

AGE-FRIENDLY COMMUNITIES AND WELL-BEING OF OLDER MOROCCAN ADULTS IN THE NETHERLANDS

A PERSON-ENVIRONMENT
PERSPECTIVE

Hager Hussein

**Age-friendly Communities and Well-being of Older
Moroccan Adults in the Netherlands:
A person–environment perspective**

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**Age-friendly Communities and Well-being of Older Moroccan Adults in
the Netherlands:
A person–environment perspective**

**Leeftijds vriendelijke gemeenschappen en het welzijn van Marokkaanse
ouderen in Nederland:
Een persoon-omgeving fit perspectief**

Thesis

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The logo of Erasmus University Rotterdam, featuring the word "Erasmus" in a stylized, handwritten font.

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General introduction

GENERAL INTRODUCTION

Like many Western countries, the Netherlands has had significant migrant flows in recent decades (Bijwaard, 2010). Reasons for coming to the Netherlands include, amongst others, labour work or other job opportunities, family formation or reunification, asylum, and study (Statistics Netherlands, 2024a). Currently, the Netherlands is facing a demographic shift as its ageing population is getting larger and becoming more diverse (de Beer, 2020; de Regt et al., 2022). This demographic shift is also expected to continue in the coming years, with far reaching implications on policy choices in many sectors such as housing, mobility, healthcare, etc. (de Beer, 2020).

The case of older Moroccan adults in the Netherlands

Migrants with a Moroccan background constitute the second largest group of non-European migrants residing in the Netherlands (Statistics Netherlands, 2024b). In 2024, a total of 7% of the Moroccan population in the Netherlands were aged 65 years or older (Statistics Netherlands, 2024b). In 2050, nearly a quarter (22%) of the Moroccan migrant population are predicted to be 65 years or older, as reported by Statistics Netherlands (2020). Providing sufficient attention to the experiences and needs of these growing numbers of older migrants has the potential to guide evidence-based inclusive policies that promote successful ageing for the diverse older-adult populations in the Netherlands (Conkova et al., 2024; Conkova & Lindenberg, 2020; de Regt et al., 2022).

For over a century, Moroccans have been predominantly migrating to European countries, including France, Spain, Belgium, Italy, the Netherlands, and Germany (Berriane et al., 2015; de Haas, 2007; Ennaji, 2014). Moroccan migrants' choice for a certain host country tends to be determined by circumstances like the existence of colonial past, job opportunities, family or friends (Ennaji, 2014). In the Netherlands, the first wave of Moroccan migrants started to arrive in the early 1960s, after the mutual agreements made between the governments of Morocco and the Netherlands. They were largely Rif Berbers originating from the Northern region of Morocco (Azghari et al., 2017; de Haas, 2007; Ennaji, 2014). At that time, migrants were mainly recruited as 'guest workers' to combat labour shortages and fulfil low-skilled

jobs in various fields like mining, construction or agriculture (de Haas, 2007). Despite the termination of the agreements between the two governments in mid-1970s, Moroccan migrants continued to flow to the Netherlands in the subsequent decades for family reunification and formation purposes (de Haas, 2007; Ennaji, 2014). Notably, the initial plan of the governments of both countries, as well as the migrants themselves, was for them to work temporarily in the host country. Yet, following the economic recession, the majority of Moroccan migrants gave up on their return intentions and chose to settle permanently and apply for naturalisation in the Netherlands (de Haas et al., 2015).

Given the initial plans of transitory stay in the Netherlands, Dutch language and civic integration courses were not prioritised for working men, while women stayed largely at home caring for their children (Ciobanu et al., 2017). As a result, many first-generation older Moroccan adults have not fully integrated into the Dutch society, do not speak the Dutch language, particularly women, and their networks are primarily made up of people from similar backgrounds (Schellingerhout, 2004). Lack of language proficiency may additionally be attributed to low education levels among older Moroccan adults, as they mostly received low to no education in their country of origin (Gijsberts & Dagevos, 2007). They also tend to live in ethnically condensed neighbourhoods, making it more difficult to form relationships with people of Dutch origin and improve their Dutch language skills (Bolt et al., 2010; Dagevos, 2009; Gijsberts & Dagevos, 2007). Correspondingly, older Moroccan adults tend to have a less advantageous socio-economic position and develop more health-related conditions, as compared to native counterparts, manifesting in chronic diseases, physical limitations, and mental disorders (Ciobanu et al., 2017; Conkova & Lindenberg, 2018; Schellingerhout, 2004). Concerning their ageing experiences, older Moroccan adults seem to consider themselves old at younger ages, and have more often than native counterparts negative perceptions towards the ageing process (Conkova & Lindenberg, 2018). Nevertheless, it is imperative to note the heterogeneity that exists within this migrant population, together with the influence of individual differences on ageing perceptions and needs for ageing well (Ciobanu et al., 2017; Conkova & Lindenberg, 2020).

Ageing outside the country of origin: The Dutch context

The rising numbers of older-adult populations in the Netherlands are expected to have advanced care needs, putting pressure on the Dutch healthcare system, which is already impacted by health professional shortages (de Beer, 2020). As a result, the Dutch government is endorsing several measures to enhance the autonomy and self-management of older adults, promoting their ability to live independently and healthily in their homes and familiar environments for as long as they can (Government of the Netherlands, 2022). These measures are also in alignment with the wishes of older adults themselves to remain autonomous, self-reliant, and actively participate in the society (Government of the Netherlands, 2022). Notions of autonomy, independence, and self-management are deeply rooted in individualistic cultures like that of the Netherlands (Hanssen & Tran, 2019; Lykes & Kemmelmeier, 2014). Current generations of native-Dutch older adults seem more often to be well-educated, financially stable, and individually responsible for decisions regarding their life and care needs, which may be somewhat less applicable for older migrants (de Klerk et al., 2019; Smits et al., 2014).

Older Moroccan adults expect their families, particularly their children to be responsible for fulfilling their care needs as they become older (Conkova & Lindenberg, 2018; Omlo et al., 2016; van Tilburg & Fokkema, 2021), owing to filial obligations that tend to be more embedded in collectivistic and religious cultures like that of Morocco (Dykstra & Fokkema, 2012; van Tilburg & Fokkema, 2021). Despite these high expectations, older Moroccan adults are being confronted with the reality that it is becoming more difficult for younger generations to keep up with filial norms, and would prefer not to burden their children (Conkova & Lindenberg, 2018; Hoffer, 2005). Furthermore, these older adults wish to maintain a certain degree of autonomy and independence (Conkova & Lindenberg, 2018; Omlo et al., 2016), which can be achieved through improving their self-management abilities (Cramm & Nieboer, 2019). Improving self-management abilities like self-efficacy, positive frame of mind, initiative taking and investment in various, multifunctional resources would enable them to proactively realise and maintain health and well-being as they age (Cramm & Nieboer, 2019; Kuiper et al., 2015). According to Dodge et al. (2012, p. 230) older adults may have

a stable well-being when they “have the psychological, social and physical resources they need to meet a particular psychological, social and/or physical challenge”. One can expect that it may be easier for older migrants to adopt self-management abilities when they are more oriented to the Dutch culture and exposed to its values of individual responsibility (Cramm & Nieboer, 2019). Yet, this relationship has not been examined among older Moroccan adults and can shed a light on the cultural context of this migrant population and how it influences their adoption of values embedded in the host society.

Adopting the person–environment fit perspective

Environments where older adults reside can also foster their independence and active participation, especially for those who are vulnerable, such as older adults experiencing loneliness or functional limitations (Clarke & Gallagher, 2013; Wahlroos et al., 2023). Gerontological research has emphasised that ageing well is dependent not only on the individual resources of older adults, but also on the resources available in their environments (Cao & Hou, 2022; Wahl et al., 2012). Residential environments are designed to attend to the needs of its individuals, and can play a crucial role in promoting older adults’ health, well-being, and ability to age well in place (Zhang et al. 2024). Yet, the extent of realisation of these outcomes is shaped by the dynamic interplay between older adults’ resources, needs and preferences, and characteristics of their environments, referred to as the person–environment fit (Chaudhury & Oswald, 2019; Lawton & Nahemow, 1973; Zhang et al. 2024). Individuals’ resources and needs are constantly changing, along with their environments, and such fit is optimised when there is a harmony between the two (Zhang et al. 2024).

Older adults form a heterogeneous population with varying individual resources, including age, gender, ethnicity, health status, education, and socioeconomic status, which reflects their diverse environmental needs for ageing well (Cao & Hou, 2022; Chaudhury & Oswald, 2019; World Health Organization, 2015). For instance, older Moroccan adults who prefer receiving care from their children, would particularly prioritise their children nearby residence in the same neighbourhoods (Omlo et al., 2016). Single older adults facing loneliness may especially wish to live in safe, socially cohesive environments that facilitate social-network expansion (Stephens &

Phillips, 2022). On the other hand, those with functional limitations may become more susceptible to encounter obstacles in less accessible environments, diminishing their ability to age in place (Iwarsson, 2005; Park et al., 2017). Accordingly, it is imperative to adapt residential environments by providing the physical and social resources and health services that align with the diverse needs of older adults and support their ability to age in place (Kumar et al., 2023).

Age-friendly neighbourhoods

Ageing policies currently place a significant emphasis on fostering environments that attend to the needs and preferences of older adults (Buffel et al., 2012). A prominent benchmark in this regard is the notion of age-friendly communities, introduced by the World Health Organization (WHO) in 2007 (World Health Organization, 2007, 2023). The WHO's Age-friendly Cities Guide specifies the environmental resources pertaining to an age-friendly environment under eight domains: *outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services* (World Health Organization, 2007, 2023). The WHO emphasises that age-friendly environments are “designed to account for the wide diversity of older people, promote their autonomy, inclusion and contributions in all areas of community life, respect their decisions and lifestyle choices, and anticipate and respond flexibly to ageing-related needs and preferences” (World Health Organization, 2023, p. 2).

However, it appears that age-friendly initiatives have consistently excluded minoritised older-adult groups, such as older migrants, from actively participating in its development processes, hindering the ability of such initiatives to achieve its objectives for migrant populations (Buffel & Phillipson, 2018; Lehning et al., 2017). Furthermore, there is a general lack of quantitative information concerning the specific environmental needs of older-migrant populations (van Hoof et al., 2022). Age-friendliness scholars have often stressed the need for more inclusive research that explores the unmet distinct needs of migrant populations (Forsyth & Lyu, 2024; Lehning & Baik, 2024; van Hoof et al., 2022), which necessitates the availability of culturally sensitive age-friendly instruments that are suitable for use among

diverse older-adult populations (Dikken et al., 2020; Kim et al., 2021; Plouffe et al., 2016). Accordingly, this thesis will explore the views of older Moroccan adults regarding their needed neighbourhood resources for well-being realisation and ageing in place. In addition, it will investigate the extent of their neighbourhood age-friendliness, and offer a valid, culturally sensitive instrument that allows diverse older-adult populations in the Netherlands to indicate the extent of their neighbourhood age-friendliness and identify their needs for ageing in place.

Research aim

The overarching aim of this research was adopting a person–environment perspective to investigate how age-friendly neighbourhoods can support older Moroccan adults in the Netherlands realise well-being and age successfully in place. In order to fulfil the research aim, this dissertation has addressed the four following objectives:

1. To examine the relationship between acculturation and self-management abilities of well-being among older Moroccan adults.
2. To explore the views of older Moroccan adults regarding their needed neighbourhood resources to realise well-being and age in place.
3. To investigate the extent of neighbourhood age-friendliness according to older Moroccan adults, while accounting for their individual characteristics.
4. To validate an ageing-in-place instrument that allows diverse older-adult populations to evaluate the extent of their neighbourhood age-friendliness and identify their needs for ageing in place.

Thesis outline

This thesis consists of six chapters, the first of which provides a general introduction. Chapter 2 presents a cross-sectional study assessing associations between acculturation (attachment to Moroccan and Dutch cultures) and self-management abilities of well-being among older Moroccan adults, while taking their diverse background characteristics into account. Older Moroccan adults differ in terms of age, gender, marital status, education, health, and Dutch language acquisition, which may influence the extent of their attachment to both Moroccan and Dutch cultures, as well as adoption of self-management abilities of well-being. Chapter 2 examines possible variations

in acculturation strategies and self-management abilities of well-being between subgroups. Environments of older Moroccan adults can also contribute to their ability to realise well-being and age in place. Yet, the distinct environmental needs of older migrant populations for well-being realisation and ageing in place, including those of older Moroccan adults, are under-researched. Chapter 3 uses Q methodology to outline the diverse views of older Moroccan adults regarding their needed neighbourhood resources to realise well-being and age in place. The general lack of quantitative information about the specific environmental needs of older migrants hinders the ability of age-friendly initiatives to respond to these diverse needs and achieve its objectives for these populations. Chapter 4 uses an ageing-in-place instrument to investigate the extent of neighbourhood age-friendliness according to older Moroccan adults and identify their needs for ageing in place. The chapter again acknowledges the diversity of older-Moroccan populations and its potential influence on their needed neighbourhood resources for ageing in place. The chapter adopts a person–environment fit perspective and uses cross-sectional survey design to investigate how the individual characteristics of older Moroccan adults influence their environmental needs for ageing in place. Chapter 5 further refines and validates the ageing-in-place instrument for use with diverse older-adult populations in the Netherlands, guiding the development of inclusive ageing policies and age-friendly neighbourhoods for all. Chapter 6 offers a general discussion of main thesis findings, theoretical and methodological reflections, policy implications, and future research recommendations.

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2



Acculturation and self-management abilities of well-being among older Moroccan migrants in the Netherlands

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ABSTRACT

Background

The extent that older migrants are able to integrate into a host society may determine their readiness to adopt certain behaviours such as self-management abilities of well-being. The aim of this study was to investigate the relationship between acculturation and self-management abilities of well-being among older Moroccans living in the Netherlands, and to examine differences in subgroups.

Methods

Older Moroccans (aged ≥ 65 y) residing in Rotterdam, the Netherlands were randomly selected from the municipality register and invited to participate in this study ($n = 1491$). A total of 290 respondents were included in the final analysis (21% response rate).

Results

Older Moroccans who received low education were found to be less attached to the Dutch culture. They were also poorer self-managers of their well-being, along with those with multimorbidity and those lacking comprehension of the Dutch language. Attachment to Moroccan and Dutch cultures was positively associated with self-management abilities of well-being, while multimorbidity and lack of Dutch comprehension had negative associations. Taken together, these findings indicate that attachment to both Moroccan and Dutch cultures is beneficial for the self-management abilities of well-being of older Moroccan migrants.

Conclusions

The cultural context of older migrants should be considered when promoting values of self-management and individual responsibility. It is also important for efforts to support the integration of older migrants into Dutch society for them to adequately function and feel at home. Interventions promoting integration and self-management of well-being need to consider the characteristics of older migrant populations and pay particular attention to certain subgroups.

INTRODUCTION

In the Netherlands the population is ageing and becoming more ethnically diverse (De Regt et al., 2022; Statistics Netherlands, 2020). Statistics Netherlands has reported that the number of migrants aged ≥ 55 y in the Netherlands has nearly tripled in the last 30 years. Furthermore, this migrant population will constitute approximately 26% of the total number of adults aged ≥ 55 y in the Netherlands by 2050 (Statistics Netherlands, 2020). Among these older migrants, Moroccans represent one of the largest non-European groups (de Regt et al., 2022). Migration is a complex and heterogeneous process, with a variety of stressors involved (Bhugra, 2004). In particular, migration is accompanied by loss of social networks or status from the country of origin and/or separation from family or relatives (Kunuroglu, 2021). Migrants are also more prone to experience financial and housing insecurity, social exclusion, and lack of access to health care in their host country. Accumulation of these stressors over time can have detrimental effects on migrants' health and well-being (Szabó, 2023).

Migrants often want to maintain cultural values, norms, and customs of their country of origin, yet also need to absorb the same aspects of their host country (van Oudenhoven et al., 1998; van der Zwan & Tolsma, 2013). When migrants place greater focus on their host country, they have more opportunities to interact with the host population (van der Zwan & Tolsma, 2013). Interactions with a host population enables migrants to develop, improve, and eventually master intercultural knowledge which can enhance their adaptation (Stodolska et al., 2017). Positive adaptation can help migrants improve their learning, boost their skills, and be better equipped to manage their lives (Stodolska et al., 2017). The extent to which migrants adopt the culture of their host country as opposed to maintaining their native culture is referred to as 'acculturation' (Landrine & Klonoff, 2004). Berry (1980, 1997, 2005) has identified four acculturation strategies that migrants may adopt: (1) Assimilation, (2) Separation, (3) Integration, or (4) Marginalization. Assimilation occurs when migrants interact with other cultures without holding on to their own culture, thereby blending themselves into the culture of their host country. In contrast, separation occurs when migrants hold on to their own culture without interacting with other cultures. Integration occurs

when migrants hold on to their own culture while interacting with other cultures. Meanwhile, marginalization can occur when enforced loss of culture is coupled with discrimination in a host country (Berry, 1980, 1997, 2005). Migrants' adoption of any one of these four acculturation strategies depends on characteristics of the host country and the migrants' country of origin, as well as individual characteristics of the migrants (Berry, 1997; Ouarasse, 2004; Ouarasse & van de Vijver, 2005). Eventually, migrants adopt the most feasible and useful strategy for them (Berry, 1997; Bhugra, 2004).

Higher levels of well-being are achieved when a host country has a multicultural orientation that encourages successful integration of its migrants (Berry, 2006; Mana et al., 2009; Phinney et al., 2001). Older migrants successfully integrate into a host country when they are able to retain their native culture's important values while also selectively learning and adopting new behaviours from the host culture. These migrants demonstrate positive attitudes towards both cultures, flexibility, self-efficacy beliefs, and an ability to initiate and maintain relationships within both native and host cultures (Berry, 1997, 2005; David et al., 2009; Kissil et al., 2013). Thus, the level of integration by migrants into the host culture determines the extent of their readiness to adopt certain behaviours (Berry, 1997; Bhugra, 2004; Landrine & Klonoff, 2004), such as self-management of well-being.

Older migrants need to be able to proactively manage their external resources (e.g., housing, income, social networks, services) for well-being realisation and successful ageing (Steverink et al., 2005). According to the self-management abilities of well-being theory, self-management abilities represent the cognitive and behavioural abilities (e.g., internal resources) that provide older adults with the tools necessary to utilise their external resources to realise well-being (Steverink, 2009; Steverink et al., 2005). For well-being realisation, older adults have to fulfil five basic needs: status, affection, and behavioural confirmation for the realisation of social well-being, and comfort and stimulation for the realisation of physical well-being (Lindenberg, 1996; Steverink et al., 2005). Status refers to the need to stand out from others in a positive way through unique abilities or accomplishments. Affection refers to the need to feel loved and to offer love to others, while behavioural confirmation involves the need to be validated by others and to belong to a

group with similar norms and values. Comfort involves basic physical needs such as safety and the absence of pain, while stimulation refers to the need for physical and sensory activation (e.g., physical exercise, hobbies) (Nieboer & Cramm, 2018; Steverink, 2009; Steverink et al., 2005). To fulfil these needs and promote overall well-being, older adults utilise the following six self-management abilities: (1) Self-efficacy beliefs, (2) Taking initiative, (3) Positive frame of mind, (4) Investment behaviour, (5) Multifunctionality of resources, and (6) Variety of resources (Steverink et al., 2005).

Having self-efficacy beliefs ensures that older migrants believe in their abilities to finish tasks and accomplish goals. Self-efficacy beliefs are also important for taking initiative to mobilise resources (e.g., initiating friendships with own group members and natives, to fulfil the need for affection and/or behavioural confirmation). Having a positive frame of mind ensures that older migrants remain optimistic towards the future, which is important for investment behaviour by which they work to stabilise long-term resources (e.g., investing in a host country's language to fulfil the need for stimulation and/or status). Multifunctionality of resources ensures that older migrants are able to mobilise resources that fulfil multiple basic needs simultaneously (e.g., walking with a friend who fulfils both the need for affection and stimulation). Lastly, having a variety of resources available ensures that older migrants have redundant resources to fulfil the same need (e.g., having a partner, family, and friends to fulfil the need for affection) (Nieboer & Cramm, 2018; Steverink, 2009; Steverink et al., 2005). The ability of older migrants to proactively manage their well-being can vary significantly, depending on individual and social circumstances that accumulate over the course of an individual's life (Lindsay, 2008, 2009).

Older migrants are a significantly heterogeneous group. Heterogeneity encompasses not only cultural and ethnic characteristics, but also individual and social characteristics such as age, gender, educational background, health, and marital and socio-economic status (Devillé, 2010; Warnes & Williams, 2006). The degree to which older migrants acculturate into a host country is thus anticipated to vary based on these characteristics (Cramm & Nieboer, 2019; Ouarasse & van de Vijver, 2005; Schwartz et al., 2010), as well their ability to proactively manage and maintain well-being with age (Cramm &

Nieboer, 2019; Dutch Diabetes Federation, 2017; Lindsay, 2009). Most of older Moroccans in the Netherlands had received little to no education, and continue to have difficulty speaking Dutch (Hoffer, 2005; Schellingerhout, 2004). Older Moroccans are also more prone to physical and mental health-related issues, and they tend to feel old sooner than their Dutch counterparts (Conkova & Lindenberg, 2018; Nhass & Verloove, 2020). It is predicted that these older Moroccans with low education levels and limited Dutch language skills use the separation strategy more frequently than their younger counterparts who have achieved higher education levels and proficient use of Dutch (Huijnk et al., 2015; Ouarasse & van de Vijver, 2005). Gender differences also exist, with women facing more difficulties adapting to a host country (Berry, 1997; Ouarasse & van de Vijver, 2005). This is especially true for older Moroccan women who focus on their (grand)children rather than social participation (Nhass & Verloove, 2020). Regarding self-management abilities of well-being, many older Moroccans tend to feel rejected, excluded, and burnt out, and often lack a positive outlook on the future (Omlo et al., 2016). Consequently, older Moroccans may exhibit less initiative (especially older women who mostly stay home) and have limited resources (e.g., low income, restricted networks) (Omlo et al., 2016). It is anticipated that limited education and less developed language skills will hinder the ability of older (Moroccan) migrants to self-manage their well-being (Dutch Diabetes Federation, 2017; Vintges et al., 2013).

Older Moroccans who have integrated into Dutch society have been able to maintain a strong sense of community within their group, as well as within the host society (Klok et al., 2017; van Oudenhoven et al., 1998). This is demonstrated through strong cultural identity and attendance at mosques, along with mastery of the Dutch language and having regular contacts with both Dutch and own group members (Klok et al., 2017). These older Moroccans have acquired skills necessary to adapt to, and integrate into Dutch society, without compromising their own cultural identity. This is consistent with self-management abilities which include: being confident in one's ability to attain goals, taking initiative to establish relationships within native and Dutch cultures, and having a positive outlook on the future (Berry, 2005; David et al., 2009; Phinney et al., 2001; Schwartz et al., 2010). When

Cramm and Nieboer (2019) examined older Turkish migrants, they observed an association between acculturation and self-management abilities of well-being. However, research regarding this relationship among older Moroccans in the Netherlands has not been examined.

The objective of this study was to investigate the relationship between acculturation (attachment to Moroccan and Dutch cultures) and self-management abilities of well-being among older Moroccans in the Netherlands, where ageing policies are in place to facilitate the independence of older (migrant) adults (Government of the Netherlands, 2022; Statistics Netherlands, 2020). Subgroups of these older Moroccans were further examined to identify possible differences in acculturation strategies and self-management abilities of well-being. We anticipate to provide greater insight into the cultural dynamics of older Moroccans who reside in urban cities where independence and self-management of well-being for older adults are relevant (Das & de Jonge, 2020; Municipality of Rotterdam, n.d.).

METHODS

Data collection

This cross-sectional study was conducted with older Moroccans aged ≥ 65 years residing in Rotterdam, the Netherlands. A total of 1491 respondents were randomly selected from the municipality register to participate in this study. Data from respondents were gathered between February 2016 and December 2017 (no data were collected during the summer months, since most older Moroccans travel to Morocco during this period for vacation). An invitation, questionnaire, and return envelope were sent to all respondents. The questionnaires for this study were available in Dutch, Moroccan-Arabic, and phonetic Berber. The (translated) questionnaire was validated by older Moroccans who attested to its content validity for the target population. In the case of no response, a reminder was sent, followed by at-home visits. The latter involved interviewers fluent in Dutch, Arabic, and Berber who could further motivate/help the respondents participate and complete the questionnaire for this study. Before providing their consent, respondents were informed about the aims of this study, that their participation was voluntary, and that their data would be handled anonymously.

Of the 1491 invited respondents, 38 were ineligible due to serious medical issues or death and 39 had a change of address. A total of 292 respondents filled in the questionnaire (from 1414 eligible respondents), resulting in a response rate of 21%.

Measures

Self-management abilities of well-being

The Dutch-validated 18-item (short version) Self-Management Ability Scale (SMAS-S) was used to assess self-management abilities of well-being (Cramm, Strating, et al., 2012; Schuurmans et al., 2005). The scale consists of six subscales (with three questions per subscale). Each subscale measures one of the six self-management abilities of well-being: (1) Positive frame of mind, (2) Self-efficacy beliefs, (3) Taking initiative, (4) Investment behaviour, (5) Multifunctionality of resources, and (6) Variety of resources. The first subscale (positive frame of mind) is more of a general cognitive frame, while subscales (2) through (6) are associated with physical and social dimensions of well-being (Cramm, Hartgerink, et al., 2012). The original six-point scale for subscales (1) through (5) was reduced for this study to a four-point scale (ranging from (almost) never to (very) often) to reduce its complexity and facilitate completion. No changes were needed for subscale (6) since it is a closed quantifier scale with the following response categories: none, one, two, three or four, five or six, and more than six. Higher scores indicate higher levels of self-management abilities of well-being. Internal consistency of the SMAS-S was 0.90, which supports reliability of the instrument.

Acculturation

Attachment to Moroccan and Dutch cultures was assessed using a validated six-item Psychological Acculturation Scale (PAS) (Stevens et al., 2004; Tropp et al., 1999). This scale was adapted for Moroccan migrants in the Netherlands from the original 10-item PAS (Stevens et al., 2004; Tropp et al., 1999). The six-item scale was applied to both Moroccan and Dutch cultures (M-PAS and D-PAS, respectively). The M-PAS and D-PAS items were rated on a five-point scale ranging from totally disagree to totally agree. Internal

consistency values for M-PAS and D-PAS were 0.87 and 0.84, respectively, indicating the reliability of these scales.

Median scores for both M-PAS and D-PAS were calculated to distinguish among four acculturation strategies (e.g., integration, assimilation, separation, and marginalization) in our study population (Ward & Rana-Deuba, 1999). Older Moroccans with above median scores for both M-PAS and D-PAS are considered to have adopted the integration strategy. Conversely, those with below median scores for both scales are considered to have adopted the marginalization strategy. Older Moroccans with an above median score for M-PAS and a below median score for D-PAS are considered to have adopted the separation strategy, while those with below and above median scores for M-PAS and D-PAS, respectively, are considered to have adopted the assimilation strategy.

Background characteristics

Respondents provided their date of birth, gender (male/female), and number of chronic diseases within the previous 12 months. A list of ten categories of chronic diseases was provided, along with a blank space to list other chronic conditions if needed (Hek et al., 2013). Respondents provided their marital status by choosing from five categories (e.g., married, divorced, widowed, single, or cohabitating) (van den Brink et al., 2015). The answers were then divided into two categories: single for those who are single, divorced, and widowed; and married for those married and cohabitating. Respondents reported their highest educational level (obtained in the Netherlands or abroad). The questionnaire provided eight categories starting from no education up to higher/university education, along with a blank space to add other education (van den Brink et al., 2015). The answers were subsequently divided into two categories: low for completion of elementary school or less; and high for completion of higher than elementary school. Finally, comprehension of the Dutch language was assessed by asking the respondents whether they can follow a conversation in Dutch (Kanas & van Tubergen, 2009; Schellingerhout, 2004). The answers were divided into two categories: yes, for those who (always or sometimes) can; and no for those who cannot.

Data analysis

Data analyses were conducted using IBM SPSS Statistics 27.0 software. Descriptive statistics were generated to describe characteristics of the sample. The Chi-squared test was used to identify differences in acculturation strategies between the subgroups examined. The independent samples *t*-test was used to test differences in self-management abilities of well-being and acculturation (attachment to Moroccan and Dutch cultures) between subgroups. The subgroups established included those according to: age (≤ 70 / > 70 y), gender, marital status, low versus high education, presence or absence of multimorbidities, and comprehension of the Dutch language. Bivariate associations were computed to examine relationships between self-management abilities of well-being, acculturation, and background characteristics. Finally, linear regression analyses were applied (after controlling for background characteristics) to explore possible associations between acculturation and self-management abilities of well-being in our sample.

RESULTS

Completed questionnaires from 290 respondents were analysed. There were two respondents that did not meet the age criterion (aged < 65 y). Characteristics of this sample are summarised in Table 1. The average age was 74.08 y [standard deviation (SD), 5.64; range, 65–90]. Less than half (42.4%) of the respondents were female, 24.5% were single, and the majority (82.8%) had received low education levels. The average number of chronic diseases was 2.56 (SD, 1.63; range, 0–11), and more than half the respondents (60.3%) reported having multimorbidity. A total of 20% of the respondents reported no comprehension of Dutch. Of the four acculturation strategies examined, 36.6% of the respondents adopted the integration strategy, 23.8% adopted the separation strategy, 18.6% adopted the marginalization strategy, and 18.3% adopted the assimilation strategy.

Table 2 presents the differences in acculturation strategies adopted according to the various subgroups. The assimilation strategy was adopted more often by Moroccans aged ≤ 70 y compared with those > 70 y (27.8% vs. 14.3%, respectively; $p = 0.009$) and by those who received high education than low education (36.8% vs. 15.5%, respectively; $p = 0.002$). In contrast,

the separation strategy was adopted more often by older Moroccan women than Moroccan men (31.4% vs. 19.3%, respectively; $p = 0.019$) and by those who received low versus high education (27.5% vs. 5.3%, respectively; $p = 0.003$).

Differences in self-management abilities of well-being, as well as attachment to Moroccan and Dutch cultures, between the various subgroups are shown in Table 3. Respondents with multimorbidity were poorer self-managers of their well-being than those without multimorbidity [2.55 (0.60) vs. 2.77 (0.54), respectively; $p = 0.006$]. Similarly, those who did not comprehend the Dutch language were poorer self-managers of their well-being than those who converse in Dutch [2.46 (0.56) vs. 2.69 (0.59), respectively; $p = 0.011$]. Furthermore, respondents who received high education were better self-managers of their well-being [2.86 (0.58) vs. 2.60 (0.59), respectively; $p = 0.012$] and more attached to the Dutch culture [3.54 (0.73) vs. 3.24 (0.72), respectively; $p = 0.016$] than those who received low education and were more attached to the Moroccan culture [3.93 (0.60) vs. 3.69 (0.73), respectively; $p = 0.028$].

Table 1. Characteristics of the Older Moroccan Migrant Sample Examined (N = 290)

Characteristic	Range	% or Mean (SD)	Valid N
Age (y)	65–90	74.08 (5.64)	276
Female gender		42.4%	290
Marital status (single)		24.5%	287
Education (low)		82.8%	278
Number of chronic diseases	0–11	2.56 (1.63)	255
Multimorbidity		60.3%	255
No comprehension of Dutch language		20%	289
Integration acculturation strategy		36.6%	282
Assimilation acculturation strategy		18.3%	282
Separation acculturation strategy		23.8%	282
Marginalization acculturation strategy		18.6%	282
Attachment to Moroccan culture	1–5	3.90 (0.62)	282
Attachment to Dutch culture	1–5	3.29 (0.72)	283
Self-management abilities of well-being	1–4	2.64 (0.59)	284

Note. SD, standard deviation

Table 2. Differences in acculturation strategies between subgroups of older Moroccan migrants

Acculturation strategy	Age (y) (Valid N=268)			Gender (Valid N=262)			Marital Status (Valid N=279)			Education (Valid N=271)			Multimorbidity (Valid N=248)			Comprehension of Dutch language (Valid N=248)								
	>70			<70			>70			<70			>70			<70								
	P	χ^2	p	Male	Female	χ^2	p	Single	Married	χ^2	p	High	Low	χ^2	p	Yes	No	χ^2	p					
Integration	36.7%	0.018	0.895	39.8%	34.7%	0.748	0.387	39.1%	36.7%	0.135	0.713	44.7%	36.9%	0.849	0.357	36.3%	0.033	0.856	0.391%	0.927	0.336			
Assimilation	27.8%	14.3%	6.859	0.009	22.4%	14%	3.126	0.077	23.2%	17.1%	1.252	0.263	36.8%	15.5%	9.936	0.002	19.3%	16.9%	0.205	0.651	20.4%	12.5%	1.849	0.174
Separation	20.3%	27%	1.346	0.246	19.3%	31.4%	5.518	0.019	20.3%	26.2%	0.971	0.24	5.3%	27.5%	8.744	0.003	28.1%	23.4%	0.599	0.439	22.2%	33.9%	3.317	0.069
Marginization	15.2%	21.2%	1.272	0.259	18.6%	19.8%	0.064	0.800	17.9%	20%	0.226	0.234	13.2%	20.2%	1.036	0.309	16.4%	24.7%	2.382	0.123	18.2%	21.4%	0.301	0.383

Note. Results are based on two-sided tests.

Table 3. Differences in self-management abilities of well-being and attachment to Moroccan and Dutch cultures between subgroups of older Moroccan migrants (N = 290)

	Age (y)			Gender			Marital Status			Education			Multimorbidity			Comprehension of Dutch language								
	<70			>70			Female			Male			Married			Education								
	P	t	p	t	p	t	p	t	p	t	p	t	p	t	p	t	p							
Self-management abilities of well-being	2.70 (0.63)	2.62 (0.58)	-0.946 (0.38)	0.345 (0.56)	2.65 (0.63)	2.63 (0.63)	-0.329 (0.63)	0.743 (0.62)	2.62 (0.59)	-0.434 (0.59)	2.65 (0.58)	-0.665 (0.58)	2.86 (0.59)	-2.543 (0.59)	0.012 (0.54)	2.55 (0.60)	2.77 (0.54)	0.006 (0.59)	2.69 (0.56)	2.46 (0.56)	-2.567 (0.56)	0.011		
Attachment to Moroccan culture	3.64 (0.65)	3.91 (0.62)	0.758 (0.64)	0.449 (0.60)	3.87 (0.64)	3.93 (0.64)	0.874 (0.64)	0.383 (0.63)	3.85 (0.63)	3.91 (0.62)	-0.730 (0.62)	0.466 (0.62)	3.69 (0.73)	3.93 (0.60)	0.028 (0.60)	3.91 (0.60)	3.89 (0.64)	0.234 (0.64)	0.815 (0.64)	3.88 (0.64)	3.97 (0.64)	1.005 (0.54)	0.316	
Attachment to Dutch culture	3.38 (0.75)	3.24 (0.70)	-1.664 (0.72)	0.144 (0.70)	3.36 (0.68)	3.20 (0.68)	-1.854 (0.68)	0.065 (0.68)	3.37 (0.68)	3.25 (0.73)	1.194 (0.73)	0.233 (0.73)	3.54 (0.73)	3.24 (0.72)	-2.445 (0.72)	0.016 (0.64)	3.30 (0.64)	3.24 (0.64)	0.585 (0.72)	0.547 (0.72)	3.33 (0.73)	3.13 (0.65)	-1.833 (0.65)	0.068

Notes. Mean (SD) are presented. Results are based on two-sided tests.

Table 4 presents the results of Pearson's bivariate correlation analyses between background characteristics, attachment to Moroccan and Dutch cultures, and self-management abilities of well-being. Lower educational levels exhibited a positive relationship with attachment to Moroccan culture ($r = 0.13, p = 0.028$) and a negative relationship with attachment to Dutch culture ($r = -0.15, p = 0.016$). Attachment to the Moroccan and Dutch cultures were also positively related ($r = 0.16, p = 0.009$). Self-management abilities of well-being exhibited a negative relationship with lower educational levels ($r = -0.15, p = 0.012$), multimorbidity ($r = -0.17, p = 0.006$), and lack of comprehension of the Dutch language ($r = -0.15, p = 0.011$). Lack of comprehension of the Dutch language was positively related to older age ($r = 0.19, p = 0.002$), female gender ($r = 0.41, p < 0.001$), single marital status ($r = 0.14, p = 0.015$), and lower educational levels ($r = 0.17, p = 0.004$). Finally, self-management abilities of well-being exhibited a positive relationship with attachment to the Dutch culture ($r = 0.19, p = 0.002$) and a marginally significant positive correlation with attachment to the Moroccan culture ($r = 0.11, p = 0.060$).

Table 4. Pearson's bivariate correlations between background characteristics, attachment to Moroccan and Dutch cultures, and self-management abilities of well-being (N = 290)

Characteristic	1	2	3	4	5	6	7	8	9
1. Age (y)		-0.002	0.18**	0.18**	0.05	0.19**	0.08	-0.08	-0.12
2. Female gender			0.37**	0.26**	0.09	0.41**	0.05	-0.11	-0.02
3. Marital status (single)				-0.01	-0.05	0.14*	-0.04	0.07	-0.03
4. Education level (low)					0.11	0.17**	0.13*	-0.15*	-0.15*
5. Multimorbidity						-0.04	0.02	0.04	-0.17**
6. No comprehension of Dutch language							0.06	-0.11	-0.15*
7. Attachment to Moroccan culture								0.16**	0.11
8. Attachment to Dutch culture									0.19**
9. Self-management abilities of well-being									

Significance levels: * $p < 0.05$, ** $p < 0.01$ (two-tailed)

Table 5 presents the results of linear regression analyses between background characteristics, attachment to Moroccan and Dutch cultures, and

self-management abilities of well-being. Self-management abilities of well-being exhibited a negative association with multimorbidity ($\beta = -0.18, p = 0.007$) and lack of comprehension of the Dutch language ($\beta = -0.16, p = 0.031$). Conversely, a positive association of self-management abilities of well-being with attachment to Moroccan ($\beta = 0.17, p = 0.012$) and Dutch ($\beta = 0.18, p = 0.010$) cultures was observed.

Table 5. Associations between background characteristics, attachment to Moroccan and Dutch cultures, and self-management abilities of well-being according to linear regression analyses (valid N = 223)

Characteristic	Self-management abilities of well-being	
	β	<i>p</i>
Age (y)	-0.04	0.546
Female gender	0.15	0.068
Marital status (single)	-0.06	0.402
Education (low)	-0.10	0.155
Multimorbidity	-0.18	0.007
No comprehension of Dutch language	-0.16	0.031
Attachment to Moroccan culture	0.17	0.012
Attachment to Dutch culture	0.18	0.010

DISCUSSION

The aim of this study was to investigate the relationship between acculturation and self-management abilities of well-being among older Moroccans in the Netherlands, and to examine differences according to various subgroups. We observed that attachment to both Moroccan and Dutch cultures exhibited a modest and beneficial relationship with self-management abilities of well-being in our sample. This finding is consistent with observations published by Cramm and Nieboer (2019) regarding the relationship between acculturation and self-management abilities among older Turkish migrants in the Netherlands.

Ageing well requires that older adults proactively self-manage their well-being (Goedendorp & Steverink, 2017; Nieboer & Cramm, 2018; Steptoe et al., 2015). The Dutch government has acknowledged that older adults are able to better maintain their independence compared with previous generations.

The government also believes that care for older adults should support the ability of adults to maintain control over their own lives (Government of the Netherlands, 2022). Consequently, self-management interventions are becoming prevalent in the Netherlands (Engels, 2023; Zantinge et al., 2011), which is consistent with the significance of autonomy and individual responsibility in the Dutch culture (Groot, 2023; Zantinge et al., 2011). These principles are in contrast with those of the Moroccan culture, in which interdependence and a more collectivist approach is encouraged. The Moroccan culture is characterised by strong familism, which leads to less concern regarding self-management and greater dependence on the support of family and friends to maintain well-being (Doekhie et al., 2014; Simons et al., 2023). The findings of the present study indicate that older Moroccans who have successfully integrated into Dutch society, while also maintaining attachment to their Moroccan culture, are better self-managers of their own well-being. This is attributed to their ability to acquire skills which help them maintain their cultural values while also incorporating new behaviours from their host country. The latter includes emphasis on values such as individual responsibility and self-management of well-being. This highlights that the social and cultural contexts of older migrants should be considered while promoting values such as self-management that are more embedded in the Dutch culture. Effective integration of older migrants into the Dutch society is needed while creating a balance between solidarity and mutual acceptance, and individual responsibility and self-management of well-being (Rinsampessy, 2010).

We observed less attachment to the Dutch culture among older Moroccans who received low education, and among the female migrants. In contrast, older Moroccans who received higher education and those ≤ 70 years of age adopted the assimilation strategy more often, and were more attached to the Dutch culture. These findings support the acculturation framework proposed by Berry (1997), and are also in accord with previous findings (Cramm & Nieboer, 2019; Dagevos et al., 2005; Fokkema & De Haas, 2015; Huijnk et al., 2015; Schellingerhout, 2004; Ünlü Ince et al., 2014). Thus, individual characteristics such as educational background, age, and gender can influence the extent of older migrants' acculturation into a host society. Education can

help migrants familiarise themselves with a host country's language and values before their arrival, and facilitate the ability of individuals to attain resources (e.g., employment status, income, networks) in a host country (Berry, 1997; Ouarasse & van de Vijver, 2005). Migration at an early age (before the start of schooling) has been associated with better acculturation outcomes, with acculturation difficulties increasing with age. Older migrants are generally more attached to their original culture and can find it difficult to adapt to the new culture of a host society due to learning difficulties and reduced flexibility (Berry, 1997; Ouarasse & van de Vijver, 2005). Limited opportunities for acculturation among the older female migrants was also observed, as previously reported (Berry, 1997). A focus on family obligations by older Moroccan women can limit their participation in the Dutch society (Dagevos, 2001; Nhass & Verloove, 2020; Omlo et al., 2016). In contrast, younger generations of Moroccan women tend to prefer the Dutch culture due to its favourable gender norms which provide greater autonomy and freedom (Ouarasse & van de Vijver, 2005; Stevens et al., 2004). This emphasises that efforts to increase (older) migrants' participation and integration into Dutch society must account for age, gender, and educational background.

We also observed that older Moroccans with lower educational levels, those who lack comprehension of the Dutch language, and those with multimorbidity were poorer self-managers of their well-being. This finding is consistent with that of other studies (Bartlett et al., 2020; Callaghan, 2005; Cramm & Nieboer, 2019; Cramm et al., 2014; Karter et al., 2000; Osokpo & Riegel, 2021; Scheffer et al., 2021). For proactive self-management of well-being, older migrants need adequate health-related skills and resources, and these are often lacking among individuals who receive low education (Dutch Diabetes Federation, 2017; Lindsay, 2009). Additionally, older migrants with lower educational levels tend to lack the skills and resources needed to adapt to, and integrate into, a host society (Berry, 1997; Ouarasse & van de Vijver, 2005). Accordingly, the importance of attachment to the Dutch culture is highlighted in this study, and may also explain why those who received low education were poorer self-managers of their well-being. Lack of Dutch proficiency can represent a serious barrier by limiting access to health services and participation in the Dutch society (Conkova & Lindenberg, 2020;

Jagroep et al., 2022; Schellingerhout, 2004). Correspondingly, a negative effect of lack of Dutch proficiency on self-management abilities of well-being was observed in our sample. Poor health may further lead to loss of resources and activities and hinder the self-management abilities of well-being for older migrants (Cramm et al., 2014; Steverink et al., 2005). Those with multimorbidity lack motivation, self-efficacy beliefs, and are emotionally distressed, thereby requiring extensive self-management support (Bartlett et al., 2020; Gobeil-Lavoie et al., 2019). Given that most of the older Moroccans in the Netherlands are characterised by low education, lack of Dutch proficiency, and are more prone to chronic diseases (Conkova & Lindenberg, 2018; Hoffer, 2005; Nhass & Verloove, 2020; Schellingerhout, 2004), interventions aimed at promoting self-management of well-being could be of special importance for this group. Regression analyses performed demonstrated that lack of Dutch language comprehension and multimorbidity remained negatively associated with self-management abilities of well-being when attachment to both Moroccan and Dutch cultures were considered. This result emphasises that self-management interventions need to consider the characteristics of older migrants, particularly in regard to lack of Dutch language comprehension and multimorbidity.

The present study has several limitations. First, we were unable to establish causal relationships due to the cross-sectional design of this study. For example, older Moroccans with multimorbidity were found to be poorer self-managers of well-being, although poorer self-managers of well-being could also be more prone to multimorbidity. Longitudinal research is needed to explore potential causal relationships and to examine changes in older migrants' acculturation strategies and self-management abilities of well-being that may occur over time. Second, our study had a relatively low response rate (21%). This was expected since older first-generation migrants were involved (Kappelhof, 2010; Schellingerhout, 2004; Statistics Netherlands, 2005). Based on the recommendations of previous studies, the questionnaires administered were translated into native languages of the migrants of interest. In addition, interviewers were recruited who could conduct interviews in those languages and visit potential participants in their homes (Kappelhof, 2010; Schellingerhout, 2004; Statistics Netherlands, 2005). It has been

proposed that at least six home visits are needed to obtain an optimal response from older migrants (Statistics Netherlands, 2005). Two home visits were attempted in this study due to feasibility constraints. Future studies of older migrants in the Netherlands may benefit from increasing the home visit attempts to achieve optimal response. Third, despite the popularity of Berry's (1980, 1997, 2005) four acculturation strategies that were considered in the present study, the model has been criticised for assuming that migrants adopt a certain strategy consistently across both private and public domains (Ouarasse & van de Vijver, 2005). Previous research by Arends-Tóth (2003) revealed that a distinction was made between private and public domains by Turkish migrants in the Netherlands; with the integration strategy favoured in the public domain and the separation strategy favoured in the private domain. Further research is needed to examine possible differences in the acculturation strategies applied across life domains among older Moroccans in the Netherlands, as well as possible effects of such differences on their self-management abilities of well-being. It is also possible that older Moroccans adopt acculturation strategies based on a host country's contextual factors (Berry 1997, 2005, 2006), and this was not addressed in the present study. Further research is needed to investigate the influence of acculturation context (e.g., migration policies) to identify favourable contextual factors for successful integration of migrants. Fourth, our study only focused on older Moroccans in the Netherlands. Comparative studies investigating differences in acculturation strategies and self-management abilities of well-being among various older migrant groups in European countries could be of interest, given the growing number and diversity of older migrants in these countries (Jang et al., 2023; Warnes & Williams, 2006). Finally, our study accounted for a certain set of background characteristics. Exploring the influence of other individual characteristics such as personality traits, income, and migration motivation on acculturation strategies and self-management abilities of well-being may also be of value.

Despite these limitations, the present findings emphasise the importance of attachment to both Moroccan and Dutch cultures for older Moroccans' self-management abilities of well-being. Moreover, identifying the acculturation strategies and self-management abilities of migrant subgroups can further

improve the effectiveness of interventions aimed at promoting self-management of well-being and the integration of older Moroccans into Dutch society.

CONCLUSION

Our study demonstrates that attachment to both Moroccan and Dutch cultures is beneficial for self-management abilities of well-being among older Moroccans in the Netherlands. This knowledge is crucial for policy makers so that they consider the social and cultural contexts of older migrants when promoting values that are more embedded in the Dutch culture, such as self-management of well-being. Efforts need to be directed toward improving older migrants' integration for them to adequately function in the Dutch society. The present findings reveal differences in acculturation strategies and self-management abilities of well-being between subgroups. Interventions promoting integration and self-management of well-being need to account for the diversity that exists among older (Moroccan) migrants, and certain characteristics, require greater attention.

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3



Needs for aging in place: Views of older Moroccan adults in the Netherlands

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ABSTRACT

Background

Due to health and/or financial limitations, older migrants may become especially dependent on their neighborhoods, highlighting the importance of investigating their experiences. We explored older Moroccan adults' views on the relative importance of neighborhood resources for aging in place.

Methods

Thirty Moroccans aged ≥ 65 years residing in Amsterdam, Rotterdam, The Hague, and Utrecht were interviewed and asked to perform a ranking task developed with the combined quantitative and qualitative Q methodology. They ranked the relative importance of 38 statements representing the World Health Organization's eight global age-friendly cities domains, with explanation of their reasoning. By-person factor analysis was performed to identify factors representing distinct viewpoints, which were interpreted with reference to the interviewees' comments.

Results

Four viewpoints were identified: "home sweet home"; "connected, well-informed, and engaged"; "suitable and affordable living"; and "a lively neighborhood." The perceived importance of neighborhood resources for aging in place differed among viewpoints.

Conclusions

Older Moroccan adults prioritize different neighborhood resources for aging in place. Our findings suggest that their diverse needs can be satisfied by enabling family to live in close proximity, providing diverse, inclusive neighborhoods with affordable, suitable housing, understandable information, social/cultural activities, and care services for vulnerable groups. Future studies may build on our findings to explore older (migrant) adults' views on needs for aging in place in the Netherlands and other Western countries.

INTRODUCTION

Rapidly growing aging urban populations are increasingly ethnically diverse (van der Graft & Fortuijn, 2017). In 2019, 12% of the global migrant population was aged ≥ 65 years and 15% resided in developed areas (United Nations, Department of Economic and Social Affairs, Population Division, 2019). Most Western governments expected that older migrants would return to age in their home countries, but most, including Moroccans in the Netherlands (Schans, 2008), are staying in their host countries (Ciobanu et al., 2017).

Moroccans form one of the largest non-European migrant groups in the Netherlands (de Regt et al., 2022). In 2019, 13% of this group was aged ≥ 55 years (average, 66 years; 20% aged ≥ 75 years), 45.3% was female, and 18.6% lived alone (de Regt et al., 2022). Most migrated from rural areas of Morocco in the 1960s as “guest workers” because of a domestic labor scarcity, and have limited education (>80% of men and >90% of women did not complete elementary school) (Ciobanu et al., 2017; Schellingerhout, 2004). More Moroccans came to the Netherlands in subsequent decades for family forming and reunification (Stock, 2014). These migrants now age in places that differ markedly – socio-culturally and linguistically – from their home country (Pot et al., 2020); many older Moroccan women (70%) and men (31%) have difficulty conversing in Dutch (Schellingerhout, 2004).

Environmental gerontology has been used to identify neighborhood characteristics pertaining to age-friendliness for the facilitation of aging in place (Meeks, 2022; Spring, 2018; van Dijk et al., 2015), defined as “the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level” (Centers for Disease Control and Prevention, 2022). The ecological theory of aging (Lawton & Nahemow, 1973) holds that (resources of) older adults, resources in their environments, and aging in place are interdependent, with vulnerable (financially, socially, and/or mobility-limited) groups tending to depend more than others on their environments (Iwarsson et al., 2007; van Dijk et al., 2015). Thus, exploration of the degree of fit between environmental resources and older adults’ abilities and needs, rather than the examination of these

aspects separately, is crucial (Iwarsson et al., 2007). The person–environment fit is key for successful adaptation across the lifespan (Baltes, 1987; Wahl & Gerstorf, 2020; Wahl & Weisman, 2003). Diversity is especially important for older adults, to account for cultural and economic inequities in resource access and influences on the ability to age in place (Meeks, 2022).

Neighborhood (physical, social, and municipal) resources determine older adults' ability to realize well-being and age in place. Personal resources influence aging-in-place abilities and may account for differences in needs (Nieboer & Cramm, 2022). Older Moroccan women, for example, tend to spend more time at home and have fewer social networks than do men; they are expected to perform (sometimes burdensome) tasks such as caring for grandchildren, and have difficulty refusing when they feel unable (Omlo et al., 2016). The living situation (alone/with others) influences older adults' independence and choice of informal (spouse/child-provided) or professional care (van Hoof et al., 2022). Older Moroccans depend strongly on their children as main sources of informal care and support, including when they can no longer take care of themselves or a partner dies (Omlo et al., 2016).

(Non-European) migrants in the Netherlands tend to concentrate in certain neighborhoods; 38% of Moroccan migrants reside in $\geq 50\%$ migrant-populated neighborhoods (Gijsberts & Dagevos, 2005). Many such neighborhoods are deprived, limiting personal resources and societal integration and increasing social inequality and exclusion (van der Greft et al., 2016). Although 56% and 61% of older Moroccan men and women feel at home in the Netherlands, 51% and 41%, respectively, perceive discrimination against them (Schellingerhout, 2004). Such conditions impose physical and social constraints that impair well-being realization (Lager et al., 2012) and successful aging in place (Cramm et al., 2018). Due to health and/or financial limitations, older migrants may become especially neighborhood dependent (Buffel, 2017).

Like older Dutch adults, older migrants prefer to live independently in their homes as long as possible (Witter & Fokkema, 2018). The Dutch government, municipalities, and social organizations have made numerous efforts to promote aging in place, collaborating to improve older adults' living/neighborhood conditions, home care, and independent living ability

(Ministry of Health, Welfare and Sport, 2018; Van Triest & Van Vliet, 2017). Small-scale initiatives directed toward older migrants have culture-specific housing and care components, including daycare facilities that serve as meeting places and sources of support and health-related information (Witter & Fokkema, 2018).

This study was conducted to explore the views of older Moroccan adults in the Netherlands on the relative importance of neighborhood resources for aging in place using Q methodology, which enables the study of individuals' beliefs, experiences, and perspectives (Watts & Stenner, 2012). We aimed to contribute to the promotion of more-inclusive aging-in-place policies that meet the demands of diverse groups of older adults, in line with critical foci of efforts in this field (van Hoof et al., 2022).

METHODS

Participants

The study was part of broader research on community age-friendliness and well-being realization among older natives and Moroccan, Turkish, and Surinamese migrants in the Netherlands (Nieboer & Cramm, 2022). It was conducted with first-generation Moroccans aged ≥ 65 years living, as do 44.9% of Moroccan migrants (Statistics Netherlands, 2022), in the four largest cities in the Netherlands (Amsterdam, Rotterdam, The Hague, and Utrecht; Supplementary Material Section 1). These migrants preferred to settle in these cities on arrival because of better job opportunities and the presence of other Moroccans, and they prefer to continue living there (van der Star et al., 2021). We strove to include participants from diverse neighborhoods residing in the Netherlands for ≥ 6 months/year.

With the help of social workers and volunteers who worked with this population, participants were recruited via social networks, neighborhood center and mosque visitation, and flyer distribution in mailboxes and Moroccan shops. Participants received 30-euro gift vouchers. The research ethics committee of Erasmus University Rotterdam approved the study (ETH2122-0125).

Q Set

In the larger study, a representative 38-statement Q set was developed to identify participants' viewpoints on the relative importance of neighborhood resources for aging in place (Nieboer & Cramm, 2022; Supplementary Material Section 2). The statements fell into eight World Health Organization (WHO; 2007) global age-friendly cities domains: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services.

Interviews and Q-Sort Procedure

Interviews (average, 50 minutes) were conducted at neighborhood centers or participants' homes, in Arabic and/or Dutch by the first author and in Berber by another interviewer, according to participants' preferences and/or proficiency. A Dutch interview guide was used to ensure standardization (Supplementary Material Section 3). The interviewer introduced the study and tasks and obtained the interviewee's consent to participate with audio-taping. Then, she presented printed cards with the Q-set statements in easy-to-read Dutch or Arabic text to the interviewee, asking him/her to read them and place them in three piles according to importance (important, less/not important, neutral) for feeling good in the neighborhood. The participant was then asked to rank the statements in each pile from most (+4) to least (-4) important on a sorting grid (Figure 1), and to elaborate on the rankings (Supplementary Material Section 4).

After the interview, the participant filled out a questionnaire, providing information about their age, gender, postal code, living situation (alone/with others), health condition (number of chronic diseases in the last 12 months, walking and vision problems), highest educational level (seven categories ranging from <6 years of elementary school to university or higher education, total number of years in school), and Dutch proficiency (do not speak or often/sometimes/never have difficulty speaking; the first category was taken to reflect difficulty speaking Dutch). The interviewers transcribed the audio recordings and translated the transcripts into English.

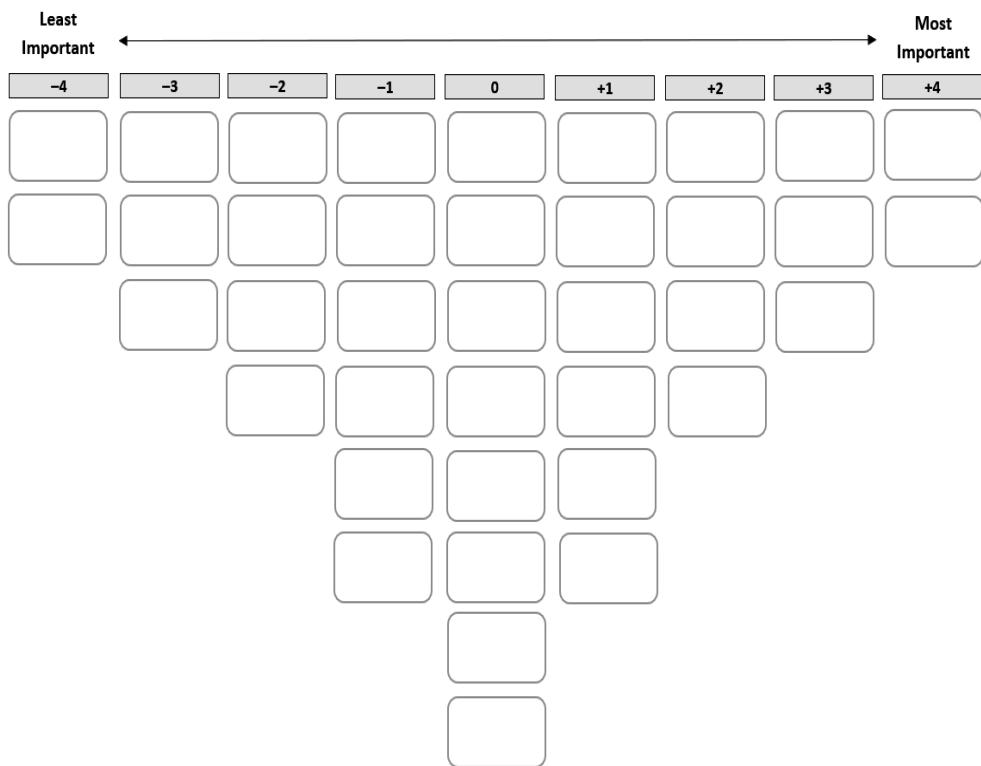


Figure 1. Sorting Grid.

Analysis

The Q sorts were entered into PQ Method 2.35 (Schmolck & Atkinson, 2002). A correlation matrix was calculated and subjected to centroid factor analysis to extract factors of interest. The factors were subjected to varimax rotation, and an idealized Q sort was computed for each. Qualitative interview data were used to clarify the reasons underlying participants' statement rankings. Viewpoint interpretation is detailed in Supplementary Material Section 5.

RESULTS

Of 36 individuals who consented to participate in the study, six were excluded due to difficulty understanding the tasks ($n = 3$), dementia ($n = 1$), and incomplete Q-set ranking (one statement missing; $n = 2$). Thus, the sample

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comprised 30 participants (mean age, 70 years; 60% women, 50% living alone, 50% with no education; Table 1).

Table 1. Background Characteristics of the Study Participants (n = 30)

No.	Age (years)	Gender	Education	Years of Education	City	Living Situation	Health Conditions			Language of Interview
							Multimorbidity ^a	Walking Problems	Vision Problems	
1	72	M	High school <	11	Rotterdam	With others	No	No	No	Arabic
2	66	F	Elementary school	4	Rotterdam	alone	Yes	Yes	Yes	Arabic
3	77	M	Elementary school	NR	Amsterdam	With others	No	Yes	No	Dutch
4	85	M	Elementary school	10	Amsterdam	With others	No	Yes	No	Dutch
5	74	M	Elementary school	4	Amsterdam	With others	Yes	No	No	Arabic
6	70	F	No education	0	Amsterdam	With others	Yes	Yes	No	Arabic
7	67	F	Elementary school	7	Amsterdam	With others	No	No	No	Arabic
8	69	M	University <	24	Rotterdam	Alone	No	No	No	Dutch
9	65	F	Elementary school <	7	Utrecht	Alone	Yes	Yes	No	Arabic
10	76	M	Elementary school	NR	Utrecht	With others	Yes	Yes	Yes	Arabic
11	83	F	No education	0	Rotterdam	With others	Yes	Yes	No	Berber
12	65	F	No education	0	Rotterdam	Alone	No	No	No	Berber
13	67	F	No education	0	Rotterdam	Alone	Yes	No	No	Berber
14	71	F	No education	0	Utrecht	Alone	Yes	Yes	Yes	Arabic
15	70	F	No education	0	Utrecht	Alone	Yes	Yes	No	Berber
16	75	F	No education	0	Utrecht	Alone	Yes	Yes	No	Berber
17	71	F	No education <	0	Utrecht	With others	Yes	Yes	Yes	Berber
18	70	F	Elementary school	1	The Hague	Alone	No	Yes	No	Berber
19	73	M	Higher education	16	Rotterdam	With others	No	No	No	Dutch
20	67	M	No education	0	Rotterdam	With others	Yes	Yes	No	Berber
21	68	M	No education <	0	Rotterdam	Alone	Yes	Yes	Yes	Arabic
22	64 ^b	M	Elementary school	3	Rotterdam	With others	Yes	Yes	Yes	Arabic
23	72	F	No education <	0	Rotterdam	With others	Yes	Yes	Yes	Arabic
24	66	F	Elementary school	NR	Amsterdam	Alone	Yes	No	No	Berber
25	77	M	No education	0	Amsterdam	With others	No	No	No	Dutch
26	68	M	Higher Education	15	Rotterdam	Alone	Yes	Yes	No	Dutch
27	66	F	No education	0	Rotterdam	Alone	Yes	Yes	No	Berber
28	72	F	No education <	0	The Hague	With others	No	Yes	Yes	Dutch
29	68	F	Elementary school	5	The Hague	Alone	Yes	Yes	No	Arabic
30	67	F	No education	0	The Hague	Alone	Yes	Yes	No	Arabic

Notes. M, male; F, female; NR, not reported. ^aHaving two or more chronic diseases. ^bThis participant was interviewed 2 weeks before his 65th birthday because of his travel plans.

The analysis revealed four distinct viewpoints (factors) that explained 42% of the data variance (Table 2). The Q sorts of 26 participants associated significantly with one of these factors.

Table 2. Idealized Q Sorts for the Factors (Viewpoints)

WHO Domains and Statements	Viewpoints			
	Factor 1	Factor 2	Factor 3	Factor 4
Outdoor spaces and buildings				
1. A clean and well-maintained neighborhood.	1	2	1	1
2. Plenty of green.	3	2	-3**	2
3. Benches.	2**	-1	-2	0
4. Good sidewalks and crosswalks.	2**	0	0	0
5. A safe neighborhood.	3	0*	2	2
6. Accessible buildings.	1	-2*	-1	0
7. No nuisance.	2	1	1	1
8. Public toilets.	-4	0	-4	2
9. Beautiful buildings.	-2	-3	-2	0**
Transportation				
10. Good public transport.	-1	0	0	4**
11. Special transport for older adults with disabilities.	0	0	0	-1
12. Sufficient parking spaces.	0	-3*	1	-1*
13. Cycling and walking trails.	1	-2	-3	2
Housing				
14. Affordable housing.	2	4	3	0**
15. Suitable homes for older adults.	0	-1	4**	0
Social participation				
16. A neighborhood where social/cultural activities are organized.	-3**	1	-1	0
17. Affordable activities.	-2	0**	-2	-4
18. A meeting place for older adults.	-2	-1	3**	-1
19. Activities especially for Moroccan people.	1	0*	2	-2*
Respect and social inclusion				
20. A neighborhood where people have respect for older adults.	1	0	0	3
21. A neighborhood where people know each other.	0*	4**	2	1
22. Friends and/or family in the neighborhood.	4	-4**	0**	4
23. A neighborhood with people from the same background.	0**	-4	-4	-4
24. No discrimination in the neighborhood.	1	3*	1	-1**
25. Contact between young and old in the neighborhood.	-1**	2	1	1
Civic participation and employment				
26. Opportunities to volunteer.	-3*	1**	-3	-1
27. A neighborhood where older adults have a say.	-2	-1	3	0
28. Availability of courses or trainings in the neighborhood.	-3**	1**	-1	-1
Communication and information				
29. Understandable information about services and activities in the neighborhood.	0*	3**	-1	-2
30. Municipal information in a central place	-1	-2	-1	-3
31. A neighborhood where people keep each other informed about what happens.	-1	3**	-1	-2
Community support and health services				
32. A neighborhood where home care is easy to get.	0	-2	0	-3
33. A neighborhood where care providers work together and inform each other.	-1**	1	0	1
34. Family doctor and pharmacy in the neighborhood.	4	-1**	4	3
35. A place where I can go for advice and support.	0	-3*	0	-2
36. Volunteers who provide assistance when needed.	-1	2**	-2	-3
37. Shops and other amenities in the neighborhood.	3*	1	2	1
38. Opportunities for sports in the neighborhood.	-4**	-1**	1**	3**

Notes. WHO, World Health Organization. * $P < 0.05$, ** $P < 0.01$, distinguishing statements for the factors.

Viewpoint 1: Home Sweet Home

Nine participants had this viewpoint; eight were women, seven lived alone, six had no education, six had difficulty speaking Dutch, seven had multimorbidity, and six had walking problems. They visualized their neighborhoods as places supporting a quiet home life, highlighting the importance of family members' presence and the availability of shops and health services within walking distance.

Participants preferred to stay in their cozy home environments. Especially given their difficulty speaking Dutch, they depended on children and grandchildren [Q-set statement (S) 22: +4]. For them, family members were companions who helped to combat loneliness and provided care, safety, and support:

“I moved last year and now I live one street behind my daughter. In that way, I get the necessary help and companionship...I honestly wouldn’t even want to live without family around me, existence would be too lonely then. Also, because I can’t communicate in this country, it’s more difficult. My children and grandchildren arrange all my appointments, errands, and everything for me.” [Participant 11]

These participants gave less importance to interaction with others in the neighborhood (S21: 0; S25: -1), and preferred that any such interaction was with Moroccans (S23: 0). They did not find neighborhood opportunities for social/civic/sports participation to be important (S16: -3; S17: -2; S18: -2; S26: -3; S27: -2; S28: -3; S38: -4):

“We aren’t used to going to all kinds of social activities. We prefer to sit quietly at home because we’ve always lived that way. Our husbands used to be strict, you couldn’t just go anywhere. Even though my husband passed away, I still live like that. I just don’t have the need.” [Participant 15]

They wanted to live in green neighborhoods that they could enjoy from their windows (S2: +3):

“I think it’s important that there is enough greenery in my surroundings. I really enjoy looking out my window at greenery... Especially since I can’t go outside much, I want it close to me...” [Participant 11]

Given their health issues, participants emphasized the importance of having general practitioners (GPs) near their homes (S34: +4). Despite their dependence, they did not want to constantly burden family members and wanted to live in neighborhoods that supported their independence (e.g., ability to occasionally shop alone). Thus, they appreciated the availability of shops, especially ethnic supermarkets/bakeries and halal butchers, within walking distance (S37: +3):

“That way I can go alone every now and then. If it’s far, my daughter will always have to take me. That would be unpleasant.”

[Participant 13]

To remain independent (including after being widowed), these participants needed safe crosswalks, accessible buildings, and benches (S4: +2; S6: +1; S3: +2) in safe neighborhoods that allowed them to go out without fear (S5: +3):

“Because I live alone, I think a safe neighborhood is very important. I was used to living with ten children and a husband and it’s very different now. Now I’m much more aware of my safety, and I get frightened more often.” [Participant 12]

As these participants stayed home and prioritized service proximity, public transport and toilets in the neighborhood were not important to them (S10: -1; S8: -4). The latter also reflects religious practice:

“I’d rather hold it till I go home than do it while out... We’re Muslims and of course we wash ourselves as soon as we go to the toilet. It’s just not pleasant to go to the toilet while out.”

[Participant 15]

Viewpoint 2: Connected, Well-Informed, and Engaged

Four men who lived with their partners and/or children and had completed elementary school or less held this viewpoint; three participants each spoke Dutch, had multimorbidity, and had walking problems. They prioritized tolerance, social connection/engagement, and affordable housing in their neighborhoods.

Participants felt that tolerance and respect for everyone in the neighborhood (S24: +3) was required for the forging and maintenance of social connections:

“There are different people, different colors...but respect is always good...Respect as everyone has their rights. Don’t discriminate against anyone.” [Participant 3]

These participants were against segregated neighborhoods (S23: -4), emphasizing that neighborhood diversity enriches information exchange and creates opportunities to learn about other cultures, norms, and traditions:

“When you see different people you can experience more things, but when you’re locked in then nothing happens...The more people there are the more you get of everything...” [Participant 3]

Participants desired to live in cohesive neighborhoods with supportive neighborly relationships (S21: +4):

“We have a saying...: your near neighbor is better than your distant brother. So, you must have good contact with people.” [Participant 3]

They felt that contact between younger and older generations was important (S25: +2):

“When the person is generally in contact with younger and older adults, they benefit from each other; the older benefits from the young and the young benefits from older ones.” [Participant 10]

These participants wanted to stay engaged and valued opportunities for social/civic participation (S16: +1; S17: 0; S26: +1; S28: +1). They valued information about activities and services and felt that it should be understandable for everyone (S36: +2) and readily available in the neighborhood (S29: +3). They kept updated on relevant information mainly through neighbors (S31: +3); seeking information about advice and support (S35: -3) and the availability of municipal information in a central place (S30: -2) were less important.

These participants highly valued the neighborhood availability of affordable housing (S14: +4):

“This is a must. People are vulnerable...Now I fall under the National Old Age Pensions Act. When you finish your 65 years, they give you 800 or 900 euro...The housing prices are getting to be troublesome” [Participant 5]

As these participants lived with others and relied on good neighborly connections, they did not require extra help at home (S32: -2) or other family members in the neighborhood (S22: -4). They also found neighborhood characteristics such as safety, beautiful and accessible buildings, and transport to be less important (S5: 0; S9: -3; S6: -2; S12: -3; S13: -2).

Viewpoint 3: Suitable and Affordable Living

Nine participants had this viewpoint; five were men, six lived with partners and/or children, five had no education, six spoke Dutch, four had multimorbidity, and six had walking problems. They prioritized good-quality housing, indoor meeting places, and health services within walking distance in their neighborhoods.

Participants emphasized the need for affordable age-friendly homes with accessibility amenities (S15: +4; S14: +3):

“For the houses to be ‘age-proof,’ meaning that there’s an elevator, that the house doesn’t have many stairs or is on the ground floor if possible...It’s important in the sense that older adults also have an opportunity to live in the same neighborhood where...they’re used to living.” [Participant 19]

Participants wanted to be heard and have their complaints taken seriously (S27: +3). They criticized housing organizations due to the difficulty of finding more-suitable homes when needed. They described often having very limited housing options located outside the city:

“I’ve been trying to get another house for a long time and I don’t get a chance (in the social housing program). I’m not the only one, I hear it from other people as well...I think this is the most important thing, the municipality must help people with this.” [Participant 25]

They expressed that new, “better” homes are too expensive for older adults, given their limited financial resources:

“Almost all people are retired, and their income is low...Old houses have an affordable rent, but the newly built houses are...very expensive!” [Participant 1]

These participants prioritized health service proximity (S34: +4) due to their health issues. As they aged, they depended more on the neighborhood availability of GPs:

“The older you get, the more complaints you get...the possibility to see the doctor quickly if you need, or that the doctor comes quickly to you if something is wrong, must be there. So, depending on the seriousness of the complaints you have, it’s important that the doctor is nearby.” [Participant 19]

Limited by health issues, participants were not interested in activities (S16: -1; S17: -2; S26: -3; S28: -1) or cycling (S13: -3). They preferred indoor gatherings with similarly aged people (S18: +3), and gave less importance to outdoor green areas, benches, and public toilets in the neighborhood (S2: -3; S3: -2; S8: -4). They valued indoor meeting spaces where they could see familiar faces and converse (S19: +2):

“An older person doesn’t work anymore. He stays at home and when he goes out, he looks for where he feels at ease with friends who speak his language...” [Participant 1]

Although these participants preferred to interact with speakers of their language, they perceived neighborhood segregation as discriminatory and a source of conflict (S23: -4). They noted that Islam acknowledges that God created people of different races and tribes and promotes knowing and respecting one other:

“They’ve done that [neighborhood segregation] a few times, but it created conflict... It’s better for the neighborhood to be mixed, then there’ll be no conflict...To me this is discriminating...why do we have to live separately?” [Participant 25]

Viewpoint 4: A Lively Neighborhood

Four participants had this viewpoint: two were men who lived alone and had university/higher education, three spoke Dutch, and two had multimorbidity and difficulty walking. They viewed neighborhoods as places that encourage older adults to remain socially and physically active, with health services available.

Participants prioritized having friends in the neighborhood (S22: +4) who motivated them to maintain social lives, and did not need extra care services (S32: -3; S36: -3):

“This is the most important thing for me, to have friends...neighbors...to have company. We can go out together, gather...relieve stress with each other...Here, I have neighbors, I have old friends, and we get along with each other” [Participant 7]

These participants wanted to engage in social and cultural activities more than did participants with viewpoints 1 and 3 (S16: 0), and activity affordability was not an issue (S17: -4). They aspired to have diverse, not exclusively Moroccan, social networks (S19: -2). They recognized that discrimination could not be avoided, but preferred to not focus on it (S24: -1). They were against segregation (S23: -4):

“If I were a municipal housing officer, I’d never put people of one descent in one corner because then you will make a ghetto, and we’ve seen what ghettos have created in America...”
[Participant 26]

As these participants had health issues, they appreciated having GPs in the neighborhood (S34: +3). They wanted their neighborhoods to stimulate and facilitate their mobility, with opportunities for sports (S38: +3) and good transportation options (S10: +4; S13: +2):

“I have a free transportation card... it’s very important for me because then I can go places where I remain a bit active or... where I also meet people...” [Participant 26]

As these participants were active and spent time outside, public toilets and beautiful buildings in the neighborhood were more important for them than for participants with other viewpoints (S8: +2; S9: 0). Given their proactive attitudes and high educational levels, they did not depend on their neighborhoods to acquire information (S29: -2; S30: -3; S31: -2). They obtained information about activities and services and arranged their affairs online:

“Nowadays, we have Google, we can find everything... information doesn’t necessarily have to be in a central city hall...” [Participant 8]

Consensus Among Viewpoints

The viewpoints identified are distinct (Figure 2), with some similarities. Participants with viewpoints 1–4 recognized the importance of clean, well-maintained (S1: +1, +2, +1, +1; see Author Notes), quiet (S7: +2, +1, +1, +1) neighborhoods, as they had become less tolerant of nuisance with age. To some extent, they valued respect for older adults (S20: +1, 0, 0, +3), and indeed everyone, in their neighborhoods.

<p>“Home sweet home”</p> <p>is distinguished from the other viewpoints in the assignment of greater importance to living with other Moroccans, safe sidewalks, benches, and proximity to shops in the neighborhood. It gives less importance to social cohesion, social and civic participation, and opportunities for sports in the neighborhood.</p>	<p>“Connected, well-informed, and engaged”</p> <p>is distinguished from the other viewpoints in the assignment of greater importance to social cohesion, neighbors helping one another, information exchange, and civic and social participation in the neighborhood. It gives less importance to having other family members, (health) services, safety, accessibility, and parking spaces in the neighborhood.</p>
<p>“Suitable and affordable living”</p> <p>is distinguished from the other viewpoints in the assignment of greater importance to good housing and indoor meeting places for older adults in the neighborhood. It is neutral toward having friends/family close by and gives less importance to a green neighborhood.</p>	<p>“A lively neighborhood”</p> <p>is distinguished from the other viewpoints in the assignment of greater importance to good public transportation, opportunities for sports, and beautiful buildings in the neighborhood. It gives less importance to activities for Moroccans, the absence of discrimination, and affordable housing in the neighborhood.</p>

Figure 2. Distinguishing the Identified Viewpoints.

DISCUSSION

Research has revealed variability in (frail) older adults' views on ideal neighborhood characteristics for aging in place (van Dijk et al., 2015). Similarly, Conkova and Lindenberg (2020) found differences within and among older migrant groups' experiences of aging and needs for aging well, related to gender, educational background, migration history, job history, and socioeconomic status. Building on these findings and given the need for research to inform the provision of more-inclusive aging-in-place policies (van Hoof et al., 2022), we explored the views of older Moroccans in the Netherlands and identified four viewpoints reflecting their diverse needs.

Most participants with viewpoint 1 were women who spoke little Dutch, lived alone, and preferred quiet home lives and interaction with only family members and Moroccans. These results support previous findings that older migrants generally depend on family members in the same neighborhoods as their main social networks, and the presence of people with the same backgrounds to have a sense of home (Buffel & Phillipson, 2011). Most older Moroccan women came to the Netherlands at older ages than their husbands, and largely stayed at home to care for children, which limited their social networks and learning of Dutch. Thus, they have more difficulty arranging care, housing, and social participation (Verkaik et al., 2019). The longer life expectancy of (Moroccan) women increases the risk of living without a partner longer, which together with the language barrier increases the chance of high vulnerability (Omlo et al., 2016). Given that older migrants without nearby family or friends, especially those with functional and/or resource limitations, are more prone to loneliness, social isolation, and depression (Buffel & Phillipson, 2011), older Moroccans (especially women) could benefit greatly from policies that enable (extended) family members to live in close proximity, supporting their roles as companions and informal caregivers.

Participants with viewpoint 2 were men who prioritized cohesive, inclusive neighborhoods. Many first-generation migrants in the Netherlands are less satisfied than Dutch natives with the quality of their social relationships (despite similar contact frequency), leading to greater loneliness and possibly explaining this preference (Ten Kate et al., 2020). Older migrant

men in the Netherlands tend to have more opportunities than do women to combat loneliness and expand their networks by attending social/cultural/religious activities in neighborhood centers and mosques (perceived male spaces) (Omlo et al., 2016). Most participants holding this viewpoint spoke Dutch, which may facilitate the building of neighborly relationships, especially with Dutch natives, and participation in activities (Omlo et al., 2016). However, many migrants in the Netherlands feel unaccepted and unwelcomed by Dutch natives (Andriessen et al., 2020), emphasizing the need for policies promoting older migrants' social inclusion. Participants with this viewpoint also valued the neighborhood availability of understandable information; in contrast, those with viewpoint 4 were more educated and preferred to obtain information online. Thus, the means by which (neighborhood-relevant) information is provided in the Netherlands should account for older Moroccans' educational levels.

Participants with viewpoint 3 prioritized the neighborhood availability of good-quality, affordable housing. Provisions to make homes suitable and accessible for older adults (e.g., handrail/bathroom grab bar installation) reduce the risk of injury and promote independence and well-being maintenance (Mulliner et al., 2020). Research has shown that older (Moroccan) migrants, like our participants with viewpoints 2 and 3, are more likely than Dutch natives to live with partners and/or children (who may not have separate incomes), which may impose an extra financial burden and reduce their standard of living (van der Graft & Fortuijn, 2017). This may account for these participants' major concern about housing affordability, suggesting that its lack could threaten their ability to age in place. In line with previous findings, participants with viewpoint 3 appreciated the availability of public meeting places, on which older (especially male) migrants depend to maintain contact with people with the same background and feel at home (Buffel, 2017).

Participants with viewpoint 4 emphasized the importance of friends, good public transport, and sports opportunities in the neighborhood to facilitate their social and physical activities, suggesting that neighborhood physical and social characteristics are closely related and supporting Levasseur et al.'s (2015) finding that public transport availability is associated with older

adults' mobility and social engagement. In addition, Van Cauwenberg et al. (2014) showed that increased neighborhood social connections encouraged older adults to improve their physical activity, as they more often chose walking as transportation. Research suggests that older migrants make efforts to build relationships with neighbors, aspiring to include people from different backgrounds on whom they can rely for help and social support, thereby maintaining resilience (Klokgieters et al., 2020). Half of the participants with this viewpoint had received higher education, associated with greater satisfaction with physical activity and social participation and easier maintenance of contact with friends and relatives (Verkaik et al., 2019).

Participants with three of the four identified viewpoints wished to live in diverse neighborhoods and perceived segregation as discrimination. Participants with viewpoint 3 might prefer to connect with other Moroccans (like those with viewpoint 1), but these three viewpoints generally reflect older Moroccans' aspiration to establish diverse networks, which is discrepant from their reality. Previous research has yielded mixed findings; Boileau et al. (2022) described segregation as a "mixed bag" with potentially negative and positive outcomes. Bécares et al. (2018) observed that segregation can protect against discrimination and enhance social support from people with similar backgrounds (consistent with viewpoint 1), whereas Gijsberts and Dagevos (2005) demonstrated that segregated neighborhoods force connection only with people with the same ethnic background, reducing mutual acceptance. Thus, most older Moroccans' wish to live in diverse neighborhoods is understandable; it could help them diversify their social networks, increase mutual acceptance, and improve their Dutch proficiency (Gijsberts & Dagevos, 2005).

Our findings have implications for policymakers, as they highlight neighborhood characteristics needed to support older (Moroccan) migrants' aging in place in the Netherlands. For those with viewpoint 1, who may impose pressure on their children (Choi et al., 2024), policies are needed to support the children's role as informal caregivers, with options for relocation to the parents' neighborhoods when needed. The Dutch government encourages citizens to provide informal care, and views family members as the first line of care provision to older adults; it provides support (flexible

working hours, subsidies, and substitute caregivers when needed) to reduce informal carers' burdens (Vos et al., 2021). Aging-in-place policies need to support training to enhance the cultural competence, sensitivity, and understanding of diverse care needs of those who provide home-based care to older migrant adults. For older Moroccans with viewpoint 2, policies and programs are needed to promote social inclusion through the development and maintenance of diverse social-support networks and provision of opportunities for social interaction, cultural preservation, and experience sharing. Consideration must be given to the inclusion of vulnerable older adults, like those with limited (financial) resources, widows/widowers, and non-Dutch speakers. Older Moroccans with viewpoints 2–4 would benefit from efforts to create and maintain diverse and inclusive neighborhoods, promoting connection among (older) adults with different backgrounds. This is not easy, as the issue of ethnic segregation has received public and political interest in the Netherlands, as in other Western countries. The development of policies aiming to reduce ethnic segregation is inconsistent with the country's constitution, which forbids discrimination (i.e., distinction between citizens based on race, country of origin, or minority identity) (Boterman et al., 2021). Many policies aiming to socioeconomically improve deprived neighborhoods through house renovation and the attraction of middle-/high-income individuals have been implemented (Gijsberts & Dagevos, 2005), but housing affordability (especially important for older Moroccans with viewpoints 2 and 3) should not be compromised. Policies could encourage larger-scale collaboration among sectors and organizations involved in aging, healthcare, immigration, and social services, ensuring a holistic, integrated approach to meet the diverse needs of older (migrant) adults while avoiding fragmentation and improving service delivery (Black & Oh, 2023).

Our findings indicate that (Moroccan) migrant groups should not be perceived as homogeneous, and that a “one-size-fits-all” approach to policy/intervention implementation to improve aging in place is not suitable, in the Netherlands or throughout the Western world, where migrant populations are increasing annually. Migration trends have changed Western countries' population compositions, with far-reaching and local implications for the aging experience (Meeks, 2020). More research is needed to explore

the diverse needs of older (migrant) adults for aging in place, with the consideration of differences within and among groups to inform the implementation of more-inclusive policies and interventions that satisfy these needs.

Strengths and Limitations

A study strength is the use of Q methodology, which enables the exploration of different viewpoints, understanding, and comparing them, without requiring large participant samples (Brown, 1980; Watts & Stenner, 2012), and is thus promising for research conducted with difficult-to-recruit older migrants (Bilecen & Fokkema, 2022). Additionally, Q methodology provides a flexible approach for the study of subjectivity to derive meaning from participants' individual experiences (Brown, 1980). For example, Q-set items can be adjusted to suit target populations, e.g., through the use of clear (translated) text or imagery (Brown, 1980; Supplementary Material Section 2); this approach is thus suitable for vulnerable populations (Combes et al., 2004). Such flexibility supported our efforts to represent the views of individuals with little to no education; most of our participants did not read well. The interviewers repeatedly read the statements out loud in the interviewees' preferred language and gave participants more time when needed to rank the statements. We believe that participants were able to express their views strongly, as reflected in discussions about important topics such as family members' roles as informal caregivers, the housing crisis, discrimination, and ethnic segregation in the Netherlands. Study limitations are that our sample is not representative of all older Moroccans in the Netherlands, and the results obtained with such Q methodology application are not generalizable (Watts & Stenner, 2012). Surveys are needed to explore the prevalence of the identified viewpoints in the country's general older Moroccan population. Additionally, the four viewpoints explained 42% of the variance, common in Q methodological research (Watts & Stenner, 2012) and reflecting diversity in aging-in-place needs, as in previous research (e.g., van Dijk et al., 2015). Future studies could build on our findings, exploring relevant views among diverse older-adult groups in the Netherlands. Given that neighborhood characteristics differ among cities and countries, the perspectives of older (migrant) adults living in diverse contexts also need to

be explored. Quantitative research on whether (and to what extent) participants' available neighborhood resources influence their views on aging in place is needed. Finally, we focused only on Moroccans aging in the Netherlands; comparison with the views of Moroccans aging in Morocco (among the worst countries for aging in place due to socioeconomic and elder/healthcare deficiencies) (Abyad & Formosa, 2021) would be useful.

CONCLUSIONS

Using Q methodology, we identified four viewpoints held by older Moroccans in the Netherlands on the neighborhood resources needed to age in place. Our findings increase the understanding of the person–environment fit, and the resources needed to facilitate older migrants' aging in place. They illustrate the diversity of needs and unequal importance of neighborhood resources. This knowledge is crucial for policymakers who want to promote aging in place and make cities more age-friendly while considering the diverse needs of older (migrant) adults.

AUTHOR NOTES

(S1: +1, +2, +1, +1) means that participants with viewpoints 1, 3, and 4 ranked S1 (“A clean and well-maintained neighborhood”) as +1 and those with viewpoint 2 ranked it as +2 (Table 2). Subsequent statements are structured in the same manner.

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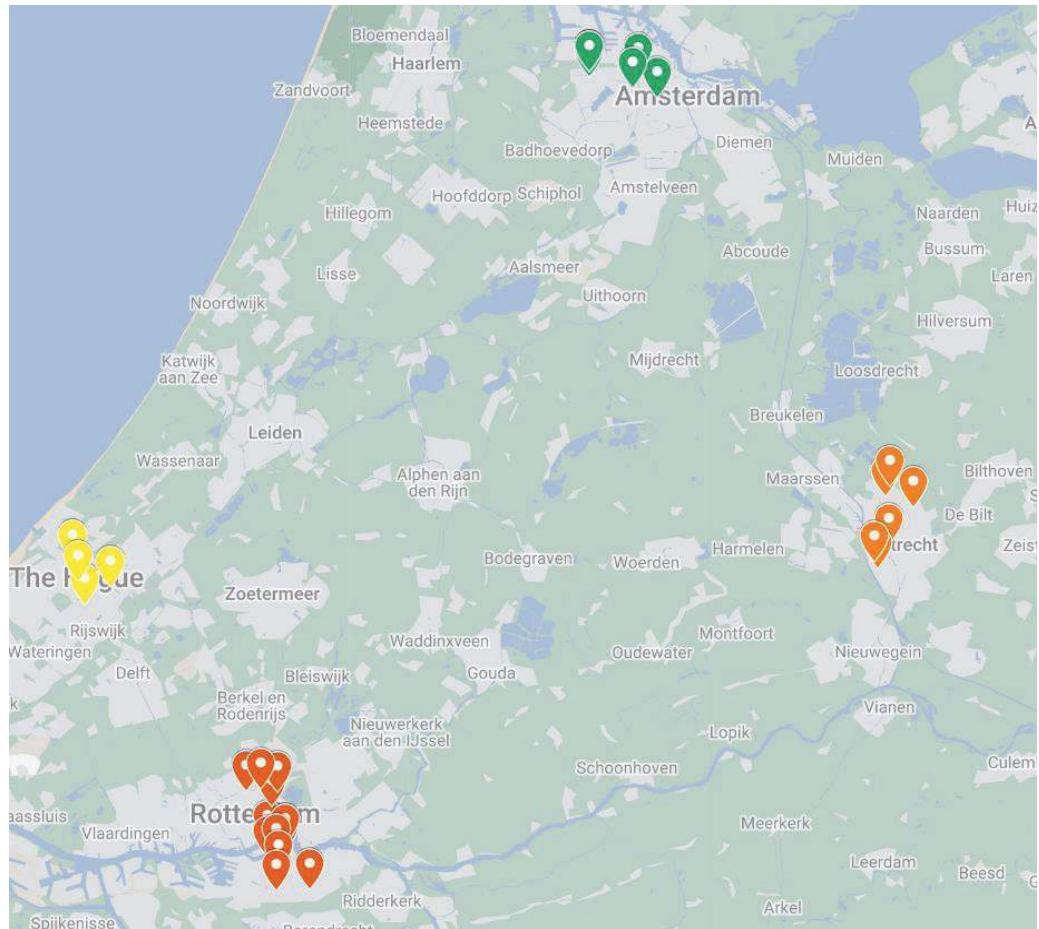
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SUPPLEMENTARY MATERIAL



Section 1. Distribution of Study Participants in the Four Largest Cities in the Netherlands ($n = 30$)

Section 2. Details of Q-Set Development

In Q methodological research, the Q set must include statements that cover all relevant aspects of the topic of interest (Watts & Stenner, 2012). First, a review of the most recent literature on community age-friendliness was performed. Torku et al.'s (2021) systematic review of age-friendly cities and communities was used to identify studies of age-friendliness (e.g., Liddle et al., 2014; Orpana et al., 2016; Wong et al., 2017). Additional articles (e.g., Atkins, 2019; Dikken et al., 2020; van Dijk et al., 2015) were also studied. The checklists of the Modified Community Assessment Survey for Older Adults (Dellamora, 2013) and the World Health Organization's (WHO; 2007) global age-friendly cities guide were consulted. This process led to the collection of 537 (overlapping) statements, which were allocated to the WHO eight domains encompassing the characteristics of the physical and social environments and services needed for active aging (WHO, 2007) and older adults' health and well-being (WHO, 2015). In the second phase of the process, the researchers jointly discussed the statements list and individually created concise and comprehensive lists with manageable numbers of statements. The researchers then merged these lists with the removal of overlap to yield the Q set. Special consideration was given to ensuring that a sufficient number of statements fell under each domain and that relevant resources were covered.

The Q statements, developed in Dutch, were translated into Arabic and Turkish by a professional translation agency. To ensure the clarity, comprehensiveness, and representativeness of the Q set for older adults residing in the Netherlands, 19 pilot interviews were conducted with older Dutch natives and older migrants with Moroccan, Turkish, and Surinamese backgrounds. Six of these interviews were conducted with older Moroccans in Dutch, Arabic, or Berber, according to the interviewees' preference and/or language proficiency. The focus in these interviews was to identify any missing statements about relevant neighborhood resources that are important for older (migrant) adults' aging in place. We asked the interviewees to perform the sorting procedure, then asked whether any statements were missing and/or whether they would like to add any relevant neighborhood aspects. During the pilot period, the statements underwent four rounds of

changes. Statement 38 (“Opportunities for sports in the neighborhood”) was added, and “cultural” was added to statement 16 (“A neighborhood where social/cultural activities are organized”). Fifteen other statements were reformulated to increase clarity, e.g., statement 25 (“Interactions between young and older adults”) was reformulated to (“Contact between young and old in the neighborhood”). We continued the pilot interviews until several consecutive participants had no further points to add. The pilot interviews ensured that the Q set was representative, the statement wording and translations were clear for older (migrant) adults, and the sorting procedure was feasible, especially for older migrant adults. We also asked participants interviewed for the main study whether any neighborhood aspects were missing; no participant responded in the affirmative. We are thus confident that the Q set is representative and can be used to obtain interviewees’ views on the relative importance of neighborhood resources for aging in place.

Section 3. English Translation of the Interview Guide and Q-Sort Instructions

General Introduction

Thank you for participating in this research. My name is _____ and I am conducting this study on behalf of Erasmus University Rotterdam. I am interested in understanding how you can age comfortably in your own neighborhood. For this research, we will be interviewing a number of people with different experiences and perspectives on their neighborhood. We will go through a set of statements, which will take approximately half an hour. Afterward, I will ask you some questions regarding your perspectives. If you have any questions now or during the study, please let me know. All information will be anonymized and solely used for research purposes. Are you in agreement with this?

Identifier participant



Background Information

Step 1 (this session has to be recorded, ask for consent/permission to record)

This set of cards consists of statements about what you find important in your neighborhood. I will ask you later how you perceive these statements: Some of these statements may be very important to you in order to feel good in your neighborhood, while others may be less important. It is about what you personally find important, not whether it is already the case in your neighborhood. There are no right or wrong answers, and we will go through it step by step.

To get a sense of the statements, I would like you to read each card while thinking about which aspects are important to you in the neighborhood. Then, place the cards into three piles: important, not (or least) important, or neutral/don't know. Don't worry about the placement for now. Later, I will ask you to assess them more precisely, and you will have the opportunity to change their placement if you wish to do so.

Give the respondent as much time as needed.

Please note the number of cards in each pile on the response sheet.

Step 2

IMPORTANT Statements

Take the pile of statements that you consider most important and select the two statements that you believe are the most important. Place these statements in the rightmost column (indicate).

Go back to the remaining pile and select three statements that closely align with your perspective. Place these three statements in the second rightmost column (indicate).

Continue placing the remaining statements toward the center until this pile of cards is exhausted.

NOT/LEAST IMPORTANT Statements

Now, we will do the same with the statements that you consider not important or least important. So, take the pile of statements that you do not find important or find least important, and select the two statements that you believe are the least important. Place these statements in the leftmost column (indicate).

Go back to the remaining pile and select the three statements that least align with your perspective. Place these three statements in the second leftmost column (indicate).

Continue placing the remaining statements toward the center until this pile of cards is exhausted.

NEUTRAL/DON'T KNOW Statements

Now, take the remaining pile of statements. Take some time to review them once again, and place the statements in the remaining open spaces of the response sheet, wherever you think they should be placed. Trust your judgment in determining their appropriate placement.

Once all the cards have been placed, ask: Are you satisfied with how you have placed the cards? Or are there a few that you would like to change?

If the respondent is content, record the order of the cards on the response sheet.

Questions regarding the second step

1. If you were to summarize what is important for you to feel good in your neighborhood, what would you say?

Follow-up questions:

- What were you thinking when you placed the cards?
- What influenced your answers? Is there anything else you would like to mention?

2. If you were to summarize what is not important or least important for you to feel good in your neighborhood, what would you say?

Follow-up questions:

- What were you thinking when you placed the cards?
- What influenced your answers? Is there anything else you would like to mention?

3. Which cards did you place all the way to the right?



4. You indicated that it is important for you to feel good in the neighborhood that... (read the first card) ... Why did you place this card in this position?

Follow-up questions:

- Can you elaborate more on this statement? Why does it contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?
- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?

5. You indicated that it is important for you to feel good in the neighborhood that... (read the second card) ... Why did you place this card in this position?

Follow-up questions:

- Can you elaborate more on this statement?

- Why does this contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?
- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?

6. Which cards did you place in the second rightmost column?

7. You indicated that it is important for you to feel good in the neighborhood that... (read the first card) ... Why did you place this card in this position?

Follow-up questions:

- Can you elaborate more on this statement?
- Why does this contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?
- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?

- Ask these questions for the entire column!

8. Which cards did you place all the way to the left?

9. You indicated that it is not important or least important for you to feel good in the neighborhood that... (read the first card) ... Why did you place this card in this position?

- Follow-up questions:
- Can you elaborate more on this statement?

- Why does this contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?
- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?

10. You indicated that it is not important or least important for you to feel good in the neighborhood that... (read the second card) ... Why did you place this card in this position?

Follow-up questions:

- Can you elaborate more on this statement?
- Why does this contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?
- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?

11. Which cards did you place in the second leftmost column?



12. You indicated that it is not important or least important for you to feel good in the neighborhood that... (read the first card) ... Why did you place this card in this position?

Follow-up questions:

- Can you elaborate more on this statement?
- Why does this contribute to your sense of well-being in the neighborhood?
- What factors contribute to your strong feelings about this statement?

- Also, inquire about specific terms on the card: What does safety mean to you? What does respect mean? What specific amenities or facilities are important to you?
- **Ask these questions for the entire column!**

13. Is there a statement that you feel is missing and would like to add? If so, why would you like to include it?
14. In conclusion, could you summarize in two or three sentences what is important for you to feel good in the neighborhood?
15. Do you know someone (with a different perspective) who would be willing to participate in the interview?

Section 4. Details of the Ranking Procedure

Participants' initial sorting of the Q statements into three piles allowed them to formulate initial impressions and become familiar with the statements, facilitating decision making in the second step; it was provisional and aided the construction of the final Q sort (Watts & Stenner, 2012). We also believe that this step was especially important for older (Moroccan) adults, who may need more time to read (or hear) all of the statements and formulate judgements of their relative importance. Participants' ability to see (hear) all statements in each of the three piles at once was especially important, as the statements must be rank-ordered relative to other statements (Watts & Stenner, 2012). In the second step, participants were asked to perform rank-ordering on the sorting grid (Figure 1), beginning with the statements they found to be most important (highest ranking, right end of the grid) and proceeding through the continuum to the statements that they found to be least important (lowest ranking, left end of the grid).

Section 5. Details of Viewpoint Interpretation

To interpret each factor, the authors conducted a holistic exploration of statement patterning within and between the factors/viewpoints. Characterizing, distinguishing, and consensus statements (van Exel & de Graaf, 2005) were given special attention. Characterizing statements are those ranked at both extremes of the sorting grid, and helped to produce initial viewpoint descriptions. Distinguishing (with rankings differing significantly from those in other factors) and consensus (with similar rankings in all factors) statements were further consulted to highlight differences and similarities among viewpoints (Berghout et al., 2015; van Exel & de Graaf, 2005).

The authors used the “crib sheet” method introduced by Watts and Stenner (2012), starting with the characterizing statements. Cross-factor item comparisons were then performed to explore statements ranking higher and lower than in other factors, thereby identifying potentially important statements ranked toward the middle (zero point) of the distribution. Watts and Stenner (2012) emphasized that such statement rankings are of potential importance when examined in relation to rankings in other factors and warned against the tendency to directly assume their neutrality. Qualitative data on all participants significantly loading on each factor (factor exemplars) were studied extensively to improve the understanding and description of the viewpoint. The participants’ own words were used to further clarify their preferences and the reasoning underlying their choices (Hackert et al., 2019; van Exel & de Graaf, 2005).

To identify the Q sorts of participants loading significantly ($p < 0.05$) on a specific factor, the following formula was used: $1.96 \times (1 / \sqrt{n})$, where n is the number of statements in the Q set (Watts & Stenner, 2005, 2012). Participants whose Q sorts had factor loadings of a minimum of ± 0.32 with no confounding (i.e., the square of loading on that factor exceeded the sum of squares of the Q-sort loadings on the other three factors) were considered to be factor exemplars. Q sorts that were confounded (i.e., loading significantly on two factors) or did not load significantly on any of the four factors were not included in factor interpretation (Hackert et al., 2019; Watts & Stenner, 2005, 2012).

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4



How do older Moroccan migrants in the Netherlands describe the age-friendliness of their neighbourhoods? A Person–environment fit perspective

This chapter is currently under review as:

Hussein, H., Cramm, J. M., & Nieboer, A. P. (2025). How do older Moroccan migrants in the Netherlands describe the age-friendliness of their neighbourhoods? A Person–environment fit perspective.

ABSTRACT

Background

The heterogeneity of older migrant populations and the complexity of their person–environment interactions indicate that their needs for ageing in place will differ. Older migrants have also faced adversities such as discrimination, which may hinder their satisfaction with their environments and ability to age in place. This cross-sectional study was conducted to examine the extent of neighbourhoods' age-friendliness according to older Moroccan migrants in the Netherlands. A person–environment fit perspective was adopted to elaborate on relationships between the individual characteristics of older Moroccan migrants and the neighbourhood resources they need to age in place, while accounting for experiences of discrimination.

Methods

Stratified sampling was used to randomly select 501 older (aged ≥ 65 years) Moroccan migrants in Rotterdam from municipality registers. Data from 151 respondents who filled in a questionnaire were included in the final analyses (35% response rate).

Results

The participants indicated that they missed neighbourhood resources to various extents across the eight domains of the World Health Organization Age-friendly Cities Guide. Age, marital status, multimorbidity and feelings of discrimination were associated with the missing of age-friendly neighbourhood resources. Older participants were less prone to miss neighbourhood resources, whereas those who were single, had multimorbidity, and had experienced feelings of discrimination were more likely than their counterparts to miss resources.

Conclusions

Our findings reveal that older Moroccan migrants' individual characteristics and feelings of discrimination are related significantly to their environmental needs for ageing in place. They imply that age-friendly initiatives need to be more sensitive to the diverse needs of older migrants. Future research

exploring older migrants' experiences of discrimination and their potential impact on ageing in place would be of interest.

INTRODUCTION

Global migration trends have contributed to the heterogeneity of older populations. Increasing shares of older migrants, with diverse individual characteristics, are ageing in their host countries (Buffel & Phillipson, 2011; Torres & Hunter, 2023). In European countries, most older adults with migration backgrounds are first-generation labour migrants who came from several regions, including North Africa (Buffel & Phillipson, 2011; Liversage, 2023). In the Netherlands, older migrants with Moroccan backgrounds constitute one of the largest non-European migrant groups (Statistics Netherlands, 2023). Almost half of these older Moroccans live in the four largest Dutch cities: Amsterdam, Rotterdam, The Hague and Utrecht (de Regt et al., 2022). In general, migrants prefer to live in large cities because of the presence of people with similar backgrounds and the availability of culturally specific services such as ethnic stores, tea houses and mosques (Dagevos, 2009; de Regt et al., 2022). These two elements help migrants to build social networks in their neighbourhoods and visit places where they feel that they belong (Thomése et al., 2018; van der Greft & Droogleever Fortuijn, 2017). Like most older adults (Becker et al., 2020; Dobner et al., 2016; Renaut et al., 2015), older migrants prefer to age in their familiar homes and environments rather than relocating to nursing homes or residential care facilities (Conkova & Lindenberg, 2020; Witter & Fokkema, 2018). Nevertheless, older adults with migration histories are expected to age differently (Ciobanu et al., 2017; Sampaio & Walsh, 2023). Their unique life experiences and socio-cultural expectations of later life may influence their perceptions of and needs for ageing well (Ciobanu et al., 2020; Conkova & Lindenberg, 2020; Kristiansen et al., 2016).

The gerontological literature acknowledges that the ability to age well is determined by interactions between older adults' individual characteristics and the resources available in their environments, known as the person–environment fit (Chaudhury & Oswald, 2019; Lawton & Nahemow, 1973; Wahl & Gerstorf, 2020; Wahl et al., 2012; Zhang et al., 2024). The achievement of person–environment fit is a dynamic process, as older adults and the environments in which they live change gradually over time (Feldman & Vogel, 2009; Golant, 2003; Zhang et al., 2024). The adaptation of

environments through the provision of sufficient resources is considered to be crucial to preserve older adults' autonomy, independence and ability to age well in place (Chaudhury & Oswald, 2019; Satariano, 2006; Wahl et al., 2012). Accordingly, countries around the world, including the Netherlands, have launched numerous initiatives with the aim of improving the age-friendliness of their cities and neighbourhoods through the provision of positive, supportive environments with the physical and social resources and services needed to age well in place (Buffel et al., 2012; Fitzgerald & Caro, 2014; Van Triest & Van Vliet, 2017). However, the individual characteristics of older adults in terms of, among other factors, age, gender, ethnicity, health status, functional abilities and socio-economic status may or may not support the adequate use of the resources available in their environments (Chaudhury & Oswald, 2019; Satariano, 2006; Wahl et al., 2012; World Health Organization, 2015). The diversity of these characteristics must be acknowledged, as they interact in a complex and multifaceted manner with resources in older adults' physical and social environments (Chaudhury & Oswald, 2019; World Health Organization, 2015), reflecting individual differences in perceptions and valuations related to ageing in place (Bigonnesse & Chaudhury, 2022; Cramm et al., 2018; Nieboer & Cramm, 2024; van Hees et al., 2021).

The environmental needs for ageing well in place can reasonably be assumed to differ among older migrant populations (Ciobanu et al., 2020; Hussein et al., 2024; Nieboer & Cramm, 2024; Yerden & Kaya, 2021). Older Moroccan migrants in the Netherlands are more likely to express negative perceptions of ageing (Nieboer et al., 2021), and tend to feel old sooner than their native counterparts (Conkova & Lindenberg, 2018; Omlo et al., 2016). Age can have a differential effect on the person–environment fit (Choi, 2020; Cramm et al., 2018; Kim et al., 2024). Older adults across various age groups have shifting needs for ageing in place (Kim et al., 2024) and may grow less concerned about neighbourhood resources that they no longer find to be useful or accessible (Cramm et al., 2018). Furthermore, chronic diseases and physical limitations seem to be more prevalent among older Moroccan migrants than their native counterparts (Conkova & Lindenberg, 2018; El Fakiri & Bouwman-Notenboom, 2015). Older adults with chronic diseases

may especially benefit from certain neighbourhood resources, such as age-friendly homes and accessible, coordinated health services (Doekhie et al., 2014; de Klerk et al., 2019; Ploeg et al., 2019), whereas those with physical limitations would appreciate the provision of accessible, proximate amenities in walkable neighbourhoods (Bigonnesse & Chaudhury, 2022; Chaudhury & Oswald, 2019; Cramm et al., 2018). For older adults who are more confined to their homes due to health or mobility issues, beautiful views can help them to stay engaged with the outside world (Cramm et al. 2018; Hussein et al., 2024; de Klerk et al., 2019).

Most older Moroccan migrants in the Netherlands, and especially women, have low educational levels and difficulty conversing in Dutch (Schellingerhout, 2004), which may increase their dependence on others and limit their access to services, including health care (Conkova & Lindenberg, 2018; Omlo et al., 2016). In general, older Moroccan migrants prefer and expect to receive help and care mainly from their children, reflecting culturally embedded values (Conkova & Lindenberg, 2018, 2020; Omlo et al., 2016). As housewives who stayed mostly at home caring for their children (Ciobanu et al., 2017; Schellingerhout, 2004), older Moroccan women who lose their husbands become especially dependent on the care provided by their children (Hussein et al., 2024; Omlo et al., 2016). Having family members close by in the neighbourhood can thus help migrants, especially women, to provide or receive care and support (Hussein et al., 2024; Omlo et al., 2016). Language barriers can also make it difficult for older migrants to establish contact with people with other backgrounds, which may contribute to their feeling of social exclusion (Buffel & Phillipson, 2011; Conkova & Lindenberg, 2020; Omlo et al., 2016). Migrants in the Netherlands may wish to live in diverse, rather than segregated, neighbourhoods to mitigate this feeling, foster their integration and boost their feeling of belonging in Dutch society (Hussein et al., 2024; Kullberg et al., 2009). Given the diversity of older migrants' characteristics and needs and the complexity of their interactions with their environments (Buffel & Phillipson, 2011), age-friendly initiatives may need to entail the adoption of flexible and innovative strategies that fit the needs of diverse older populations (Bigonnesse & Chaudhury, 2022; Kristiansen et al., 2016). This may not be possible without

consideration of the lifetime challenges of marginalised subgroups (Oswald & Cooper, 2024).

Older migrants have faced many adversities (Ciobanu et al., 2017; van der Greft & Droogleever Fortuijn, 2017), which can impact the way in which they deal with the changes that accompany ageing (Chaudhury & Oswald, 2019; Fuller-Iglesias et al., 2009; Golant, 2003; Peace et al., 2011). Many older migrants live in deprived neighbourhoods (Ciobanu et al., 2017) and face prejudice and discrimination in their host countries (Fuller-Iglesias et al., 2009; van der Greft & Droogleever Fortuijn, 2017). In their neighbourhoods, migrants may experience discrimination in their daily lives in various forms, including verbal or physical assault, stereotyping and unfair treatment (Wanka et al., 2019). In the Netherlands, older Moroccan migrants experience feelings of discrimination more often than do older native and other migrant groups (Conkova & Lindenberg, 2018; El Fakiri & Bouwman-Notenboom, 2015). These experiences may negatively influence their satisfaction with their environments, sense of home and ability to age in place (Ciobanu et al., 2020; Sampaio & Walsh, 2023; Wanka et al., 2019). These factors emphasise the importance of acknowledging older migrant groups' experiences and the need to focus more on racial discrimination in efforts to improve age-friendliness (Thomése et al., 2018).

This study was performed to examine the extent of the age-friendliness of neighbourhoods in Rotterdam, the Netherlands, according to older Moroccan migrant residents. We adopted a person–environment fit perspective to elaborate on relationships between the migrants' individual characteristics and the neighbourhood resources they need to age in place. We also examined relationships of these migrants' experiences of discrimination with these resources. We believe that our findings will provide insight into features of age-friendly neighbourhoods that enable diverse groups of older migrants to age in place, contributing to enhanced person–environment fit. This study is timely, given that research exploring the unmet needs of diverse older populations, including older migrants, is needed (Padeiro et al., 2022) to highlight the environmental aspects that these populations perceive as relevant (Buffel & Phillipson, 2018; van der Greft & Droogleever Fortuijn, 2017; van Hoof et al., 2022). Furthermore, we hope that our findings will shed

light on the relationship between discrimination and ageing in place among older migrants.

METHODS

Design

This cross-sectional study was part of a larger study investigating how age-friendly communities can support well-being realisation among native older adults and migrant adults of Surinamese, Turkish and Moroccan origin in the Netherlands (Nieboer & Cramm, 2022). The target population of the present study was first-generation older migrants born in Morocco. Ethical approval for the study was granted by the Research Ethics Review Committee of the Erasmus School of Health Policy & Management, Erasmus University Rotterdam (ETH2122-0257).

Setting

This study was conducted in Rotterdam, the second largest city in the Netherlands. In 2023, Rotterdam had a total of 663,523 inhabitants; more than half (55.5%) of them had migration backgrounds, with 7% originating in Morocco. Of the total population of Rotterdam, 15.7% were aged ≥ 65 years in 2022, and this percentage is expected to reach 18.2% in 2040 (Municipality of Rotterdam, n.d.). The municipality of Rotterdam has set up plans and makes numerous efforts to promote the age-friendliness of its neighbourhoods and the city in general. It aspires to help older adults to live as long as possible in their familiar homes and neighbourhoods, improve their financial situations, develop digital skills, reduce their loneliness and enhance their access to appropriate health care and support (Hekelaar & Brand, 2022; Municipality of Rotterdam, 2019; Omlo et al., 2016).

Recruitment and Data Collection

Stratified sampling was employed to randomly select 501 community-dwelling older (aged ≥ 65 years) Moroccan migrants living in 72 neighbourhoods in 10 districts in Rotterdam from the municipality's registers. Only one participant per address was selected. Individuals living in retirement and nursing homes or hospices were excluded. Sixty-eight of the selected

individuals were deemed ineligible to participate in the study because they were residing abroad or in an institution ($n = 28$), had difficulty speaking ($n = 16$), were too ill ($n = 13$), had changed addresses ($n = 5$), had an incorrect address registered ($n = 1$) and were deceased ($n = 5$). Thus, 433 older Moroccan migrants met the eligibility requirements for study participation (Figure 1).

An accredited Dutch research agency was used to collect data from February to August 2023. Older Moroccan migrants were invited to participate via post. Each potential participant received a personalised invitation letter, a leaflet and a questionnaire in Dutch and Standard Arabic. The letter included instructions for participation in the study and a website address and personalised code for those who preferred to fill in the questionnaire online. The leaflet provided information about the study's aim, the voluntary nature of participation and the confidential processing of participants' personal information and responses. Individuals were offered a small monetary incentive to encourage participation.

Non-respondents received two reminders in Dutch and Standard Arabic, and were contacted via telephone when telephone numbers were available. To ensure optimal participation, the home address of each non-respondent was visited up to six times by the first author or one of several interviewers who spoke Arabic and/or Berber. The researchers provided information about the study, motivated older Moroccan migrants to participate and helped respondents, especially those who could not read or write Dutch or Standard Arabic, to fill in the questionnaire.

Ultimately, 151 of the 433 eligible older Moroccan migrants agreed to participate and filled in the questionnaire, yielding a 35% response rate. Fifty-three respondents returned filled-in paper questionnaires, 32 respondents filled in the questionnaire online and 66 questionnaires were filled in during face-to-face interviews ($n = 63$) or via telephone ($n = 3$). Reasons for the non-participation of 282 individuals are detailed in Figure 1.

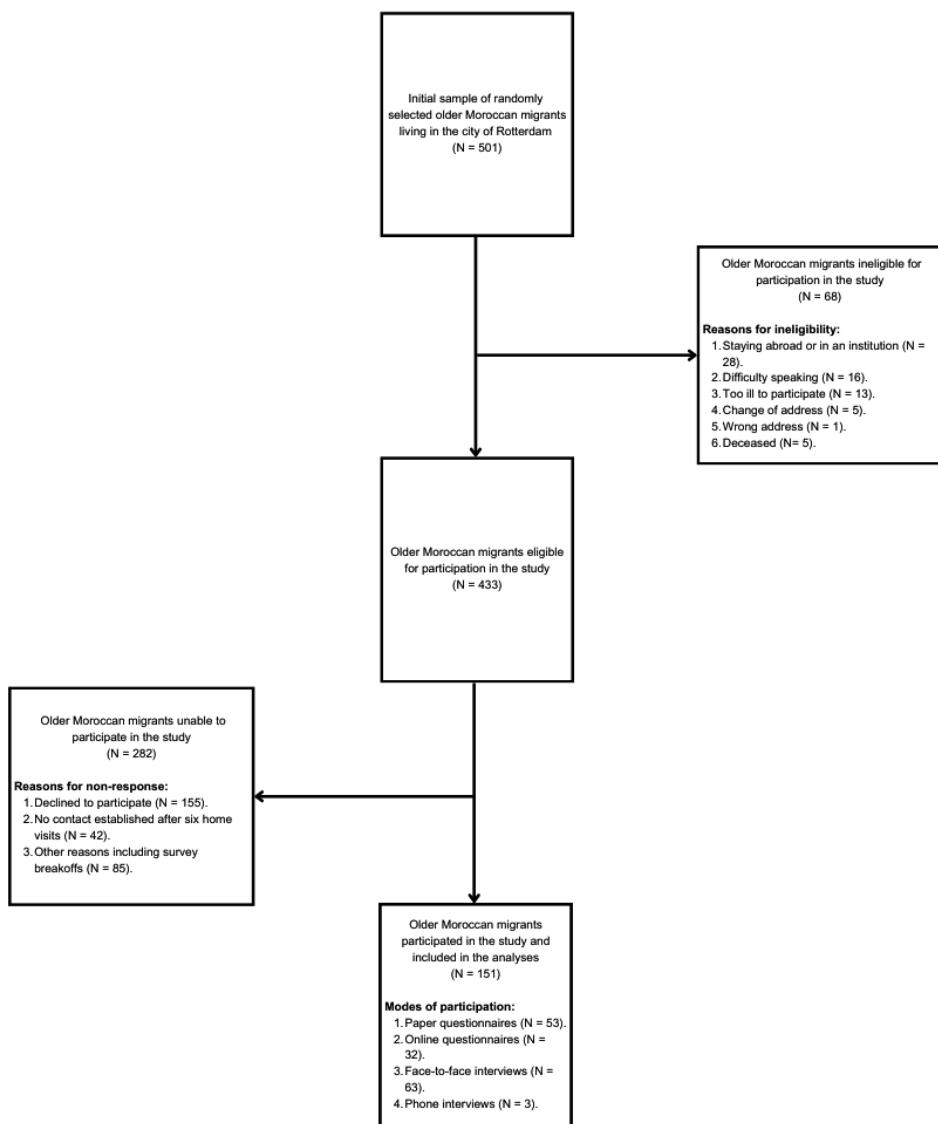


Figure 1. Flow of participant selection

Measures

Ageing in Place

The questionnaire included an instrument that evaluates missing neighbourhood resources that help older adults to age in place. van Dijk et al.

(2015) developed the original version of the instrument for native older adults in the Netherlands based on the Global Age-friendly Cities Guide published by the World Health Organization (WHO; 2007) and complementary ageing-in-place literature. The guide delineates city and community characteristics that promote active ageing and can help older adults age in place, allocated to eight domains pertaining to the physical environment (outdoor spaces and buildings, transportation, housing), social environment (social participation, respect and social inclusion, civic participation and employment) and social and health services (communication and information, community support and health services) (Kim et al., 2024; World Health Organization, 2007, 2015). The original instrument has been applied successfully in several studies (e.g. Cramm et al., 2018; Jagroep et al., 2022; Nieboer & Cramm, 2018). For the larger study of which the present study was a part, the instrument was revised based on recent literature (e.g. Dikken et al., 2020; Hussein et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024; Torku et al., 2021; van Hoof et al., 2022) to be suitable for native older adults and those with migration backgrounds in the Netherlands (Nieboer & Cramm, 2022). Pilot interviews were conducted with older adults from both groups to ensure the suitability, clarity and comprehensiveness of the instrument, and items were added, removed or rephrased accordingly.

The updated version of the instrument used in this study consists of 40 items spanning the eight domains of the WHO (2007) Age-friendly Cities Guide (Table 2). On a four-point scale ranging from ‘do not miss at all’ to ‘miss a lot’, with an additional option of ‘do not know/no opinion’, respondents indicated the extent to which they miss age-friendly neighbourhood resources that would facilitate their ageing in place. A mean subscale score was calculated for each domain in which responses to at least 50% of the items were given. Overall ageing-in-place scores were calculated by averaging subscale scores when at least six domain scores were available. Higher scores indicate greater extents to which neighbourhood resources needed to age in place are missed. The Cronbach’s α value, a measure of internal consistency, for the overall ageing-in-place instrument was 0.97.

Individual Characteristics

The questionnaire included items used to acquire information about respondents' age, gender (man, woman, other), marital status (married, divorced, widowed, single/not married, cohabiting/ unmarried, partner/not cohabiting), educational level, chronic diseases, physical frailty and comprehension of the Dutch language. Respondents' marital statuses were dichotomised as single (divorced, widowed or single) and married (married, cohabiting or having a partner). Respondents indicated the highest educational level they had achieved among seven options ranging from 'less than elementary school' to 'university/higher education', and had the option to add other education if applicable. The responses were then dichotomised as low (elementary school or less) and high (more than elementary school) educational levels. Respondents indicated the chronic diseases they had had in the last 12 months on a list of ten chronic diseases (Hek et al., 2013), with the option to add other chronic diseases if applicable. The presence of two or more chronic diseases was considered as multimorbidity. Physical frailty was measured using six yes/no questions from the physical components subscale of the Tilburg Frailty Indicator (difficulty walking, difficulty maintaining balance, poor vision, poor hearing, lack of hand strength and physical fatigue in daily life) (Gobbens et al., 2010). Physical frailty was characterised by the presence of three or more of these components. Respondents' Dutch comprehension was assessed using the question, 'If someone speaks to you in Dutch, are you able to understand what is being said?' (yes, often or always; yes, sometimes; no, never). Similar self-assessed measures have been used in previous research conducted with migrants (e.g. Kanas & van Tubergen, 2009; Schellinghout, 2004). Comprehension was defined by the two 'yes' response options.

Feelings of Discrimination

Respondents' feelings of discrimination were assessed using the question, 'How often have you felt discriminated against recently?' (never, almost never, occasionally, often, always). Those who chose 'occasionally', 'often', and 'always' were categorised as having feelings of discrimination.

Statistical Analyses

The SPSS Statistics software (version 29.0.1.0; IBM Corporation, Armonk, NY, USA) was used to perform the statistical analyses for this study. First, descriptive statistics were employed to summarise the characteristics of the study sample and the extent to which neighbourhood resources needed for ageing in place were missed. Second, bivariate Pearson correlations of the sample characteristics with the eight domains of the WHO's Age-friendly Cities Guide and the overall ageing-in-place scores were examined. Finally, multivariate linear regression was applied to explore relationships of the sample characteristics to the overall ageing-in-place score. Two-sided p values ≤ 0.05 were considered to be significant. Additionally, an analysis of missing data was performed and Little's missing completely at random (MCAR) test was applied to determine the reasons for missing data.¹

RESULTS

The characteristics of the 151 community-dwelling older Moroccan migrants who took part in this study, and whose data were included in the final analyses, are displayed in Table 1. The average age of the participants was 73.99 [standard deviation (SD) = 6.11; range, 65–90] years, and 55.6% of the participants were single. The average number of chronic diseases was 2.18 (SD = 1.77; range, 0–8); 55.6% of the participants had multimorbidity and 51.7% were physically frail. In total, 15.2% of the participants indicated that they had recently experienced feelings of discrimination.

Table 1. Respondent characteristics

Characteristic	Range	Percentage or mean (SD)	Valid <i>n</i>
Age (years)	65–90	73.99 (6.11)	151
Gender (woman)		54.3%	151
Marital status (single)		55.6%	150
Education (low)		67.5%	137
Number of chronic diseases	0–8	2.18 (1.77)	149
Multimorbidity (yes)		55.6%	149
Physical frailty (yes)		51.7%	147
Dutch comprehension (no)		13.2%	149
Feelings of discrimination (yes)		15.2%	135

Notes. *n* = 151. SD, standard deviation.

Ageing-in-place instrument scores are provided in Table 2 which indicates the extent to which the respondents missed each of the 40 neighbourhood

resources that can facilitate their ageing in place, categorized under the eight domains of the WHO's Age-friendly Cities Guide. The average overall ageing-in-place score was 2.11 (SD = 0.64; range, 1–4) and the average domain scores ranged from 1.84 (SD = 0.86; range, 1–4) for respect and social inclusion to 2.43 (SD = 0.99; range, 1–4) for housing, suggesting that the respondents missed to various extents the availability of neighbourhood resources that are needed for their ageing in place. Respondents missed the following neighbourhood resources most: the provision of activities especially for people with similar backgrounds [mean (M) = 2.66, SD = 1.16, range, 1–4; social participation domain], affordable housing (M = 2.51, SD = 1.19, range, 1–4; housing domain), volunteers who provide help when necessary (M = 2.48, SD = 1.06, range, 1–4; community support and health services domain), sustainable homes (M = 2.43, SD = 1.26, range, 1–4; housing domain), meeting places for older adults (M = 2.42, SD = 1.15, range, 1–4; social participation domain) and sufficient parking spots for residents and/or visitors (M = 2.42, SD = 1.25, range, 1–4; transportation domain). In addition, the respondents missed easily accessible home care (community support and health services domain), readily available help with home and garden maintenance (housing domain), centrally located municipal information (communication and information domain), social events (e.g. block parties) in the neighbourhood (social participation domain) and suitable housing for older adults (housing domain).

Table 3 shows correlations of respondent characteristics with the eight domains of the WHO's Age-friendly Cities Guide and overall ageing-in-place scores. The overall ageing-in-place score correlated with age ($r = -0.29, p = 0.003$), single marital status ($r = 0.22, p = 0.026$), multimorbidity ($r = 0.30, p = 0.002$), physical frailty ($r = 0.21, p = 0.033$) and feelings of discrimination ($r = 0.39, p < 0.001$). Thus, older respondents were less likely to indicate missing neighbourhood resources that are needed for ageing in place, whereas those who were single, had multimorbidity, were physically frail and had experienced feelings of discrimination were more likely than their counterparts to do so.

Table 2. Missing age-friendly neighbourhood resources scores

Item	Valid <i>n</i>	Missing cases (%)		Responses			Mean (SD)
		Total	Do not know/no opinion	Do not miss at all (1)	Miss a little bit (2)	Miss quite a lot (3)	
Outdoor spaces and buildings		133					
1. A clean and well-maintained neighbourhood	128	23 (15.2%)	16 (10.6%)	35.9%	38.3%	14.1%	11.7% 2.02 (0.99)
2. A green neighbourhood	130	21 (13.9%)	13 (8.6%)	33.1%	40.0%	16.2%	10.8% 2.05 (0.96)
3. A neighbourhood with wide sidewalks and safe crosswalks	123	28 (18.5%)	18 (11.9%)	43.1%	29.3%	17.1%	10.6% 1.95 (1.02)
4. Public buildings with elevators that are easily accessible for wheelchairs and walkers	112	39 (25.8%)	29 (19.2%)	45.5%	29.5%	12.5%	12.5% 1.92 (1.04)
5. A safe neighbourhood	123	28 (18.5%)	17 (11.3%)	48.0%	29.3%	11.4%	11.4% 1.86 (1.02)
6. A neighbourhood without nuisance	127	24 (15.9%)	15 (9.9%)	45.7%	31.5%	9.4%	13.4% 1.91 (1.04)
Transportation		123					
7. A neighbourhood with good public transport	120	31 (20.5%)	23 (15.2%)	69.2%	21.7%	4.2%	5.0% 1.45 (0.80)
8. A neighbourhood with affordable public transport	115	36 (23.8%)	27 (17.9%)	59.1%	24.3%	7.8%	8.7% 1.66 (0.95)
9. A neighbourhood with special transport (for older adults or people with disabilities)	101	50 (33.1%)	40 (26.5%)	42.6%	25.7%	18.8%	12.9% 2.02 (1.07)
10. A neighbourhood with sufficient parking spots (for myself and/or my visitors)	123	28 (18.5%)	21 (13.9%)	35.0%	17.9%	17.1%	30.1% 2.42 (1.25)
11. A neighbourhood that is easily accessible by car	115	36 (23.8%)	27 (17.9%)	62.6%	16.5%	11.3%	9.6% 1.68 (1.01)
12. A neighbourhood with good cycling paths	110	41 (27.2%)	34 (22.5%)	56.4%	23.6%	7.3%	12.7% 1.76 (1.05)
Housing		120					
13. A neighbourhood with affordable housing	110	41 (27.2%)	33 (21.9%)	27.3%	24.5%	18.2%	30.0% 2.51 (1.19)
14. A neighbourhood with suitable housing for older adults	115	36 (23.8%)	27 (17.9%)	30.4%	26.1%	19.1%	24.3% 2.37 (1.16)
15. A neighbourhood where it is easy to find	111	40 (26.5%)	31 (20.5%)	30.6%	27.0%	15.3%	27.0% 2.39 (1.19)

Chapter 4

help with home and garden maintenance								
16. A sustainable home	101	50 (33.1%)	40 (26.5%)	34.7%	19.8%	13.9%	31.7%	2.43 (1.26)
<i>Social participation</i>	105							2.42 (0.98)
17. A neighbourhood where many social activities are organised	101	50 (33.1%)	41 (27.2%)	28.7%	32.7%	19.8%	18.8%	2.29 (1.08)
18. A neighbourhood with affordable activities for older adults	97	54 (35.8%)	45 (29.8%)	26.8%	37.1%	16.5%	19.6%	2.29 (1.07)
19. A neighbourhood with a meeting place for older adults	106	45 (29.8%)	35 (23.2%)	27.4%	28.3%	18.9%	25.5%	2.42 (1.15)
20. A neighbourhood with activities especially for Moroccan people	109	42 (27.8%)	32 (21.2%)	22.0%	23.9%	20.2%	33.9%	2.66 (1.16)
21. A neighbourhood with a variety of events (such as block parties)	107	44 (29.1%)	34 (22.5%)	29.9%	25.2%	22.4%	22.4%	2.37 (1.14)
<i>Respect and social inclusion</i>	113							1.84 (0.86)
22. A neighbourhood where people have respect for older adults	116	35 (23.2%)	26 (17.2%)	50.9%	27.6%	9.5%	12.1%	1.83 (1.03)
23. A neighbourhood with people with the same background as me	105	46 (30.5%)	35 (23.2%)	63.8%	23.8%	5.7%	6.7%	1.55 (0.88)
24. A neighbourhood where people know one another	113	38 (25.2%)	28 (18.5%)	53.1%	29.2%	8.0%	9.7%	1.74 (0.97)
25. A neighbourhood with friends and/or family close by	116	35 (23.2%)	25 (16.6%)	38.8%	24.1%	19.8%	17.2%	2.16 (1.12)
26. A neighbourhood with contact between young and old people	106	45 (29.8%)	35 (23.2%)	48.1%	28.3%	12.3%	11.3%	1.87 (1.02)
<i>Civic participation and employment</i>	101							2.02 (0.97)
27. A neighbourhood with opportunities for volunteer work	95	56 (37.1%)	45 (29.8%)	57.9%	25.3%	8.4%	8.4%	1.67 (0.95)
28. A neighbourhood where older adults are involved in changes in the neighbourhood	98	53 (35.1%)	43 (28.5%)	40.8%	27.6%	16.3%	15.3%	2.06 (1.09)
29. A neighbourhood where older adults are able to influence what happens in the neighbourhood	98	53 (35.1%)	43 (28.5%)	37.8%	29.6%	16.3%	16.3%	2.11 (1.09)

Age-friendliness of neighbourhoods: A person–environment fit perspective

30. A neighbourhood where older adults are able to have their say	97	54 (35.8%)	43 (28.5%)	33.0%	34.0%	15.5%	17.5%	2.18 (1.08)
<i>Communication and information</i>	100							2.19 (1.00)
31. A neighbourhood newspaper with information about what is going on in the neighbourhood	104	47 (31.1%)	37 (24.5%)	44.2%	33.7%	9.6%	12.5%	1.90 (1.02)
32. A neighbourhood with digital support (help with online banking, access to DigiD, patient portal, etc.)	102	49 (32.5%)	38 (25.2%)	45.1%	22.5%	12.7%	19.6%	2.07 (1.17)
33. A neighbourhood with understandable information about facilities and activities	102	49 (32.5%)	38 (25.2%)	33.3%	26.5%	19.6%	20.6%	2.27 (1.14)
34. A neighbourhood with municipal information at a central location	101	50 (33.1%)	39 (25.8%)	30.7%	28.7%	12.9%	27.7%	2.38 (1.19)
35. A neighbourhood where people inform one another	108	43 (28.5%)	33 (21.9%)	26.9%	37.0%	12.0%	24.1%	2.33 (1.12)
<i>Community support and health services</i>	125							1.98 (0.84)
36. A neighbourhood where home care is easily accessible	107	44 (29.1%)	36 (23.8%)	31.8%	21.5%	20.6%	26.2%	2.41 (1.19)
37. A neighbourhood with volunteers who provide help when necessary	110	41 (27.2%)	32 (21.2%)	20.0%	35.5%	20.9%	23.6%	2.48 (1.06)
38. A neighbourhood with the GP and pharmacy within walking distance	126	25 (16.6%)	17 (11.3%)	57.9%	13.5%	16.7%	11.9%	1.83 (1.10)
39. A neighbourhood with shops and other facilities within walking distance	126	25 (16.6%)	16 (10.6%)	66.7%	10.3%	10.3%	12.7%	1.69 (1.09)
40. A neighbourhood with a church or mosque	119	32 (21.2%)	20 (13.2%)	58.8%	16.8%	10.1%	14.3%	1.80 (1.11)
<i>Overall ageing-in-place score</i>	105							2.11 (0.64)

Notes. $n = 151$. SD, Standard Deviation; GP, general practitioner.

Respondents with multimorbidity were more likely than their counterparts to be critical of the age-friendliness of their neighbourhoods in six of the eight domains: outdoor spaces and buildings ($r = 0.28$, $p = 0.001$), housing ($r = 0.19$, $p = 0.043$), social participation ($r = 0.20$, $p = 0.042$), respect and social

inclusion ($r = 0.22, p = 0.021$), civic participation and employment ($r = 0.35, p < 0.001$) and community support and health services ($r = 0.20, p = 0.023$). Those who had experienced feelings of discrimination were more likely than their counterparts to be critical of the age-friendliness of their neighbourhoods in five domains: outdoor spaces and buildings ($r = 0.33, p < 0.001$), housing ($r = 0.28, p = 0.002$), respect and social inclusion ($r = 0.33, p < 0.001$), communication and information ($r = 0.33, p = 0.001$) and community support and health services ($r = 0.28, p = 0.002$). Those who were single were more likely than married respondents to be critical of the age-friendliness of their neighbourhoods in the domains of social participation ($r = 0.28, p = 0.004$) and community support and health services ($r = 0.24, p = 0.008$). Finally, those who were physically frail were more likely than their counterparts to be critical of the age-friendliness of their neighbourhoods in the outdoor spaces and buildings domain ($r = 0.18, p = 0.045$).

Results of the multivariate linear regression analysis are provided in Table 4. Older age ($\beta = -0.27, p = 0.006$), single marital status ($\beta = 0.36, p = 0.006$), multimorbidity ($\beta = 0.22, p = 0.025$) and feelings of discrimination ($\beta = 0.34, p < 0.001$) predicted the overall ageing-in-place score for missing neighbourhood resources. In contrast to the correlation results, physical frailty was not associated significantly with this score in the regression analysis. Older age appeared to protect against the missing of neighbourhood resources, whereas single marital status, multimorbidity and experiencing feelings of discrimination increased the extent to which respondents missed age-friendly neighbourhood resources that are needed for ageing in place.

Table 3. Bivariate Pearson correlations between respondent characteristics and the eight domains of the WHO's Age-friendly Cities Guide and overall ageing-in-place scores

Characteristic	Outdoor spaces and buildings	Transportation	Housing	Social participation	Respect and social inclusion	Civic participation and employment	Communication and information	Community support and health services	ageing-in-place score
1. Age (years)	-0.10	-0.20*	0.24**	-0.32**	-0.20*	-0.14	-0.38**	-0.20*	-0.29**
2. Gender (woman)	0.04	0.04	0.09	0.14	0.03	0.07	0.15	0.17	0.13
3. Marital status (single)	0.07	0.02	0.07	0.28**	0.10	0.14	0.19	0.24**	0.22*
4. Education (low)	0.09	0.15	0.13	0.13	0.01	0.06	0.09	0.02	0.08
5. Multimorbidity (yes)	0.28**	0.10	0.19*	0.20*	0.22*	0.35**	0.13	0.20*	0.30**
6. Physical Frailty (yes)	0.18*	0.17	0.14	0.12	0.18	0.17	0.03	0.11	0.21*
7. Dutch comprehension (no)	0.03	0.19*	0.04	0.04	0.08	0.04	0.13	0.21*	0.10
8. Feelings of discrimination (yes)	0.33**	0.17	0.28*	0.16	0.33**	0.16	0.33**	0.28**	0.39**

Note. $n = 151$. Significance levels: * $p \leq 0.05$, ** $p \leq 0.01$ (two-tailed).

Table 4. Multivariate linear regression results for relationships between respondent characteristics and overall ageing-in-place score

Characteristic	Overall ageing-in-place score			
	Unstandardised coefficient (B)	95% confidence interval for B	Standardised coefficient (B)	p
1. Age (years)	-0.03	-0.05, -0.01	-0.27	0.006
2. Gender (woman)	-0.22	-0.55, 0.10	-0.17	0.180
3. Marital status (single)	0.46	0.13, 0.79	0.36	0.006
4. Education (low)	-0.19	-0.47, 0.08	-0.13	0.167
5. Multimorbidity (yes)	0.29	0.04, 0.54	0.22	0.025
6. Physical Frailty (yes)	0.14	-0.12, 0.40	0.11	0.289
7. Dutch comprehension (no)	0.25	-0.08, 0.58	0.13	0.129
8. Feelings of discrimination (yes)	0.58	0.27, 0.88	0.34	<0.001

Notes. $n = 151$. Multivariate linear regression was performed with the pairwise deletion of missing cases.

DISCUSSION

In recent decades, the concept of ageing in place has played a major role in shaping policy, with an emphasis on finding ways to help older adults continue to live at home and in their familiar environments (De Witte et al., 2013; Sampaio & Walsh, 2023; van Hees et al., 2021). The Dutch government acknowledges that the majority of older adults prefer to age in place and has implemented several measures to attend to this preference (Government of the Netherlands, n.d.). Municipalities in the Netherlands are also making continuous efforts to enhance the age-friendliness of their neighbourhoods through the provision of relevant physical and social resources and health services (Hekelaar & Brand, 2022; Municipality of Rotterdam, 2019; van Hoof et al., 2020; Van Triest & Van Vliet, 2017). Although age-friendly neighbourhoods have the potential to develop into supportive and inclusive environments for older migrants (Neville et al., 2018), age-friendly initiatives have drawn criticism for failing to consider the diversity of older populations and the specific needs of subgroups such as ethnic minorities (Buffel & Phillipson, 2018; Lehning et al., 2017). In this study, we thus adopted a person–environment fit perspective to examine the extent to which older Moroccan migrants in the Netherlands find their neighbourhoods to be age friendly, while highlighting how these migrants’ individual characteristics and feelings of discrimination relate to the neighbourhood resources they need to age in place.

The older Moroccan migrants who participated in this study indicated that they missed neighbourhood resources across the eight domains of the WHO’s Age-friendly Cities Guide, with some variation in extent among domains. Consistently, El Fakiri & Bouwman-Notenboom (2015) reported that older Moroccan migrants in the Netherlands had lower levels of satisfaction with the quality of their surrounding environments than did other older migrant and native groups. Older Moroccan migrants in the Netherlands are more likely than their native counterparts to live in ethnically dense, disadvantaged neighbourhoods (Oudenampsen & de Gruijter, 2002; van der Greft & Droogleever Fortuijn, 2017), which are often marked by suboptimal conditions for ageing in place such as poor housing, inadequate service provision and social exclusion (Buffel et al., 2013; van der Greft et al., 2016).

The presence of people (including family members) with similar backgrounds and amenities oriented toward them at close distance seems to mitigate the negative aspects of these neighbourhoods (Dagevos, 2009; van der Greft & Droogleever Fortuijn, 2017), prompting migrants to remain in them (Kullberg et al., 2009; Oudenampsen & de Gruijter, 2002). These factors imply that the enhancement of the conditions of such neighbourhoods could be especially beneficial for migrants (Kullberg et al., 2009; Oudenampsen & de Gruijter, 2002) and reflect the need for age-friendly initiatives to address the inequality of the contexts of urban older adult populations (Buffel & Phillipson, 2018; Thomése et al., 2018; van der Greft et al., 2016).

The older Moroccan migrants who participated in this study seemed to especially miss certain neighbourhood resources whose provision is needed to enable their ageing in place. These neighbourhood resources include affordable, sustainable and suitable housing for older adults and help with home maintenance (housing domain). These results are in line with the previous finding that older Moroccan migrants in the Netherlands are not satisfied with the quality of their housing (El Fakiri & Bouwman-Notenboom, 2015; Hussein et al., 2024; Yerden & Kaya, 2021). This is not surprising, as these migrants tend to live in small, poorly maintained low-rent apartments that are accessible only via stairs (Fokkema, 2019; Yerden & Kaya, 2021), which can hinder their ability to age successfully in place (Daalhuizen et al., 2019; Nitsche & Suijker, 2003). The participants in this study also especially missed the availability of social activities for people with similar backgrounds, a variety of social events and a meeting place for older adults in their neighbourhoods (social participation domain). Although older Moroccan migrants in the Netherlands have built social networks consisting mainly of family members and others with similar backgrounds (Schellingerhout, 2004), they tend to report feeling social exclusion (Conkova & Lindenberg, 2018; El Fakiri & Bouwman-Notenboom, 2015). The social well-being of older migrants, especially those who are not fluent in the host country's language, may be highly dependent on the availability of meeting places and activities that gather people who share the same language, culture and religion (Conkova & Lindenberg, 2020; Neville et al., 2018; Yazdanpanahi & Woolrych, 2023).

The older Moroccan migrants who participated in this study indicated that they also missed centrally located municipal information (communication and information domain), volunteers who provide help and easily accessible home care (community support and health services domain), and sufficient parking places for themselves and their visitors (transportation domain) in their neighbourhoods. The availability of reasonably priced parking spaces is perceived as a facilitator of home visitation by family members; in previous studies, older migrants have cited the high cost of parking in the Netherlands as a reason for their children's less-frequent visitation (van der Greft & Droogleever Fortuijn, 2017). This situation is of concern, as children comprise the main source of help and social support for older migrants, especially those who are vulnerable (Hussein et al., 2024; Nitsche & Suijker, 2003; van Wieringen, 2014). The reporting of the lack of other sources of help in their neighbourhoods (e.g. volunteers and home care) suggests that the older migrants who participated in this study want to maintain their independence without burdening their children, as noted in previous research (Conkova & Lindenberg, 2018, 2020; Nitsche & Suijker, 2003). The provision of culturally specific and sensitive (health) care and services can support older migrants' ability to age in place independently (Omlo et al., 2016; Witter & Fokkema, 2018), and it needs to be paired with the provision of understandable and easily accessible information about available services in these groups' native languages (Nitsche & Suijker, 2003; van Wieringen, 2014).

Although older adults within a given migrant group may have similar perspectives regarding their needs for certain neighbourhood resources to age in place, they have different priorities regarding other resources (Hussein et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024). This study revealed significant relationships between the individual characteristics of older Moroccan migrants and their environmental needs for ageing in place, and the greater likelihood of some subgroups than others of becoming dependent on the availability of specific neighbourhood resources and services. In particular, study participants who were single and those with multimorbidity more often indicated the lack of resources in their neighbourhoods that would enable ageing in place. Single respondents reported that more was lacking in

the social participation and community support and health services domains, and those with multimorbidity more often reported missing neighbourhood resources in six of the eight domains of the WHO’s Age-friendly Cities Guide. Relative to native older adults, older migrants in the Netherlands, and European countries in general, tend to have less favourable health statuses (Solé-Auró & Crimmins, 2008) and are more prone to experience health declines as they age (Reus-Pons et al., 2018). These factors highlight the need for ageing-in-place policies that are more sensitive to the needs of older migrant populations and take the diversity of individual characteristics and life courses into account (Buffel & Phillipson, 2018; Ciobanu et al., 2017; Kristiansen et al., 2016; Reus-Pons et al., 2018).

On the other hand, participants in this study who were older indicated less often than their younger counterparts that they missed neighbourhood resources needed for ageing in place in six of the eight domains of the WHO’s Age-friendly Cities Guide. Thus, distinct age groups of older migrants may have varying environmental needs for ageing in place, highlighting the differential effect of age on the person–environment fit noted in previous research (Cramm et al., 2018; van Hoof et al., 2022). Taken together, our findings reflect the dynamic nature of person–environment interactions, challenging the appropriateness of a ‘one-size-fits-all’ approach to the creation of age-friendly communities, as such an approach overlooks the diversity of older (migrant) populations and the changing nature of their needs for ageing in place (Carroll, 2020; Thissen & Fortuijn, 2021). Cities in various European countries are becoming increasingly diverse (Pisarevskaya et al., 2022), with far-reaching implications for older native and migrant populations’ satisfaction with their environments and ability to age in place (van der Graft & Droogleever Fortuijn, 2017). The adoption of an approach that acknowledges the heterogeneity of older migrants and explores their diverse needs is thus crucial (Ciobanu et al., 2017; Klokgieters et al., 2020). In contrast, older migrants are typically framed as passive, dependent, ‘culturally static’ and/or problematic because research has focused primarily on the negative aspects of their ageing and associated care demands (Ciobanu et al., 2017; Johansson et al., 2013). Such mischaracterisation can hinder the provision of needed resources to older migrants and lead to the delivery of

services that are based on, and further affirm, these negative stereotypes (Johansson et al., 2013).

A final issue that warrants closer attention is older migrants' experience of discrimination. In the present study, participants' feelings of discrimination were related to their missing of neighbourhood resources in five of the eight domains of the WHO's Age-friendly Cities Guide (outdoor spaces and buildings, housing, respect and social inclusion, communication and information, and community support and health services), even after adjustment for individual characteristics. In the European Commission (2023) Eurobarometer survey, an average of 21% of respondents in member states – 25% in the Netherlands – indicated that they have experienced discrimination in the past 12 months. Only 15.2% of the older Moroccan migrants who participated in the present study reported that they had recently experienced feelings of discrimination. Although this percentage could be perceived as relatively small, it should not be ignored, given that many individuals still choose to not disclose their experiences of discrimination because of the stigma surrounding them (Wanka et al., 2019). In earlier research conducted by Klokgieters et al. (2020), older migrants living in the Netherlands spoke about the detrimental effects of discrimination on their well-being and indicated that they continued to feel less accepted by Dutch society over time. Notably, the marginalisation of older migrants and the focus on their 'otherness' in research, policies and practice can further contribute to discrimination against them and their unequal access to services (Ciobanu, 2019; Lindblom & Torres, 2022; Torres, 2015). Thus, more attention needs to be devoted in future research to the complexities of discrimination processes affecting older equity-seeking groups and their potential influences on the ability to age in place, with consideration of local and global factors that influence discriminatory behaviours.

This study has limitations that need to be considered. First, it was cross-sectional, preventing the inference of causality. For instance, we could not determine whether older Moroccan migrants who perceived discrimination thus tended to indicate missing neighbourhood resources needed for ageing in place, or whether those who lived in deprived or less age-friendly neighbourhoods were more prone to experience feelings of discrimination.

Longitudinal research is thus needed to detangle the dynamic nature of the achievement of person–environment fit for diverse older populations and its relationship to ageing in place, with consideration of the potential impacts of older ethnic minority adults’ experiences of discrimination. Second, the response rate in this study may appear to be low, but it falls within the expected range for older first-generation migrants (Kappelhof, 2010; Schellingerhout, 2004; Statistics Netherlands, 2005). We followed recommendations from previous research to optimise the response rate (Kappelhof, 2010; Schellingerhout, 2004; Statistics Netherlands, 2005) and enhance the representativeness of the older Moroccan migrant sample while highlighting its heterogeneity and individuals’ distinct environmental needs for ageing in place, given that Moroccans form one of the largest migrant groups in the Netherlands (Statistics Netherlands, 2023). Noting these limitations, this study highlighted the neighbourhood resources that older Moroccan migrants living in the Netherlands miss the most and whose provision would foster their ageing in place. Furthermore, it enhanced our understanding of the dynamic nature of person–environment fit among older migrants and revealed that experiences of discrimination are related to older migrants’ environmental needs for ageing in place.

CONCLUSIONS

Older migrants, like most older adults, prefer to age in their familiar homes and environments. Age-friendly communities may provide supportive environments for older adults, but they have drawn criticism for failing to consider the full diversity of older populations and the specific needs of subgroups, such as older migrants. Older Moroccan migrants who participated in this study indicated that they missed neighbourhood resources to various extents across the eight domains of the WHO’s Age-friendly Cities Guide. This study highlights the neighbourhood resources that older Moroccan migrants living in the Netherlands miss the most and whose provision would facilitate their ageing in place. It showed that age, marital status, multimorbidity and feelings of discrimination are associated significantly with the missing of age-friendly neighbourhood resources. Participants who were single, those with multimorbidity, and those who had

experienced feelings of discrimination were more prone than their counterparts to indicate that neighbourhood resources needed for ageing in place were lacking. In contrast, older participants were less concerned about these neighbourhood resources. These findings increase our understanding of the dynamic nature of the achievement of person–environment fit among older migrants and imply the need for age-friendly initiatives to consider the heterogeneity that exists within older migrant populations and their diverse needs for ageing in place. Future research that further explores experiences of discrimination among older migrant populations and their potential impact on the ability to age in place would be of interest.

NOTES

¹ The analysis of missing data revealed missing values for 15 of the 17 study variables (shown in Table 3), comprising 14.5% of all values. Little's MCAR test confirmed that these values were missing completely at random. To handle missing data and confirm our findings, multiple imputation was employed by applying the Markov chain Monte Carlo (MCMC) algorithm and the predictive mean matching (PMM) method to generate 20 datasets with 50 iterations. Similar secondary analyses were then performed using the 20 imputed datasets, and yielded results comparable to those presented in this paper. Consequently, the results of the secondary analyses are not reported here, but they can be provided upon request.

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5



Validation of the ageing-in-place instrument and development of a short version for older Adults with native and migrant backgrounds in the Netherlands

This chapter is currently in revision as:

Hussein, H., Cramm, J. M., & Nieboer, A. P. (2025). Validating the full and short versions of the aging-in-place instrument for native and migrant older adults in the Netherlands.

ABSTRACT

Objectives

The main premise of age-friendly environment development is to accommodate for the needs of diverse older-adult populations, which necessitates the availability of valid instruments that capture older adults' perceptions of their environments and reflect their ageing-in-place needs. Most available instruments for age-friendliness measurement are homogeneous and not culturally adapted for use with diverse older-adult groups. This study was performed to validate an instrument measuring neighbourhood age-friendliness and identifying ageing-in-place needs for diverse older-adult populations.

Methods

The target populations were older (aged ≥ 65 years) native-Dutch and first-generation migrant adults with Turkish, Surinamese, and Moroccan backgrounds residing in Rotterdam, the Netherlands. Data were collected from 862 respondents (49% response rate). The factor structure of the 37-item ageing-in-place instrument was evaluated with the total sample. To reduce respondent burden, a shortened 24-item version was developed, and its model fit was tested with the four subgroups. The validity and reliability of the instrument were further examined.

Results

The 37-item ageing-in-place instrument showed satisfactory to good model fit for the total sample. The shortened version also showed satisfactory to good fit for the four subgroups, and both versions had good internal consistency. For both versions, scores correlated negatively with the Brief Sense of Community Scale score, supporting their validity.

Conclusions

With this study, we provide a valid, reliable, and culturally sensitive instrument that captures the perceptions of diverse older-adult populations regarding the age-friendliness of their environments and reflects their needs for ageing in place.

INTRODUCTION

Since the launch of the World Health Organization's (WHO's; 2007) Global Age-friendly Cities Guide, countries around the world have joined the movement to promote and enhance the age-friendliness of their neighbourhoods and cities (Dellamora et al., 2015; Fitzgerald & Caro, 2014; Torku et al., 2021; World Health Organization, 2023). This effort was sought as a response to the global trends of population ageing and urbanization, with the potential to develop supportive environments that foster older adults' active ageing and participation in their families, neighbourhoods, and communities (Fitzgerald & Caro, 2014; World Health Organization, 2007, 2023). Age-friendly environments provide resources enabling older adults to age safely, develop a sense of community, maintain health and well-being, and improve their overall quality of life (Au et al., 2020; Buckley, 2022; Yu et al., 2019). They also better support older adults' ageing in place, addressing their preference to remain in familiar surroundings instead of relocating to institutional settings (Choi, 2022; Kim et al., 2024).

For a city to be considered age-friendly, according to the WHO's Age-friendly Cities Guide (2007), it needs to incorporate key physical and social environmental resources and social and health services in eight domains: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services. The WHO emphasises that the main premise of age-friendly cities is to accommodate for the needs of diverse older-adult populations. The resources in the eight domains of the WHO guide are merely starting points for the definition of neighbourhood and city priorities and adjustment in accordance with contextual needs and preferences (Plouffe et al., 2016; Torku et al., 2021; World Health Organization, 2007, 2023). Accordingly, age-friendly initiatives must be centred on and informed by the diverse needs and preferences of older adults to be successful (Buffel et al., 2012; Mahmood & Keating, 2012; World Health Organization, 2023). This requirement necessitates the availability of valid quantitative instruments that capture older adults' perceptions of their environments and diverse environmental needs for ageing in place, and can

be used to evaluate the progress of age-friendly initiatives over time (Dellamora et al., 2015; Dikken et al., 2020; Kim et al., 2021; Lehning & Baik, 2024; Torku et al., 2021).

The systematic exclusion of minoritized, marginalized, and underserved subgroups of older adults from active involvement in age-friendly decision-making is of particular concern (Buffel & Phillipson, 2018; Lehning et al., 2017). Despite many attempts to centre efforts on older adults and their needs, the full diversity of older-adult populations and their distinct ageing experiences have generally not been considered in age-friendly initiative development and implementation (Buffel & Phillipson, 2018; Lehning & Baik, 2024; Mahmood & Keating, 2012). Global migration trends have reshaped the demographic compositions of Western cities, increasing the proportions of older adults with migration backgrounds ageing in their host nations (Liversage, 2023; World Health Organization, 2023). First-generation individuals from Suriname, Turkey, and Morocco form the largest groups of non-European older migrants in the four largest cities in the Netherlands: Amsterdam, Rotterdam, The Hague, and Utrecht (Statistics Netherlands, 2024). They tend to be concentrated in disadvantaged, less age-friendly neighbourhoods that lack the resources needed to promote their health, well-being, and ability to age in place (Lehning et al., 2017; van der Greft & Droogleever Fortuijn, 2017).

Older migrants may be more susceptible to vulnerability, as they have faced many challenges, stressors, and adversities in their lives. They encounter discrimination in their host countries, struggle with language barriers, and have lower socioeconomic and health statuses than do their native counterparts (Ciobanu et al., 2017; van der Greft & Droogleever Fortuijn, 2017). However, the migration experience is not uniform. Older migrant populations are heterogeneous, with diverse characteristics and resources that tend to influence individuals' ageing-related perceptions (Ciobanu et al., 2017; Conkova & Lindenberg, 2020; Klokgieters et al., 2020). Correspondingly, distinct older-migrant populations may have different environmental needs for ageing in place (Hussein et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2022, 2024). However, the lack of quantitative information regarding the specific needs of older-adult subgroups (e.g., older

migrants) challenges the ability to attend to these needs via age-friendly initiatives (van Hoof et al., 2022). The need for research that prioritizes the unmet needs of diverse populations of older adults, including those with migration backgrounds, has been emphasized frequently in recent age-friendliness studies (Forsyth & Lyu, 2024; Lehning & Baik, 2024; van Hoof et al., 2022). Despite this need, it seems that the available instruments for the assessment of age-friendliness are largely homogeneous and not culturally adapted for use with these populations (Dikken et al., 2020; Kim et al., 2021).

To address this gap, we developed an instrument covering the eight domains of the WHO's Age-friendly Cities Guide, that can be used with diverse older-adult populations in the Netherlands to evaluate neighbourhood age-friendliness and identify ageing-in-place needs. We tested the factor structure, reliability, and validity of a 37-item version of the instrument, then developed a shortened 24-item version that was similarly evaluated with native-Dutch older adults and those with Turkish, Surinamese, and Moroccan backgrounds in the Netherlands. Through the inclusion of four distinct older-adult groups, the study provides an instrument that is reliable and culturally sensitive, accounting for and reflecting the needs and preferences of diverse older-adult populations, and thus can be used to guide the creation of inclusive age-friendly neighbourhoods and cities in the Netherlands.

METHODS

Participants

This cross-sectional study was conducted as part of broader research on the relationship between community age-friendliness and well-being realisation among diverse older-adult populations in the Netherlands (Nieboer & Cramm, 2022). The target populations for the present study were older (aged ≥ 65 years) native-Dutch and first-generation migrant adults with Turkish, Surinamese, and Moroccan backgrounds residing in Rotterdam, the second largest city in the Netherlands. To ensure fair representation of these diverse populations, sufficient power for confirmatory factor analysis (CFA), and the generalisability of the study results, stratified sampling was applied to randomly select potential participants (~ 500 /group) from Rotterdam's municipal registers based on their countries of birth and residential addresses

(distributed across 72 neighbourhoods in 10 districts). Only one person per address was allowed to participate. Of 1998 selected potential participants, 236 were deemed ineligible for participation in the present study due to residence abroad or in an institution ($n = 81$), illness preventing participation ($n = 73$), change of address ($n = 27$), registration of an incorrect address ($n = 24$), difficulty speaking ($n = 18$), and death ($n = 13$). Of the 1762 eligible potential participants, 465 were of Dutch origin, 422 were of Turkish origin, 442 were of Surinamese origin, and 433 were of Moroccan origin. The Research Ethics Review Committee of the Erasmus School of Health Policy & Management, Erasmus University Rotterdam, approved this study (ETH2122-0257).

Procedure

An accredited Dutch research agency collected the study data between February and August 2023. First, an invitation letter, an informational leaflet, and the survey questionnaire in Dutch were mailed to each potential participant. For potential participants with Turkish and Moroccan backgrounds, these documents were also provided in Turkish and Standard Arabic, respectively. Multilingual professional translators with Turkish and Moroccan backgrounds performed forward-backward document translation. The invitation letter included a summary of instructions for participation, a website address, and a personalized code for optional online participation. The leaflet described the study's aim, emphasized the voluntary nature of participation, and provided reassurance regarding the confidential processing of participant data. A small monetary incentive (€5–15) was offered to encourage participation.

Second, two reminders were mailed to non-responding potential participants, followed by telephone calls when telephone numbers were available. Third, multilingual interviewers, including the first author, visited potential participants at home and communicated in their native languages to further motivate participation and assist with questionnaire reading and filling out when needed. To maximize participation, non-respondents' homes were visited up to six times. Ultimately, 862 individuals agreed to participate in the study and filled out the questionnaire, yielding a 49% response rate. The response rate was highest for native-Dutch individuals [65% ($n = 300$)],

followed by Turkish [50% ($n = 211$)] and Surinamese [45% ($n = 200$)] individuals, and was lowest for Moroccan individuals [35% ($n = 151$)].

Measures

Ageing in place

The extent to which participants missed neighbourhood resources needed to age in place was measured using a 37-item instrument covering the eight domains of the WHO's Age-friendly Cities Guide (2007). An initial version of this instrument was developed by van Dijk et al. (2015) for native-Dutch older adults and applied successfully in several studies (e.g., Jagroep et al., 2022; Nieboer & Cramm, 2018). To ensure the instrument's suitability and comprehensiveness for diverse older-adult populations in the Netherlands, we revised it based on a review of recent research on cities' age-friendliness (e.g., Dikken et al., 2020; Torku et al., 2021; van Hoof et al., 2022) and ageing in place (e.g., Jagroep et al., 2022; Nieboer & Cramm, 2018). In addition, we conducted pilot interviews with older adults from the four target population groups to further assess the suitability, comprehensiveness, and clarity of the instrument's items. Items were then added, eliminated, or reworded as applicable. Dutch and translated versions of the ageing-in-place instrument are provided in Supplementary Materials Section A.

In the present study, respondents indicated the extent to which they missed the availability of 37 neighbourhood resources using four response categories: "do not miss at all" (1), "miss a little bit" (2), "miss quite a lot" (3), and "miss a lot" (4). A "do not know/no opinion" response option was also provided. For each of the eight domains of the WHO's Age-friendly Cities Guide, a mean subscale score was computed for each participant who responded to at least 50% of the domain items. Average overall ageing-in-place scores were computed when scores for at least six of the eight domains were available. Higher scores reflect greater extents of missing neighbourhood resources needed for ageing in place.

Sense of community

The eight-item Brief Sense of Community Scale was used to measure the extent to which participants experienced a sense of community in their

neighbourhoods. This validated scale was developed using the model of McMillan and Chavis (1986), which incorporates four sense of community dimensions: needs fulfilment, group membership, influence, and emotional connection (Peterson et al., 2008). Examples of items are “I can get what I need in this neighbourhood” (needs fulfilment), “I belong in this neighbourhood” (group membership), “People in this neighbourhood are good at influencing each other” (influence), and “I have a good bond with others in this neighbourhood” (emotional connection) (Peterson et al., 2008). Responses are structured by a five-point scale ranging from “strongly disagree” (1) to “strongly agree” (5), with a “do not know/no opinion” option provided. Average sense of community scores were computed for participants who responded to at least 50% of the items. In the present study, the Cronbach’s α value, a measure of internal consistency, for the Brief Sense of Community Scale for the total sample was .88, indicating good reliability.

Individual characteristics

The questionnaire solicited information about participants’ age (in years), gender (man, woman, or other), marital status (married, cohabiting/unmarried, partner/not cohabiting, divorced, widowed, or single/not married), educational background (seven options ranging from less than elementary school to university/higher education, with the option to report other education), chronic diseases in the last 12 months [10 listed (Hek et al., 2013), with the option to report others], and net monthly household income (five options ranging from $<\text{€}1000$ to $\geq\text{€}3050$, with a “do not know/do not want to say” option). Marital statuses were dichotomized as married (first three options) and single (last three options). Educational levels were dichotomized as low (elementary school completion or less) and high (more than elementary school completion). Participants with at least two chronic diseases were classified as having multimorbidity. Net monthly household incomes were dichotomized as low ($\leq\text{€}1350$) and high ($>\text{€}1350$).

Analyses

The data were analysed using SPSS (version 29.0.1.0; IBM Corporation, Armonk, NY, USA) and the lavaan package (Rosseel, 2012) in R (version 4.4.0; R Core Team, 2024). P values $\leq .05$ were considered to be significant.

Sample and item characteristics

Descriptive statistics for participant characteristics were calculated. Descriptive statistics [mean scores, standard deviations (SDs), and numbers of missing cases] were also calculated to screen the data for the 37 ageing-in-place instrument items for the total sample and four subgroups. In the total sample, 24.8% of the values were missing. Little's missing completely at random (MCAR) test was performed and indicated that these values were not MCAR ($p < .001$).

Confirmatory factor analyses

CFA was performed to evaluate the factor structure of the 37-item version of the ageing-in-place instrument. Model fit was estimated using the robust maximum likelihood (MLR) and full information maximum likelihood (FIML) methods. In MLR estimation, Satorra and Bentler (1988)–rescaled χ^2 (SB χ^2) values, robust standard errors, and maximum likelihood are used to account for violations of multivariate normality. In FIML estimation, all available data observations are used, enabling the efficient handling of missing data (Kyriazos & Poga-Kyriazou, 2023; Lei & Wu, 2012). Model fit was then evaluated using the rescaled SB χ^2 statistic, comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR) with the cut-off criteria proposed by Hu and Bentler (1999) (good, CFI $> .95$, RMSEA $< .06$, and SRMR $\leq .08$; satisfactory, CFI $> .90$, RMSEA $< .08$, and SRMR $\leq .10$). The χ^2 statistic reflects a model's overall goodness of fit, which is proven when it is not significant (Satorra & Bentler, 1988), but tends to be highly sensitive to sample size, increasing the risk of model over-rejection (Bentler & Bonett, 1980; Hooper et al., 2008).

An item reduction analysis was then performed to produce a shortened version of the instrument (with at least three items per domain) that is more convenient and easier to complete while being valid for diverse older-adult populations in the Netherlands. Stepwise selection guided by the factor loadings, modification indices, and data screening information for the total sample and subgroups was performed with the prioritization of the preservation of the domains' conceptual backgrounds and content quality. The factor structure of the resulting 24-item version of the ageing-in-place

instrument was then evaluated for the total sample and subgroups as described for the full instrument.

Internal consistency and correlations

Cronbach's α values were computed as measures of the internal consistency of the (sub)scales of the 37- and 24-item versions of the ageing-in-place instrument. Pearson correlation coefficients were computed to investigate the conceptual relatedness of the (sub)scales of the two versions for the total sample.

Construct validity

To evaluate the construct validity of the full and shortened versions of the ageing-in-place instrument, Pearson correlations of instrument scores with Brief Sense of Community Scale scores in the total sample were examined. As older adults' sense of community reflects their feelings of attachment to supportive, mutually responsive, and interdependent environments, which they experience when the environments meet their needs (Buckley, 2022), and as it has been shown to be related to neighbourhood age-friendliness (Au et al., 2020; Buckley, 2022; Yu et al., 2019), we hypothesized that older adults who were more critical of the age-friendliness of their neighbourhoods would report a lack of sense of community, manifested as significant negative correlations between ageing-in-place (sub)scale and average Brief Sense of Community Scale scores.

RESULTS

Sample characteristics

The characteristics of the study participants are summarized in Table 1. The average age of the participants was 73.40 [SD, 6.60; range, 65–98] years. Overall, 64.6% of the study participants were single; the percentage of single participants was largest (79.0%) among Surinamese older adults. About one-third (34.2%) of the participants had low education levels; this percentage was largest among Moroccan and Turkish older adults (67.5% and 61.6%, respectively) and smallest among native-Dutch older adults (6.0%). In total, 56.7% of the participants had multimorbidity; this classification was most

prevalent among Turkish older adults (73.9%). Net monthly household incomes were low for 35.4% of the participants, and the percentage of participants with low incomes was largest among Moroccan older adults (57.0%).

Item characteristics

Mean scores, SDs, and numbers of missing cases for the 37 ageing-in-place instrument items for the total sample and subgroups are provided in Tables 2 and 3. Overall, the participants missed most the neighbourhood availability of activities for people with similar backgrounds (social participation domain; mean score = 2.23, SD = 1.21, range 1–4), affordable housing (housing domain; mean score = 2.19, SD = 1.17, range 1–4), suitable housing for older adults (housing domain; mean score = 2.19, SD = 1.18, range 1–4), help with home and garden maintenance (housing domain; mean score = 2.17, SD = 1.16, range 1–4), and sustainable homes (housing domain; mean score = 2.14, SD = 1.17, range 1–4).

The percentages of missing cases in the total sample ranged from 13.1% to 37.7%. They were largest for items 25–28 (civic participation and employment domain), followed by item 35 (“A neighbourhood with volunteers who provide help when necessary”; community support and health services domain). Large percentages of missing cases were attributable primarily to “do not know/no opinion” responses.

Table 1. Characteristics of the study participants

Characteristic	Total sample <i>n</i> = 862		Older Dutch adults <i>n</i> = 300		Older Turkish adults <i>n</i> = 211		Older Surinamese adults <i>n</i> = 200		Older Moroccan adults <i>n</i> = 151	
	Percentage or mean (SD)	Valid <i>n</i>	Percentage or mean (SD)	Valid <i>n</i>	Percentage or mean (SD)	Valid <i>n</i>	Percentage or mean (SD)	Valid <i>n</i>	Percentage or mean (SD)	Valid <i>n</i>
Age (years)	73.40 (6.60)	862	74.64 (7.44)	300	72.58 (5.92)	211	71.97 (5.92)	200	73.99 (6.11)	151
Gender (female)	56.0%	862	56.0%	300	53.1%	211	60.5%	200	54.3%	151
Marital status (single)	64.6%	842	68.3%	292	52.1%	206	79.0%	194	55.6%	150
Education (low)	34.2%	825	6.0%	291	61.6%	203	22.5%	194	67.5%	137
Number of chronic diseases	2.18 (1.83)	851	1.69 (1.57)	299	3.01 (2.00)	208	2.05 (1.75)	195	2.18 (1.77)	149
Multimorbidity (yes)	56.7%	851	47.0%	299	73.9%	208	54.0%	195	55.6%	149
Monthly household income (low)	35.4%	738	16.0%	275	46.0%	171	37.0%	172	57.0%	120

Note. SD, standard deviation.

Table 2. Item characteristics and factor loadings for the full and shortened versions of the ageing-in-place instrument for the total sample

Item	Valid n	Missing cases (%)			Factor loadings	
		Total	Do not know/no opinion	Mean (SD)	37 items	24 items
<i>Outdoor spaces and buildings</i>						
1. A clean and well-maintained neighbourhood	744	118 (13.7%)	92 (10.7%)	2.12 (1.06)	.697	.694
2. A green neighbourhood	733	129 (15.0%)	90 (10.4%)	1.91 (1.03)	.725	
3. A neighbourhood with wide sidewalks and safe crosswalks	717	145 (16.8%)	109 (12.6%)	1.78 (1.02)	.671	
4. Public buildings with elevators that are easily accessible for wheelchairs and walkers	628	234 (27.1%)	200 (23.2%)	1.85 (1.06)	.694	.637
5. A neighbourhood without nuisance	709	153 (17.7%)	122 (14.2%)	1.96 (1.03)	.689	.782
<i>Transportation</i>						
6. A neighbourhood with good public transport	726	136 (15.8%)	106 (12.3%)	1.41 (0.80)	.694	.852
7. A neighbourhood with affordable public transport	674	188 (21.8%)	156 (18.1%)	1.46 (0.85)	.750	.840
8. A neighbourhood with sufficient parking spots (for myself and/or my visitors)	718	144 (16.7%)	114 (13.2%)	2.10 (1.21)	.618	
9. A neighbourhood that is easily accessible by car	703	159 (18.4%)	124 (14.4%)	1.44 (0.86)	.678	.537
10. A neighbourhood with good cycling paths	667	195 (22.6%)	163 (18.9%)	1.63 (0.97)	.618	
<i>Housing</i>						
11. A neighbourhood with affordable housing	621	241 (28.0%)	202 (23.4%)	2.19 (1.17)	.793	.732
12. A neighbourhood with suitable housing for older adults	640	222 (25.8%)	185 (21.5%)	2.19 (1.18)	.819	
13. A neighbourhood where it is easy to find help with home and garden maintenance	598	264 (30.6%)	224 (26.0%)	2.17 (1.16)	.842	.872
14. A sustainable home	594	268 (31.1%)	225 (26.1%)	2.14 (1.17)	.776	.792
<i>Social participation</i>						
15. A neighbourhood where many social activities are organised	634	228 (26.5%)	191 (22.2%)	1.97 (1.03)	.883	
16. A neighbourhood with affordable activities for older adults	620	242 (28.1%)	203 (23.5%)	2.05 (1.12)	.898	.831
17. A neighbourhood with a meeting place for older adults	662	200 (23.2%)	162 (18.8%)	2.01 (1.11)	.900	
18. A neighbourhood with activities especially for people like me^a	661	201 (23.3%)	164 (19.0%)	2.23 (1.21)	.771	.805
19. A neighbourhood with a variety of events (such as block parties)	637	225 (26.1%)	187 (21.7%)	2.00 (1.11)	.818	.848
<i>Respect and social inclusion</i>						
20. A neighbourhood where people have respect for older adults	674	188 (21.8%)	148 (17.2%)	1.72 (0.97)	.754	.804
21. A neighbourhood with people with the same background as me	649	213 (24.7%)	170 (19.7%)	1.62 (0.92)	.706	

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22. A neighbourhood where people know one another	677	185 (21.5%)	140 (16.2%)	1.73 (0.92)	.816	.789
23. A neighbourhood with friends and/or family close by	702	160 (18.6%)	118 (13.7%)	1.92 (1.04)	.714	.642
24. A neighbourhood with contact between young and old people	645	217 (25.2%)	178 (20.6%)	1.83 (0.98)	.793	
<i>Civic participation and employment</i>						
25. A neighbourhood with opportunities for volunteer work	537	325 (37.7%)	283 (32.8%)	1.53 (0.86)	.699	
26. A neighbourhood where older adults are involved in changes in the neighbourhood	574	288 (33.4%)	247 (28.7%)	1.96 (1.01)	.892	.887
27. A neighbourhood where older adults are able to influence what happens in the neighbourhood	564	298 (34.6%)	259 (30.0%)	2.06 (1.05)	.972	.974
28. A neighbourhood where older adults are able to have their say	557	305 (35.4%)	265 (30.7%)	2.05 (1.07)	.954	.956
<i>Communication and information</i>						
29. A neighbourhood newspaper with information about what is going on in the neighbourhood	654	208 (24.1%)	166 (19.3%)	1.90 (1.03)	.707	
30. A neighbourhood with digital support (help with online banking, access to DigiD, patient portal, etc.)	601	261 (30.3%)	214 (24.8%)	1.80 (1.07)	.809	
31. A neighbourhood with understandable information about facilities and activities	609	253 (29.4%)	207 (24.0%)	1.97 (1.07)	.888	.866
32. A neighbourhood with municipal information at a central location	586	276 (32.0%)	229 (26.6%)	2.05 (1.12)	.878	.876
33. A neighbourhood where people inform one another	612	250 (29.0%)	204 (23.7%)	2.03 (1.05)	.867	.882
<i>Community support and health services</i>						
34. A neighbourhood where home care is easily accessible	578	284 (32.9%)	243 (28.2%)	1.92 (1.10)	.860	.639
35. A neighbourhood with volunteers who provide help when necessary	576	286 (33.2%)	245 (28.4%)	2.04 (1.07)	.875	
36. A neighbourhood with the GP and pharmacy within walking distance	746	116 (13.5%)	76 (8.8%)	1.56 (0.95)	.539	.743
37. A neighbourhood with shops and other facilities within walking distance	749	113 (13.1%)	70 (8.1%)	1.50 (0.93)	.489	.742

Notes. *n* = 862. SD, standard deviation. Items in bold were included in the 24-item version of the instrument. ^aThis item was adjusted for the older migrant subgroups (e.g., “A neighbourhood with activities especially for Moroccan people” for Moroccan older migrants).

Table 3. Item characteristics and factor loadings of the full and shortened versions of the ageing-in-place instrument for subgroups

23. A neighbourhood with friends and family	259	41 (0.3%)	31 (0.3%)	0.68	.613	.512	173	38 (18.0%)	28 (13.3%)	2.16	.666	.615	154	46 (21.0%)	34 (7.6%)	1.87	.738	.672	116	35 (21.2%)	25 (6.6%)	2.16	.801	.769	
24. A neighbourhood with community services	246	54 (0.8%)	45 (1.0%)	0.60	.601	.301	155	56 (26.6%)	46 (21.8%)	2.12	.748	118	63 (10%)	51 (20.0%)	1.90	.784	106	45 (29.8%)	35 (2.2%)	1.87	.776				
<i>Community support and environment</i>																									
25. A neighbourhood with a place to work	227	71 (0.4%)	63 (1.0%)	0.22	.577	.94	94	5 (5.5%)	.107	.209	.788	.517	.583	121	79 (35.2%)	68 (34.0%)	1.55	.616	.515	95	56 (37.3%)	45 (29.8%)	1.67	.683	
26. A neighbourhood where people are nice and helpful	234	66 (0.2%)	55 (1.8%)	0.66	.883	.378	119	92 (43.6%)	81 (39.5%)	2.49	.840	.583	123	77 (35.2%)	66 (31.0%)	1.93	.910	.505	98	51 (35.3%)	41 (28.5%)	1.66	.878	.867	
27. A neighbourhood where changes in the environment are not welcome	225	75 (0.5%)	65 (21.7%)	0.91	.574	.576	120	91 (43.1%)	81 (39.3%)	2.68	.860	.583	121	79 (35.2%)	68 (34.0%)	2.02	.548	.543	98	51 (35.3%)	41 (28.5%)	2.11	.972	.977	
28. A neighbourhood where older adults are able to have an influence	227	71 (0.4%)	64 (21.3%)	0.76	.898	.528	114	97 (46.0%)	89 (42.2%)	2.61	.975	.575	119	81 (40.5%)	69 (34.5%)	1.97	.965	.574	97	54 (35.8%)	41 (28.8%)	2.18	.937	.917	
<i>Concerns about neighbourhood</i>																									
29. A neighbourhood where people do not care about what is going on in the neighbourhood	264	36 (0.2%)	25 (0.3%)	0.59	.600	.600	137	74 (33.1%)	65 (30.8%)	2.43	.677	.649	149	51 (23.5%)	39 (9.5%)	1.95	.730	104	47 (31.1%)	37 (24.5%)	1.90	.711			
30. A neighbourhood where people do not care about what is going on in the neighbourhood	240	60 (0.2%)	49 (0.5%)	0.42	.710	.118	91 (44.1%)	82 (38.9%)	2.12	.368	.141	141	59 (29.8%)	46 (22.5%)	1.83	.725	102	49 (32.8%)	38 (24.2%)	2.07	.813				
31. A neighbourhood where people do not care about what is going on in the neighbourhood	238	62 (0.2%)	51 (1.7%)	0.55	.842	.802	128	81 (39.3%)	71 (36.6%)	2.56	.919	.515	141	59 (23.5%)	46 (22.5%)	1.91	.794	.764	102	49 (22.8%)	38 (24.2%)	2.27	.913	.902	
32. A neighbourhood with a lot of crime	229	71 (0.3%)	60 (20.0%)	0.63	.845	.343	116	95 (45.0%)	82 (38.9%)	2.53	.808	.589	140	60 (30.0%)	48 (24.0%)	2.10	.812	.812	101	50 (33.3%)	39 (24.8%)	2.38	.914	.898	
33. A neighbourhood with a lot of people who are not from here	234	76 (0.5%)	64 (21.3%)	0.57	.877	.888	145	66 (31.3%)	51 (25.5%)	2.45	.774	.593	135	65 (32.5%)	54 (27.0%)	2.06	.849	.834	108	43 (28.5%)	35 (21.9%)	2.13	.905	.911	
<i>Concerns about neighbourhood</i>																									
34. A neighbourhood where there are a lot of people who are not from here	198	102 (4.0%)	89 (29.7%)	0.45	.594	.291	145	66 (31.3%)	51 (27.0%)	2.26	.909	.517	128	72 (36.0%)	61 (30.5%)	1.86	.905	.606	107	44 (29.3%)	36 (28.5%)	2.41	.723	.688	
35. A neighbourhood with violence and robbery	205	95 (31.7%)	86 (31.5%)	0.80	.891	.891	124	87 (41.2%)	75 (35.5%)	2.52	.341	.137	137	63 (31.5%)	52 (26.0%)	2.00	.897	110	41 (27.2%)	32 (21.2%)	2.48	.704			
36. A neighbourhood with people who are not from here	275	25 (0.3%)	16 (5.5%)	0.43	.605	.742	185	26 (12.3%)	14 (6.6%)	1.60	.456	.766	160	40 (20.0%)	29 (14.5%)	1.53	.546	.692	126	25 (16.6%)	17 (13.3%)	1.83	.613	.743	
37. A neighbourhood with a lot of people who are not from here	277	21 (0.7%)	17 (4.3%)	0.51	.666	.761	185	26 (12.3%)	14 (6.6%)	1.40	.475	.771	161	39 (19.2%)	27 (15.5%)	1.45	.593	.726	126	24 (16.6%)	16 (13.0%)	1.60	.649	.783	

Notes. SD, standard deviation. Items in bold were included in the 24-item version of the instrument.^a This item was adjusted for Moroccan older migrants. migrant subgroups (e.g., “A neighbourhood with activities especially for Moroccan people” for Moroccan older migrants).

Confirmatory factor analysis results

Table 4 shows CFA and model fit results for the full and shortened versions of the ageing-in-place instrument; factor loadings for the two instrument versions for the total sample and subgroups are provided in Tables 2 and 3. The 37-item instrument showed acceptable model fit, with RMSEA and SRMR values below the cut-off points for a good fit and a CFI meeting the criterion for a satisfactory fit (CFI = .901, RMSEA = .047, SRMR = .056). The 24-item instrument similarly showed satisfactory to good model fit for the total sample (CFI = .945, RMSEA = .043, SRMR = .065), with all factor loadings exceeding .500.

The 24-item instrument also showed satisfactory to good fit for all subgroups, with CFIs ranging from .901 for Surinamese participants to .914 for native-Dutch and Turkish participants, RMSEA values ranging from .052 for native-Dutch participants to .061 for Moroccan participants, and SRMR values ranging from .071 for native-Dutch participants to .086 for Turkish participants. Factor loadings for the 24 items exceeded .500 for all subgroups, with the exception of item 9 (“A neighbourhood that is easily accessible by car”; transportation domain) for native-Dutch participants (.285).

Table 4. Confirmatory factor analysis results for the full and the shortened versions of the ageing-in-place instrument

Model	SB χ^2	df	p	RMSEA	90% CI RMSEA	CFI	SRMR
Model 1: 37 items (<i>n</i> = 862)	1726.440	601	<.001	.047	.045–.049	.901	.056
Model 2: 24 items (<i>n</i> = 862)	572.239	224	<.001	.043	.039–.047	.945	.065
Per subgroup							
Dutch (<i>n</i> = 300)	404.307	224	<.001	.052	.045–.059	.914	.071
Turkish (<i>n</i> = 211)	366.743	224	<.001	.055	.045–.065	.914	.086
Surinamese (<i>n</i> = 200)	364.145	224	<.001	.056	.046–.066	.901	.075
Moroccan (<i>n</i> = 151)	344.399	224	<.001	.061	.049–.073	.912	.072

Notes. SB, Satorra–Bentler; df, degrees of freedom; RMSEA, root mean square error of approximation; CI, confidence interval; CFI, comparative fit index; SRMR, standardized root mean square residual. The criteria used to determine model fit were RMSEA < .08, CFI > .90, and SRMR ≤ .10 (Hu & Bentler, 1999).

Internal consistency and correlations

(Sub)scale scores and correlations thereof for the full and shortened ageing-in-place instruments for the total sample are shown in Supplementary Tables 1 and 2 (Supplementary Materials Section B). The Cronbach's α value for the 37-item instrument for the total sample was .97, indicating excellent reliability; values for the subscales ranged from .76 for the transportation domain to .94 for the social participation domain, indicating acceptable to excellent reliability. The Cronbach's α value for the 24-item instrument for the total sample was .95 and values for the subgroups ranged from .90 to .96, indicating excellent reliability. Cronbach's α values for the shortened instrument's subscales for the total sample ranged from .75 for the outdoor spaces and buildings and transportation domains to .96 for the civic participation and employment domain, indicating acceptable to excellent reliability. All correlations of the 37- and 24-item (sub)scale scores were significant and positive ($p < .001$), suggesting that the (sub)scales of the two versions of the instrument are conceptually related.

Construct validity

For the total sample, the full and shortened ageing-in-place (sub)scale scores correlated negatively with the average Brief Sense of Community Scale score ($p < .001$; Table 5), indicating that participants who missed more neighbourhood resources for ageing in place were less likely to experience a sense of community in their neighbourhoods. These results support the validity of the ageing-in-place instruments.

Table 5. Correlations of full and shortened ageing-in-place instrument (sub)scale scores with the Brief Sense of Community Scale score in the total sample

Ageing-in-place instrument	Correlation with the average sense of community score	
	The full 37-item version	The shortened 24-item version
1. Outdoor spaces and buildings	-.27*	-.29*
2. Transportation	-.16*	-.16*
3. Housing	-.24*	-.24*
4. Social participation	-.19*	-.18*
5. Respect and social inclusion	-.39*	-.41*
6. Civic participation and employment	-.18*	-.17*
7. Communication and information	-.13*	-.15*
8. Community support and health services	-.27*	-.27*
9. Overall ageing-in-place score	-.29*	-.30*

Notes. $n = 862$. * $p < .001$ (two-tailed).

DISCUSSION

The numbers of native-Dutch and migrant older adults in the Netherlands are increasing, and these individuals prefer to age in their familiar environments for as long as they can (Witter & Fokkema, 2018). To support this preference, the Dutch government has been striving to enhance the age-friendliness of its cities and neighbourhoods (Government of the Netherlands, 2022). Given the need for such initiatives to account for the diversity of older-adult populations, the assessment of how diverse older-adult groups perceive the age-friendliness of their neighbourhoods is important (Forsyth & Lyu, 2024; van Hoof et al., 2022). This study was performed to validate an ageing-in-place instrument with four groups of older adults in the Netherlands. The instrument measures the extent to which older adults miss various neighbourhood resources in the eight domains of the WHO's Age-friendly Cities Guide that would support their ageing in place. In this study, the full 37-item version of the ageing-in-place instrument had satisfactory to good model fit and good internal consistency when applied with the older-adult participants. However, a shortened 24-item version of the instrument was sought to reduce its potential burden for respondents, through stepwise item reduction analysis. This version also showed satisfactory to good model fit and good internal consistency when applied with the study participants. As expected, the (sub)scale scores for both versions of the instrument correlated with the Brief Sense of Community Scale score, providing evidence for the construct validity of the two versions. These correlations also further underscore the positive contributions of age-friendly neighbourhoods to older adults' experiences of a sense of community, which has been identified as a key determinant of health, well-being, life satisfaction, and overall quality of life (Au et al., 2020; Buckley, 2022; Yu et al., 2019).

Taken together, these findings indicate that the ageing-in-place instrument is valid and reliable for use with older adults in the Netherlands. The 37-item version is a comprehensive tool that addresses a wide range of age-friendly environment characteristics with an exhaustive list of neighbourhood resources, and its use can be adapted to different contexts to explore older adults' distinct perceptions of their environments and needs for ageing in place. The shortened 24-item version is a more convenient and time-efficient survey tool that is easier for older adults to complete and may reduce the

potential burden on respondents while preserving content quality. Additionally, the model fit of the shortened version was examined per subgroup and showed satisfactory to good fit for all four older adult subgroups. Most available instruments for the assessment of age-friendliness do not explicitly account for the heterogeneity of older adult populations; this study was among the first in which separate CFAs were conducted to validate an instrument measuring age-friendliness with four distinct groups of older adults. Accordingly, the instrument is culturally sensitive and suitable for the evaluation of neighbourhood age-friendliness and ageing-in-place needs in diverse older-adult populations, informing the creation of more inclusive age-friendly policies and initiatives in the Netherlands and other countries.

Although all shortened ageing-in-place instrument items loaded significantly on their respective WHO's age-friendly domains in the total sample and four subgroups, the factor loading value for item 9 ("A neighbourhood that is easily accessible by car"; transportation domain; .285) among native-Dutch older adults was of concern. Researchers use various cut-off points for factor loading values, and some consider values as low as .3 to be interpretable (Ondé & Alvarado, 2020), but the item 9 factor loading value falls below this cut-off. This may be attributable largely to the fact that the item is the only one concerning car use in the shortened version, while the other two items in the transportation domain are related to public transport. We decided not to eliminate this item, as its factor loading values for the total sample and other three subgroups were acceptable, suggesting that it is related to and indicative of the transportation domain. Furthermore, we felt that the removal of the item would negatively affect the domain's content quality and heterogeneity, given that driving and road accessibility have been reported to be important for older adults (World Health Organization, 2007). Notably, Ondé and Alvarado (2020) have advised against the removal of questionnaire items based solely on low factor loading values, as this practice may increase the risk of factor underrepresentation and homogeneity. Future research conducted with other older-adult samples is warranted to further investigate this item-factor relationship and explore whether item readjustment or rewording is needed.

In addition to the evaluation of neighbourhood age-friendliness, the ageing-in-place instrument can be applied to identify the specific environmental needs of diverse older-adult groups in the Netherlands. High mean subscale scores highlight distinct physical, social, and health-related resources that diverse older adults miss most in their neighbourhoods and that are essential for their successful ageing in place, enabling prioritization and targeted action via age-friendly initiatives. Such efforts are of particular relevance, given the constraints faced in age-friendly initiative development, together with the limited (financial) resources available to implement and sustain such initiatives (Buffel & Phillipson, 2018; Fitzgerald & Caro, 2014; Forsyth & Lyu, 2024). For instance, our findings suggest that older adults in Rotterdam miss most neighbourhood resources in the housing and social participation domains; thus, measures related to these domains should be prioritized in the development of initiatives to improve the age-friendliness of these neighbourhoods. These findings are not surprising, given that Rotterdam, like other large cities in the Netherlands, is facing a housing crisis manifesting as a lack of high-quality affordable housing and steadily increasing rent prices (Hochstenbach, 2024). In general, older migrants tend to rely more on rental housing; smaller proportions of these individuals than native-Dutch older adults own homes (Statistics Netherlands, 2024). Previous research conducted in the Netherlands has similarly highlighted older migrants' concerns about the availability of affordable and suitable housing for older adults, and the importance of these resources for their ageing in place (Hussein et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024). Although native-Dutch older adults may be in a stronger position in the housing domain, they appear to be worried about the future because of the national housing crisis. They live in affordable housing but expect that relocation for health-related reasons, if needed, will be complicated due to the current housing conditions (Bloem et al., 2024). In terms of social participation, participants in this study, particularly older migrants, missed most the provision of neighbourhood activities for people with similar backgrounds. Older migrants tend to attach greater importance to such activities, as they serve as means to communicate with people who share the same language, food, and traditions (Conkova & Lindenbergh, 2020; Hussein

et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024). Ideally, these activities should be accompanied by mixed activities that provide opportunities for multicultural interaction while decreasing the chance of segregation (Bloem et al., 2024; Hussein et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024).

This study has limitations that need to be considered. First, as it had a cross-sectional design, the performance and reliability of the ageing-in-place instrument over time were not examined. Longitudinal studies are needed to assess the instrument's ability to monitor the progress of age-friendly initiatives and assess changes in older adults' perceptions of their neighbourhoods' age-friendliness over time. Second, this study was performed in Rotterdam, which may limit the generalizability of the findings to other contexts. Future studies performed in diverse urban areas in the Netherlands and other Western countries would be beneficial for the cross-cultural validation of the instrument and exploration of similarities and differences among contexts. Third, the provision of a "do not know/no opinion" questionnaire response option contributed to data missingness. However, we believe that the inclusion of this option was imperative to ensure that the respondents could indicate the inapplicability of certain items and thereby minimize response bias. Finally, the response rates for older migrants, especially those with Moroccan backgrounds, were somewhat lower than that for native-Dutch older adults. The achievement of a sufficient response rate for first-generation older migrants in the Netherlands can be challenging and requires additional effort (Kappelhof, 2010). Correspondingly, we followed recommendations from previous research to optimize response rates for the four older adult groups, especially the older migrants, to ensure adequate representation and contribute to inclusive research (Kappelhof, 2010).

CONCLUSION

With this study, we provide a valid, reliable, and culturally sensitive instrument that captures the distinct perceptions of diverse older-adult populations regarding the age-friendliness of their environments. The instrument can be used to elicit these populations' environmental needs for

ageing in place and support the development of more inclusive age-friendly policies and initiatives in the Netherlands and other countries.

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SUPPLEMENTARY MATERIAL

Supplementary Section A. Dutch and translated versions of the ageing-in-place instrument

Items in bold were included in the shortened 24-item version of the instrument.

1. Dutch

De volgende vragen hebben betrekking op de buurt waarin u woont.

We willen graag weten wat u zelf mist in uw buurt om daar zo lang mogelijk te kunnen blijven wonen.

Alle vragen kunnen beantwoord worden op een 4-punt Likertschaal van: 1, Mis ik helemaal niet; 2, Mis ik een beetje; 3, Mis ik nogal; 4, Mis ik erg; of Weet niet/ geen mening.

Wat ik zelf mis om hier zo lang mogelijk te blijven wonen:

Publieke ruimte

- 1. Een schone en goed onderhouden buurt.**
2. Een groene buurt.
3. Een buurt met brede stoepen en veilige oversteekpunten.
- 4. Openbare gebouwen die voor rolstoelen en rollators goed toegankelijk zijn en waar liften zijn.**
- 5. Een buurt zonder overlast.**

Mobiliteit

- 6. Een buurt met goed openbaar vervoer.**
- 7. Een buurt met betaalbaar openbaar vervoer.**
8. Een buurt met voldoende parkeerplekken (voor mijzelf en/of mijn bezoek).
- 9. Een buurt die goed bereikbaar is met de auto.**
10. Een buurt met goede fietspaden.

Huisvesting

- 11. Betaalbare woningen in de buurt.**
12. Een buurt met geschikte woningen voor ouderen.
- 13. Een buurt met voldoende mogelijkheden voor hulp bij onderhoud aan het huis en de tuin.**
- 14. Een duurzame woning.**

Sociale participatie

15. Een buurt waar veel sociale activiteiten worden georganiseerd.
- 16. Een buurt met betaalbare activiteiten voor ouderen.**
17. Een buurt met een ontmoetingsplek voor ouderen.
- 18. Een buurt met activiteiten speciaal voor mensen zoals ik.**
- 19. Een buurt met verschillende evenementen (zoals buurtfeesten).**

Respect en sociale integratie

- 20. Een buurt waar mensen respect hebben voor ouderen.**
21. Een buurt met mensen met dezelfde achtergrond als ik.
- 22. Een buurt waar mensen elkaar kennen.**
- 23. Vrienden en/of familie in de buurt.**
24. Contact tussen jong en oud in de buurt.

Burgerparticipatie

25. Een buurt met mogelijkheden om vrijwilligerswerk te doen.
- 26. Een buurt waar ouderen betrokken worden bij veranderingen in de buurt.**
- 27. Een buurt waarbij ouderen invloed hebben op wat er gebeurt in de buurt.**
- 28. Een buurt waar ouderen inspraak hebben.**

Communicatie en informatie

29. Een buurtkrant met informatie over wat zich afspeelt in de buurt.
30. Digitale ondersteuning in de buurt (hulp bij internetbankieren, toegang tot DigiD, patiëntenportaal).
- 31. Begrijpelijke informatie over voorzieningen en activiteiten in de buurt.**
- 32. Een buurt met gemeentelijke informatie op één centrale plek.**
- 33. Een buurt waar mensen elkaar informeren.**

Gemeenschap en gezondheidszorg

- 34. Een buurt waar thuiszorg en verpleging aan huis makkelijk te krijgen is.**
35. Een buurt met vrijwilligers die hulp bieden als dat nodig is.
- 36. Een buurt waar de huisarts en apotheek op loopafstand zijn.**
- 37. Een buurt waar winkels en andere voorzieningen op loopafstand zijn.**

2. English

The following questions relate to the neighbourhood you live in.

We would like to know what you miss in your neighbourhood in order to stay living there as long as possible.

All questions can be answered on a four-point Likert scale: 1, do not miss at all; 2, miss a little bit; 3, miss quite a lot; 4, miss a lot; or do not know/no opinion.

What I miss in order to stay living here as long as possible:

Outdoor spaces and buildings

- 1. A clean and well-maintained neighbourhood.**
2. A green neighbourhood.
3. A neighbourhood with wide sidewalks and safe crosswalks.
- 4. Public buildings with elevators that are easily accessible for wheelchairs and walkers.**
- 5. A neighbourhood without nuisance.**

Transportation

- 6. A neighbourhood with good public transport.**
- 7. A neighbourhood with affordable public transport.**
8. A neighbourhood with sufficient parking spots (for myself and/or my visitors).
- 9. A neighbourhood that is easily accessible by car.**
10. A neighbourhood with good cycling paths.

Housing

- 11. A neighbourhood with affordable housing.**
12. A neighbourhood with suitable housing for older adults.
- 13. A neighbourhood where it is easy to find help with home and garden maintenance.**
- 14. A sustainable home.**

Social participation

15. A neighbourhood where many social activities are organized.
- 16. A neighbourhood with affordable activities for older adults.**
17. A neighbourhood with a meeting place for older adults.
- 18. A neighbourhood with activities especially for people like me.**
- 19. A neighbourhood with a variety of events (such as block parties).**

Respect and social inclusion

- 20. A neighbourhood where people have respect for older adults.**
- 21. A neighbourhood with people with the same background as me.
- 22. A neighbourhood where people know one another.**
- 23. A neighbourhood with friends and/or family close by.**
- 24. A neighbourhood with contact between young and old people.

Civic participation and employment

- 25. A neighbourhood with opportunities for volunteer work.
- 26. A neighbourhood where older adults are involved in changes in the neighbourhood.**
- 27. A neighbourhood where older adults are able to influence what happens in the neighbourhood.**
- 28. A neighbourhood where older adults are able to have their say.**

Communication and information

- 29. A neighbourhood newspaper with information about what is going on in the neighbourhood.
- 30. A neighbourhood with digital support (help with online banking, access to DigiD, patient portal, etc.).
- 31. A neighbourhood with understandable information about facilities and activities.**
- 32. A neighbourhood with municipal information at a central location.**
- 33. A neighbourhood where people inform one another.**

Community support and health services

- 34. A neighbourhood where home care is easily accessible.**
- 35. A neighbourhood with volunteers who provide help when necessary.
- 36. A neighbourhood with the GP and pharmacy within walking distance.**
- 37. A neighbourhood with shops and other facilities within walking distance.**

3. Turkish

Aşağıdaki sorular mahalleniz hakkındadır.

Mahallenizde mümkün oldukça uzun bir süre yaşamaya devam edebilmeniz için hangi eksikliklerin giderilmesi gerektiğini öğrenmek istiyoruz.

Tüm sorular 4 puanlık Likert ölçeğinde cevaplanabilir: 1, Hiç eksiklik yok; 2, Biraz eksiklik var; 3, Epey eksiklik var; 4, Çok eksiklik var; veya Bilmiyorum / fikrim yok.

Burada mümkün oldukça uzun bir süre yaşamaya devam edebilmem için şu eksikliklerin giderilmesi gerekiyor:

Dış alanlar ve binalar

- 1. Temiz ve bakımlı bir mahalle.**
- 2. Yeşil bir ortam.**
- 3. Geniş kaldırımlara ve güvenli yol geçit noktalarına sahip bir mahalle.**
- 4. Umumi binaların tekerlekli sandalyeler ve tekerlekli yürüteçler (rollator) ile kolay erişilebilmesi ve asansörlü olması.**
- 5. Çevreye rahatsızlık verilmeyen bir mahalle.**

Ulaşım

- 6. Toplu taşımnanın iyi olduğu bir mahalle.**
- 7. Toplu taşımnanın hesaplı olduğu bir mahalle.**
- 8. Yeterli park yerleri olan bir mahalle (kendim ve/veya misafirlerim için).**
- 9. Araba ile kolay erişilebilinen bir mahalle.**
- 10. İyi bisiklet yollarına sahip olan bir mahalle.**

Konut

- 11. Hesaplı konutların/evlerin olduğu bir mahalle.**
- 12. Yaşlılar için uygun konutların/evlerin bulunduğu bir mahalle.**
- 13. Ev ve bahçe bakımı konusunda yardım için birçok fırsat sunan bir mahalle.**
- 14. Sürdürülebilir konut.**

Sosyal katılım

- 15. Çok sosyal aktivitelerin düzenlendiği bir mahalle.**
- 16. Yaşlılar için hesaplı etkinlıkların düzenlendiği bir mahalle.**
- 17. Yaşlılar için buluşma yeri olan bir mahalle.**

- 18. Özellikle benim gibi insanlar için aktivitelerin olduğu bir mahalle.**
- 19. Çeşitli (mahalle eğlenceleri gibi) etkinliklerin düzenlendiği bir mahalle.**

Saygı ve sosyal dahil edilme

- 20. Mahalle sakinlerinin yaşlılara saygı gösterdiği bir mahalle.**
21. Benimle aynı geçmişe sahip insanların yaşadığı bir mahalle.
- 22. İnsanların birbirini tanıdığı bir mahalle.**
- 23. Arkadaşlarımın ve/veya akrabalarımın olduğu bir mahalle.**
24. Gençler ile yaşlılar arasında iletişimim olduğu bir mahalle.

Sivil katılım ve istihdam

25. Gönüllü çalışma fırsatları sunan bir mahalle.
- 26. Yaşlıların mahalledeki değişikliklere dahil edildiği bir mahalle.**
- 27. Yaşlıların mahallede olup bitenler hakkında söz sahibi olduğu bir mahalle.**
- 28. Yaşlıların da söz hakkının olduğu bir mahalle.**

İletişim ve bilgi

29. Mahallede neler olup bittiğine dair bilgiler içeren bir mahalle gazetesi.
30. Yerel dijital desteğin (online bankacılık, DigiD'ye erişim, hasta portalı vb. konularda yardım) olduğu bir mahalle.
- 31. Mahalledeki olanaklar ve aktiviteler hakkında anlaşılır bilginin olması.**
- 32. Belediye bilgilerinin tek bir merkezde toplandığı bir mahalle.**
- 33. İnsanların birbirini bilgilendirdiği bir mahalle.**

Toplum ve Sağlık Hizmetleri

- 34. Evde bakım ve evde hasta bakımı hizmetlerinin kolayca sağlandığı bir mahalle.**
35. İhtiyaç halinde yardım sunan gönüllülerin olduğu bir mahalle.
- 36. Aile hekimi ve eczannenin yürüme mesafesinde olduğu bir mahalle.**
- 37. Dükkanlar/marketler ve diğer olanakların yürüme mesafesinde olduğu bir mahalle.**

4. Arabic

تتعلق الأسئلة التالية بالحي الذي تعيش فيه.

نود أن تعرف ما تفقد أنت بنفسك في الحي الذي تستمر في العيش هناك لأطول مدة ممكنة. يمكن الإجابة على جميع الأسئلة على مقياس ليكرت رباعي النقاط: 1 (لا أتفقد تماماً)؛ 2 (أتفقد قليلاً)؛ 3 (أتفقد إلى حد ما)؛ 4 (أتفقد إلى حد كبير) أو (لا أعرف / ليس لدي رأي فيه). ما أتفقد أنا بنفسي لكي أستمر في العيش هنا لأطول مدة ممكنة:

المساحات الخارجية والأبنية

1. حي نظيف وحسن الصيانة.

2. حي مليء بالمساحات الخضراء.

3. حي به أرصفة واسعة ومحاور آمنة.

مبانٌ عامة يسهل الوصول إليها لذوي الكراسي المتحركة والمشابة (رولاتر) وحيث توجد مصاعد.

4. حي يخلو من مصادر الإزعاج.

النقل

6. حي به نقل عمومي جيد.

7. حي به نقل عمومي بأسعار معقولة.

8. حي به مساحات كافية لوقف السيارات (لي و/أو للزوار).

9. حي يسهل الوصول إليه بالسيارة.

10. حي به ممرات جيدة للدراجات.

الإسكان

11. تتوفر مساكن بأسعار معقولة في الحي.

12. حي به منازل مناسبة لكتار السن.

13. حي به إمكانيات كافية للمساعدة في صيانة المنزل والحدائق.

14. منزل مستديم.

المشاركة الاجتماعية

15. يتم تنظيم العديد من الأنشطة الاجتماعية في الحي.

16. حي به أنشطة لكتار السن بأسعار معقولة.

17. أماكن في الحي لقاء كبار السن.

18. حي به أنشطة خاصة لأشخاص مثلي.

19. حي به أحداث مختلفة (مثل حفلات للحي).

الاحترام والاندماج الاجتماعي

20. حي تظهر الناس احتراماً لكتار السن.

21. حي به أشخاص ذوي نفس الخلفية.

22. هي تعرف الناس فيه بعضهم البعض.

23. يتواجد الأصدقاء و / أو العائلة في الحي.

24. مواصلة بين الصغار والكبار في الحي.

المشاركة المدنية والتوظيف

25. هي به الفرصة للقيام بالعمل التطوعي.

26. هي يستطيع كبار السن فيه التدخل لإحداث تغييرات فيه.

27. هي يمارس فيه كبار السن تأثيراً على ما يحدث في الحي.

28. تُتاح الفرصة لكتاب السن في الحي لإبداء رأيهم.

الاتصالات والمعلومات

29. هناك نشرة إخبارية تنشر معلومات عما يحدث في الحي.

30. الدعم الإلكتروني في الحي (المساعدة في الخدمات المصرفية عبر الإنترن特 والوصول إلى الهوية الإلكترونية DigID وبواية المرضى).

31. معلومات واضحة ومفهومة عن المرافق والأنشطة في الحي.

32. هي توجد به المعلومات البلدية في مكان مركزي واحد.

33. في الحي يتبادل الناس المعلومات فيما بينهم.

الدعم المجتمعي والخدمات الصحية

34. هي يسهل فيه الحصول على الرعاية المنزلية والتمريض في المنزل.

35. هي به متطوعون يقدمون المساعدة عند الحاجة.

36. يتواجد الطبيب والصيدلية في الحي ضمن مسافة يمكن قطعها مشياً على الأقدام.

37. تتواجد المحلات التجارية والمرافق الأخرى في الحي على مسافة يمكن قطعها مشياً

Supplementary Section B

Supplementary Table 1. Scale characteristics and (sub)scale correlations for the full ageing-in-place instrument and total sample

	Scale mean (SD)	Cronbach's alpha	Inter-item correlations range	1	2	3	4	5	6	7	8	9
1. Outdoor spaces and buildings	1.93 (0.80)	.84	.44-.58	.81*	.79*	.62*	.73*	.54*	.61*	.63*	.64*	
2. Transportation	1.61 (0.70)	.76	.23-.69	.56*	.76*	.59*	.74*	.40*	.57*	.71*	.82*	
3. Housing	2.18 (1.02)	.89	.62-.74	.57*	.56*	.71*	.72*	.58*	.68*	.74*	.88*	
4. Social participation	2.06 (0.99)	.94	.68-.84	.45*	.43*	.57*	.68*	.73*	.82*	.78*	.87*	
5. Respect and social inclusion	1.77 (0.78)	.87	.48-.67	.51*	.50*	.53*	.53*	.66*	.70*	.76*	.88*	
6. Civic participation and employment	1.94 (0.95)	.93	.62-.92	.41*	.31*	.48*	.65*	.54*	.79*	.63*	.78*	
7. Communication and information	1.95 (0.94)	.92	.53-.79	.43*	.42*	.53*	.72*	.52*	.70*	.78*	.87*	
8. Community support and health services	1.70 (0.82)	.80	.36-.78	.41*	.50*	.49*	.54*	.54*	.43*	.51*	.89*	
9. Overall ageing-in-place score	1.88 (0.66)	.97	-	.71*	.69*	.78*	.82*	.76*	.75*	.81*	.73*	

Notes. *n* = 862. SD, standard deviation. Correlations based on average observed-data scores are provided below the diagonal.

Correlations based on latent factor scores extracted from the confirmatory factor analysis are provided above the diagonal. **p* < .001 (two-tailed).

Supplementary Table 2. Scale characteristics and (sub)scale correlations for the shortened ageing-in-place instrument and total sample

	Scale mean (SD)	Cronbach's alpha	Inter-item correlations range	1	2	3	4	5	6	7	8	9
1. Outdoor spaces and buildings	1.99 (0.87)	.75	.46-.58	.59*	.78*	.67*	.86*	.61*	.64*	.60*	.85*	
2. Transportation	1.42 (0.67)	.75	.40-.71	.39*	.60*	.54*	.68*	.33*	.50*	.82*	.75*	
3. Housing	2.16 (1.02)	.86	.63-.71	.55*	.45*	.76*	.74*	.62*	.73*	.63*	.87*	
4. Social participation	2.10 (1.03)	.88	.68-.72	.44*	.39*	.57*	.72*	.74*	.88*	.61*	.88*	
5. Respect and social inclusion	1.78 (0.82)	.79	.45-.64	.52*	.46*	.52*	.52*	.65*	.72*	.77*	.91*	
6. Civic participation and employment	2.04 (1.00)	.96	.85-.93	.44*	.26*	.51*	.62*	.52*	.79*	.45*	.77*	
7. Communication and information	2.02 (1.00)	.91	.75-.78	.43*	.34*	.56*	.70*	.53*	.69*	.60*	.87*	
8. Community support and health services	1.62 (0.81)	.72	.39-.60	.34*	.54*	.44*	.44*	.50*	.34*	.43*	.81*	
9. Overall ageing-in-place score	1.87 (0.66)	.95	-	.68*	.61*	.78*	.80*	.77*	.75*	.81*	.67*	

Notes. *n* = 862. SD, standard deviation. Correlations based on average observed-data scores are provided below the diagonal.

Correlations based on latent factor scores extracted from the confirmatory factor analysis are provided above the diagonal. **p* < .001 (two-tailed).

6



General discussion

GENERAL DISCUSSION

Neighbourhoods have the potential to play a substantial role in older adults' process of ageing (Kan et al., 2020; Padeiro et al., 2022; Phlix et al., 2024; van Dijk et al., 2015). Environments where older adults reside can determine their ability to age in place (Choi, 2022; Kim et al., 2024) as well as promote their well-being realisation (Cramm & Nieboer, 2014; Morris & Saunders, 2017; Nieboer & Cramm, 2018; Padeiro et al., 2022). For environments to become supportive in such manner, they must be responsive to the changing needs of the increasingly diverse older-adult populations (Phlix et al., 2023; Phlix et al., 2024). As older migrants are often underrepresented in environmental gerontology research (Forsyth & Lyu, 2024; Lehning & Baik, 2024), little is known about their distinct ageing needs. Research that recognizes the growing diversity of older-adult populations and focuses on older migrants is thus pivotal (Conkova et al., 2024; Forsyth & Lyu, 2024; Padeiro et al., 2022). The findings of such research can provide policy makers with invaluable knowledge about the cultural contexts, experiences and needs of older-migrant populations, facilitating the development of evidence-based inclusive policies and interventions that promote positive ageing outcomes for all (Conkova et al., 2024).

Using a mixed-methods approach, this dissertation addressed a relevant research gap and adopted a person–environment perspective to investigate acculturation experiences and their relationship with self-management of well-being, perceived neighbourhood age-friendliness, and needed neighbourhood resources for well-being realisation and ageing in place according to older Moroccan adults in the Netherlands. The dissertation covered the four following objectives:

1. To examine the relationship between acculturation and self-management abilities of well-being among older Moroccan adults.
2. To explore the views of older Moroccan adults regarding their needed neighbourhood resources to realise well-being and age in place.
3. To investigate the extent of neighbourhood age-friendliness according to older Moroccan adults, while accounting for their individual characteristics.

4. To validate an ageing-in-place instrument that allows diverse older-adult populations to evaluate the extent of their neighbourhood age-friendliness and identify their needs for ageing in place.

This chapter discusses the main thesis findings, along with their theoretical and methodological reflections. Subsequently, policy implications of the thesis findings and recommendations for future research are provided.

Main thesis findings

Associations between acculturation and self-management abilities of well-being

The study performed to address this objective provided insights into the cross-sectional associations between acculturation (attachment to Moroccan and Dutch cultures) and self-management abilities of well-being among older Moroccan adults as well as the possible variations in acculturation strategies and self-management abilities between subgroups. Chapter 2 presented modest and significant positive relationships between attachment to both Moroccan and Dutch cultures and older Moroccan adults' self-management abilities of well-being, which is congruent with the findings reported by Cramm and Nieboer (2019) who explored similar relationships among older Turkish adults in the Netherlands. Having a positive orientation towards the culture of the host country, alongside holding on to important values from the native culture can be viewed as beneficial for older Moroccan adults' abilities to proactively self-manage their well-being at older age. The findings in chapter 2 thus suggest that the cultural contexts of older migrants need to be taken into consideration when promoting individualistic values of self-management that are more embedded in the Dutch culture. In addition, chapter 2 showed that older Moroccan adults form a heterogeneous group with varying acculturation strategies and abilities to proactively self-manage well-being. A similar pattern was also exhibited in chapters 3–4, which further emphasised the heterogeneity of the older-Moroccan population and their distinct needs for well-being realisation and ageing in place.

Chapter 2 implied that programs designed to support older Moroccan adults' integration into Dutch society can positively enhance their abilities to proactively self-manage well-being, consistent with previous research

acknowledging the positive associations between migrants' integration and well-being (Berry, 1997; Choy et al., 2021; Fassaert et al., 2011; Ward & Szabó, 2023). Individuals who successfully integrate into the host society become adequately acquainted with two cultures, facilitating their attainment of dual competences and resources that can be protective against adversities (Berry & Sabatier, 2011). Older Moroccan adults are particularly vulnerable to certain stressors in their host country, such as language and cultural barriers, discrimination, and diminished access to various resources, that may impair their well-being realisation (Cela & Barbiano di Belgiojoso, 2023; Sand & Gruber, 2018). Furthermore, they are more susceptible to live in disadvantaged neighbourhoods (Sampaio & Walsh, 2023; van der Graft & Droogleever Fortuijn, 2017), which lack the physical, social, and health-related resources that are crucial for the promotion of older adults' well-being (Nieboer & Cramm, 2018; Padeiro et al., 2022). These circumstances stress the significant importance of investing in older Moroccan adults' self-management abilities of well-being. This also aligns with the current aspirations of the Dutch government to promote notions of individual responsibility and motivate older adults' independence, self-management, and ageing in place in order to reduce the burden on the Dutch healthcare system (Government of the Netherlands, 2022).

Since chapter 2 pointed out that the individual characteristics of older Moroccan adults have an influence on both their acculturation strategies and abilities to proactively self-manage well-being, the relationship between the two needs to be positioned within their respective individual contexts. Chapter 2 showed that older Moroccan adults differed in their self-management of well-being according to several individual characteristics, namely educational background, comprehension of the Dutch language and multimorbidity, similar to findings of previous studies (Bartlett et al., 2020; Callaghan, 2005; Cramm & Nieboer, 2019; Cramm et al., 2014; Karter et al., 2000; Osokpo & Riegel, 2021; Scheffer et al., 2021). The findings in chapter 2 indicate that older Moroccan adults who have low educational levels, have difficulty conversing in Dutch and those with multiple chronic diseases are expected to be poorer self-managers of their well-being. This is concerning, given that a great share of first-generation older Moroccan migrants in the

Netherlands have low educational levels, struggle with language difficulties, and develop multiple chronic diseases as they age (Ciobanu et al., 2017; Conkova & Lindenberg, 2018; Schellingerhout, 2004). Accordingly, the findings in chapter 2 suggest that self-management interventions might need to provide greater attention to specific older-Moroccan subgroups and attend to their individual vulnerabilities. Similarly, as presented in chapters 3–4, these older-Moroccan subgroups also tend to be more dependent on the environment where they reside to support their well-being realisation, implying the potential importance of investing in both their abilities to proactively self-manage well-being and their neighbourhood age-friendliness.

Chapter 2 also showed that individual characteristics, namely age, gender, and educational background, had an influence on acculturation strategies, similar to previous research (Cramm & Nieboer, 2019; Dagevos et al., 2005; Huijnk et al., 2015; Schellingerhout, 2004; Ünlü Ince et al., 2014). Literature on gender differences in acculturation strategies has been inconclusive. While, Cramm and Nieboer (2019) found gender effects, similar to those mentioned in chapter 2, among older Turkish adults in the Netherlands, Fassaert et al. (2011) and Ünlü Ince et al. (2014) reported no associations between gender and acculturation among first-generation Moroccan adults and Turkish migrants in the Netherlands, respectively. On the other hand, Ouarasse and van de Vijver (2005) found gender differences in favour of women among second-generation Moroccan adults in the Netherlands, which contrasts with chapter 2. The latter results suggest that, unlike older Moroccan women who might have had fewer opportunities to integrate into the Dutch society, younger ones may be more inclined to do so in order to benefit from the more empowering gender roles associated with the Dutch culture (Ouarasse & van de Vijver, 2005). Notably, the impact of educational background on both acculturation strategies and self-management of well-being, as highlighted in chapter 2, stresses the importance of offering the migrants sufficient opportunities to enhance their educational levels. Host country's provision of access to relevant courses or trainings can improve migrants' participation in the host society and in turn, promote their well-being realisation (Choy et al., 2021).

Diverse views on neighbourhood resources needed for well-being realisation and ageing in place

Age-friendly neighbourhoods are contexts that can enhance older Moroccan adults' integration, well-being realisation and ability to age successfully in place. The World Health Organization's (WHO; 2007) Age-friendly Cities Guide provides an exhaustive list of physical and social resources and social and health services under eight domains that contribute to neighbourhood age-friendliness; however, information on the relative importance of these resources for older Moroccan adults is lacking. Previous research has shown that older adults have different needs and tend to attach varying degrees of importance to age-friendly neighbourhood resources (van Dijk et al., 2015). Exploring the relative importance of neighbourhood resources and identifying the diverse environmental needs of older Moroccan adults are considered as a crucial step toward the creation of inclusive, age-friendly neighbourhoods for diverse older-adult populations in the Netherlands. The study performed in chapter 3 used Q methodology and provided insights into the diverse views held by older Moroccan adults on the neighbourhood resources needed for well-being realisation and ageing in place, indicating that not all older Moroccan adults demand the same resources to achieve these outcomes. Chapter 3 distinguished four distinct viewpoints that differed in the relative importance attached to certain age-friendly neighbourhood resources: (1) *Home Sweet Home*, (2) *Connected, Well-Informed, and Engaged*, (3) *Suitable and Affordable Living* and (4) *A Lively Neighbourhood*. The findings in chapter 3 increased the understanding of the person–environment fit among older Moroccan adults in the Netherlands. Furthermore, they emphasised the heterogeneity in ageing needs that may exist within a culturally similar group, in line with research by Conkova and Lindenberg (2020).

Older Moroccan adults holding the *Home Sweet Home* viewpoint attach high importance to safe neighbourhoods that support quiet home life, where family members live at proximity and (ethnic) shops and health services are within walking distance. They are mostly women who live alone and have difficulty speaking the Dutch language which increase their dependence on family members, especially children and grandchildren, for arranging their chores and receiving care and support. Unlike the other three viewpoints,

older Moroccan women with this viewpoint prefer living and interacting with other Moroccans in their neighbourhoods. This is in line with the findings in chapter 2 which revealed that older Moroccan women in the Netherlands tend more often than men to adopt the separation acculturation strategy, manifested as having a strong orientation towards the native culture and limited interactions with other cultures (Berry, 1980, 1997, 2005). While living in migrant-majority neighbourhoods limits contact with native Dutch adults, which can further exacerbate language barriers (Bolt et al., 2010; Dagevos, 2009; Gijsberts & Dagevos, 2007), staying in close proximity to people from a culturally similar group can help older migrants expand their social networks, give and receive support, and enhance their sense of security and home (Buffel & Phillipson, 2011; Buffel et al., 2012). Because of culturally gendered social norms, these older women are not used to or interested in social and civic participation. They want to stay in their homes and enjoy the greenery from their windows. In that case, the presence of beautiful scenery can help older adults enjoy the outside world from the comfort of their homes (Cramm et al., 2018). In addition, living in neighbourhoods with plenty of green can have a positive influence on their satisfaction with their environments and overall well-being (Burton et al., 2011; Padeiro et al., 2022).

Notably, older Moroccan adults holding the *Home Sweet Home* viewpoint value neighbourhoods that can foster their independence, which reflects their desire and attempt to alleviate the constant burden on family members. According to this viewpoint, neighbourhoods can achieve this when they are safe and have nearby (ethnic) amenities and health services, which conforms with the findings reported by van Dijk et al. (2015). Previous research has shown that perceived neighbourhood safety is beneficial for older adults' well-being (Cramm & Nieboer, 2014; Curl & Mason, 2019). Disadvantaged neighbourhoods, where many older migrants live, may have high rates of crime and violence (Buffel & Phillipson, 2011; Finlay et al., 2020; Sampaio & Walsh, 2023). Moreover, older women who live alone tend to become especially vulnerable to security risks and diminished feelings of safety (Finlay et al., 2020; Walker & Hiller, 2007). They seem to have major concerns about incidences of crime and attempt to take several precautions to

protect themselves, highlighting the importance of measures that promote neighbourhoods' safety for ageing well in place (Walker & Hiller, 2007). Yet, it is critical to take into consideration that neighbourhood safety encompasses various domains and goes beyond merely crime-related safety (Finlay et al., 2020; Won et al., 2016), which is reflected in this viewpoint's prioritisation of safe sidewalks and crosswalks that protect older Moroccan adults from accidents and falls. In addition to neighbourhood safety, the presence of ethnic amenities can improve older migrants' sense of home and communication with people who speak a similar language (van der Greft & Droogleever Fortuijn, 2017; Yazdanpanahi & Woolrych, 2023). Health services, particularly in the migrants' language, can also further facilitate their healthcare usage (van der Greft & Droogleever Fortuijn, 2017), contributing to their independence and ageing in place (Dupuis-Blanchard et al., 2015).

Older Moroccan adults holding the *Connected, Well-Informed, and Engaged* viewpoint attach high importance to inclusive, tolerant, and cohesive neighbourhoods that foster social interactions and participation, and where houses are affordable. They are men who mostly speak the Dutch language, facilitating their active involvement within their neighbourhoods. Unlike the other three viewpoints, older men with this viewpoint prioritise inclusive neighbourhoods that are free from discrimination. Prior studies have suggested that older migrants who encounter discrimination may become less satisfied with their environments, thereby hindering their ability to age well in place (Ciobanu et al., 2020; Sampaio & Walsh, 2023; Wanka et al., 2019). The findings in chapter 4 further reinforced the negative impact of older Moroccan adults' discrimination experiences on their perceptions of neighbourhood age-friendliness and needs for ageing in place. According to this viewpoint, inclusive and tolerant neighbourhoods are also prerequisites for building and maintaining meaningful social connections and fostering social cohesion. Older men with this viewpoint value neighbourly relationships, including those with different generations, and want to participate in various activities in their neighbourhoods. Similar to viewpoint 1, this viewpoint reflects the culturally gendered social roles among this generation, as older migrant men typically have more diverse social networks and more freedom than women to participate in wide variety of activities in

neighbourhood centres and mosques, which are perceived as male spaces (Buffel & Phillipson, 2011; Omlo et al., 2016). The importance of meaningful social connections and social participation for older adults' well-being has been highlighted in several studies (Nieboer & Cramm, 2018; Padeiro et al., 2022). This viewpoint emphasises that strong neighbourly relationships can also be important means for giving and receiving support and disseminating useful information about neighbourhood services. Neighbourhood social connectedness can help older migrants stay well informed, mitigating language barriers and low educational levels (van der Graft & Droogleever Fortuijn, 2017).

Older Moroccan adults holding the *Suitable and Affordable Living* viewpoint attach high importance to neighbourhoods that provide age-friendly, affordable houses, opportunities for older adults to voice their needs, indoor meeting places for Moroccan people, and health services within walking distance. They mostly have walking problems, which increases their need for accessible, suitable houses, including ground-floor homes or buildings with elevator. Like viewpoint 2, older Moroccan adults with this viewpoint stress that such age-friendly houses must also be affordable for older adults. They state that, given their limited financial means, they are unable to afford the new good-quality houses, which are generally too expensive for them. Previous research has highlighted that suitable housing is beneficial for older adults' well-being (Nieboer & Cramm, 2018; Santos et al., 2025; Wang & and Hu, 2024) and an important determinant for their ability to age successfully in place (Choi, 2022). The findings in chapters 4–5 further echoed the significant importance of the housing domain for ageing in place among diverse older-adult populations in the Netherlands, emphasising that the provision of age-friendly, affordable housing needs to be a major priority in the Dutch policy agenda. Older Moroccan adults with this viewpoint also complain that their concerns are not taken seriously and that they feel unheard, highlighting the importance of including older migrants in age-friendly decision-making processes and giving them enough room to voice their needs. Moreover, this viewpoint favours indoor meeting places where older Moroccan adults can rest and participate in activities with culturally similar groups that share the same language, sense of humour, and

traditions, which can contribute to their sense of attachment to place (Buffel, 2017) and overall social well-being (Conkova & Lindenberg, 2020; Neville et al., 2018; Yazdanpanahi & Woolrych, 2023).

Older Moroccan adults holding the *A Lively Neighbourhood* viewpoint attach high importance to neighbourhoods where friends, sport opportunities, good transportation options, and health services are available. They mostly speak Dutch, have high educational levels, and view neighbourhoods as places that stimulate their mobility and encourage them to stay physically and socially active. Older Moroccan adults with this viewpoint value the availability of friends in their neighbourhoods and view them as sources of motivation to maintain an active social life. The availability of friends can also encourage older adults to improve their physical activity levels (Chaudhury et al., 2016), which is also prioritised by older Moroccan adults with this viewpoint. Unlike the other three viewpoints, this viewpoint appreciates the availability of good transport options in the neighbourhoods for stimulating mobility and social participation. Previous research has acknowledged the positive role that transportation can play in promoting older adults' social participation (Dahan-Oliel et al., 2010; Latham-Mintus et al., 2021; Levasseur et al., 2015). Furthermore, the research by Nieboer and Cramm (2018) has shown that transportation was associated with older adults' social well-being. They suggested that the importance of transportation might be especially evident among older adults who received high educational levels as they are generally more actively involved in various activities and tend to have higher expectations from their neighbourhoods than their counterparts for promoting their well-being realisation (Nieboer & Cramm, 2018).

Notably, three of the four viewpoints (all except the *Home Sweet Home* viewpoint) are strongly against segregated, Moroccan-majority neighbourhoods. Previous research by Gijsberts and Dagevos (2007) has revealed that segregated neighbourhoods may hinder migrants' integration into the host society, which in turn can impact their abilities to realise well-being, as suggested in chapter 2. Older Moroccan adults holding the three viewpoints state various reasons for opposing such neighbourhoods. While many older Moroccan adults are worried that such neighbourhoods could turn

into ghettos, others have already witnessed some negative aspects of segregation and perceive it as discriminating. Older Moroccan adults view diverse, mixed neighbourhoods as resourceful contexts where they can exchange valuable information and learn about other people's cultures, norms, and traditions, fostering mutual acceptance. The findings in chapter 3 thus indicate that while interacting with other Moroccans and the availability of ethnic services in the neighbourhoods can be beneficial, they need to coexist within diverse neighbourhoods that can foster connections and social cohesion between older adults with different backgrounds.

Extent of neighbourhood age-friendliness and individual differences between subgroups

The study performed to address this objective provided insights into the extent to which older Moroccan adults residing in Rotterdam, the Netherlands missed the availability of various age-friendly resources, spanning the eight domains of the WHO's Age-friendly Cities Guide, in their neighbourhoods. The study built on the findings in chapter 3 and provided insights into the cross-sectional associations between the individual characteristics and discrimination experiences of older Moroccan adults and their needed neighbourhood resources for ageing in place. Chapter 4 showed that older Moroccan adults missed the availability of age-friendly neighbourhood resources to various extents across the eight domains of the WHO's Age-friendly Cities Guide. It also revealed that age, marital status, multimorbidity, and discrimination experiences had significant relationships with the missing of these resources, thereby emphasising this group's heterogeneity and the variations in the neighbourhood resources needed for ageing in place between subgroups. The findings in chapter 4 expanded on chapter 3 by providing representative, quantitative information regarding older Moroccan adults' diverse environmental needs for ageing in place. They specified the neighbourhood resources that older Moroccan adults missed the most, and whose prioritisation by policy makers would contribute to the provision of inclusive, age-friendly neighbourhoods that promote ageing in place. Moreover, the findings in chapter 4 further broadened the understanding of the dynamic nature of the person–environment interactions among older Moroccan adults in the Netherlands and highlighted the increased

dependency of particular subgroups on the availability of certain age-friendly resources and services in their neighbourhoods.

Chapter 4 revealed that older Moroccan adults were most critical of the age-friendliness of their neighbourhoods in the domains of *housing* and *social participation*, indicating the significant importance of targeting these two domains in age-friendly initiatives to foster ageing in place. Older Moroccan adults especially missed the availability of affordable, sustainable, age-friendly homes that are suitable for older adults as well as easily accessible support for home maintenance in their neighbourhoods. The critical need for affordable, age-friendly housing provision to facilitate well-being realisation and ageing in place has been consistently emphasised across this dissertation, not only for older Moroccan adults, but also for native-Dutch older adults and those with Turkish and Surinamese backgrounds in the Netherlands, which is consistent with previous studies (Bloem et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024). This dissertation thus reflects the seriousness of older Moroccan adults' concerns and criticism regarding the scarcity of affordable, age-friendly homes in their neighbourhoods. It also highlights the potential consequences of the current housing crisis in the Netherlands on the ability of diverse older-adult populations to age successfully in place. Older Moroccan adults also missed the availability of activities for people with similar backgrounds, meeting places for older adults and variety of events in their neighbourhoods. The findings in chapter 5 exhibited a similar pattern, particularly among older Turkish and Surinamese migrants, implying that older migrants in the Netherlands may become highly reliant on their neighbourhoods to maintain social interactions and participation. Ideally, the provision of activities especially for older migrants need to coexist within inclusive, diverse neighbourhoods where mixed activities are also provided to promote multicultural relationships and social cohesion, and mitigate the chances of segregation (Bloem et al., 2024; Jagroep et al., 2023; Nieboer & Cramm, 2024).

Notably, chapter 4 again emphasised that although older Moroccan adults may share a similar perspective on the significance of certain neighbourhood resources for ageing in place, their perspectives on importance of other resources may vary, providing further empirical support to the findings in

chapter 3. Chapter 4 revealed that single older Moroccan adults were more likely than their married counterparts to miss the availability of age-friendly resources belonging to the domains of *social participation* and *community support and health services* in their neighbourhoods. In addition, older Moroccan adults who had multimorbidity were more likely than their counterparts to miss the availability of age-friendly resources belonging to six of the eight WHO domains in their neighbourhoods, namely *outdoor spaces and buildings*, *housing*, *social participation*, *respect and social inclusion*, *civic participation and employment*, and *community support and health services*. Older adults who live alone may have fewer opportunities for social participation (Townsend et al., 2021), increasing their chances of loneliness, social isolation and diminished well-being (Grenade & Boldy, 2008; Johnson et al., 2019). The provision of easily accessible meeting places and social activities in these older adults' neighbourhoods can act as an facilitator for social participation and help them strengthen their social networks (Grenade & Boldy, 2008; Townsend et al., 2021; Walker & Hiller, 2007). Moreover, the availability of proximate shops and other (health) services seem to contribute to these older adults' sense of independence and attachment to place (Walker & Hiller, 2007), thereby facilitating their ageing in place. Multimorbidity in older age has been associated with increased risk for functional limitations, depression, decreased quality of life and well-being, and increased healthcare costs (Marengoni et al., 2011) Furthermore, the findings in chapter 2 indicated that older Moroccan adults with multimorbidity may become poorer self-managers of their well-being. Age-friendly environments where resources such as good-quality housing and opportunities for social connectedness are available can foster the well-being of older adults with multimorbidity (Gan et al., 2022), stimulate healthy behaviours, mitigate health inequalities and promote healthy ageing (Officer et al., 2017).

On the other hand, chapter 4 revealed that Moroccan participants who were older in age were less concerned than their counterparts about the availability of age-friendly resources belonging to six of the eight WHO domains in their neighbourhoods, which is consistent with previous research (Cramm et al., 2018; van Hoof et al., 2022). As older adults increase in age, they may become frailer, prompting them to form more realistic expectations

of their ageing process. Accordingly, they may become either easier satisfied with the age-friendliness of their neighbourhoods or generally less inclined to make use of certain age-friendly resources in their neighbourhoods (Cramm et al., 2018; van Hoof et al., 2022). Overall, the findings in chapter 4 reflect the changing nature of older migrants' needs for ageing in place and stress the need for age-friendly policies that consider their diverse needs and provide special attention to vulnerable subgroups. Finally, chapter 4 showed that older Moroccan adults' experiences of discrimination also had a significant positive association with their missing of neighbourhood resources. Older Moroccan adults who experienced feelings of discrimination were more likely than their counterparts to be critical of the age-friendliness of their neighbourhoods in five of the eight WHO domains. This is concerning, given the recent rise in the discrimination incidents in Rotterdam, 39% of which occur within the individuals' own neighbourhoods (Scholten et al., 2024). Currently, discrimination against Muslim communities seems particularly to be a pressing issue in the Netherlands as a whole. According to most recent data, 94% of the cases of religious discrimination tend to be aimed at Muslim individuals, increasing the vulnerability of both Moroccan and Turkish migrant groups in the Netherlands (Rotterdam Inclusivity Report, 2025). Individuals who encounter discrimination are more likely to have less trust in the government, experience less social cohesion and become less satisfied with their environments (Scholten et al., 2024). Thus, future research needs to focus on the complexities of discrimination processes and their potential influences on older migrants' ability to age in place.

The ageing-in-place instrument as a valid, reliable and culturally sensitive measure for neighbourhood age-friendliness

The study performed to address this objective provided insights into the psychometric properties of the 37-item version of the ageing-in-place instrument and the development and psychometric evaluation of the shortened 24-item version with four older-adult groups in the Netherlands. Chapter 5 pointed out that both instrument versions showed satisfactory to good model fit and good internal consistency, when tested with the diverse older-adult participants. The construct validity of both versions of the ageing-in-place instrument was evaluated using the eight-item Brief Sense of

Community Scale (Peterson et al., 2008) that assessed older-adult participants' sense of community in their neighbourhoods. Sense of community indicates the extent to which older adults feel connected to environments that are supportive, mutually responsive, and interdependent. Older adults tend to experience sense of community in neighbourhoods that meet their needs (Buckley, 2022), and previous research has indicated its relation with neighbourhood age-friendliness (Au et al., 2020; Buckley, 2022; Yu et al., 2019). In line with expectations, chapter 5 revealed significant correlations between the (sub)scale scores of both versions of the ageing-in-place instrument and the Brief Sense of Community Scale score. These findings provided empirical support for the construct validity of both instrument versions and highlighted the significance of age-friendly environments for older adults' sense of community, which is acknowledged as a major determinant of health, well-being, life satisfaction, and overall quality of life (Au et al., 2020; Buckley, 2022; Yu et al., 2019). Overall, chapter 5 indicated that the ageing-in-place instrument is a valid and reliable tool for the evaluation of neighbourhood age-friendliness with diverse older-adult populations in the Netherlands. Chapter 5 offered a promising instrument that can be used to identify the environmental needs of diverse older-adult populations. High mean (subscale) scores specify neighbourhood resources that older adults miss most, which can be prioritised and targeted for action by policy makers to foster ageing in place. This can be particularly beneficial given the constraints faced in developing, implementing and sustaining age-friendly initiatives (Buffel & Phillipson, 2018; Fitzgerald & Caro, 2014; Forsyth & Lyu, 2024) and is in line with the aspirations of the Dutch government to enhance its cities and neighbourhoods' age-friendliness (Government of the Netherlands, 2022).

Notably, chapter 5 offered two versions of the ageing-in-place instrument. The full 37-item version of the instrument encompasses a thorough list of diverse neighbourhood resources spanning the eight WHO domains that characterise an age-friendly environment, increasing its adaptability to diverse contexts. The full 37-item instrument can thus be used in various urban cities in the Netherlands and other Western countries to provide insights into older adults' evaluations of their neighbourhood age-friendliness and

distinct environmental needs for ageing in place. These insights can further enable the cross-cultural validation of the instrument and identification of similarities and differences between these diverse contexts. Given that the instrument is aimed at older-adult populations, chapter 5 also provided a shortened version of the ageing-in-place instrument, encompassing three items per each of the eight WHO domains that represent various age-friendly neighbourhood resources. The shortened 24-item instrument is thus a concise version that is more convenient and requires less effort and time to complete, thereby reducing the potential response burden on older participants while preserving the quality of the collected data. Furthermore, the shortened 24-item version of the ageing-in-place instrument is one of the first age-friendly instruments to explicitly take into consideration the heterogeneity of older-adult populations in the Netherlands. Chapter 5 performed separate confirmatory factor analyses for the shortened 24-item instrument with native-Dutch older adults and those with Turkish, Surinamese and Moroccan backgrounds who participated in the study. The findings in chapter 5 emphasise that the ageing-in-place instrument is a culturally sensitive tool that can be used to identify the diverse needs of older migrants in the Netherlands, thereby informing the development of inclusive age-friendly policies and initiatives that foster ageing in place among diverse older-adult populations.

Theoretical reflections

This dissertation incorporated the person–environment fit perspective, the WHO’s Age-friendly Cities Guide and the ageing-in-place concept as theoretical foundations to investigate acculturation experiences and their relationship with self-management of well-being, perceived neighbourhood age-friendliness, and needed neighbourhood resources for well-being realisation and ageing in place among older Moroccan adults in the Netherlands. The person–environment fit perspective (Chaudhury & Oswald, 2019; Lawton & Nahemow, 1973; Zhang et al., 2024) enabled investigating the intersections between the individual characteristics of older Moroccan adults and their diverse (environmental) needs for well-being realisation and ageing in place. The dissertation took into consideration the heterogeneity that exists within a culturally similar group and the diversity of their ageing

needs. The findings of this dissertation provided a nuanced understanding of the person–environment fit and the dynamicity of its interactions among older Moroccan adults in the Netherlands.

The WHO' Age-friendly Cities Guide (2007) enabled the inclusion of a wide range of physical and social neighbourhood resources and health and social services to investigate older Moroccan adults' diverse environmental needs and develop the ageing-in-place instrument for use with diverse older-adult populations in the Netherlands. The WHO guide provides an exhaustive list of resources which serves as an empirical foundation for identifying neighbourhood and city priorities and tailoring accommodations according to contextual needs and preferences (Plouffe et al., 2016; Torku et al., 2021; World Health Organization, 2007, 2023). While the WHO's Age-friendly Cities Guide (2007) is developed based on a bottom-up participatory approach that actively included older adults and mapped their needs, it would benefit from a stronger theoretical basis. Additionally, as the guide was developed nearly two decades ago, it would benefit from new insights reflecting current demographic, social, and urban developments. This dissertation integrated the WHO guide while consulting additional ageing-in-place literature to provide stronger theoretical support and expand on the understanding of the concepts of community age-friendliness and ageing in place among older Moroccan adults in the Netherlands. The findings of the dissertation provided insights into the relative importance of diverse age-friendly neighbourhood resources for well-being realisation and ageing in place and the variations in the perceptions of neighbourhood age-friendliness between older-Moroccan subgroups. The findings of this dissertation may thus help refine the WHO guide's framework and contribute to its future operationalisation. Furthermore, the dissertation offered a valid, reliable, and culturally sensitive instrument for measuring neighbourhood age-friendliness and environmental needs for ageing in place with diverse older-adult populations in the Netherlands. Yet, future longitudinal research needs to examine the instrument's ability to evaluate the progress of age-friendly initiatives and detect changes in perceptions of neighbourhood age-friendliness over time. Future research can also use this instrument to measure

neighbourhood age-friendliness in different contexts, allowing for cross-cultural validation and comparisons between these contexts.

Methodological reflections

This dissertation incorporated mixed methods to provide insights into the acculturation experiences and their relationship with self-management of well-being, the relative importance of diverse neighbourhood resources for well-being realisation, and the perceptions of neighbourhood age-friendliness according to older Moroccan adults in the Netherlands. Furthermore, the dissertation provided a valid, reliable and culturally sensitive instrument for measuring neighbourhood age-friendliness and identifying environmental needs with diverse older-adult populations in the Netherlands. The use of Q methodology in chapter 3 is a strength of this dissertation, given its potential to outline the diverse viewpoints held by older Moroccan adults living in the four largest cities in the Netherlands. Using Q methodology enabled older Moroccan adults to voice their needs and concerns, and highlighted the similarities and differences in their needs for well-being realisation and ageing in place, without relying on large samples (Brown, 1980; Watts & Stenner, 2012), which can be particularly beneficial for more difficult-to-recruit respondents like older migrants (Bilecen & Fokkema, 2022). Furthermore, the flexibility of Q methodology facilitated Q-set item adjustment to suit older Moroccan adults by, for instance, using clear text and offering translated versions (Brown, 1980; Chapter 3, Supplementary Material Section 2). This approach enabled the inclusion of older Moroccan adults with little to no education, who tend to be excluded in research, and the representation of their experiences and ageing needs. The interviewers were keen to read the statements out loud several times in Arabic, Dutch or Berber, as needed and provided the respondents enough time to make thoughtful decisions regarding the relative importance of the statements, which proved to be successful as indicated in the discussions of significant issues, like informal care, housing crisis and residential segregation.

In addition to Q methodology, two cross-sectional survey studies were performed to collect quantitative data from older Moroccan adults living in the city of Rotterdam, the Netherlands. The first cross-sectional survey study in chapter 2 provided insights into the associations between acculturation

(attachment to Moroccan and Dutch cultures) and self-management abilities of well-being, and the variations in these variables between older-Moroccan subgroups. These insights can contribute to the development of effective interventions to promote older migrants' self-management of well-being and integration into the host society. The second cross-sectional survey study in chapters 4–5 expanded on the findings in chapter 3 by presenting representative, quantitative information regarding older Moroccan adults' evaluations of neighbourhood age-friendliness and diverse environmental needs for ageing in place. A strength of this dissertation is the inclusion of diverse older-adult populations in chapter 5 for the validation of the ageing-in-place instrument and ensuring its cultural sensitivity and suitability for diverse older adults, contributing to inclusive research. Chapter 5 also identified the needs of the four older-adult subgroups and highlighted the similarities and differences between them, informing the development of inclusive age-friendly policies and initiatives for all. An important limitation of the two survey studies is the relatively low response rate among older Moroccan adults, which is expected among first-generation older migrants in the Netherlands (Kappelhof, 2010; Schellingerhout, 2004; Statistics Netherlands, 2005). Both survey studies followed previous research recommendations in that regard by translating survey documents into the native languages of the potential participants and performing home visits to stimulate participation via multilingual interviewers (Kappelhof, 2010). Notably, the number of home visits were increased from two to six in the second survey, which seemed to be effective in improving the response rate among older Moroccan adults, and in turn enhance their representation in ageing research. Another limitation is the surveys' location as they were only conducted in Rotterdam; however, a larger-scale research will follow in the four largest cities in the Netherlands (Nieboer & Cramm, 2022).

Implications for practice

The findings of this dissertation show that attachment to both Moroccan and Dutch cultures is beneficial for older Moroccan adults' self-management of well-being, highlighting the possible importance of interventions fostering older migrants' integration into Dutch society. In addition, it stresses the need for self-management interventions that promote values embedded into the

Dutch culture to consider the cultural contexts of older migrants and pay extra attention to vulnerable subgroups. Furthermore, the dissertation emphasises the need for adopting a person–environment fit perspective in fostering well-being realisation and ageing in place and indicates the importance of investing in environmental measures that target neighbourhood age-friendliness. This can be particularly beneficial to older Moroccan adults residing in disadvantaged neighbourhoods (Sampaio & Walsh, 2023; van der Graft & Droogleever Fortuijn, 2017), that lack the physical, social, and health-related resources that are essential for fostering older adults' well-being (Nieboer & Cramm, 2018; Padeiro et al., 2022). This dissertation highlights the significance of age-friendly neighbourhood resources for older migrants' well-being realisation and ageing in place. Investing in the eight domains of the WHO's Age-friendly Cities Guide can improve the age-friendliness of the neighbourhoods in the Netherlands and other Western countries; however, it is important to consider the heterogeneity of older-adult populations and their needs and avoid a “one-size-fits-all” approach. The ageing-in-place instrument can also be used by the government or municipalities to specify the age-friendly domains that need to be prioritised and targeted for quick action to foster well-being and ageing in place. According to this dissertation, policy makers need to provide special attention to the domains of *housing* (including affordable, sustainable, and age-friendly options, as well as support for home and garden maintenance) and *social participation* (such as affordable activities, activities especially for people with similar backgrounds, indoor meeting spaces, and a variety of events) in order to promote positive ageing outcomes among older migrants.

Given the housing crisis in the Netherlands (Hochstenbach, 2025), policy makers may benefit from improving the quality and age-friendliness of the available housing, without compromising affordability. Possibilities for home modifications to improve its accessibility such as elevator or handrail/bathroom grab bar installation can also support older adults' independence and facilitate their ageing in place. The dissertation also revealed the importance of social activities with people of similar backgrounds and meeting places for older migrants and suggested their dependence on their neighbourhoods for social participation. The provision

of activities for people who speak the same language and share similar culture seems to help these older migrants develop a sense of belonging and attachment to place, contributing to their well-being and ability to age in place. The dissertation stresses that such activities need to be provided alongside mixed ones that facilitate multicultural connections, and coexist in inclusive, diverse neighbourhoods that foster respect, social inclusion and mutual acceptance and are free from discrimination. The negative influence of older Moroccan adults' discrimination experiences on their perceptions of neighbourhood age-friendliness was also highlighted in this dissertation, reflecting the need for effective measures against discrimination in the Netherlands. Finally, the dissertation shows that certain older-Moroccan subgroups tend to become more dependent on informal care, which may impose pressure on their children and exacerbate inequalities (Choi et al., 2024). Policies can provide solutions by providing support to the children as informal caregivers on one hand and investing in age-friendly neighbourhoods that support older migrants' independence on the other hand. According to this dissertation, age-friendly neighbourhoods can support older migrants' independence when they are safe and have (ethnic) shops and health services at walking distance. Culture sensitive care where health professionals are fluent in the migrants' language and knowledgeable about their culture can enhance healthcare usage, foster their independence, and in turn promote their well-being and ageing in place.

Future research recommendations

First, this dissertation suggests that attachment to both native and host cultures can be beneficial to older migrants' self-management of well-being. Future research may benefit from exploring the longitudinal relationship between these concepts among diverse migrant groups. Previous research has shown that migrants may find it easier to successfully integrate into countries with inclusive multicultural policies, such as Canada or Australia, than into countries that prefer a more assimilationist approach like the Netherlands (Ward & Szabó, 2023). Similarly, migrants tend to report higher levels of well-being and fewer differences with natives in countries adopting inclusive and favourable integration policies (Sand & Gruber, 2018), indicating that the associations between integration and well-being may be influenced by

macro-level policy context (Ward & Szabó, 2023). Future research thus needs to further investigate how the socio-political context in the Netherlands may affect the relationship between acculturation and self-management of well-being and identify favourable contextual factors that can support migrants' successful integration and, in turn their self-management of well-being. Second, this dissertation emphasises the importance of age-friendly neighbourhood resources for older Moroccan adults' well-being and ageing in place. Future research should focus on investigating how age-friendly initiatives can contribute to well-being realisation and ageing in place among diverse older-adult population in the Netherlands and other Western countries. Such research can provide insights into the local and global contextual factors and the key elements that determine the effectiveness of age-friendly initiatives.

Third, future research needs to include diverse older-migrant populations in the design, implementation and evaluation of age-friendly initiatives, while considering the heterogeneity that exists within and between migrant populations. Inclusive research can ensure that diverse older-adult populations are properly represented and that their ageing experiences and needs are thoroughly investigated and conveyed. Such approach has also the potential to challenge assumptions about older migrants' ageing processes that may result in the provision of services that further reinforce these assumptions and hamper the provision of the needed resources (Johansson et al., 2013). Research also needs to explore and evaluate the effectiveness of diverse measures for stimulating and facilitating first-generation older migrants' participation in research in the Netherlands. Fourth, this dissertation reveals that experiences of discrimination may impact older Moroccan adults' perceptions of their neighbourhood age-friendliness and, in turn their ability to age in place. Future research is needed to further disentangle the complexities of discrimination processes and their potential influences on older migrants' ability to age in place and identify the local and global contextual factors that may contribute to discriminatory behaviours. Finally, this dissertation offers the ageing-in-place instrument as a valid, reliable, and culturally sensitive instrument for evaluating neighbourhood age-friendliness and identifying diverse older adults' needs for ageing in place. Future research

can further explore the performance of the instrument over time and its ability to detect the progress and effectiveness of age-friendly initiatives and the dynamic nature of older adults' needs. The instrument can also be used in different countries to enable cross-cultural validation and distinguish similarities and differences between contexts.

Conclusions

This dissertation addressed a relevant research gap and adopted a person–environment perspective to investigate acculturation experiences and their relationship with self-management of well-being, perceived neighbourhood age-friendliness, and needed neighbourhood resources for well-being realisation and ageing in place according to older Moroccan adults in the Netherlands. The findings of this dissertation provide empirical evidence on the importance of acculturation experiences for self-management of well-being and the importance of age-friendly neighbourhoods for older Moroccan adults' well-being realisation and ageing in place. The dissertation also provides a valid, reliable, and culturally sensitive instrument that can be used with diverse older-adult populations in the Netherlands to evaluate their neighbourhood age-friendliness and identify their diverse environmental needs for ageing in place. The dissertation highlights the importance of adopting a person–environment fit perspective in fostering well-being realisation and ageing in place and suggests that individual-level interventions might need to be offered alongside environmental measures that enhance neighbourhood age-friendliness and provide the resources needed for well-being realisation and ageing in place. Furthermore, this dissertation emphasises the heterogeneity of older-migrant populations and their ageing needs and stresses the importance of their inclusion in age-friendly research to inform inclusive policies and initiatives for all.

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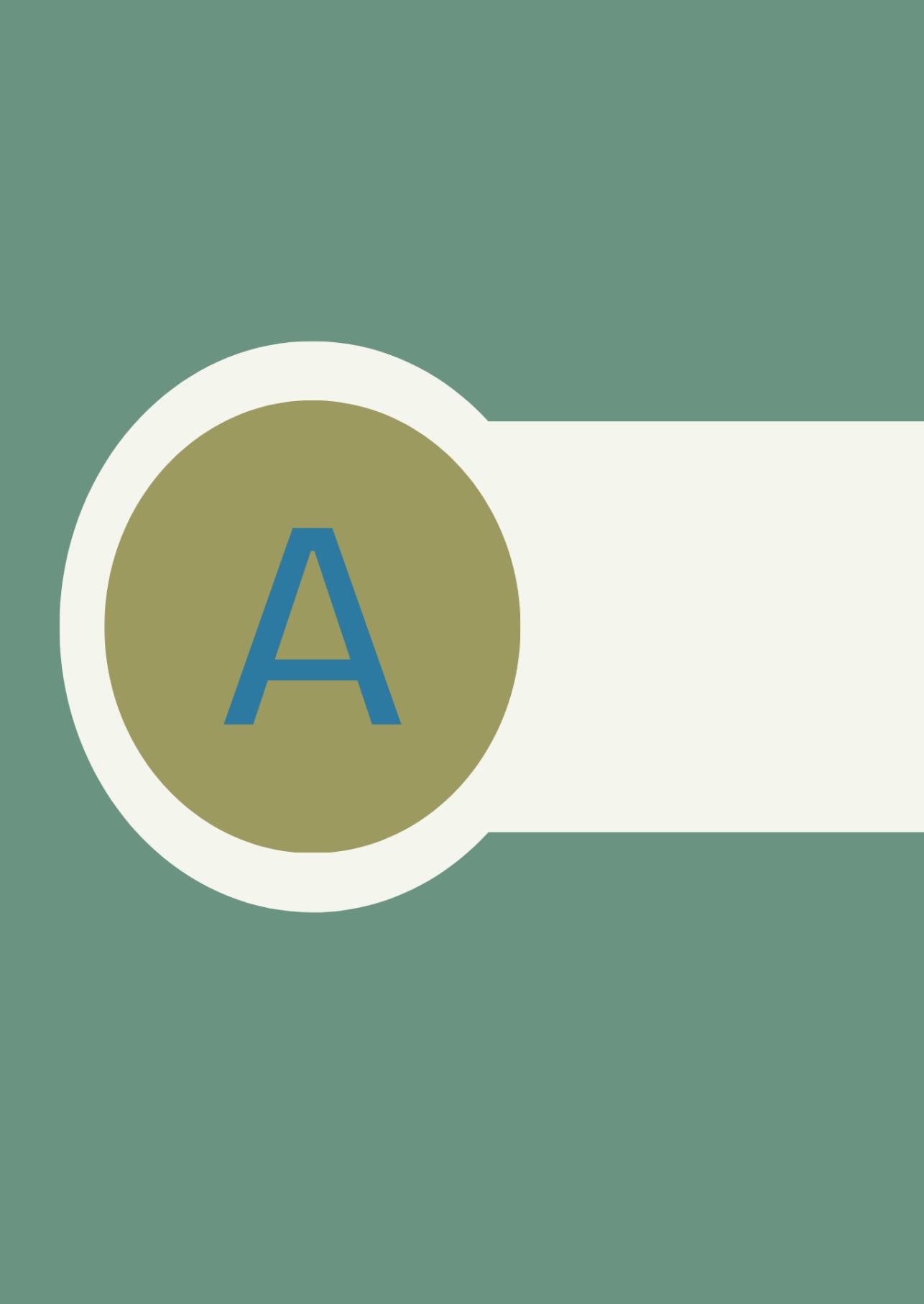
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A



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SUMMARY

The majority of the diverse older-adult populations in the Netherlands prefer to age in place. Correspondingly, the Dutch government aspires to foster older adults' independence and self-management to ensure their ability to live healthily for as long as they can in their familiar homes and environments. Furthermore, the Dutch government and municipalities exert numerous efforts to invest in the age-friendliness of its neighbourhoods and provide the physical and social environmental resources and health services that can promote older adults' independence, well-being realisation and ageing in place. For these efforts to achieve its desired outcomes, they need to be centred on and informed by the distinct needs and preferences of the diverse older-adult population in the Netherlands. However, it seems that older migrants are mostly excluded from active participation in age-friendly initiatives and are often underrepresented in environmental gerontology research that investigates ageing needs. This dissertation aimed to address a relevant research gap and adopted a person–environment fit perspective to investigate acculturation experiences and their relationship with self-management of well-being, perceived neighbourhood age-friendliness, and needed neighbourhood resources for well-being realisation and ageing in place according to older Moroccan adults in the Netherlands.

Values of independence and self-management tend to be more embedded in individualistic cultures like that of the Netherlands than the collectivistic and religious culture of Morocco. Accordingly, one can reason that older migrants' integration into Dutch society may facilitate their adoption of self-management abilities of well-being; however, this relationship has not been explored among older Moroccan adults. The cross-sectional study in chapter 2 investigated this relationship among 290 older Moroccan adults aged ≥ 65 years residing in Rotterdam, the Netherlands. Results of the correlation and multiple regression analyses performed in chapter 2 revealed that older Moroccan adults' attachment to both Moroccan and Dutch cultures have modest and significant associations with their self-management abilities of well-being. Furthermore, Chi-squared and independent samples *t*-tests were used in chapter 2 to examine variations in older Moroccan adults'

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acculturation strategies and self-management of well-being. Chapter 2 showed that the individual characteristics of older Moroccan adults have an influence on both their acculturation strategies and self-management abilities of well-being. The findings in chapter 2 indicated that older Moroccan adults who have low educational levels and older women may become less attached to the Dutch culture, while those who are younger and have high educational levels may become more attached to the Dutch culture. In addition, older Moroccan adults who have low educational levels, have no comprehension of the Dutch language and those with multimorbidity may become poorer self-managers of their well-being.

Age-friendly neighbourhoods have the potential to foster older migrants' integration, well-being realisation and ageing in place. The World Health Organization (WHO)'s Age-friendly Cities Guide includes the environmental resources pertaining to an age-friendly environment; however, little is known about the relative importance of these resources for older Moroccan adults. The study in chapter 3 utilised Q methodology, which incorporates quantitative and qualitative techniques, to explore the diverse views of 30 older Moroccan adults aged ≥ 65 years residing in the four largest cities in the Netherlands regarding the neighbourhood resources needed for well-being realisation and ageing in place. The findings in chapter 3 outlined four distinct viewpoints. Older Moroccan women holding the *Home Sweet Home* viewpoint value neighbourhoods that are supportive of quiet home life and are dependent on the availability of family members nearby in the same neighbourhood. *Home Sweet Home* viewpoint also prioritises safe neighbourhoods that can promote older Moroccan adults' independence and alleviate the burden on their children, which can be achieved when resources like (ethnic) shops and health services are available within walking distance. Older Moroccan men holding the *Connected, Well-Informed, and Engaged* viewpoint value neighbourhoods that are inclusive, tolerant, socially cohesive and free from discrimination. They view neighbourhoods as places that can promote neighbourly relationships, social interactions and participation. Older Moroccan adults holding the *Suitable and Affordable Living* viewpoint favour the availability of age-friendly, affordable homes and health services within walking distance in their neighbourhoods. They value neighbourhoods

where they can voice their needs and where indoor meeting places are provided. Older Moroccan adults holding the *A Lively Neighbourhood* viewpoint attach high importance to the availability of friends, sport opportunities, good transportation options and health services within walking distance in their neighbourhoods.

The cross-sectional study in chapter 4 builds on the findings in chapter 3 and provides representative, quantitative information on the perceptions of neighbourhood age-friendliness and the diverse environmental needs for ageing in place according to 151 older Moroccan adults aged ≥ 65 years residing in Rotterdam, the Netherlands. Chapter 4 used the ageing-in-place instrument and revealed that older Moroccan adults missed to various extents the availability of neighbourhood resources belonging to the eight domains of the WHO's Age-friendly Cities Guide and were most critical of their neighbourhood age-friendliness in the *housing* and *social participation* domains. The results of the correlation and multiple regression analyses performed in chapter 4 showed that the individual characteristics and discrimination experiences of older Moroccan adults have significant associations with the missing of age-friendly resources in their neighbourhoods. Single older Moroccan adults missed more often than their married counterparts the availability of neighbourhood resources belonging to the *social participation* and *community support and health services* domains. Moreover, older Moroccan adults with multimorbidity were more critical than their counterparts of their neighbourhood age-friendliness in six of the eight WHO domains guide. In contrast, older Moroccan participants who were older in age were less concerned than their counterparts about the availability of neighbourhood resources in six of the eight WHO domains. Chapter 4 also showed that older Moroccan adults who experienced discrimination were more critical than their counterparts of their neighbourhood age-friendliness in five of the eight WHO domains.

Chapter 5 further refined and validated the ageing-in-place instrument for use with diverse older-adult populations in the Netherlands. Confirmatory factor analyses (CFAs), internal consistency and correlations, and construct validity for both the full and shortened versions of the ageing-in-place instrument were performed in chapter 5 with 862 older adults of native-Dutch,

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Turkish, Surinamese and Moroccan origin residing in Rotterdam, the Netherlands. The findings in chapter 5 showed that both instrument versions are valid and reliable for evaluating neighbourhood age-friendliness with diverse older-adult populations in the Netherlands. The full 37-item version of the ageing-in-place instrument provides a comprehensive list of neighbourhood resources pertaining to the eight domains of the WHO's Age-friendly Cities Guide. The shortened 24-item instrument provides a more concise version that is easier to complete, without compromising content quality. Furthermore, the shortened 24-item version of the ageing-in-place instrument is one of the first age-friendly instruments to account for the older populations' heterogeneity by performing separate CFAs with each of four the older-adult subgroups. The findings in chapter 5 confirm that the ageing-in-place instrument is culturally sensitive and suitable for use to evaluate neighbourhood age-friendliness and identify environmental needs for ageing in place with diverse older-adult populations.

Chapter 6 discussed the main dissertation findings, along with their theoretical and methodological reflections. Furthermore, implications for practice such as the importance of considering the heterogeneity of older-adult populations and their needs and avoiding a “one-size-fits-all” approach in age-friendly efforts were provided. Moreover, recommendations for future research such as the need for research that explores and evaluates the effectiveness of diverse measures for stimulating and facilitating first-generation older migrants’ participation in research in the Netherlands were provided.

Overall, this dissertation provides empirical evidence on the importance of acculturation experiences for self-management of well-being and the importance of age-friendly neighbourhoods for older Moroccan adults’ well-being realisation and ageing in place. The dissertation also provides a valid, reliable, and culturally sensitive instrument that can be used with diverse older-adult populations in the Netherlands to evaluate their neighbourhood age-friendliness and identify their diverse environmental needs for ageing in place. The dissertation highlights the importance of adopting a person–environment fit perspective in fostering well-being realisation and ageing in place. It emphasises the heterogeneity of older-migrant populations and their

ageing needs and stresses the importance of their inclusion in age-friendly research to inform inclusive policies and initiatives for all.

SAMENVATTING

De meerderheid van ouderen in Nederland geeft er de voorkeur aan om oud te worden in hun eigen buurt. De Nederlandse overheid streeft ernaar om de zelfstandigheid van ouderen te bevorderen, zodat zij zo lang mogelijk gezond blijven en kunnen blijven wonen in hun vertrouwde huis en omgeving. De overheid en gemeenten in Nederland leveren talrijke inspanningen om de seniorvriendelijkheid van buurten te vergroten, en investeren daarnaast in een fysieke en sociale omgeving en gezondheidszorg die de zelfstandigheid, het welzijn en het ouder worden in de eigen buurt bevorderen. Om dit te bereiken, is het noodzakelijk om de specifieke behoeften en voorkeuren van de diverse groepen ouderen in Nederland centraal te stellen. Oudere migranten lijken echter grotendeels uitgesloten te worden van actieve participatie in seniorvriendelijke initiatieven en zijn vaak ondervertegenwoordigd in onderzoek dat zich richt op de behoeften rondom het ouder worden. Dit proefschrift beoogde deze kloof te overbruggen door een persoon–omgeving fit perspectief te hanteren en de acculturatie-ervaringen van ouderen met een Marokkaanse achtergrond in relatie tot hun zelfmanagement van welbevinden, de waargenomen seniorvriendelijkheid van hun buurt en de benodigde hulpbronnen in de buurt voor welzijnrealisatie en ouder worden in de eigen buurt te onderzoeken.

Waarden als zelfstandigheid en zelfmanagement zijn doorgaans sterker verankerd in individualistische culturen, zoals die van Nederland, dan in de collectivistische en religieuze cultuur van Marokko. Integratie van oudere migranten in de Nederlandse samenleving kan bijdragen aan hun zelfmanagementvaardigheden. Deze relatie is echter nog niet onderzocht bij ouderen met een Marokkaanse achtergrond. De cross-sectionele studie in hoofdstuk 2 onderzocht deze relatie onder 290 ouderen met een Marokkaanse achtergrond van 65 jaar en ouder, woonachtig in Rotterdam, Nederland. De resultaten van correlatie- en multiple regressieanalyses toonden aan dat de verbondenheid met zowel de Marokkaanse als de Nederlandse cultuur kleine significante verbanden vertoonde met zelfmanagement van welbevinden. Bovendien werden in hoofdstuk 2 Chi-kwadraat- en onafhankelijke *t*-toetsen gebruikt om variaties in acculturatiestrategieën en zelfmanagement van

welbevinden onder ouderen met een Marokkaanse achtergrond te onderzoeken. De analyses lieten zien dat individuele kenmerken van ouderen met een Marokkaanse achtergrond invloed uitoefenen op zowel hun acculturatiestrategieën als hun zelfmanagement van welbevinden. De bevindingen in hoofdstuk 2 gaven aan dat ouderen met een laag opleidingsniveau en vrouwen mogelijk minder verbonden zijn met de Nederlandse cultuur, terwijl jongere ouderen en ouderen met een hoog opleidingsniveau juist een sterkere verbondenheid vertonen. Daarnaast bleken ouderen met een laag opleidingsniveau, beperkte beheersing van de Nederlandse taal en multimorbiditeit mogelijk minder vaardige zelfmanagers van hun welbevinden te zijn.

Seniorvriendelijke buurten hebben het potentieel om de integratie en het welzijn van oudere migranten en het ouder worden in de eigen buurt te bevorderen. De Age-friendly Cities Guide van de Wereldgezondheidsorganisatie (WHO) beschrijft buurtbronnen die bijdragen aan een seniorvriendelijke gemeenschap. Er is echter weinig bekend over het relatieve belang van deze bronnen voor ouderen met een Marokkaanse achtergrond. De studie in hoofdstuk 3 maakte gebruik van Q-methodologie, een methode die kwantitatieve en kwalitatieve analyses combineert, om de uiteenlopende standpunten van 30 ouderen met een Marokkaanse achtergrond van 65 jaar en ouder, woonachtig in de vier grootste steden van Nederland, te verkennen met betrekking tot de buurtbronnen die volgens hen nodig zijn voor het realiseren van welzijn en het ouder worden in de eigen buurt.

De bevindingen brachten vier verschillende perspectieven aan het licht. Marokkaanse vrouwen met het *Home Sweet Home*-standpunt hechten waarde aan buurten die ondersteunend zijn voor een rustig thuisleven en zijn afhankelijk van de nabijheid van familieleden. Dit standpunt geeft ook prioriteit aan veilige buurten die de zelfstandigheid van ouderen bevorderen en de zorglast voor kinderen verminderen. Dit kan worden gerealiseerd door aanwezigheid van voorzieningen zoals (etnische) winkels en gezondheidszorg op loopafstand. Marokkaanse mannen met het *Verbonden, goed geïnformeerd en betrokken*-standpunt waarderen buurten die inclusief, tolerant en sociaal samenhangend zijn, en vrij van discriminatie. Zij beschouwen de buurt als een omgeving die buurtrelaties, sociale interactie en

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participatie stimuleert. Marokkaanse ouderen met het *Geschikt en betaalbaar wonen*-standpunt hechten waarde aan de beschikbaarheid van seniorvriendelijke, betaalbare woningen en gezondheidszorg op loopafstand. Zij geven de voorkeur aan buurten waar zij hun mening kunnen uiten en waar ontmoetingsplekken worden geboden. Marokkaanse ouderen met het *Levendige buurt*-standpunt benadrukken het belang van vriendschappen, sportmogelijkheden, goede vervoersmogelijkheden en nabijgelegen gezondheidszorg in de buurt.

De cross-sectionele studie in hoofdstuk 4 bouwt voort op de bevindingen uit hoofdstuk 3 en biedt representatieve, kwantitatieve inzichten in hoe 151 ouderen met een Marokkaanse achtergrond van 65 jaar en ouder, woonachtig in Rotterdam, de seniorvriendelijkheid van hun buurt en hun omgevingsbehoeften voor prettig ouder worden in de eigen buurt ervaren. Hoofdstuk 4 gebruikte het ageing-in-place-instrument en liet zien dat ouderen met een Marokkaanse achtergrond in verschillende mate buurtbronnen missen die behoren tot de acht WHO-domeinen, waarbij zij het meest kritisch waren over de seniorvriendelijkheid van hun buurt in de domeinen *huisvesting* en *sociale participatie*. De resultaten van de correlatie- en multiple regressieanalyses toonden aan dat de individuele kenmerken en discriminatie-ervaringen van ouderen met een Marokkaanse achtergrond significante verbanden vertonen met het ontbreken van seniorvriendelijke hulpbronnen in hun buurt. Alleenstaande ouderen misten vaker de beschikbaarheid van buurtbronnen in de domeinen: *sociale participatie* en *gemeenschap en gezondheidszorg*. Ouderen met multimorbiditeit waren kritischer over de seniorvriendelijkheid van hun buurt in zes van de acht WHO-domeinen. Daarentegen maakten deelnemers die ouder waren zich minder zorgen over de beschikbaarheid van buurtbronnen in zes van de acht WHO-domeinen. Hoofdstuk 4 toonde ook aan dat ouderen met een Marokkaanse achtergrond die discriminatie ervoeren kritischer waren over de seniorvriendelijkheid van hun buurt in vijf van de acht WHO-domeinen.

Hoofdstuk 5 richtte zich op de verfijning en validatie van het ageing-in-place-instrument voor gebruik bij diverse oudere bevolkingsgroepen in Nederland. In dit hoofdstuk werden confirmatieve factoranalyse (CFA), interne consistentie, correlaties en constructvaliditeit onderzocht voor zowel

de volledige als de verkorte versie van het instrument, op basis van gegevens van 862 ouderen van Nederlandse, Turkse, Surinaamse en Marokkaanse afkomst, woonachtig in Rotterdam, Nederland. De bevindingen toonden aan dat beide versies van het instrument valide en betrouwbaar zijn voor het evalueren van de seniorvriendelijkheid van de buurt bij diverse oudere bevolkingsgroepen in Nederland. De volledige versie van het instrument, bestaande uit 37 items, biedt een uitgebreide lijst van buurtbronnen die de acht WHO-domeinen bestrijken. De verkorte versie met 24 items is compacter en gebruiksvriendelijker, zonder in te boeten aan inhoudelijke kwaliteit. Bovendien is deze verkorte versie een van de eerste instrumenten op het gebied van seniorvriendelijke gemeenschappen die expliciet rekening houdt met de culturele diversiteit van ouderen, door het uitvoeren van afzonderlijke CFAs binnen elk van de vier subgroepen. De bevindingen in hoofdstuk 5 bevestigen dat het ageing-in-place-instrument cultureel sensitief en geschikt is voor het evalueren van de seniorvriendelijkheid van buurten en het in kaart brengen van omgevingsbehoeften met betrekking tot ouder worden in de eigen buurt bij diverse oudere bevolkingsgroepen.

Hoofdstuk 6 besprak de belangrijkste bevindingen van het proefschrift, evenals theoretische en methodologische reflecties. Daarnaast werden implicaties voor de praktijk belicht, waaronder het belang van het erkennen van de heterogeniteit binnen oudere bevolkingsgroepen en hun uiteenlopende behoeften, en het vermijden van een *one-size-fits-all*-benadering bij het ontwikkelen van seniorvriendelijke initiatieven. Ook werden aanbevelingen voor toekomstig onderzoek geformuleerd, waaronder de noodzaak om de effectiviteit van strategieën die gericht zijn op het stimuleren en faciliteren van de participatie van eerstegeneratie oudere migranten in wetenschappelijk onderzoek in Nederland te onderzoeken en te evalueren.

Al met al levert dit proefschrift empirisch bewijs voor het belang van acculturatie-ervaringen voor het zelfmanagement van welbevinden, evenals voor het belang van seniorvriendelijke buurten voor het realiseren van welzijn en ouder worden in de eigen buurt onder ouderen met een Marokkaanse achtergrond. Daarnaast biedt dit proefschrift een valide, betrouwbaar en cultureel sensitief instrument dat geschikt is voor gebruik bij diverse oudere bevolkingsgroepen in Nederland, om de seniorvriendelijkheid van hun buurt

Appendix

te evalueren en hun uiteenlopende omgevingsbehoeften met betrekking tot ouder worden in de eigen buurt in kaart te brengen. Het proefschrift onderstreept het belang van het hanteren van een persoon–omgeving fit perspectief bij het bevorderen van welzijn en ouder worden in de eigen buurt. Het benadrukt de heterogeniteit binnen oudere migrantengroepen en hun specifieke behoeften rondom ouder worden, en pleit voor hun inclusie in seniorvriendelijk onderzoek, zodat beleidsmaatregelen en initiatieven daadwerkelijk inclusief en effectief kunnen zijn.

ملخص

يفضل غالبية كبار السن في هولندا التقدم في السن في الحي الذي يعيشون فيه. تماشياً مع ذلك، تسعى الحكومة الهولندية إلى تعزيز استقلالية كبار السن وقررتهم على إدارة أنفسهم، لضمان قررتهم على العيش بشكل صحي لأطول فترة ممكنة في منازلهم وبيناتهم المألوفة. علاوة على ذلك، تبذل الحكومة الهولندية والبلديات جهوداً كبيرة للاستثمار في جعل الأحياء أكثر ملاءمة لكبرى السن، من خلال توفير الموارد البيئية المادية والاجتماعية والخدمات الصحية التي تعزز استقلالية كبار السن وتحقيق رفاهيتهم وتمكينهم من التقدم في السن في الحي الذي يعيشون فيه. لكي تحقق هذه الجهود النتائج المرجوة، لا بد أن ترتكز على الاحتياجات والتفضيلات المميزة لكبرى السن من خلفيات متعددة في هولندا وأن تسترشد بها. ومع ذلك، يبدو أن كبار السن من المهاجرين غالباً ما يُستبعدون من المشاركة الفعالة في المبادرات الصديقة لكبرى السن، وغالباً ما يكونون ممثلين تمثيلاً ناقصاً في أبحاث كبار السن البيئية التي تستكشف احتياجات التقدم في السن. هدفت هذه الرسالة إلى معالجة هذه الفجوة البحثية ، واعتمدت منظور "الملاءمة بين الفرد والبيئة" لاستكشاف تجارب الاندماج الثقافي وعلاقتها بالإدارة الذاتية للرفاهية، ومدى ملاءمة الحي لكبرى السن، والموارد المطلوبة في الحي لتحقيق الرفاهية والتقدم في السن في الحي، وفقاً لكبرى السن المغاربة في هولندا.

تميل قيم الاستقلال والإدارة الذاتية إلى أن تكون أكثر رسوحاً في الثقافات الفردية مثل الثقافة الهولندية، مقارنة بالثقافة الجماعية والدينية في المغرب. وبناءً على ذلك، يمكننا أن نستنتج أن اندماج كبار السن من المهاجرين في المجتمع الهولندي قد يسهل عليهم اكتساب قدرات إدارة الذات ل لتحقيق الرفاهية؛ ومع ذلك، لم يتم استكشاف هذه العلاقة بين كبار السن المغاربة. تناولت الدراسة في الفصل الثاني هذه العلاقة بين 290 من كبار السن المغاربة الذين تبلغ أعمارهم 65 عاماً فأكثر ويقيمون في روتردام، هولندا. كشفت نتائج التحليلات الاحصائية التي تم إجراؤها في الفصل الثاني أن ارتباط كبار السن المغاربة بكل من الثقافتين المغاربة والهولندية له علاقات متواضعة ولكن ذات دلالة إحصائية مع قدراتهم على إدارة الذات لتحقيق الرفاهية. علاوة على ذلك، تم فحص الاختلافات في استراتيجيات التكيف الثقافي لدى كبار السن المغاربة والإدارة الذاتية للرفاهية. و أظهر الفصل الثاني أن الخصائص الفردية لكبرى السن المغاربة لها تأثير على كل من استراتيجيات التكيف الثقافي وقدرات إدارة الذات لتحقيق الرفاهية. أشارت النتائج في الفصل الثاني إلى أن كبار السن المغاربة ذوي المستويات التعليمية المنخفضة والنساء الأكبر سنا قد يصبحون أقل ارتباطاً بالثقافة الهولندية، في حين أن أولئك الأصغر سنا والذين لديهم مستويات تعليمية عالية قد يصبحون أكثر ارتباطاً بالثقافة الهولندية. بالإضافة إلى ذلك، قد يصبح كبار السن المغاربة الذين لديهم مستويات تعليمية منخفضة، والذين ليس لديهم فهم للغة الهولندية، والذين يعانون من أمراض متعددة، أقل قدرة على إدارة أنفسهم فيما يتعلق برفاهيتهم.

إن الأحياء الصديقة لكبرى السن لديها القدرة على تعزيز اندماج كبار السن من المهاجرين، وتحقيق رفاهيتهم، وتمكينهم من التقدم في السن في الحي الذي يعيشون فيه. يتضمن دليل المدن الصديقة

لأكبر السن الصادر عن منظمة الصحة العالمية الموارد البيئية ذات الصلة بالبيئة الصديقة للكبار السن؛ ومع ذلك، لا يُعرف الكثير عن الأهمية النسبية لهذه الموارد بالنسبة للكبار السن المغاربة. استخدمت الدراسة في الفصل الثالث منهجية تدمج تقنيات كمية ونوعية لاستكشاف وجهات النظر المتنوعة لـ 30 من كبار السن المغاربة الذين تبلغ أعمارهم 65 عاماً أو أكثر ويقيمون في أكبر أربع مدن في هولندا، فيما يتعلق بموارد الحي الازمة لتحقيق الرفاهية والتقدم في السن في الحي. وقد أظهرت النتائج الواردة في الفصل الثالث أربع وجهات نظر متميزة. تُقدر النساء المغاربيات اللاتي يتبنين وجهة نظر "المنزل الحلو" الأحياء التي تدعم الحياة المنزلية الهدامة ويعتمدن على توافر أفراد الأسرة القريبين في نفس الحي. كما تعطي وجهة نظر "المنزل الحلو" الأولوية أيضاً للأحياء الآمنة التي يمكن أن تعزز استقلالية كبار السن المغاربة وتحتفظ العباء عن أبنائهم، وهو ما يمكن تحقيقه عندما تكون الموارد مثل المتاجر (العرقية) والخدمات الصحية متاحة على مسافة قريبة سيراً على الأقدام في أحياهم. يُقدر الرجال المغاربة الذين يتبنون وجهة نظر "مرتبط، مطلع، ومشارك" الأحياء الشاملة والمتسمحة والمتماسكة اجتماعياً والخالية من التمييز. إنهم ينظرون إلى الأحياء باعتبارها أماكن تعزز العلاقات الجوارية والتفاعلات الاجتماعية والمشاركة. يفضل كبار السن المغاربة الذين يتبنون وجهة نظر "السكن المناسب والميسور التكلفة" توفر منازل مناسبة للكبار السن وميسورة التكلفة وخدمات صحية على مسافة قريبة سيراً على الأقدام في أحياهم. إنهم يُقدّرون الأحياء التي يستطيعون فيها التعبير عن احتياجاتهم والتي تتوفر فيها أماكن لقاء داخلية. يولي كبار السن المغاربة الذين يحملون وجهة نظر "الحي النابض بالحياة" أهمية كبيرة لتوافر الأصدقاء، وفرص ممارسة الرياضة، وخيارات النقل الجيدة، والخدمات الصحية على مسافة قريبة سيراً على الأقدام في أحياهم.

تستند الدراسة الاستبadianية في الفصل الرابع إلى النتائج الواردة في الفصل الثالث، وتقدم معلومات كمية تمثيلية عن تصورات مدى ملاءمة الحي للكبار السن والاحتياجات البيئية المتنوعة للتقدم في السن في الحي، وفقاً لـ 151 من كبار السن المغاربة الذين تبلغ أعمارهم 65 عاماً فما فوق ويقيمون في روتردام، هولندا. استخدم الفصل الرابع استبيان التقدم في السن في الحي وكشف أن كبار السن المغاربة يفتقدون بدرجات متفاوتة توفر الموارد البيئية التي تتنمي إلى المجالات الثمانية لدليل منظمة الصحة العالمية للمدن الصديقة للكبار السن، و كانوا الأكثر انتقاداً لملاءمة أحياهم للكبار السن في مجال الإسكان والمشاركة الاجتماعية. أظهرت نتائج التحليلات الاحصائية التي تم إجراؤها في الفصل الرابع أن الخصائص الفردية وتجارب التمييز لدى كبار السن المغاربة لها علاقات ذات دلالة إحصائية مع افتقار الموارد الصديقة للكبار السن في أحياهم. يفتقد كبار السن المغاربة غير المتزوجين أكثر من نظرائهم المتزوجين توفر الموارد البيئية التي تتنمي إلى مجال المشاركة الاجتماعية والدعم المجتمعي والخدمات الصحية. علاوة على ذلك، كان كبار السن المغاربة المصابين بأمراض متعددة أكثر انتقاداً من نظرائهم لمدى ملاءمة الحي الذي يعيشون فيه للكبار السن في ستة من المجالات الثمانية التي حدتها منظمة الصحة العالمية. على النقيض من ذلك، كان المشاركون المغاربة الأكبر سنًا أقل قلّاً من نظرائهم بشأن توفر الموارد البيئية في ستة من المجالات الثمانية لمنظمة الصحة العالمية. وأظهر الفصل الرابع أيضاً أن كبار السن المغاربة

الذين تعرضوا للتمييز كانوا أكثر انتقاداً من نظرائهم لمدى ملاءمة أحياهم لكيار السن في خمسة من المجالات الثمانية لمنظمة الصحة العالمية.

قام الفصل الخامس بمزيد من تحسين وتوثيق استبيان التقدم في السن في الحي لاستخدامه مع مختلف فئات كبار السن في هولندا. تم إجراء تحليلات احصائية متعددة لكل من النسختين الكاملة والمختصرة من استبيان التقدم في السن في الحي في الفصل الخامس مع 862 من كبار السن من أصول هولندية، تركية، سورينامية، وغربية يقيمون في روتردام، هولندا. أظهرت النتائج الواردة في الفصل الخامس أن كلا نسختي الاستبيان صالحة وموثوقة لتقدير مدى ملاءمة الأحياء لكيار السن مع مختلف فئات كبار السن في هولندا. توفر النسخة الكاملة من الاستبيان المكونة من 37 بندًا قائمة شاملة من الموارد البيئية المتعلقة بالمجالات الثمانية لدليل منظمة الصحة العالمية للمدن الصديقة لكيار السن. توفر النسخة المختصرة من الاستبيان المكونة من 24 بندًا نسخة أكثر إيجازاً وأسهل في التعبئة، دون المساس بجودة المحتوى. علاوة على ذلك، تُعد النسخة المختصرة، المكونة من 24 بندًا، من استبيان التقدم في السن في الحي من أوائل الاستبيانات الصديقة لكيار السن التي تأخذ في الاعتبار تباين فئات كبار السن، وذلك من خلال إجراء تحليلات احصائية مفصلة لكل فئة من الفئات الفرعية الأربع لكيار السن. تُؤكد النتائج الواردة في الفصل الخامس أن أداة التقدم في السن في الحي تُراعي الجوانب الثقافية، وهي مُناسبة للاستخدام لتقدير مدى ملاءمة الأحياء لكيار السن وتحديد الاحتياجات البيئية للتقدم في السن في الحي مع مختلف فئات كبار السن.

ناقش الفصل السادس النتائج الرئيسية للرسالة، إلى جانب التأملات النظرية والمنهجية ذات الصلة. كما تم التطرق إلى التداعيات العملية، ولا سيما أهمية مراعاة التغير (التبابين) داخل فئة كبار السن واحتياجاتهم المختلفة، وتجب تطبيق نهج "مقاييس واحد يناسب الجميع" في المبادرات الصديقة لكيار السن. بالإضافة إلى ذلك، تم تقديم توصيات للبحوث المستقبلية، تضمنت ضرورة إجراء دراسات تستكشف وتقيم فعالية التدابير المتنوعة التي تهدف إلى تحفيز وتسهيل مشاركة الجيل الأول من المهاجرين كبار السن في الأبحاث العلمية في هولندا.

بوجه عام، تُقدم هذه الرسالة أدلةً تجريبية على أهمية تجارب التكيف الثقافي في تعزيز قدرة كبار السن على الإدراك الذاتية لتحقيق الرفاهية، وأهمية الأحياء الملائمة لكيار السن في تحقيق رفاهية كبار السن من المغاربة وتمكينهم من التقدم في السن في الحي الذي يعيشون فيه. كما تقدم الرسالة استبيان بحثي صالح، موثوق، ومراعي للجوانب الثقافية، يمكن استخدامه مع فئاتٍ متنوعةٍ من كبار السن في هولندا لتقدير مدى ملاءمة أحياهم لكيار السن، وتحديد احتياجاتهم البيئية المتنوعة فيما يتعلق بالتقدم في السن في الحي. تُسلط هذه الرسالة الضوء على أهمية تبني منظور "الملاءمة بين الفرد والبيئة" في تعزيز تحقيق الرفاهية والتقدم في السن في الحي، وتشدد على التباين داخل فئة المهاجرين من كبار السن واحتياجاتهم الخاصة في سياق التقدم في السن. كما تُؤكّد على ضرورة إشراكهم في الأبحاث المتعلقة بالبيئات الصديقة لكيار السن، بهدف إرساء سياسات ومبادرات شاملة للجميع.

DANKWOORD

When I look back at myself at the start of this journey, I can clearly see how much I have changed, not only as a researcher but also as a person. More than ever, I realize that when you are in the right environment, you can truly flourish and discover who you are. Perhaps it is no coincidence that I became so fascinated by the person–environment perspective in my own research. I began this PhD at the tail end of the COVID-19 pandemic, a time marked by lockdowns, uncertainty, and isolation. I stepped into this role full of ambition, hope, fear, and anxiety. One question stayed with me throughout: Would I be able to finish on time? Would I be able to finish successfully? I had always pushed myself to achieve, both academically and professionally, constantly reaching for the next level. Today, I am proud to say that I have answered those questions: yes, I did it. As I once told my supervisors, Jane and Anna, this accomplishment would not have been possible without their unwavering support. Now, I am excited to face a new challenge as a postdoctoral researcher at Erasmus Medical Centre, and I sincerely hope to continue contributing meaningfully to Dutch society.

During my PhD, I had the opportunity to grow immensely as a researcher. From the very beginning, I was encouraged to speak Dutch, which helped me feel both included and empowered. I was given the freedom to teach, coach, and supervise students, to follow courses, to present my work nationally and internationally, and to strengthen my academic and professional skills. I also had the privilege of contributing to a large, impactful project. It allowed me to work with diverse methodologies, build relationships with participants and communities, and publish meaningful research. It was a rich and rewarding journey, and I am deeply grateful to everyone who played a part in it. Without your support, I would not be where I am today.

Let me begin by expressing my heartfelt thanks to my supervisors, Jane and Anna, two incredible women who have shaped this journey more than anyone else. I feel incredibly lucky to have had you both by my side. This PhD came with moments of real achievement as well as genuine challenge, and you helped me navigate it all with clarity and encouragement. You believed in my potential and created space for me to grow and become

independent, something I will always carry with me. Even as I began looking ahead to the next step in my career, you remained a steady source of support, making sure I landed somewhere safe and fulfilling. For all of that, I am sincerely grateful. Jane, it has been an absolute pleasure to work with you and learn from you. You are a role model in every sense. Your passion for your work, your ability to manage so many roles with excellence, and the grace with which you do it all have left a lasting impression on me. I have always admired how solution-oriented you are, how strongly you advocate for diversity and inclusion, and how deeply supportive and understanding you have been. Whether it was a call when I felt uncertain or a moment of self-doubt, you always met me with calm reassurance and helpful perspective. Anna, you created room for me to grow, both as a researcher and as a person. Your thoughtful advice, constructive feedback, and occasional (but well-timed) gentle push were exactly what I needed to step out of my comfort zone. You always struck a balance between care and high expectations, encouraging me to evolve into the best version of myself. I learned so much from your expertise and your deep passion for age-friendly research, especially your commitment to working with diverse older-adult populations. I also truly valued our personal conversations and the way you consistently cared for my well-being, not just as a researcher, but as a person. You have inspired me as both a person and a leader who balances high standards with a warm smile, openness, and genuine support.

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PHD PORTFOLIO

Curriculum vitae

Hager Hussein

Department	Socio-Medical Sciences, Erasmus School of Health Policy & Management, Erasmus University Rotterdam
Promotors	Prof.dr. A.P. Nieboer (ESHPM) Prof.dr. J.M. Cramm (ESHPM)

Courses	Year
Research grants: opportunities and core skills	2025
Dutch language course C1.2 (advanced 2)	2025
Training coach- en intervisievaardigheden voor docenten	2025
Structural equation modelling	2025
A starter's guide to Open Science	2024
BROAD-ER International Summer School 2024 on urban migration governance: policy, practice and research at Koç University (MiReKoc), Istanbul, Turkey	2024
Bounce back: handling the mental and emotional challenges of doing a PhD	2024
Multilevel modelling	2024
Science meets entrepreneurship	2023
Creating societal impact	2023
English academic writing for PhD candidates	2023
UNIC Summer School aging well together in Liège, Belgium	2023
Self-presentation: focus, structure, interaction and visualisation	2023
Making an academic poster that stands out	2023
Brush up your SPSS skills	2023
Dutch Speaking Skills	2023
How to get your article published	2023
Searching and managing your literature	2022
Large-scale register data for quantitative social research	2022
Mixed method research: how to combine diverse quantitative and qualitative methods	2022
Responsible research Data Management (RDM)	2022
Qualitative interview techniques	2022
Dutch language course C1minus	2022
How to finish your PhD in time	2022

Professionalism and Integrity in research	2021
The University Delivery Qualification (UDQ)	2021
Q-methodology	2021

Teaching activities	Academic Year
<i>Bachelor Health Sciences, Health Policy & Management, BMG</i>	
Afstudeerproject – Coach	2024 - 2025
Minor Public Health – Supervisor	2024 - 2025
Zorgen voor later – Tutor workgroup	2021 - 2025
<i>Master Health Care Management</i>	
Patient Centred Care Delivery – Supervised work	2024 - 2025
Patient Centred Care Delivery – Tutor workgroup	2021 - 2023

Presentations/Conferences	Year
Invited and presented at MiReKoc UNIC International Summer School 2025 beyond borders: health, migration, and diversity in an interconnected world in Istanbul, Turkey	2025
Presented at the 5 th European Conference on Aging & Gerontology in London, UK	2025
Presented at ESHPM lunch seminar	2025
Presented at Migration and Societal Change Conference 2025 in Utrecht, the Netherlands	2025
Presented at the 17 th European Public Health conference in Lisbon, Portugal	2024
Presented at ESHPM Alumni Homecoming Day	2024
Presented at Leven Lang Leren Festival	2024
Presented at the Towards healthy societies. From resilient governance to digital health solutions conference	2023
Attended the 16e Nationaal Gerontologiecongres	2022

Publications
<i>International</i>
Hussein, H., Cramm, J. M., & Nieboer, A. P. (2024). Acculturation and self-management abilities of well-being among older Moroccans in the Netherlands. <i>European Journal of Public Health</i> , 34(Supplement_3): ckae144 – 2035. https://doi.org/10.1093/eurpub/ckae144.2035

Appendix

Hussein, H., Cramm, J. M., & Nieboer, A. P. (2024). Needs for aging in place: Views of older Moroccan adults in the Netherlands. *The Gerontologist*, 64(7), 1–11.

<https://doi.org/10.1093/geront/gnad154>

National

Petit-Steeghs, V., Hussein, H., Bachriouri, S., Sedik, G., van de Beek, J., & Hilverda, F. (2023). 'Je begrijpt mij wel, toch?'. Gezondheidsonderzoek binnen de Marokkaanse gemeenschap in Nederland ['You understand me, right?'. Health research among the Moroccan community in the Netherlands]. *KWALON*, 28(2): 119 – 130. <https://doi.org/10.5117/KWA2023.2.007.PETI>

Award

The 2023 EGSH PhD Excellence Best Article Award for the article "Needs for aging in place: Views of older Moroccan adults in the Netherlands" published in *The Gerontologist*

About the author



Hager Hussein is an Egyptian-Dutch researcher with a medical background. She studied Medicine at the Faculty of Medicine, Suez Canal University in Ismailia, Egypt. After obtaining her bachelor's degree, she completed a one-year internship at Suez Canal University Hospitals and worked as a physician at Ismailia Chest Hospital. Her passion for research led her to transition into academia, acquiring a master's degree in Medical Education from the Faculty of Medicine at Suez Canal University, where she also worked as a lecturer. In 2019, Hager returned to her country of birth, the Netherlands, to further her studies with a master's degree in Health Education and Promotion at the Faculty of Health, Medicine, and Life Sciences, Maastricht University. She then pursued a PhD in Socio-Medical Sciences at Erasmus School of Health Policy & Management (ESHPM), Erasmus University Rotterdam. Her research focused on age-friendly communities and the well-being of older Moroccan adults, exploring how neighbourhood characteristics influence their well-being realisation and ageing in place. This work resulted in this thesis, with findings that have been published and presented both nationally and internationally. In addition to research, Hager has been actively involved in teaching and mentoring, as a tutor for undergraduate students and a coach within the bachelor graduation trajectory.

