of access must accompany the expansion of green spaces.

From a public health perspective, exposure to nature is known to benefit health and well-being (White et al., 2019). However, if women, especially those from vulnerable communities, feel unsafe or unwelcome in local green spaces they are unlikely to achieve the exposure levels needed to reap the health benefits, leaving the health benefits of nature inequitably distributed. Public health initiatives in Lisbon leveraging green spaces should pair efforts to increase nature exposure with interventions to improve park inclusivity and comfort.

At the urban planning and design management level, the findings point to strategies for making Lisbon's urban green spaces more inclusive. Participants' feedback highlighted themes of gendered safety and cultural accommodation, suggesting a few straightforward improvements could significantly enhance perceived inclusivity. Adequate lighting, accessible signage, and visible security measures are fundamental. Ahmad et al.'s (2025) findings that parks that are poorly lit, isolated, or not well-maintained tend to be perceived as unsafe align with our findings that people who perceive the parks to be unsafe tend to reference safety measures. Park authorities should prioritize safety features such as improved nighttime illumination, emergency call points, and regular maintenance. Additionally, cultural accessibility needs to be improved. Incorporating culturally relevant amenities could make parks more inviting, such as adding designated picnic and barbeque areas, allowing music and festivals reflecting diverse cultures, and using community bulletin boards to showcase inclusive events. Providing seating and layouts that also support multigenerational, diverse gatherings, such as shaded benches near play areas, long communal tables, movable chairs for flexibility, and accessible pavilions for events, can help transform parks into community and social hubs. The physical environment of parks should be intentionally designed through an inclusive lens.

Our study highlights broader governance and societal implications as urban green spaces are seen not just as recreation amenities, but also as venues for social integration and community well-being. Parks are one of the accessible spaces where people from different backgrounds can interact. Batel and Guerra's (2019) view on social psychology suggests that policy interventions must consider how collective narratives of belonging mold everyday inclusivity in parks, supporting the idea that designing green infrastructure engages communities through dialogue as well as in physical space. In the context of Lisbon, green gentrification processes have led to environmental rehabilitation of formerly industrial areas, but have also caused exclusionary displacement of long-term, lower-income residents. This phenomenon reveals how urban greening, while improving environmental quality and access to nature, may deepen social inequalities by physically and socially segregating vulnerable communities. Thus, it's important to have inclusive urban planning that addresses both environmental enhancement and social justice. Lisbon's park programming and regeneration should focus on communication, safety, and family-supportive facilities, all prerequisites for visits among migrant women identified by

the present study, in addition to previous research alongside barriers in ethnic-minority research (van den Brekel et al., 2024; Hamza et al., 2024).

4.5 Limitations

Despite its novel contributions this study has several limitations. First, due to the cross-sectional nature of the study, we cannot make causal claims. Additionally, the 4-item nature exposure scale (NES; Kamitsis & Francis, 2013) was administered with one item presented out of its intended order. Specifically, two conceptually similar items appeared consecutively when they should not have and inspection of the data indicated redundancy in the answers to these questions. Following standard scale-cleaning procedures, that item was excluded and reliability improved, yielding the study's 3-item scale. The item removed referred to the amount of nature participants noticed on a daily basis, which was placed directly after the other notice question, potentially leading to feelings of confusion or repetition. This reduced content coverage relative to the original scale but was necessary for internal consistency in this sample. Further studies should administer the full NES with the published item order to preserve comparability and breadth of construct.

Characteristics of our sample and context limit the generalizability of the findings. The study surveyed a relatively modest sample of urban park users in Lisbon, Portugal, although just barely fell short the predicted sample size necessary through g*power with a medium effect size. Self-selection bias is plausible, with people more interested in nature or immigration to be more likely to participate. The sample also did not include any participants identifying at the conservative end of the political spectrum (5=Right), which may limit the generalizability of findings across the full range of political orientations. Further, the cultural and geographical context was low, with all participants engaged in a single European city. As a result, the outcomes may not transfer to other cities, rural communities, or other locations with different relationships to nature.

Additionally, the explained variance of the main model was very small (6.8%), indicating that while the relationship was significant, nature exposure accounted for a limited proportion of variance in place attachment, signifying the possibility that other constructs are needed to explain it. Finally, the scope of variables in the study was limited. The study tested two moderators and did not account for other personal or situational variables associated with place attachment. For

instance, we did not collect data on participants' levels of social interactions with neighbors (Lewicka, 2010).

4.6 Future Directions

Future research should pretest the Portuguese versions against the validated Portuguese nature exposure scale (Picanço et al., 2024) and ensure presentation order validity. Additionally, the connectedness to nature scale should be culturally verified and pretested to ensure proper localization of variables. Future research should also examine more diverse locations and populations as expanding to other regions would help determine if the findings are context-specific or more general. Importantly, immigrant populations are far from uniform. They represent a wide range of cultural, linguistic, religious, and socioeconomic backgrounds that shape how individuals perceive and interact with urban nature. Future studies should account for this diversity, as different migration histories, cultural orientations, or length of residence may influence how inclusivity and place attachment are experienced. Furthermore, the supplementary open-ended questions only give a slight insight into items on the perceived inclusivity scale. Further depth is warranted to determine the factors behind why people might feel unincluded in these spaces and when they do. Future research could aim to recruit more politically diverse samples, as the current study did not include participants identifying with right-leaning political orientations.

Notably, there could be a reverse phenomenon, where place attachment could lead to more exposure. For example, if someone is already attached to their local, they may find themselves exploring the natural environment more often. As described in the discussion, the lack of a moderator effects suggest connectedness to nature may be a mediator instead. We know many of the facets that comprise the multi-dimensional well-being and health of migrant populations, so all of these could be explored as additional moderators. Some examples include length of residence, language proficiency, socioeconomic status, or migration motivation. Finally, this study explored solely those who identified as women and thus does not shed light on how other identities might have different experiences with nature and place attachment. Continued research on migrant experiences in urban nature must remain attentive to diversity and nuance.

4.7 Conclusion

The present study contributes to the understanding of how urban green spaces support psychosocial experiences among immigrant women in Lisbon. By examining the relationship

between nature exposure, place attachment, perceived inclusivity, and connectedness to nature, this research found that perceived inclusivity moderated the association between nature exposure and place attachment, with stronger links at low levels of inclusivity. Urban nature may serve as a meaningful context for adaptation and self-restoration, even when broader social inclusion is limited. In doing so, the study adds to the growing recognition that social and environmental inclusion are intertwined. Ultimately, the findings reflect that the immigrant experience is not monolithic.

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Appendix A – Informed Consent

This study is part of a research project being carried out at Iscte – Instituto Universitário de Lisboa. The aim of the study is to understand how migrant women experience urban nature parks in their daily lives in Lisbon.

The study is being carried out by Gillian Howard [email: naturesplacestudy@gmail.com], and scientifically supervised by Dr. Susana Batel (Susana.batel@iscte-iul.pt) and Dr. Rita Guerra (Ana_Rita_Guerra@iscte-iul.pt) whom you can contact if you have any questions or comments.

Your participation in the study, which will be highly valued, as it will contribute to the advancement of knowledge in this field of science, consists of a questionnaire that will take 10-15 minutes to complete. No significant risks are expected in association with participation in the study.

Participation in the study is strictly voluntary: You can freely choose to participate or not to participate. If you have chosen to participate, you can interrupt your participation at any time without having to provide any justification. In addition to being voluntary, participation is also anonymous and confidential. The data collected is solely intended for statistical analysis, and no responses will be analyzed or reported individually. At no point in the study will you need to be identified.

I declare that I have understood the objectives of what was proposed and explained to me by the researcher, and by clicking yes I confirm my consent to participate in the study.

○ Yes, I consent

○ No, I do not consent

Este estudo insere-se num projeto de investigação que está a ser desenvolvido no Iscte – Instituto Universitário de Lisboa. O objetivo do estudo é compreender como as mulheres migrantes experienciam os parques naturais urbanos no seu quotidiano em Lisboa.

O estudo está a ser realizado por Gillian Howard [email: naturesplacestudy@gmail.com], e

supervisionado cientificamente pela Dr.ª Susana Batel (Susana.batel@iscte-iul.pt) e pela Dr.ª Rita Guerra (Ana_Rita_Guerra@iscte-iul.pt), que poderá contactar em caso de dúvidas ou comentários.

A sua participação no estudo, que será muito valorizada, pois contribuirá para o avanço do conhecimento neste domínio da ciência, consiste num questionário que demorará 10-15 minutos a preencher. Não são esperados riscos significativos associados à participação no estudo.

A participação no estudo é estritamente voluntária: Pode optar livremente por participar ou não participar. Se optar por participar, pode interromper a sua participação em qualquer altura sem ter de apresentar qualquer justificação. Para além de ser voluntária, a participação é também anónima e confidencial. Os dados recolhidos destinam-se exclusivamente à análise estatística e nenhuma resposta será analisada ou comunicada individualmente. Em nenhum momento do estudo será necessário identificar-se.

Declaro que compreendi os 70mportuna do que me foi proposto e explicado pelo investigador e, ao clicar em sim, confirmo o meu consentimento para participar no estudo.

- ○ Sim, eu consito
- ○ Não, não consinto.

Appendix B – Demographics

Q2 How old are you (please use numbers to represent years)?

Q2 Que idade tem (utilize números para representar os anos)?

Q3 How do you describe yourself?

- o Male (1)
- o Female (2)
- o Non-binary / third gender (3)
- o Prefer to self-describe (4) _____
- o Prefer not to say (5)

Q3 Como é que se descreve?

- o Homem (1)
- o Mulher (2)
- o Não binário / Elu, Ilu, Ile (3)
- o Prefere descrever-se a si próprio (4)

  _____

- o Prefiro não dizer (5)

Skip To: End of Survey If How do you describe yourself? != Female

Q4 Were you born in Portugal?

- o Yes (1)
- o No (2)

Q4 Nasceu em Portugal?

- o Sim (1)
- o Não (2)

Skip To: End of Survey If Were you born in Portugal? = Yes

Display this question:

If Were you born in Portugal? = No

Q5 How long have you lived in Portugal?

- o Less than 6 months (1)
- o 6 months – 1 year (2)
- o 1-3 years (3)
- o 3-5 years (4)
- o 6+ years (5)

Q5 Há quanto tempo vive em Portugal?

- o Menos de 6 meses (1)
- o 6 meses – 1 ano (2)
- o 1-3 anos (3)
- o 3-5 anos (4)
- o 6+ anos (5)

Skip To: End of Survey If How long have you lived in Portugal? = Less than 6 months

Q6 Are you a Portuguese citizen?

- o Yes (1)
- o No (2)

Q6 É cidadão português?

- o Sim (1)
- o Não (2)

Display this question:

If Are you a Portuguese citizen? = No

Q7 Please indicate country of citizenship:

Q7 Indicar o país de nacionalidade:

Q8 What is your current employment status?

- o Employed (1)
- o Unemployed (2)
- o Retired (3)
- o Student (4)
- o Other (5)

Q8 Qual é a sua situação profissional atual?

- o Trabalhador (1)
- o Desempregado (2)
- o Reformado (3)
- o Estudante (4)
- o Outro (5)

Q9 What is the highest level of education you have completed?

- o Elementary School (1)
- o High School (2)
- o Bachelor's Degree (3)
- o Master's Degree (4)
- o PhD (5)
- o Other (6)

Q9 Qual é o nível de ensino mais elevado que completou?

- o Escola primária (1)

- o Escola secundária (2)
- o Bacharelado (3)
- o Mestrado (4)
- o PhD (5)
- o Outro (6)

Q10 Which of the descriptions comes closest to how you feel about your household's income nowadays?

- o Living comfortably on present income (1)
- o Coping on present income (2)
- o Finding it difficult on present income (3)
- o Finding it very difficult on present income (4)

Q10 Qual das descrições se aproxima mais da forma como se sente atualmente em relação ao rendimento do seu agregado familiar?

- o Viver confortavelmente com o rendimento atual (1)
- o Como fazer face ao rendimento atual (2)
- o Dificuldades com o rendimento atual (3)
- o É muito difícil viver com o rendimento atual (4)

Q11 In politics people sometimes talk of "left" and "right". Where would you place yourself on this scale, where 1 means the left and 5 means the right?

- o 1 (1)
- o 2 (2)
- o 3 (3)
- o 4 (4)
- o 5 (5)

Q11 Em política, fala-se por vezes de "esquerda" e "direita". Onde é que se colocaria nesta escala, em que 1 significa esquerda e 5 significa direita?

- o 1 (1)
- o 2 (2)
- o 3 (3)
- o 4 (4)
- o 5 (5)

Q12 Do you currently consider yourself as belonging to any particular religion?

- o Yes (1)
- o No (2)

Q12 Considera-se atualmente pertencente a alguma religião em particular?

- o Sim (1)
- o Não (2)

Display this question:

If Do you currently consider yourself as belonging to any particular religion? = Yes

Q13 Which religion do you most identify with?

- o Catholic (1)
- o Protestant (2)
- o Orthodox (3)
- o Jewish (4)
- o Islam/Muslim (5)
- o Other (6)

Q13 Com que religião se identifica mais?

- o Católico (1)
- o Protestante (2)
- o Ortodoxo (3)
- o Judeu (4)

o Islão/Muçulmano (5)

o Outro (6)

Display this question:

If Do you currently consider yourself as belonging to any particular religion? = Yes

Q14 How much do you identify with your religious group?

o Not at All 1 (1)

o A little 2 (2)

o Neutral 3 (3)

o A lot4 (4)

o Very Much5 (5)

Q14 Numa escala de 1 a 5, até que ponto se identifica com o seu grupo religioso?

o Nem um pouco 1 (1)

o Um pouco 2 (2)

o Neutro 3 (3)

o Muito 4 (4)

o O máximo 5 (5)

Q15 Which of the following options do you consider best describes your belonging and/or origin? (please select all that apply)

▢ White/European origin (1)

▢ Black/ Afrodescendent/ African origin (2)

▢ Asian/ Asian origin (3)

▢ Roma/ Roma origin (4)

▢ Other origin (5)

▢ Mixed (6)

Q15 Qual das seguintes opções considera que melhor descreve a sua pertença e/ou origem? (selecione todas as opções aplicáveis)

- ☐ Branco/origem europeia (1)
- ☐ Negro/ Afrodescendente/ Origem 77mportun (2)
- ☐ Origem asiática/asiática (3)
- ☐ Romano/ Romano origem (4)
- ☐ Outra origem (5)
- ☐ Misto (6)

Display this question:

If Which of the following options do you consider best describes your belonging and/or origin? (plea... = Other origin

Q16 If you selected other origin, which?

Q16 Se selecionou outra origem, qual?

Display this question:

If Which of the following options do you consider best describes your belonging and/or origin? (plea... = Mixed

Q17 If you selected mixed, which?

Q17 Se selecionou mista, qual?

Q18 What landscape most resembles your place of origin?

- o Urban (1)
- o Mostly Rural (2)

- o Semi-Rural (3)
- o Suburban (4)

Q18 Que paisagem mais se assemelha ao seu local de origem?

- o Urbano (1)
- o Maioritariamente rural (2)
- o Semi-Rural (3)
- o Suburbano (4)

Appendix C – Nature Exposure Scale (NES)

Q20 Please rate this statement on a scale from very little of my everyday (1) to Most of my everyday (5).

	Very little of my everyday 1 (1)	2 (2)	About half of my everyday 3 (3)	4 (4)	Most of my everyday 5 (5)
In your everyday home, travel, and work environments and activities, please rate your level of exposure to "natural environments" in Lisbon. (1)	o	o	o	o	o

Q21 Please rate this statement on a scale of 1-5 from not often at all (1) to very often (5).

	Never 1 (1)	Seldom 2 (2)	About half the time 3 (3)	Usually 4 (4)	Always 5 (5)

How much do you notice the natural environments in your everyday life in Lisbon? (1)	o	o	o	o	o
How much notice would you take of the nature in these environments ? (2)	o	o	o	o	o

Q22 Please rate the frequency (how often) of exposure to nature-rich environments outside your everyday environment on a scale of 1-5.

	Less often 1 (1)	Once a Year or Less 2 (2)	Once Every 6 Months 3 (3)	Once a Month or Less 4 (4)	More Often 5 (5)
(1)	o	o	o	o	o

Appendix D – Abbreviated Place Attachment Scale (APAS)

Q24 Please rate the below statements on a scale from strongly disagree (1) to strongly agree (5).

	Strongly Disagree 1 (1)	Somewhat disagree 2 (2)	Neither agree nor disagree 3 (3)	Somewhat agree 4 (4)	Strongly agree 5 (5)
Lisbon is very special to me (1)	o	o	o	o	o
Lisbon is the best place (2)	o	o	o	o	o
No other place can compare to Lisbon (3)	o	o	o	o	o
I identify strongly with Lisbon (4)	o	o	o	o	o
I would not substitute Lisbon for any other area (5)	o	o	o	o	o
I am very attached to Lisbon (6)	o	o	o	o	o

Appendix E – Connectedness to Nature Scale (CNS)

Q19 Please rate the following statements in terms of the way you generally feel on a scale from strongly disagree (1) to strongly agree (5).

	Strongly Disagree 1 (1)	Disagree 2 (2)	Neither Agree nor Disagree 3 (3)	Agree 4 (4)	Strongly Agree 5 (5)
I often feel a sense of oneness with the natural world around me. (1)	o	o	o	o	o
I think of the natural world as a community to which I belong. (2)	o	o	o	o	o
I recognize and appreciate the intelligence of other living organisms. (3)	o	o	o	o	o
I often feel disconnected	o	o	o	o	o

from nature. (4)					
When I think of my life, I imagine myself to be part of a larger cyclical process of living. (5)	o	o	o	o	o
I often feel a kinship with animals and plants. (6)	o	o	o	o	o
I feel as though I belong to the Earth as equally as it belongs to me. (7)	o	o	o	o	o
I have a deep understanding of how my actions affect the natural world. (8)	o	o	o	o	o
I often feel part of the	o	o	o	o	o

web of life. (9)					
I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’. (10)	o	o	o	o	o
Like a tree can be part of a forest, I feel embedded within the broader natural world. (11)	o	o	o	o	o
When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature. (12)	o	o	o	o	o
I often feel like I am only	o	o	o	o	o

a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees. (13)					
My personal welfare is independent of the welfare of the natural world. (14)	o	o	o	o	o

Appendix F – Perceived Inclusivity Scale (PI)

Q25 Please rate the below statements on a scale from strongly disagree (1) to strongly agree (5). Lisbon's urban parks.....

	Strongly Disagree 1 (6)	Somewhat disagree 2 (7)	Neither agree nor disagree 3 (8)	Somewhat agree 4 (9)	Strongly agree 5 (10)
...Remind me of my home country. (1)	o	o	o	o	o
...Are safe for me as a migrant woman. (11)	o	o	o	o	o
...Are safe for my family. (12)	o	o	o	o	o
...Represent what I value in natural recreation spaces. (13)	o	o	o	o	o
...Accommodate my cultural practices well. (14)	o	o	o	o	o
...Make me feel excluded	o	o	o	o	o

because of my ethnic background. (15)

Appendix G – Perceived Inclusivity Open Questions

Q26 Can you please elaborate on how Lisbon's urban parks do or do not make you feel excluded because of your ethnic background?

Q27 Can you please elaborate on how Lisbon's urban parks do or do not make you feel safe as a migrant woman?

Q28 Can you please elaborate on how Lisbon's urban parks are or are not safe for your family?

Q29 Can you please elaborate on how Lisbon's urban parks do or do not accommodate your cultural practices well?

Appendix H – Debriefing

Thank you very much for taking part in this study. As stated at the beginning of your participation, the study aims to understand the role of nature in the integration of migrant women and how this facilitates place attachment. More specifically, the study explores if migrant women's exposure to nature in the country they are living in is associated to the extent they feel attached to the place, and if this relationship varies depending on their perceptions of nature inclusivity and connectedness to nature.

We would like to reinforce the contact details you can use should you have any questions, wish to share any comments, or signal your intention to receive information about the main results and conclusions of the study:
Gillian H. [naturesplacestudy@gmail.com], Dr. Susana Batel [Susana.batel@iscte-iul.pt], and Dr. Rita Guerra [Ana_Rita_Guerra@iscte-iul.pt].
If you are interested in accessing more information about the subject of the study, you can also consult the following sources:

- Aizlewood, A., Bevelander, P., & Pendakur, R. (2006). Recreational Participation Among Ethnic Minorities and Immigrants in Canada and the Netherlands. Journal of Immigrant & Refugee Studies, 4(3), 1–32. https://doi.org/10.1300/J500v04n03_01

- Lorentzen, C.A., & Viken, B. (2022). Influences on Outdoor Recreation Behavior Among Immigrant Women in Norway. Nordic Journal of Migration Research. https://doi.org/10.33134/njmr.382

- Kloek, M. E., Buijs, A. E., Boersema, J. J., & Schouten, M. G. C. (2012). Crossing Borders: Review of Concepts and Approaches in Research on Greenspace, Immigration and Society in Northwest European Countries. Landscape Research, 38(1), 117–140. https://doi.org/10.1080/01426397.2012.690861

- Ono, A. J., Boyd, D. R., & A. Chan, K. M. (2023). Acculturation as an ecosystem service? Urban natural space supports evolving relational values and identity in new female migrants. People and Nature, 5(2), 313-325. https://doi.org/10.1002/pan3.10188

Please find some additional resources for migrant women below:

- https://www.lisbonproject.org/
- https://renovaramouraria.pt/pt/
- https://www2.gov.pt/en/migrantes-viver-e-trabalhar-em-portugal/migrantes-encontrar-alojamento-e-casa-em-portugal

Thank you again for your participation.

Muito obrigado por ter participado neste estudo. Tal como foi referido no início da sua participação, o estudo tem como objetivo compreender o papel da natureza na integração das mulheres migrantes e a forma como esta facilita a ligação ao local. Mais especificamente, o estudo explora se a exposição das mulheres migrantes à natureza no país em que vivem está associada à medida em que se sentem ligadas ao lugar, e se esta relação varia consoante as suas percepções de inclusão da natureza e de ligação à natureza.

Gostaríamos de reforçar os dados de contacto que poderão utilizar caso tenham alguma questão, queiram partilhar algum comentário ou manifestar a vossa intenção de receber informação sobre os principais resultados e conclusões do estudo:
Gillian H. [naturesplacestudy@gmail.com], Dra. Susana Batel [Susana.batel@iscte-iul.pt], e Dra. Rita Guerra [Ana_Rita_Guerra@iscte-iul.pt].
Se estiver interessado em aceder a mais informação sobre o tema do estudo, pode também consultar as seguintes fontes:

- Aizlewood, A., Bevelander, P., & Pendakur, R. (2006). Recreational Participation Among Ethnic Minorities and Immigrants in Canada and the Netherlands. Journal of Immigrant & Refugee Studies, 4(3), 1–32. https://doi.org/10.1300/J500v04n03_01

- Lorentzen, C.A., & Viken, B. (2022). Influences on Outdoor Recreation Behavior Among Immigrant Women in Norway. Nordic Journal of Migration Research. https://doi.org/10.33134/njmr.382

- Kloek, M. E., Buijs, A. E., Boersema, J. J., & Schouten, M. G. C. (2012). Crossing Borders: Review of Concepts and Approaches in Research on Greenspace, Immigration and Society in Northwest European Countries. Landscape Research, 38(1), 117–140. https://doi.org/10.1080/01426397.2012.690861

- Ono, A. J., Boyd, D. R., & A. Chan, K. M. (2023). Acculturation as an ecosystem service? Urban natural space supports evolving relational values and identity in new female migrants. People and Nature, 5(2), 313-325. https://doi.org/10.1002/pan3.10188

Encontram-se abaixo alguns recursos adicionais para as mulheres migrantes:

- https://www.lisbonproject.org/
- https://renovaramouraria.pt/pt/
- https://www2.gov.pt/en/migrantes-viver-e-trabalhar-em-portugal/migrantes-encontrar-alojamento-e-casa-em-portugal

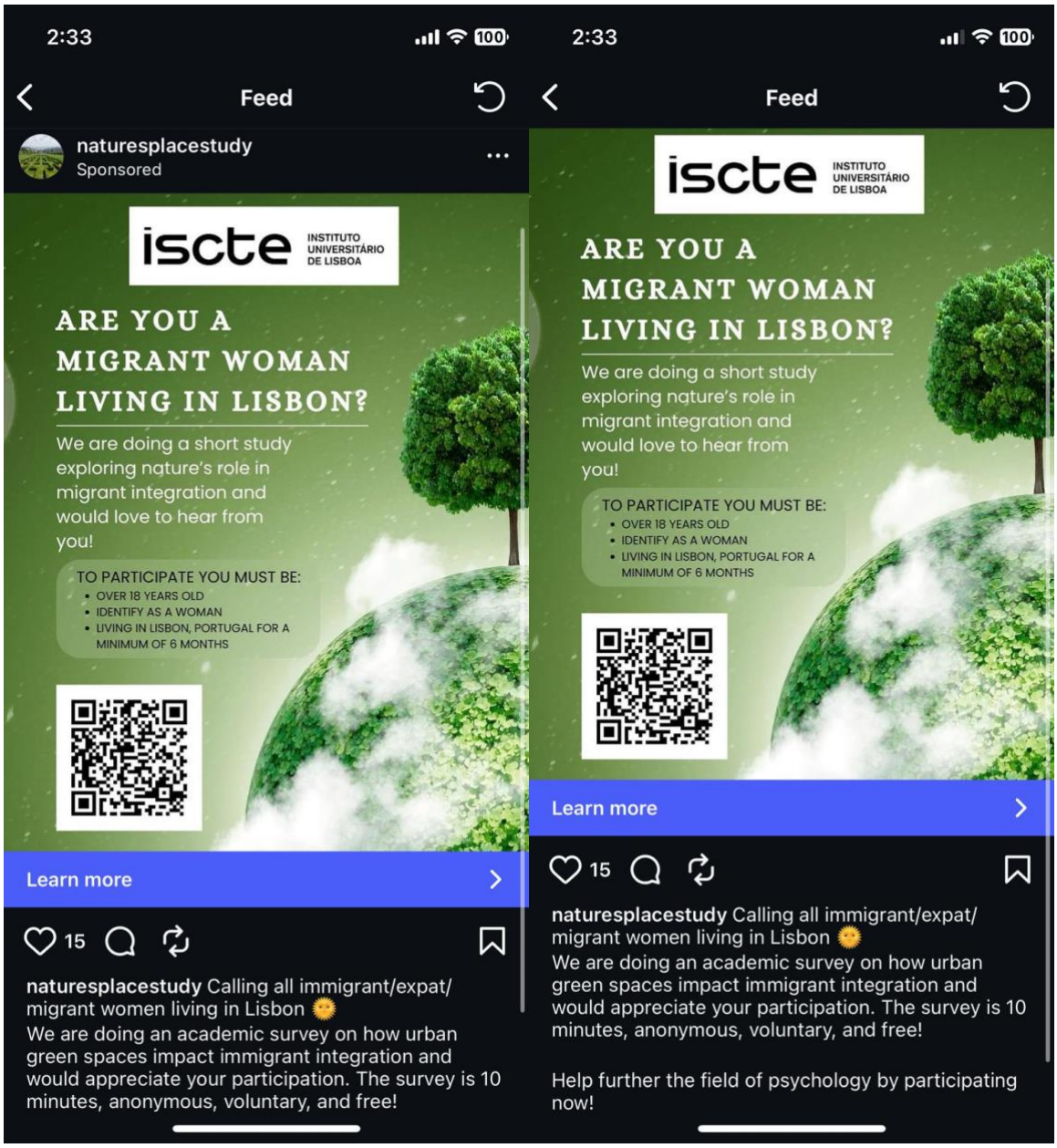
Mais uma vez, obrigado pela vossa participação.

Appendix I

Advertisement Materials

Figure I2

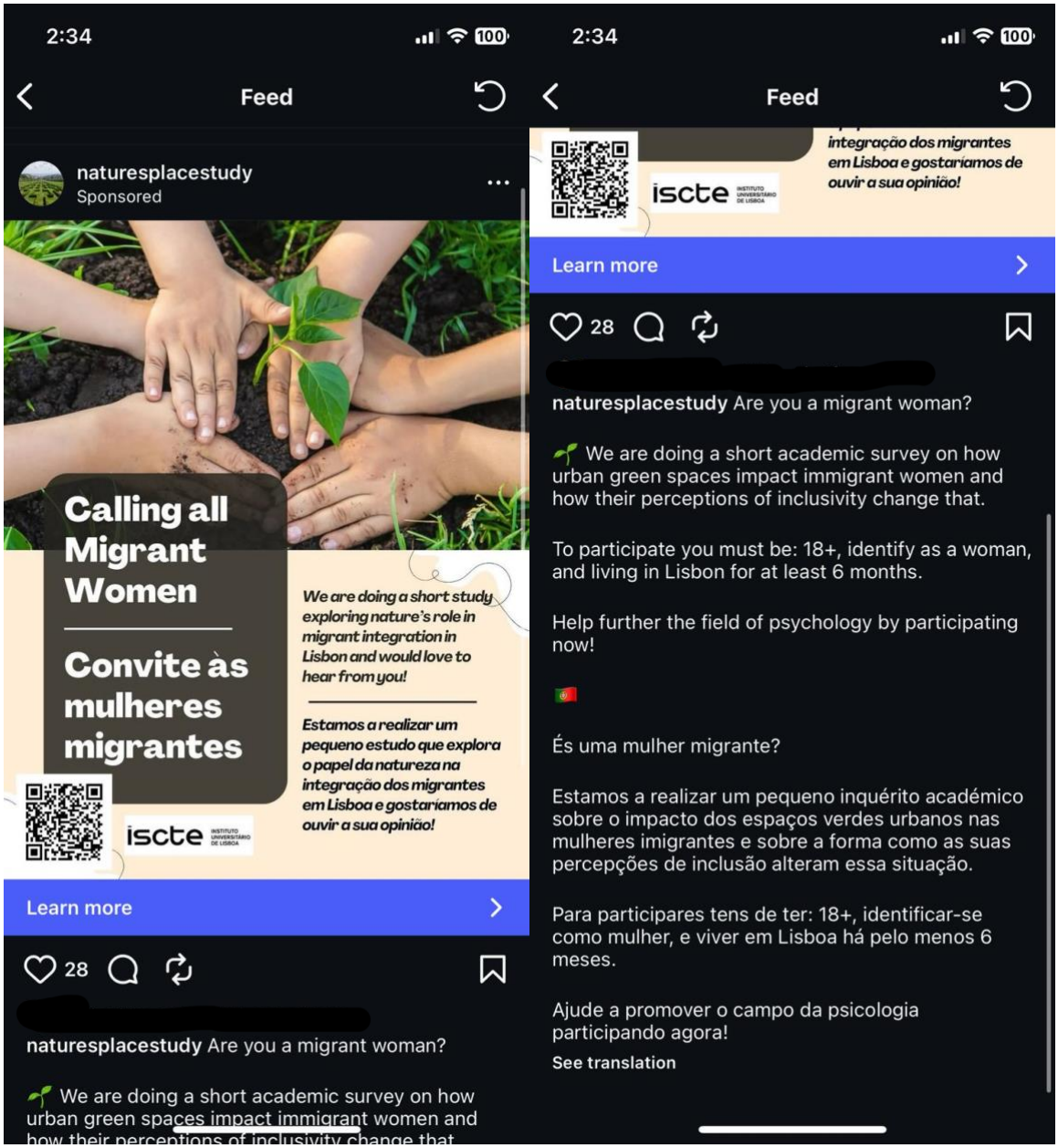
Paid Instagram advertisement used for participant recruitment (Ad 2)



Note. This paid Instagram post was used to recruit participants for the study exploring nature's role in migrant integration among immigrant women living in Lisbon.

Figure I2

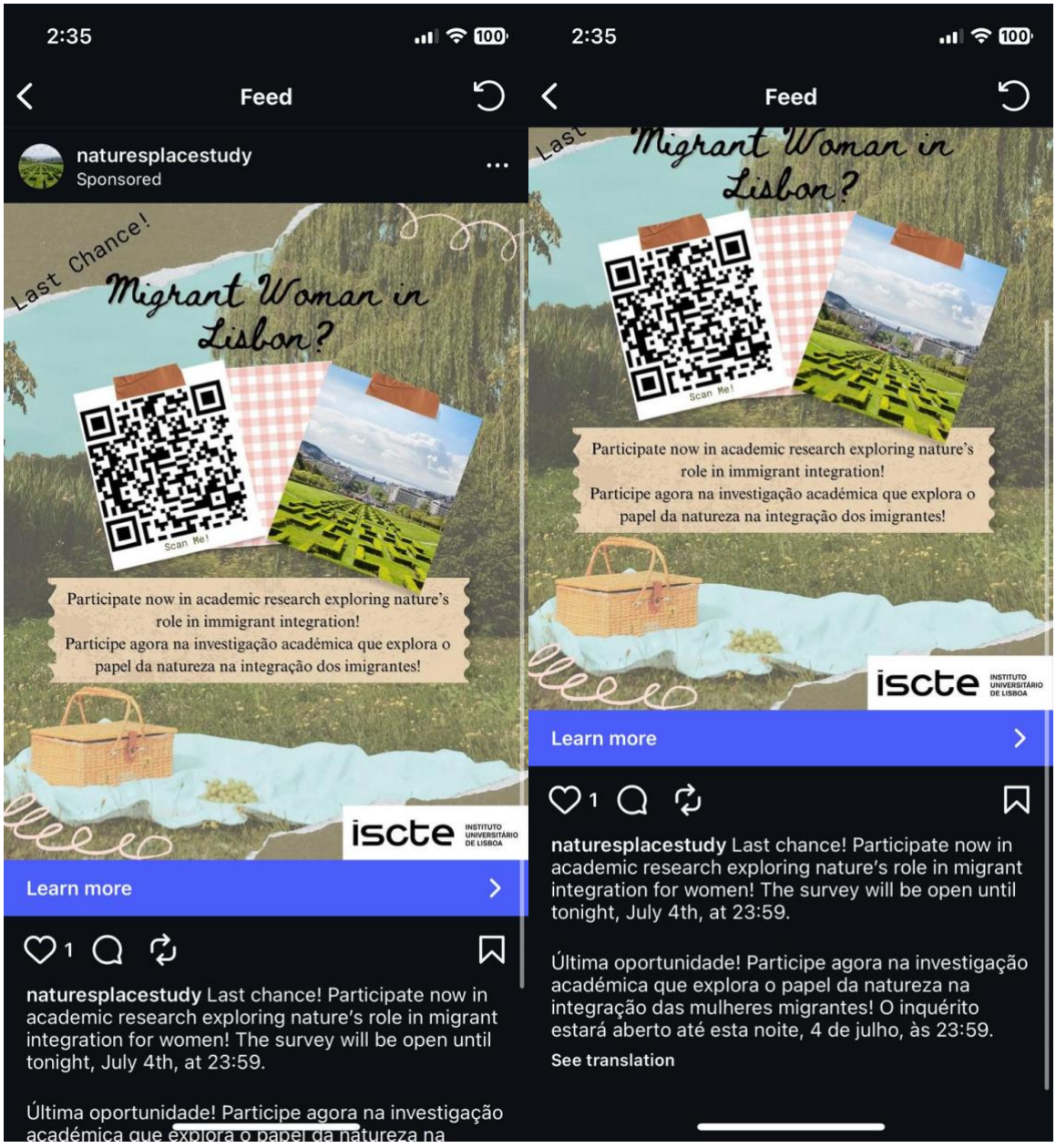
Paid Instagram advertisement used for participant recruitment (Ad 2)



Note. This paid Instagram post was used to recruit participants for the study exploring nature's role in migrant integration among immigrant women living in Lisbon.

Figure I3

Paid Instagram advertisement used for participant recruitment (Ad 3)



Note. This paid Instagram post was used to recruit participants for the study exploring nature's role in migrant integration among immigrant women living in Lisbon.

Figure I4.
Paid Instagram advertisement used for participant recruitment (Ad 4)



Note. This paid Instagram post was used to recruit participants for the study exploring nature's role in migrant integration among immigrant women living in Lisbon.

Figure I5.
Flyers/Posters (Flyer 1)



Figure I6.
Flyers/Posters (Flyer 2)



Figure I7.
Flyers/Posters (Flyer 3)



Figure I8

Email outreach script

Note. Other minor variants available upon request.

Dear ___,

I hope this message finds you well.

My name is Gillian Howard, and I am currently completing my MSc in Psychology of Intercultural Relations at ISCTE – Instituto Universitário de Lisboa. I am conducting a research study as part of my thesis, exploring how migrant women experience urban green spaces in Lisbon and how this may influence their sense of place attachment and well-being.

I am reaching out in the hope that you might be willing to help with participant recruitment. The study is looking for people who identify as women (18+) who have migrated to Lisbon, Portugal, and lived here for at least six months. Participation is completely anonymous, takes approximately 10–15 minutes, and involves a short online survey.

If you work with clients who may meet these criteria – or if you're connected with relevant professional networks or communities – I would be very grateful if you could share the survey link or QR code with them. The survey will be open for respondents until July 4th, 2025.

Please find the survey at this link: https://iscteiul.co1.qualtrics.com/jfe/form/SV_40dH3C293StuyPQ

If you'd like to learn more about the study, I would be happy to answer any questions or provide results at the end of the research. Thank you for considering this request – your support could make a real difference in ensuring migrant women's perspectives are represented in psychological research.

Warm regards,

Gillian Howard
ISCTE – Instituto Universitário de Lisboa
naturesplacestudy@gmail.com

Appendix J

Table J1

Original Portuguese and English for Quoted Extracts

Age	Country	English Quotation	Portuguese Original
40	Brazil	It doesn't have the same vibe that I'm used to. Both in terms of nature and people	Não tem a mesma vibração de que estou acostumada. Tanto da natureza quanto das pessoas
52	Brazil	There is xenophobia	Há xenofobia
27	NR	Urban parks and contact with nature bring me a sense of peace and comfort, so that ethnic origin ceases to have the relevance it has in other spaces—I feel "at home	Os parques urbanos e o contato com a natureza me trazem uma sensação de paz e conforto, de forma a que a origem étnica deixa de ter a relevância que tem em outros espaços – sinto-me "em casa"
34	NR	Indeed, there are translinguistic, accessibility, and mapping aspects that prevent me from easily connecting with the space or park, for example, to find the bathroom or feel safe during the journey, even if I am talking about natural environments.	Realmente, há aspectos translinguísticos, de acessibilidade e de mapeamento que não me permitem conectar-me facilmente com o espaço ou parque, por exemplo, para encontrar a casa de banho ou sentir segurança durante o percurso, mesmo que esteja a falar de ambientes naturais.
35	Brazil & Italy	I like urban parks that have more dense vegetation and taller trees (for example, Gulbenkian) than parks that are just lawns. Parks with more trees remind me of Brazil, my native country. I don't like overly planned French-style parks. I like the sea	Gosto dos parques urbanos que tem mais presença de vegetação densa árvores mais altas (por exemplo Gulbenkian) do que parques somente de relvado. Parques com mais árvores me lembram do Brasil, meu país natal. Não gosto de parques muito planejados estilo francês . Gosto do mar e da presença do rio Tejo e da constante vista

		and the presence of the Tagus River and the constant view of the water throughout the city of Lisbon. We can always see the sea/Tagus on the horizon, which reminds me of Rio de Janeiro.]	da água pela cidade de lisboa. Podemos sempre ver no horizonte o mar/tejo me faz lembrar do Rio de Janeiro
Brazil	25	I think that as a woman, any place that doesn't have many people is dangerous. As a migrant woman, it's even worse because you have a smaller support network.	Acho que enquanto mulher, qualquer lugar que não tenham muitas pessoas é perigoso. Como mulher migrante piora por ter uma rede de apoio menor.
NR	22	They don't make me feel safe, not necessarily as an immigrant woman, but as a woman. Being a woman is often scary, and unfortunately, that feeling hasn't been getting any better in today's climate. I personally, but also many of the people I know who identify as women and are Portuguese, are constantly harassed and subjected to unwanted interactions (in the overwhelming majority of cases, from male individuals, regardless of their ethnicity). Urban parks are also a place where this phenomenon occurs, especially if it is a more isolated	Não me fazem sentir segura não enquanto mulher migrante necessariamente, mas enquanto mulher. Ser mulher é frequentemente assustador, e, infelizmente, esse sentimento não tem vindo a melhorar, no clima que se sente hoje em dia. Eu pessoalmente, mas também muitas das pessoas que se identificam como mulheres e que são portuguesas que conheço, sou constantemente assediada e alvo de interações indesejáveis (na esmagadora maioria dos casos, vindas de indivíduos do sexo masculino, independentemente da sua etnicidade). Parques urbanos são um sítio onde este fenómeno se verifica também, especialmente se for um local mais isolado, ou se estiver lá de tarde/noite.

		location, or if you are there in the afternoon/evening	
Brazil	49	I think that as a woman living in a patriarchal society like Portuguese society, it is impossible to feel completely safe, especially if I am alone in a park. Because harassment and sexual assault can occur in different places due to the education and impunity that men have. Even more so knowing that Portuguese legislation is very lenient with crimes of femicide and abuse, where a woman's word has less value. Something totally backward and frightening as an immigrant. When it comes to racialized women or women from former colonies, this structural violence is even greater, as if such women deserved less respect and were at the disposal of others	Acho que como mulher, vivendo em uma sociedade patriarcal como a sociedade portuguesa, não é possível sentir totalmente segura, principalmente se estou sozinha em um parque. Porque assédios e 107mportunação sexual podem ocorrem em diferentes sítios devido à educação e impunidade que os homens têm. Ainda mais sabendo que a legislação portuguesa é muito conivente com crimes de feminicídio e abusos, onde a palavra da mulher tem menos valor. Algo totalmente retrógrado e que assusta como imigrante. No que tange às mulheres racializadas ou de ex-colônias essa violência estrutural é ainda maior, como se tais mulheres merecessem menor respeito e estivessem à disposição.
NR	29	Most of the time, I feel safe in Lisbon's parks. Sometimes I feel a little afraid when I'm alone and a man walks by, reminding me of the violence in Brazil.]	Na maior parte do tempo, me sinto segura nos parques de Lisboa. Às vezes sinto algum medo quando estou sozinha e algum homem passa por perto, me faz lembrar a violência do Brasil.

NR	27	During the day, I feel safe and at peace. At night, I am afraid that something bad might happen	Durante o dia, sinto-me segura e em paz. Durante a noite tenho receio de que algo de mal possa acontecer.
Brazil	40	Overall, I feel safe because my standards are very low, given that I used to live in a very violent city, but I think what makes the biggest difference is the lighting	No geral me sinto segura, pois meu parâmetro é muito baixo, visto que vivia em uma cidade muito violenta, mas acho que o que mais faz diferença é a iluminação.
NR	34	I consider parks to be a reflection of the sense of security I have experienced in Lisbon: familiar environments, with caregivers and spaces that embrace a culture of sports and walking. People convey this sense of temporary companionship to me, even if it is not necessarily one of security	Considero os parques um reflexo da sensação de segurança que tenho experimentado em Lisboa: ambientes familiares, com cuidadores e espaços que acolhem uma cultura do desporto e da caminhada. As pessoas transmitem-me essa sensação de companhia temporária, mesmo que não seja necessariamente de segurança
Brazil	37	They are safe because there are several families	São seguros porque há diversas famílias.
NR	34	They are safe for my family, if we consider safety to be synonymous with caring for nature, maintaining the environment and private areas, as well as the prevalence of spaces for group seating and permanent lighting	São seguros para a minha família, se considerarmos segurança como sinônimo de cuidado com a natureza, manutenção dos ambientes e das zonas íntimas, bem como a prevalência de espaços para sentar em grupo e de iluminação permanente.
Brazil	51	The culture of Portugal is very similar to that of my country, as	A cultura de Portugal é muito similar do meu país, por termos sido colonizados por

		we were colonized by Portugal. It is very easy for me to feel at home, and I identify with the way people appropriate urban cultural spaces for cultural practices.]	Portugal. É muito fácil me sentir em casa e me identifico com a forma como as pessoas se apropriam dos espaços urbanos culturais para as práticas culturais
Brazil	40	I believe that the whole thing is very different and therefore does not fit in with cultural practices. Both the spaces and the people.	Acredito que o todo é muito diferente e por isso culturalmente não se encaixa nas práticas culturais. Tanto os espaços quanto as pessoas.
Brazil	49	Sinto falta de escutar música sem ser no fone de ouvido	I miss listening to music without headphones.

Note. For consistency, all participant quotations in the main text are presented in English, the original Portuguese appears here.

Appendix K

Table K1

Item-by-item provenance for perceived inclusivity scale.

Item	Conceptual Source(s)
Lisbon's urban parks remind me of home.	CABE space, 2010; Ono, Boyd, & Chan, 2023; Rishbeth & Finney, 2006
Lisbon's urban parks are safe for me as a migrant woman.	CABE space, 2010; Lorentzen & Viken, 2022; Ono, Boyd, & Chan, 2023; Rishbeth & Finney, 2006
Lisbon's urban parks are safe for my family.	CABE space, 2010; Lorentzen & Viken, 2022; Ono, Boyd, & Chan, 2023; Rishbeth & Finney, 2006
Lisbon's urban parks represent what I value in natural recreation spaces.	Lorentzen & Viken, 2020; 2022
Lisbon's urban parks accommodate my cultural practices well.	Aizlewood, Bevelander, & Pendakur, 2006