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Article

# Older People's Preferences for Housing and Environment Characteristics

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**Abstract:** Population ageing presents significant challenges for many countries, one of which is the provision of adequate housing. Developing understanding of the needs and preferences of ageing societies will be crucial in order to assist in the provision of suitable housing and communities that are sustainable in the long term. While a preference to 'age in place' is clear in the literature, comparatively less academic research is available on older people's preferences for more specific housing and environment attributes. The aim of this study is to identify the main housing and environment characteristics that are linked to the health and wellbeing of the elderly and determine the preferences for such characteristics via a survey with UK residents aged 55+. The results indicate a strong preference for independent living and an increasing desire for bungalows in later life. Housing conditions, energy efficiency, thermal comfort, and home adaptations to facilitate ageing in place are particularly important housing characteristics to older people. The location and environment are also key drivers of housing preferences; a safe neighbourhood, accessibility to amenities, public transport, and a clean and walkable environment are particularly important. Preferences varied with age, but gender has a less significant impact on the preferences expressed. The findings of this study will be valuable for stakeholders engaged in housing policy and provision for older people.

**Keywords:** ageing population; age-friendly housing; elderly; housing preferences; healthy housing; older people

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## 1. Introduction

Various countries around the world have been experiencing a rapid ageing in population [1]. Worldwide, the number of people aged 60 and over is estimated to grow by 56% (from 901 million to 1.4 billion) between 2015 and 2030, reaching 2.1 billion by 2050 [2]. The number of people aged 80 or over is growing even faster and is predicted to more than triple in size between 2015 and 2050 [2]. In the UK, 18% of the total population is aged 65 or over and it is estimated that this will increase to over 25% by 2050 [3]. The number of people aged 85 and over in the UK is set to double by 2041 and treble by 2066 [4].

Economists predict that rapid population ageing will have serious consequences for the allocation of resources, including land and housing [5]. Many countries currently face the challenge of planning for the housing requirements of an ageing population [6]. Therefore, housing that facilitates healthy ageing has become a priority worldwide [7]. The housing environments of older people are recognized as a key factor in determining their quality of life and health [8–12]. This is particularly so considering that, as people age, they are likely to spend more of their time at home [13]. Appropriate housing and well-designed communities are said to reduce risks to health for the elderly, promote independence and wellbeing, and thereby offer the potential to reduce social and health care costs [14,15], while unsuitable

housing can be the source of multiple problems and costs [10]. Unsuitable housing has direct linkages with ill health, such as pneumonia, asthma, fractures from falls, and mental health issues [1]. In the UK, it is estimated that inappropriate housing inhabited by the elderly costs the National Health Service (NHS) 624 million GBP per year, which is expected to rise to nearly 1 billion GBP per year by 2041 [16]. Suitable housing environments are, therefore, fundamental to the challenge of population ageing.

Consequently, there is a growing awareness that we need to plan for the ageing population and, crucially, provide suitable housing and environments that can cater for varied needs [1,17,18]. A Government Office for Science report [10] stresses that more academically robust research on later life housing aspirations is needed. Moreover, research suggests that it is imperative for housing stakeholders to engage pro-actively with older people to develop a better understanding of their preferences, in order to gain a consumer-led approach to meeting housing needs and to maximise the potential for developing age-sustainable communities [19]. It is, therefore, apparent that the demand side of the market needs to be better understood. However, individual housing preferences may vary widely, meaning there will unlikely be a one size fits all solution to meeting the housing needs of older people. The experience of ageing is individual, complex, and culturally and socio-economically varied. Housing provisions must be able to cater to the needs and preferences of diverse stakeholder groups; needs will likely vary depending upon socio-cultural, economic, physical, cognitive health circumstances, and life course trajectories [19].

Given the identified research problem, the purpose and aim of this study is to (1) identify the main housing and environment characteristics that are linked to the health and wellbeing of older people; (2) determine older people's preferences for such housing and environment characteristics in the UK. The research examines preferences for housing types and tenure, as well as for a range of housing and environment characteristics. Moreover, the research investigates whether gender and age have an effect on the preferences expressed by older people.

### *Housing Preferences among Older People*

There has been an increasing amount of international research on several issues related to housing for older people. For example, there is a developing body of research investigating the aspects of the built environment that are associated (positively and negatively) with the health and wellbeing of older people [9,20–22]. Other studies have focused on matters such as housing demand [23], housing choice [24,25], residential satisfaction [26,27] and dislikes [28], residential mobility [29,30], housing need [31], and housing preferences [32–36].

The present study is concerned with housing preferences. Empirical research on the housing preferences of older people has been growing in recent years. However, there is a lack of such research in the UK. Following a review of such literature, Table A1 (Appendix A) provides a summary of key studies and findings conducted in the last decade (such findings will be drawn upon and compared further in the Section 3). A number of the studies focus on older people's preferences for different housing options and tenures [6,32,36]. There has been particular attention in the international literature around the desire to 'age in place' [32,37–40]. For example, studies in Spain [32], the Netherlands [34], Hong Kong [33], Germany [39], Sweden [6], and Ireland [41] find a strong preference by older people to stay put in their current home (ageing in place), which in many cases, grows even stronger with age. As older people age further, research suggests that they have low intention [33] and more reluctance to consider moving [6]. Acceptability of different living options for the elderly (other than staying put in one's own home), particularly lesser known options (e.g., co-housing and multigenerational residential buildings), is found to be quite low in some countries, such as Slovenia [36]. Concerning tenure, a study in the Netherlands [34] found that the youngest group of older adults (55–64 years) expressed a strong preference for owner occupation. Although, with advancing age, the preference for owning one's home decreases [42] and a stronger preference for rental property is evident [6,34]. With increasing age, several studies in different countries also find a move to prefer smaller housing [6,30,43] and apartment

living [27,34]. However, the youngest group of older adults (55–64 years) in the Netherlands preferred detached houses [34].

While a general preference to age in place is clear, comparatively less academic research is available on older people's preferences for more specific housing and environment attributes and characteristics. Existing studies that do examine preferences for housing attributes indicate that, as people age, there is increased preference for the home to be accessed by lift [6,34,35] or a single-storey home without stairs or on one floor [6,34,35,42]. Good design for independent living and disability [6,35,42] and home adaptations, particular in bathrooms, are found to be important [41]. Conversely, preference for a garden and extra space in the home, e.g., for family to stay, social events, and to practice hobbies, are found to decrease with age [35,42]. With regards to the location and housing environment, a number of studies reveal that with advancing age comes greater preference for housing in more central locations [30,35,43] and small towns [6], whereas neighbourhoods located at the edge/outskirts of cities [6,34] and the countryside [6] become less desirable. In contrast, Andersson et al. [35] report that the 'young elderly' (55–64) in Sweden preferred more peripheral locations. With advancing age, some studies reveal an increased desire for key amenities, such as shops, care facilities, and public transport, to be in walking distance or close proximity of the home [33,34]. In contrast, with increasing age in Sweden, a decrease in preference for public transport in the vicinity of the home was reported, as well as a decreased desire to be in close proximity to forest/land [35,42]. Research suggests that older adults express clear preferences about the design of the built environment, such as well-maintained footways, seating and public-toilets, safe pedestrian crossings, and greenery [44].

While some research is developing in this regard, research examining older people's preferences for a holistic range of both housing and environment attributes/characteristics is limited. Moreover, such research is lacking in the UK. Therefore, the present study seeks to address this research gap.

## 2. Materials and Methods

### 2.1. Development of Housing Characteristics

The first stage of the study was an in-depth literature review, performed as described previously [18] and further extended in order to determine the housing environment characteristics, from the existing knowledge field, that are linked to the health and wellbeing of the elderly. This involved searching through relevant databases (e.g., ScienceDirect, Emerald Insight, JSTOR—a digital academic library) for peer-reviewed articles using search terms such as 'housing and health/wellbeing', 'housing characteristics/attributes and health', 'housing preferences of ageing people/society', and 'housing for elderly' and their variations (e.g., 'older people', 'seniors', and 'ageing'). Findings from built environment research and social and health care research were reviewed. Findings were not limited by geographical location. Subsequently, the search was expanded by using the reference lists of relevant articles to access more thematically specific publications. Peer-reviewed articles and books were also supplemented by research and statement publications issued by Government departments, charities, think-tanks as well as non-governmental and inter-governmental organisations. The literature review comprised the analysis of the links between housing environment characteristics and health and wellbeing. The review led to the development of a holistic set of housing and environment characteristics that were identified as being linked to the health and wellbeing of older people (see Section 3.1) and formed the basis of the primary data collection in this study.

### 2.2. Survey of Older People in the UK

The subsequent stage of the study focused on examining older people's preferences for the established housing and environment characteristics. This was achieved via a quantitative survey to collect primary data from older housing consumers. The population for the survey was UK residents aged 55 and over.

The survey contained a mix of nominal, interval, and ordinal questions. The survey commenced with background questions such as age range, gender, marital status, income, health status, and location in the UK. The survey subsequently included questions regarding current housing situation and housing preferences. Respondents were presented with a range of housing and environment characteristics (see Section 3.1) and were asked to indicate their preferences for such characteristics by considering how important each is to them. A 10-point rating scale was used, ranging from 1 = “not important at all” to 10 = “most important”.

An online version of the survey was developed using Online Surveys. The researchers sought to obtain responses from a variety of regions across the UK. The survey was distributed to nationwide housing associations and estate agencies, charities directly involved with healthy housing and elderly care, members of the University of Third Age (U3A), and other social and professional societies. In addition, the survey’s URL link was shared on social media, such as Facebook, LinkedIn, and Twitter to seek to attract responses from all parts of the UK. The researchers distributed leaflets with the survey URL link in large urban centres, namely Liverpool, Manchester, Sheffield, Nottingham, Gloucester, Birmingham, and London. In such locations, around five thousand leaflets were placed in areas deemed more likely to attract participants, such as health clinics, community centres, churches, neighbourhood libraries, local gyms, and leisure centres. Leaflets were also physically distributed to randomly selected elderly private homes in Liverpool, Manchester, Sheffield, Bedford, Oxford, and London. Survey access was available for participants for a total of 4 months, from October 2019 to February 2020.

A total of 767 (anonymous) survey responses were obtained. However, 118 entries were deemed to be invalid due to apparent errors or uncompleted questions by the respondents. Therefore, 649 valid responses were included in the data set for statistical analysis.

Statistical analysis of the survey data was undertaken using IBM SPSS 26, which included descriptive analysis (measures of central tendency) and non-parametric tests. Non-parametric tests were applied since, following the Kolmogorov–Smirnov test to assess for normal distribution of scores, the data did not follow a normal distribution pattern. The non-parametric Mann–Whitney U test and Kruskal–Wallis H test were used to establish if respondents housing preferences differed (in a statistically significant sense) depending on variables such as age and gender. These variables were chosen for investigation (in the UK context), since preference studies in other countries (see 3.2.3) have found they have a particular impact on housing preferences. The Mann–Whitney U test is used to identify significant differences between two independent groups (e.g., male and female) and the Kruskal–Wallis H test is used to identify if significant differences exist between three or more independent groups (e.g., age groups). Post hoc tests on significant Kruskal–Wallis results were then necessary, which were undertaken using the Mann–Whitney U test.

### 3. Results

#### 3.1. Housing and Environment Characteristics Related to Health and Wellbeing of Older People

The literature review led to the development of a holistic set of housing and environment characteristics that are shown to be linked to the health and wellbeing of older people. In total, 21 housing characteristics (Table 1) and 15 external environment/community characteristics (Table 2) were identified and formed the basis of the primary data collection. Given the constraints in article length, the focus of this paper is not to explain each of the characteristics in detail, thus, only a brief summary is provided below.

**Table 1.** Housing Characteristics.

Housing Characteristics	Literature Source	Linked Impact
Home size e.g., 1. Larger home with extra space (e.g., for family, visitors, carer); or 2. Smaller easy-to-manage home	[41,45–47]	Physical health; Mental health
3. Home on one floor (without stairs)	[16,48,49]	Physical health (prevent home accidents)
4. Housing condition (state of repair with no structural defects, hazards, damp or mould)	[26,48,50,51]	Physical health; Mental health
5. Temperature and thermal comfort (warm, dry, ability to control temperature)	[8,48,52–56]	Physical health; Mental health (subjective satisfaction)
6. Energy efficient home (wall insulated, efficient heating system)	[48,57–60]	Physical health
7. Passive (natural) ventilation system	[61,62]	Physical health
8. Intensity of natural and artificial light	[26,47,57,63]	Physical health; Mental health (subjective satisfaction)
9. Security and safety (e.g., intercom, spyhole, keychain, intruder alarms, outside lighting)	[8,53,64]	Physical health (prevent home accidents/injuries/ crime)
10. Flooring with anti-slip material, even surfaces, impediment free	[8,48,65,66]	Physical health (prevent home accidents/injuries)
11. Adaptable design to facilitate ageing in place (e.g., wider corridors and doors, handrails, stair lift, accessible light switches)	[16,53,67–69]	Physical health (comfort; prevent home accidents/injuries); Mental health (psychological satisfaction)
12. Bathroom adaptations (e.g., walk-in shower, nonslip surfaces, downstairs bathroom)	[41,63,66,70]	Physical health (prevent home accidents/injuries)
13. Colour and contrast of walls, floors, doors (e.g., for wayfinding or calming)	[71,72]	Mental health (psychological satisfaction)
14. Assistive technology within the home (e.g., alarms, telecare, sensors for remote health monitoring)	[62,73–75]	Physical health (prevent home accidents/injuries); Mental health
15. Sound insulation (reduced external noise)	[8,41,62]	Physical health; Mental health
16. Privacy (from external view)	[8,76]	Mental health
17. Views out to nature/green	[52,54,61,77,78]	Mental health
18. Private garden or outside space	[52,61,77,79]	Physical health; Mental health
19. Storage space for wheelchair or scooter	[41]	Physical health (physical activity); Mental health (mobility satisfaction)
20. Parking space for vehicle	[80]	Physical health (physical activity); Mental health (mobility satisfaction)
21. Ability to extend the property (e.g., self-contained annex)	[48]	Physical health (physical activity); Mental health (psychological satisfaction)

**Table 2.** External environment and community characteristics.

External Environment and Community Characteristics	Literature Source	Linked Impact
1. Safe neighbourhood (e.g., low crime, anti-social behaviour and vandalism, adequate street lighting)	[52,81–85]	Physical health (prevent from injuries); Mental health (support social connectivity)
2. Environmental conditions (e.g., air quality and traffic/street noise)	[41,52,81,82,86,87]	Physical health (prevent from illnesses and injuries); Mental health
3. Cleanliness and aesthetics (attractive and well-kept areas, lack of littering)	[52,83,84]	Physical health (facilitate physical activity); Mental health (support social connectivity)
4. Walkability and pedestrian infrastructure (e.g., pedestrian-oriented design, continuous obstacle free pavements, signal-controlled crossings, mobility-scooter pathways)	[44,48,52,73,88]	Physical health (facilitate physical activity); Mental health (prevent social isolation)

Table 2. Cont.

External Environment and Community Characteristics	Literature Source	Linked Impact
5. Access to public transport options within walking distance (e.g., buses, trains)	[48,52,81,82,86,89]	Physical health (facilitate physical activity); Mental health (prevent social isolation)
6. Accessibility to local amenities (e.g., retail and food shops, post office, cash points)	[48,52,67,73,89]	Physical health (facilitate physical activity); Mental health (prevent social isolation)
7. Accessibility to health care centre or health services	[41,55,67,89]	Physical health; Mental health
8. Accessibility to green space, parks, recreational facilities	[44,57,86,89,90]	Physical health (facilitate physical activity); Mental health (prevent social isolation)
9. Access to indoor leisure opportunities (e.g., leisure centres, pools, gyms)	[84]	Physical health (facilitate physical activity)
10. Availability of public toilets and rest areas	[44,52,73,90]	Physical health (facilitate physical activity)
11. Features for social interaction (e.g., playground, seating areas)	[91,92]	Physical health (facilitate physical activity); Mental health (prevent social isolation)
12. Proximity to family, friends, social networks	[12,48,93]	Mental health (prevent social isolation)
13. Social and community engagement opportunities (e.g., community hubs, venues to interact with others, volunteer)	[52,94,95]	Mental health (prevent social isolation)
14. Access to employment opportunities	[52,93,96]	Mental health (prevent social isolation)
15. Compact neighbourhood design (e.g., reasonable density/height of housing)	[93,96,97]	Physical health (accessibility); Mental health (prevent social isolation)

A wide range of housing characteristics have been identified as having either a positive or a detrimental impact on health and wellbeing, particularly for older people. In terms of their impact, housing characteristics may affect physical health, mental health, personal satisfaction with the living space, social connectivity, or the level of (independent) physical activity. For example, poorly heated, inadequately insulated, damp, and poor quality (sometimes even hazardous) homes can lead to older people having reduced mobility, falls and other injuries, chronic and acute illness, social isolation, loneliness, and depression [37,48]. Conversely, various home adaptations (such as in bathrooms, accessibility, handrails, and assistive home technologies) have been shown to be effective in reducing the risk of slips and falls and retaining a sense of independence and wellbeing for older adults [8,71,74,75]. Security from crime and feeling safe in the home also significantly impact on the health and mental wellbeing of older people [8,52,64]. In addition to the basic requirements of a warm, dry, and secure home [48,52], variables such as housing type, size, and interior environment have been associated with quality of life and satisfaction, wellbeing, and successful ageing [11,45,46]. A flexible home design, with the ability to adapt to changing needs and circumstances, is beneficial and can facilitate ageing in place [16,52,67,69]. As well as the interior of the home, having outside space/a garden or a view of nature/green are said to lead to improvements in physical and mental health, such as promoting socialization and reducing stress, depression, and a sense of isolation [52,61,77,79]. In addition to the home itself, the surrounding environment/community is crucial to consider with regards to facilitating healthy ageing, particularly as people tend to spend more time in the immediate home environment as they age further (e.g., due to physical decline, retirement, decreased access to transport, and shrinking social networks [9]). The notion that neighbourhoods can affect the health and quality of life of the elderly is generally accepted among researchers and policymakers [52,98,99]. The role of the surrounding environment can play a key role in mobility and shaping patterns of independence among the elderly [13,98]. A range of environmental factors have been found to potentially influence, positively or negatively, older adults' physical activity and mental health. For example, difference aspects of the environment may limit or promote the ability of the elderly to complete certain activities, such as pedestrian infrastructure, safety, access to amenities, services, aesthetics, and environmental conditions [48,52,73,84,85]. The ability to access basic services (such as public transport, shops, health care facilities, leisure facilities, and parks) within a short distance of

the home is crucial for the independence of older people and can impact on their wellbeing and physical activity [52,67]. Higher density urban locations are said to provide older people with greater opportunities for social interaction, stimulation, and involvement in the local community [97].

### 3.2. Survey Results on Elderly Preferences

In total, 649 UK residents aged 55+ took part in the survey. The background characteristics of the survey participants are displayed in Table 3. Of the participants, 47% were aged between 55 and 64 years old, 41% were aged 65–74, and 12% were over the age of 75. A total of 58% of the participants were female and 42% were male. The marital status of respondents indicates that over half of the respondents may live alone; 22% were separated or divorced, 15% were single, and 16% widowed. The remaining 47% of the respondents were married or living with a partner. Just over half of the respondents were retired, while 39% were employed (either full or part time). The remainder were volunteers (5%) or selected the ‘other’ (4%) category. With regard to annual household income, the results revealed a wide variety of income levels across the sample. When asked about existing health concerns, a wide range of issues were reported by the participants; 18% indicated that they had diabetes or other metabolic disorders, 13% had cardiovascular disease (e.g., coronary heart disease, angina, heart attack, stroke), 13% suffered with deafness or hearing loss, 13% had musculoskeletal disorders (e.g., osteoporosis, osteoarthritis, muscular, skeletal disorders), 10% reported mental health issues, and 10% had rheumatoid arthritis. Despite this, when asked to personally rate their health status, only 12% rated their own health as poor or bad. Over half (58%) of the respondents rated their own health as excellent or good, with a further 30% rating their health as fair. Responses were obtained from a wide variety of regions across the UK, with just over half being located in southern parts of the UK and the remainder from northern parts of the UK (see Table 3).

**Table 3.** Respondent Characteristics.

Question	Response
Total responses	649
Gender:	
Male	42%
Female	58%
Age:	
55–64	47%
65–74	41%
75+	12%
Marital status:	
Married/living with partner	47%
Separated/divorced	22%
Single	15%
Widowed	16%
Employment status:	
Employed (full time)	26%
Employed (part time)	13%
Retired	52%
Volunteer	5%
Other (e.g., unemployed, student)	4%



Table 3. Cont.

Question	Response
Annual household income:	
Below £15k	15%
£15k–£20k	13%
£21–£30k	14%
£31–£40k	12%
£41–£50k	13%
£51–£60k	12%
£61–£70k	6%
£71–£80k	2%
Above £80k	7%
No answer	6%
Health status (self-reported):	
Excellent	12%
Good	46%
Fair	30%
Poor	10%
Bad	2%
Region of UK:	
Northern UK (Yorkshire and the Humber, North West and North East England), Scotland, Northern Ireland)	48%
Southern UK (South East and West England, East of England, East and West Midlands, Wales)	52%

### 3.2.1. Current Housing Situation and Preferences

In order to gain a general view on preferences to ‘age in place’, respondents were posed with five statements and Likert (agreement) scales: 63% of respondents agreed that they want to ‘stay put in their current home’, while 29% agreed that they want to ‘downsize from their current home’. A total of 60% agreed that they are ‘aware of the different specialist housing options for older people’, but only 25% agreed that they ‘want to move to such specialist accommodation’. Almost 90% of respondents indicated a desire (agreement) to ‘live independently as long as possible’.

The survey subsequently sought determine the respondents’ current housing situation and contrast this with their current and later life/future preferences. Figure 1 shows that the respondents’ current housing setting does not, in all cases, appear to reflect their current or later life preferences. The majority of respondents (86%) currently live independently, though fewer respondents (59%) selected this as their current preferred option, and even less (37%) selected this as their preferred option in later life. In total, 8% of respondents currently had supported living in their own home (and the same amount selected this option as their current preference), but preference for this option in later life increased to 17% of respondents. No respondents currently lived in extra care housing and very few lived in sheltered housing (3%), a nursing/care home (2%) or retirement village (1%). However, there was greater preference for each of these living options, both currently and in later life. The results suggest that in later life, the most preferred option for over a third of respondents is to live independently (37%). This was followed by supported living (17%), extra care housing (13%), retirement villages (12%), nursing/care homes (9%), with the least preferred option being sheltered housing (5%).

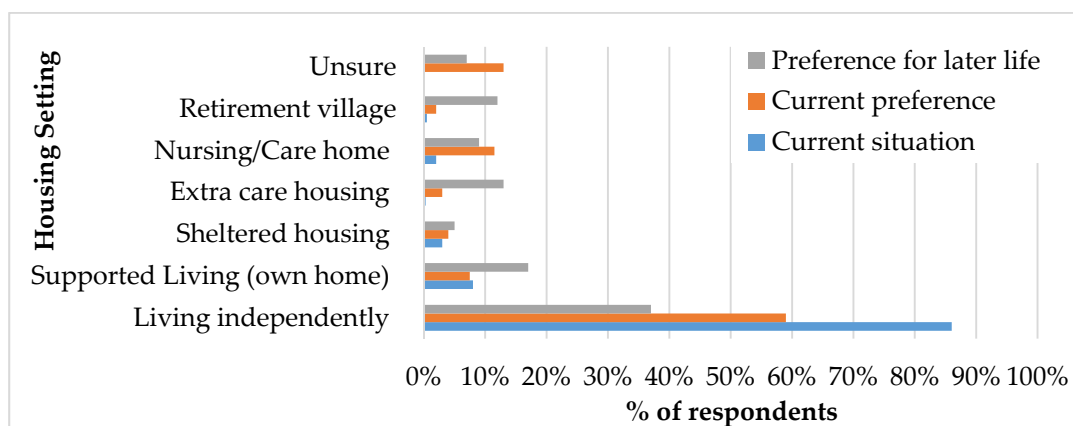


Figure 1. Preference for housing setting.

With regards housing tenure (Figure 2), the results reveal that the largest majority of respondents (74%) currently own their homes, though fewer (55%) selected this option as their current preference. Moreover, when considering the preferred option in later life, the desire to own one's home decreased (to 51%), which is consistent with findings in other countries [42]. Only 9% of respondents currently privately rented their homes and similarly, 8% rented social housing. However, even fewer respondents (when compared to their current living situation) selected rental tenures as their preferred option in later life (5% private rent and 7% social rent). This result is at variance with studies in other countries, which find greater preference for rental property as people age [6,34]. Very few respondents currently lived in co-housing (1%), shared ownership (2%) or with family/friends (4%). However, when thinking about later life, preference for these options increased slightly, particularly so for co-housing (up to 14%). Thus, a higher proportion of respondents desired co-housing in later life compared to rented (private or social) property. This may suggest that acceptability of co-housing for older people in the UK is not as low as findings reported in a study in Slovenia [36]. However, 13% of respondents were still undecided as to their preferred option.

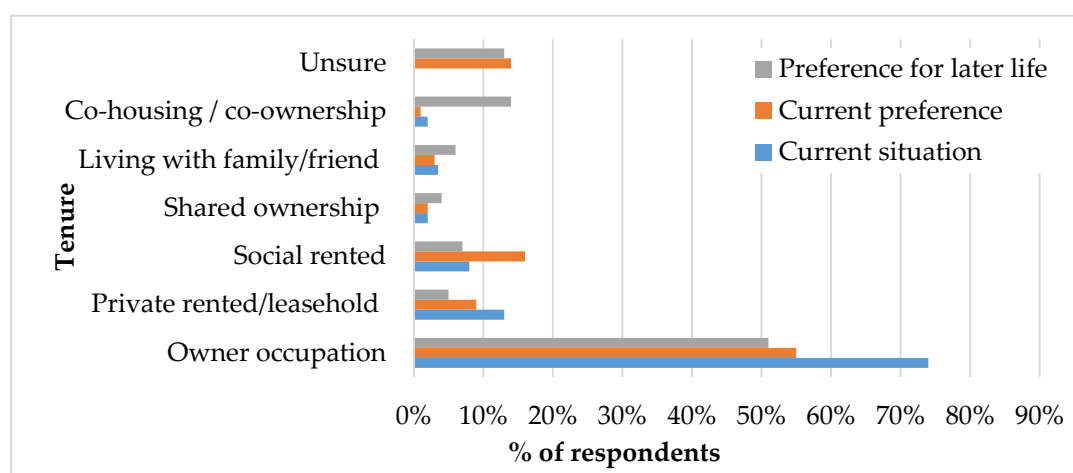


Figure 2. Preference for housing tenure.

In terms of property type (Figure 3), a higher proportion of respondents currently live in detached (31%) and semi-detached (26%) homes, followed in decreasing order by flats/apartments (20%), terraced properties (17%), and bungalows (6%). The results suggest that for a number of respondents, their current living situation does not align with their current or later life preferences. In terms of preferences for later life, the number of respondents that selected detached (19%), semi-detached (13%), and terraced property (6%) decreased. In contrast, there was a very slight increase in the number of respondents

that selected flats/apartment (21%) and a significant increase in the number that selected bungalows (30%) as their preferred option for later life. This suggests that in later life, the most preferred option is bungalows, followed by apartments/flats. Studies in other countries found greater preference for apartments as people age [27,34].

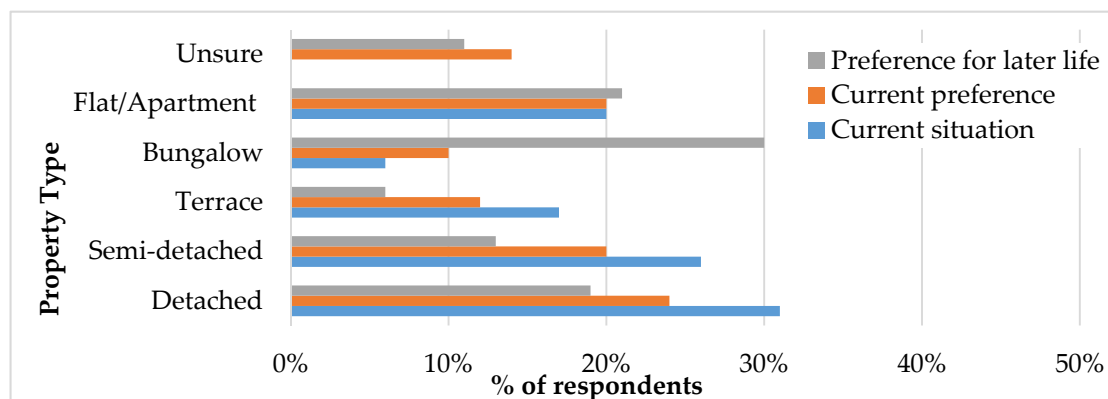


Figure 3. Preference for property type.

Figure 4 illustrates the respondents' current and preference for type of housing location. The majority of respondents currently lived in a suburb of a city (33%) or a town/village (31%). Although, an even higher proportion would currently prefer to live in a city suburb (40%), but slightly less in a town/village (29%). A total of 19% currently lived in city centres and 13% in inner city locations, though fewer respondents selected these options as their current preference (7% and 9%, respectively). Rural locations were home to the least amount of respondents (4%, with similar preference for this type of location currently), although preference for this type of location in later life increased to 8%. The results indicate that the most preferred location for later life is a town/village (45%), which accords with the findings in reference [6]. The least preferred locations are city centre and inner city (each 6%), followed by rural locations (8%). This corresponds somewhat with findings in other European countries [6,34].

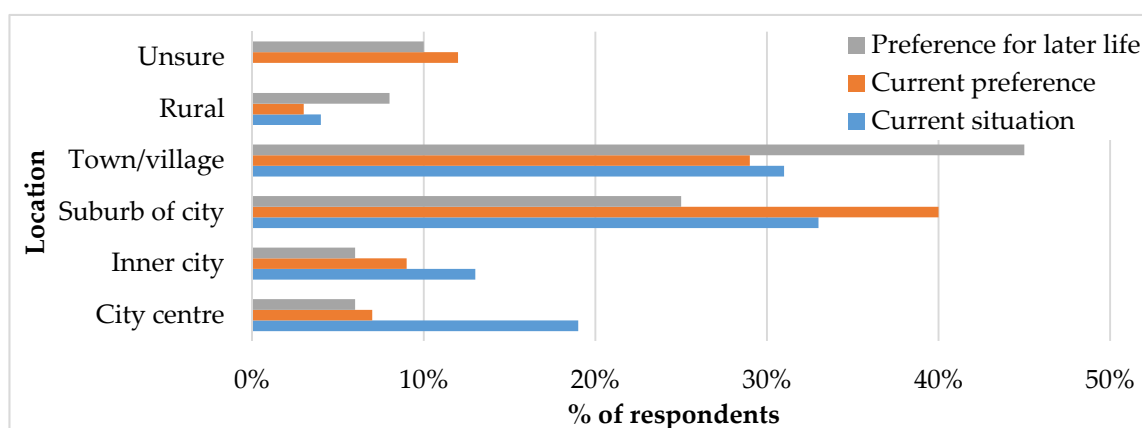


Figure 4. Preference for type of location.

### 3.2.2. Housing and Environment Characteristic Preferences

Survey respondents rated 36 housing and environment characteristics on a 10-point scale of importance (1 was equal to “not important at all” and 10 was equal to “most important”). Table 4 displays the mean ratings of importance based on the respondents' ratings; the housing and environment characteristics are arranged in overall rank order of importance.

**Table 4.** Mean ratings of importance for housing and environment characteristics.

Characteristic	Category	Mean Rating	Rank Order
Safe neighbourhood (e.g., low crime, anti-social behaviour and vandalism, adequate street lighting)	Environment	9.15	1
Housing condition (in a state of repair with no structural defects, hazards, damp or mould)	Housing	8.96	2
Energy efficient home (well insulated, efficient heating system)	Housing	8.90	3
Temperature and thermal comfort (warm and dry, ability to control temperature)	Housing	8.85	4
Cleanliness and aesthetics (attractive and well-kept areas, lack of littering)	Environment	8.80	5
Accessibility to health care centre or health services	Environment	8.79	6
Environmental conditions (e.g., air quality and traffic/street noise)	Environment	8.71	7
Accessibility to local amenities (e.g., retail, food, post office, cash points)	Environment	8.65	8
Security (e.g., intercom, spyhole, keychain, intruder alarms, outside lighting)	Housing	8.45	9
Access to public transport (e.g., buses, trains) within walking distance	Environment	8.44	10
Walkability and pedestrian infrastructure (e.g., pedestrian-oriented design, continuous obstacle free pavements, signal-controlled crossings, mobility-scooter pathways)	Environment	8.39	11
Views out to nature/green	Housing	8.37	12
Intensity of natural and artificial light	Housing	8.25	13
Accessibility to green space, parks, recreational facilities	Environment	8.24	14
Proximity to family, friends, social networks	Environment	8.24	14
Privacy (from external view)	Housing	8.23	15
Bathroom adaptations (e.g., walk-in shower, non-slip surfaces, downstairs bathroom)	Housing	8.14	16
Private garden or outside space	Housing	8.05	17
Flooring with anti-slip material, even surfaces, impediment free	Housing	8.02	18
Adaptable design to facilitate ageing in place (e.g., wider corridors and doors, handrails, stair lift, accessible light switches)	Housing	7.98	19
Housing with passive (natural) ventilation system	Housing	7.89	20
Sound insulation (reduced external noise)	Housing	7.76	21
Social and community engagement opportunities (e.g., community hubs, venues to interact with others, volunteer)	Environment	7.51	22
Parking space for vehicle	Housing	7.49	23
Assistive technology within the home (e.g., alarms, telecare, sensors for remote health monitoring)	Housing	7.34	24
Home on one floor, without stairs	Housing	6.96	25
Access to indoor leisure opportunities (e.g., leisure centres, pools, gyms)	Environment	6.86	26
Compact neighbourhood design (e.g., reasonable density/height of housing)	Environment	6.82	27
Features for social interaction (e.g., playground /seating areas)	Environment	6.78	28
House size: Smaller easy-to-manage home	Housing	6.76	29
Availability of public toilets and rest areas	Environment	6.61	30
Storage space for wheelchair or scooter	Housing	6.57	31
Colour and contrast of walls, floors, doors (e.g., for wayfinding or calming)	Housing	5.71	32
Ability to extend the property (e.g., self-contained annex)	Housing	5.13	33
Access to employment opportunities	Environment	5.06	34
House size: Larger home with extra space (e.g., for family, visitors, carer)	Housing	4.83	35

**Table Key**

Mean Rating:

Highest importance &lt;-----&gt; Lowest Importance

&gt;9-10

&gt;8-9

&gt;7-8

&gt;6-7

&gt;5-6

&gt;4-5

The mean results indicate that the most important characteristic to the respondents was having a home located in a 'safe neighbourhood'. This was the only characteristic to obtain a mean score of more than 9 out of 10. The safety of the location was rated as more important than safety features in the home itself (ranked 9th); perhaps, living in a safe neighbourhood consequently means somewhat less fear in the home and reduced concern for security features.

Other characteristics ranking in the top 5 (each obtaining a score of between 8.8 and 9 out of 10) included 'condition of the housing', an 'energy efficient home', 'temperature and thermal comfort' in the home, and 'cleanliness and aesthetics' in the surrounding environment. The remaining characteristics ranking in the top 10 (obtaining mean scores of between 8.4 and 8.8 out of 10) included 'accessibility to a health care services', 'environmental conditions' in the surrounding area, 'accessibility to local amenities', 'security in the home', and 'access to public transport within walking distance' from the home. The results indicate that the location/environment of the home is highly important to older people, with six of the characteristics ranking in the top 10 belonging to the environment category. Living in a location with accessibility to a range of health services and amenities was highly important (ranked 6th and 8th). Having access to such amenities was relatively more important than being in proximity to family and friends (ranked 14th). Access to public transport (ranked 10th), as well as pedestrian infrastructure (ranked 11th), was more important than having a car parking space at home (ranked 23rd).

Ranked 11th to 15th, respectively (obtaining mean scores between 8.2 and 8.4 out of 10), included: 'walkability and pedestrian infrastructure', 'views out to nature or green', 'intensity of natural and artificial light' in the home, 'accessibility to green space, parks, recreational facilities' within the surrounding environment, and also, 'proximity to family, friends, social networks' (ranked equal 14th), followed by a home that ensures 'privacy (from external view)'. A home with views out to nature/green (ranked 12th) was, thus, more important than having a private garden/outside space (ranked 17th) and was of somewhat higher importance than having access to public green space/parks (ranked 14th). Access to parks and recreational facilities was more important than access to indoor leisure facilities (ranked 26th).

The availability of 'bathroom adaptations' within the home ranked 16th overall, followed by a 'private garden or outside space' and 'flooring with anti-slip material, even surfaces, impediment free'; each obtained a mean rating just surpassing 8 out of 10. A home already designed with bathroom adaptations (ranked 16th) and anti-slip flooring (ranked 18th) are, thus, slightly more important characteristics than having a home design that allows for adaptability (ranked 19th) at a later time.

The characteristics ranked 19th to 24th (obtained mean ratings between 7 and 8 out of 10) included 'adaptable design to facilitate ageing in place', 'housing with passive (natural) ventilation system', 'sound insulation' within the home, availability of 'social and community engagement opportunities' within the surrounding community, 'parking space for vehicle', and 'assistive technology within the home'. Having a car parking space (ranked 23rd) was more important than having storage space for a wheelchair/scooter (ranked 31st). A location with social and community engagement opportunities (22nd) was significantly more important than access to employment opportunities (ranked 34th).

The characteristics ranked in 25th to 31st place obtained mean ratings between 6.5 to 7 out of 10 and included a 'home on one floor/without stairs', 'access to indoor leisure opportunities', a 'compact neighbourhood design', 'features for social interaction', a home that is 'smaller in size and easy-to-manage', 'availability of public toilets and rest areas' within the surrounding environment, and 'storage space for wheelchair or scooter' at the home. A preference for bungalows in later life, and much lower interest in city centre or inner city living (Figure 3), may explain why 'a compact neighbourhood design' was not rated very highly (ranked 27th) by respondents. However, given such preference for bungalows in later life (followed by apartments), it is interesting to find that 'a home on one floor/without stairs' had a relatively low mean rating and ranking position (25th). Although, following further investigations into the ratings expressed by the different age groups, it is clear that there are differences in opinion regarding the importance of this characteristic as people age (see Section 3.2.3).

The 'colour and contrast of walls, floors, doors' within the home, 'ability to extend the property', and 'access to employment opportunities' ranked in 32nd to 34th place, respectively, obtaining mean ratings over 5 (but less than 6) out of 10. Finally, a 'larger home with extra space' was the least important characteristic, with a mean importance rating just below 5 out of 10. The results emphasize that extra space in the home is significantly less important to older people than functionality and comfort in their home. This may also indicate why almost 30% of respondents wish to downsize from their current home.

In summary, with regards to the preferred housing characteristics, the results suggest that the condition, energy efficiency, thermal comfort, and security in the home are chiefly important to older people. The results indicate that the preferred type of environment is a safe and clean neighbourhood with accessibility to a range of key amenities and public transport.

### 3.2.3. Differences in Housing Preferences

#### The Influence of Age

The respondents' importance ratings of the 36 housing and external environment characteristics were compared across the three age groups (55–64, 65–74, and 75+) using the Kruskal–Wallis H test. Overall, the results indicate that there was a statistically significant difference in the housing preferences of the different age groups for 22 of the housing and environment characteristics.

A statistically significant difference in the ratings given by the age groups was found for 13 out of the 21 'housing characteristics'. The results indicated that the 55–64 and 65–74 age groups placed a significantly higher level of importance on a 'larger home with extra space' ( $H = 29.161, p = 0.000$ ), as well as the 'ability to extend the home' ( $H = 39.292, p = 0.000$ ), compared to the oldest (75+) age group. As people age, the level of importance attached to a 'smaller easy to manage home' increased across the three age groups ( $H = 17.761, p = 0.000$ ). Studies in the Netherlands and Sweden also found with increasing age, a greater preference for smaller and easy to maintain homes [34,42]. Research suggests that those aged 65–79 experience high life satisfaction when living in larger homes, whilst those aged 80 and above are more satisfied in smaller homes [46].

As people age, the level of importance placed on a home on one floor, without stairs, anti-slip, and even flooring and having bathroom adaptations increased. The oldest age group (75+) placed a significantly higher level of importance on 'anti-slip and even flooring' compared to those aged 55–64 ( $H = 31.464, p = 0.000$ ). The 65–74 and 75+ age groups both placed a significantly higher level of importance on a 'home on one floor, without stairs' ( $H = 38.425, p = 0.000$ ) and 'bathroom adaptations' ( $H = 30.212, p = 0.000$ ), in comparison to those aged 55–64. The increased preference with age for a home without stairs/on one floor coincides with the increased preference for bungalows in later life (Figure 3). Mobility problems are likely to increase as people age and they may be more likely to live alone, thus, further adaptations also become crucially important. Similarly, studies in the Netherlands [34] and Sweden [35,42] found that a home on one floor and good design for independent living became increasingly important with age.

The 65–74 and 75+ age groups both placed a significantly higher level of importance on having 'assistive technology within the home' ( $H = 12.212, p = 0.002$ ), a home with an 'adaptable design to facilitate ageing in place' ( $H = 20.525, p = 0.000$ ), and 'storage space for wheelchair or scooter' ( $H = 54.250, p = 0.000$ ), in comparison to the youngest age group (55–64). Thus, as people age, their concern for the ability to adapt and remain in their home appears to increase. This is not surprising given that there is extensive research indicating that most older people prefer to continue living in their own home for as long as possible [12,32,34,39]. Home adaptations, specifically in bathrooms, were also found to be a primary concern for older adults in other studies [41]. With regards to assistive technologies in the home, some studies found these to be unwelcomed and have low adoption by older people [41,75]. Whilst the overall mean rank order of this characteristic was not high (24th), the present study appears to find a more welcomed opinion on assistive home technology as people age (65+). A similar finding was evident in the Netherlands [34], where the presence of domotics was

not regarded as a particularly desirable housing attribute on average, but it became more desirable from the age of 65.

In contrast to above, the oldest age group (75+) placed a significantly lower level of importance on a home with a 'parking space for a vehicle', in comparison to the 55–64 and 65–74 age groups ( $H = 13.488, p = 0.001$ ).

Those aged 75+ attached a significantly higher level of importance to a home with 'views out to nature or green' in comparison to those in the 55–74 age groups ( $H = 12.806, p = 0.002$ ). This may be because the oldest group are likely to spend more time indoors and less time out of the home. Having a view of external spaces can affect the wellbeing of older people and can help to reduce their sense of isolation [52,78].

Those aged 65–74 attached a lower level of importance to 'housing condition' compared to the youngest and oldest age groups ( $H = 9.980, p = 0.007$ ), whereas the 65–74 age group placed a significantly higher level of importance on the 'colour and contrast of walls, floors and doors' when compared to the other two groups ( $H = 10.664, p = 0.005$ ).

A statistically significant difference in the ratings given by the age groups was found for 9 out of the 15 'external housing environment characteristics'. Those in the oldest age group (75+) attached a significantly higher level of importance to 'walkability and pedestrian infrastructure' in comparison to the 55–74 age groups ( $H = 14.899, p = 0.001$ ). The eldest age group may place higher importance on this aspect, given that they could have growing concern regarding trips and falls. Falls are the most frequent and serious type of accident for people aged over 65; a UK study found that that around one in ten people over 65 trip or fall every year because of damaged or uneven pavements [98]. A study [44] also found that older adults had clear preferences about the design of the built environment with regards to, for example, well-maintained footways and safe pedestrian crossings.

A home in 'proximity to family, friends, social networks' was also significantly more important to the oldest group (75+), in comparison to those in aged 55–74 ( $H = 13.260, p = 0.001$ ). The eldest group may place higher importance on this aspect, given that they are also more likely to live alone.

The eldest group (75+) and those aged 65–74 placed a significantly higher level of importance on 'accessibility to health care services' in comparison to the youngest age group (55–64) ( $H = 34.062, p = 0.000$ ). The youngest age group may have comparatively less of a pressing need for accessibility to health services at their current stage of life. Similarly, a study of Dutch older adults [34] found a higher preference for care facilities (as well as other daily supplies) to be within walking distance of the home from the age of 65.

Unsurprisingly, the oldest group (75+) assigned a significantly lower level of importance to 'access to employment opportunities' in comparison to those in the 55–74 age groups ( $H = 85.196, p = 0.000$ ). This may further support the eldest group expressing greater preference to be in proximity to family/friends/social networks, given that they appear less likely to be have interactions that are likely to be associated with employment. Those aged 75+ also assigned a significantly lower level of importance to 'access to indoor leisure opportunities' when compared to the 55–64 and 65–74 age groups ( $H = 34.423, p = 0.000$ ).

A 'compact neighbourhood design' ( $H = 12.824, p = 0.000$ ), 'features for social interaction' ( $H = 9.472, p = 0.009$ ), 'social and community engagement opportunities' ( $H = 17.799, p = 0.000$ ), and 'availability of public toilets and rest areas' ( $H = 22.105, p = 0.000$ ) were significantly more important to those aged 65–74, compared to the youngest (55–64) and oldest (75+) age groups. These results may be due to people aged 65–74 having more spare time during retirement, while the youngest group (55–64) may potentially still being involved in part/full time employment and, thus, have larger social networks. In contrast, the oldest group (75+) may spend relatively less time out of the home and may prefer less busy/noisy environments. A UK Help the Aged survey [90] found that lack of public toilets in the community was a factor that stopped a number of older people from going out as often as they would like. Moreover, research suggests that many older people cannot walk for more than ten minutes without a rest [99]. It may be that the youngest age group is in better health, so do not yet

suffer with this concern, while the oldest group may be relatively less concerned with spending time out of the home.

### The Influence of Gender

The respondents' importance ratings of the 36 housing and external environment characteristics were compared across the genders (male and female), using the Mann–Whitney U test in order to identify if the two groups had any significant differences in their opinions.

Out of the 21 housing characteristics rated, a statistically significant difference was found between the genders for only one characteristic. This indicates that males and females generally expressed similar preferences regarding the home itself and internal characteristics. In contrast, gender had a more significant impact on older people's housing preferences in Sweden; although, like in the present study, there were less significant differences in preferences found between genders than between different age groups [35,42]. The one characteristic that revealed a significant difference between the genders in the present study was related to the size of the home; males attached a significantly higher level of importance to a 'larger home with extra space' in comparison to females ( $U = 58.572$ ,  $p = 0.002$ ). A study in Sweden [6] reported that elderly women were more prepared than men to move to apartments compared to single-family housing. This may suggest comparatively less desire in males to downsize in later life.

Out of the 15 external environment and community characteristics that respondents rated, a statistically significant difference was found between the genders for four of such characteristics. In each case, the females indicated a higher level of preference than the males. Females allocated a higher level of importance than males to 'access to public transport within walking distance' from the home ( $U = 41,469$ ,  $p = 0.000$ ), 'accessibility to local amenities' ( $U = 44,176$ ,  $p = 0.002$ ), 'accessibility to a health care services' ( $45,385$ ,  $p = 0.008$ ), and 'accessibility to green space' ( $U = 44,769$ ,  $p = 0.005$ ). Overall, it appears that females place relatively more importance than males on good accessibility to amenities and facilities. A Swedish study [35] also found that females placed greater importance than males on being in close proximity to public transport. It has been suggested that gender is a significant factor in accounting for differences in mobility and travel behaviour; women are said to be more likely to use public transportation than men [100].

## 4. Discussion

Given that many countries need to plan for and adapt to the growing and diverse needs of an ageing population, the aim of this study was to investigate the housing preferences of older people in the UK. Existing research finds a strong preference for ageing in place [6,32–34,39,41]. To enable successful ageing in place, housing must adequately meet the needs and preferences of older people. This study contributes to the research gap regarding older people's preferences for specific housing and environment characteristics/attributes.

Consistent with other studies, a preference for independent living (as long as possible) was common amongst the majority of those aged 55+ in this study. Almost two-thirds of people prefer to remain in their own home as they age, while almost a third wish to downsize. Despite an awareness of specialist housing options for older people, preference for such housing was relatively low. However, there was acceptance of other housing settings (e.g., in order of preference, supported living, extra care housing, retirement villages, nursing/care homes) in later life. Although, it appears that sheltered housing was the least preferable option. To meet such preferences, the design of future mainstream housing in the UK should provide the capacity to be easily adaptable to support ageing in place.

The results indicated that the respondents' current living situation (housing setting, property type, tenure and location) did not, in all cases, reflect current preferences or later life preference. Contrary to previous studies in Europe, we do not find an increased desire for rental property in later life [6,34,43] or preference for apartment living [27,34]. Preference for renting (both private and social) in later life decreased in this study. It could be that there is more stigma associated with rental property in



the UK compared with other countries. For example, in Sweden, the rights of tenants and security of tenure are said to be comparatively strong, thus, rental housing is not generally stigmatized [42]. Interestingly, this study found that co-housing was relatively more preferable than rented property in later life. While preference for owner occupation decreased in later life, it was still the most preferable tenure. The results indicate that a range of tenure options will be required to satisfy the needs and preferences of the UK ageing population.

In terms of housing type, this study found decreased preference for detached, semi-detached and terraced properties in later life. Although, unlike findings in other countries [27,34], there was not such a marked distinction between the preference for apartments/flats (increasing) compared to detached housing. The most preferred housing type in later life was a bungalow. While residential density policies vary across the UK, planning policy generally promotes higher density developments, and developers, facing increasing land prices, often seek to make development more economically viable by building upwards. UK figures suggest there is a shortfall of bungalows; the proportion of new build properties in the UK that are bungalows has been dwindling over recent decades from around 15% in 1987 to just 1% in 2019 [101]. This suggests that building rates are moving in the opposite direction of growing demand for bungalows by the older population. An appropriate mix of housing types will be crucial to meet the housing needs of the ageing population in the UK, and it appears that the availability of bungalows will play a key role in this. Changes to housing and planning policy will be important to facilitate and incentivize an increase in the development of bungalows, specifically for the older population, as part of the housing mix in larger-scale developments. Such availability could also encourage downsizing in later life and assist in freeing up family homes for others in the housing market. Given the decrease in preference for home ownership in later life (despite still being the preferred tenure from all options), this raises additional considerations for policy makers and developers regarding the appropriate tenure mix of any new provision.

The findings suggest that the most preferred location for older people in later life is a town or village. The least preferred locations are city centres and inner city, followed closely by rural locations. While towns and villages are preferred, it is vital that such locations are well accessible to the amenities and facilities that older adults expressed to be highly important (see below).

In terms of preferences for specific housing and environment characteristics, the most important characteristic overall to older people in this study was a safe neighbourhood. Feeling safe has been reported as a particular area of concern for older people [38,52] and security from crime has been reported as a major aspect of neighbourhood satisfaction [102,103]. The findings from this study indicate that, most notably, a safe and clean environment/community and a home in decent condition, with efficient heating and thermal comfort, are vitally important to older people. The energy efficiency of housing has a significant impact on the health and wellbeing of older people [57,59] and ability to control indoor temperature has been found to improve housing satisfaction amongst older people [102,104]. However, research suggests that older people on low incomes are, in many cases, willing to use little or no heating, putting a high risk to their health [104]. More than 25,000 winter deaths occur every year in the UK in the 65+ age group, of which, 30% are caused by insufficiently heated homes [58].

With regards to housing characteristics, the size of the home (large/small and ability to extent) was deemed far less important than the condition 'features and functionality of the home' (such as heating, thermal comfort, home adaptations). A home with views out to nature was slightly more important than having a private garden. Having storage space for a wheelchair/scooter was somewhat less important than having a parking space for a vehicle, although the importance placed on parking did decrease as people aged.

With regards to environment characteristics, safety, cleanliness, and environmental quality were of particularly high importance. Accessibility to health care, local amenities (such as shops), and public transport within a walkable environment were also highly important. While access to indoor leisure opportunities was not of particularly high importance, accessibility to green space/parks/recreational

facilities was of higher importance to older people. The respondents placed the least importance on access to employment opportunities.

This study strongly emphasizes that, in addition to the structure and features of the home itself, location and environment features are key drivers behind housing preferences in later life. The investigation of gender differences suggests that the location of the home may be particularly important to women. To ensure the independence of older people, it is considered crucial that such basic services (e.g., health care facilities, shops, public transport) are accessible within short distances from home [52,67]. This emphasizes a need for holistic and integrated approaches to designing appropriate housing and communities that are well suited to support healthy ageing. There is a need for clearly joined policies that enable collaboration between many different departments, from planners to housing and health policy makers and providers.

A number of the preferences expressed in this study align with parts of the 'Global Age-friendly Cities' guidance provided by the World Health Organization (WHO) [52] and standards/guidance developed in the UK, such as the 'Lifetime Homes standard' [105] and 'Lifetime Neighbourhoods' [106]. For example, the WHO's criteria for 'Age-friendly outdoor spaces' (e.g., clean environment and well maintained areas, pedestrian-friendly walkways/pavements, safe environment, accessibility to services) and 'Age-friendly housing design' (e.g., appropriate heating, adaptable design for older people and appropriately designed bathrooms) were generally also expressed to be important by older people in this study. However, the availability of public toilets and rest areas is also a feature promoted by WHO [52], but was not particularly important, relative to the other environment characteristics, to older people in this study. The WHO [52] promote a range of criteria related to 'Age-friendly social participation and employment'. However, environment characteristics (from Table 4) that may encourage this (e.g., social and community engagement opportunities, features for social interaction, employment opportunities) were deemed to be of somewhat lower importance to older people in this study, particularly access to employment opportunities, which was the least important environment characteristic. Thus, for older people in the UK, these do not appear to be the key qualities that need to be promoted.

Consistent with findings in other countries [6,32,34,42], age had a significant impact on the housing preferences of the UK elderly. As people age, the present study found decreased levels of preference for access to employment opportunities and indoor leisure opportunities. In contrast, with advancing age, the study found increased level of preference for a smaller and easy to maintain home, a home on one floor or without stairs, home adaptations (such as bathroom adaptations and anti-slip flooring) to facilitate ageing in place, assistive home technology, views out to nature, and being in proximity to family/friends/social networks. Various home adaptations and new technologies have been shown to be effective in reducing the risk of slips/falls, retaining a sense of independence for older adults, and reducing the need for social care [8,68,74]. Following modifications to the home, research suggest that a high percentage of older people could delay institutionalization by 10 years [68].

Gender had significantly less impact than age on older people's housing preferences. In contrast, other studies [32,35,42] found gender to have a more significant impact on preferences, though they too did not find it to be as significant an impact as age. In the present study, males and females generally expressed similar preferences regarding all but one of the housing characteristics. Specifically, males placed relatively more than importance on a larger home. This may suggest comparatively less desire in males to downsize in later life. However, females placed relatively more importance than males on some aspects of the environment related to accessibility to amenities, health care, green space, and public transport. Females, thus, had relatively more concern for the location of the home.

## 5. Conclusions

This paper focuses on understanding the preferences of the UK ageing population for a holistic set of housing and environment characteristics. The literature review emphasized that housing environments play a significant role in health and wellbeing, alongside the condition and layout of the housing structures themselves. An extended framework of housing and environment characteristics,

with an emphasis on health and wellbeing, was developed through this research. To achieve this, an extensive review of the relevant housing literature, including research on housing and health, was conducted. Through this review, 21 housing and 15 external environment characteristics were identified as components of this framework.

Data analysis of the survey results found a strong preference of housing characteristics, including housing condition, energy efficiency, temperature and thermal comfort, security, views out to nature/green, intensity to natural and artificial light, security, anti-slippery flooring, bathroom adaptations and adaptable design to facilitate ageing in place, and the housing environmental characteristics, including safe neighbourhood, cleanliness and aesthetics of environment, accessibility to a health care, environmental conditions (air quality, traffic/street noise), accessibility to local amenities, public transport, and green spaces, along with close proximity to family, friends, and social networks.

Government, local authorities, housing providers, and other housing and health care stakeholders will benefit from the findings of this research. Understanding the housing preferences of older people is fundamental for the development of suitable housing and planning policies and sustainable housing provision. The implications of the research offer housing stakeholders a better understanding of the demand side of the housing market, so that housing markets can be structured accordingly. Without understanding in this regard, there is a risk of disparity between housing needs and preferences and that which is available and provided.

A limitation to this study is that it examined the housing preferences of a sample of the older adult population in a single country. Further research could be conducted in other countries to investigate the extent to which older people's preferences for the range of housing and environment characteristics developed in this study differs. Moreover, the (stated) preferences expressed in the study will not necessarily translate into actual decisions made by older people. Thus, further research could explore revealed preferences.

The study highlights that, in order to improve housing for older people, the key areas to be addressed by policy makers are security, housing condition, energy efficiency, thermal comfort, and environmental quality, whereas developers should be working on improving condition and functionality of the home. Notably, both policy makers and developers should note that there is little preference for living in rental and apartment-type property. Contrarily, the most preferred type of accommodation for older people remains the bungalow-type house.

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## Appendix A

Table A1. Summary of literature on the housing preferences of older people

Source and Location	Research Focus	Methodology	Key Findings
[32] Spain	Preferences for different housing settings/tenures and willingness to move and undertake home improvements.	Survey in 2003 ( $n = 729$ , aged 55+)	Majority of respondents had a preference for staying put/ageing in place. Age, gender, disability and affluence affected preferences. The older people become, the less likely they were to wish to change their dwelling. The preference to age in place was even more pronounced among those who were relatively less affluent. Those with relatively less formal education preferred living with relatives, while nursing homes were preferred by those with lower health status. Men revealed a higher preference for nursing homes and women had a higher preference for relatives' homes. As respondents aged, they became increasingly unwilling to make age-related improvements to the home.
[34] Netherlands	Stated preferences for bundles of housing characteristics. Respondents rated relative importance of housing attributes using conjoint choice experiment.	Survey ( $n = 952$ , aged 55+)	Strong preference for staying put, which grew stronger with age. Preference for apartments, home accessed by elevator and rooms on one floor. Preference for amenities, care facilities and public transport to be in walking distance of the home. Age and educational background found to affect preferences.
[42] Sweden	Impact of age, socio-economic background and geographical context on elderly residential preferences. Respondents presented with 21 housing and environment attributes asked to select the 7 most important ones.	Survey ( $n = 2400$ , aged 55+) Data from 2013 SHIELD (Survey of Housing Intentions among the ELDERly in Sweden) Study	Age, gender and geographical context had an impact on preferences, but education and income were not key determinants of housing preferences. Age had a significant impact on preferences. Preference for a home designed for independence and disability, with an elevator and on one floor increased with age. Preference for owner occupation, a garden, space for family to stay, room for social events and hobbies, and close proximity to forest/land decreased with age. Geographical context had strongest effect on preferences related to the type and the location of dwelling, rather than its physical design. Differences in preferences between genders mainly concerned the whereabouts of the dwelling.
[33] Hong Kong	Housing expectations and preferences.	Face-to-face interview using structured questionnaires ( $n = 256$ , aged 60+)	Respondents had a high level of satisfaction with their current housing and low intention of moving, which increases with age. Thus, a preference for ageing in place. Older people living with others had higher satisfaction than those living alone. Respondents living in public housing had significantly higher satisfaction with their current housing than those living in private housing (most public housing estates in Hong Kong are said to have better facilities than private housing, which is considered to be rather poor). No strong preferences expressed for housing structure and space requirement, but higher preference for convenient transportation and proximity to a market.

Table A1. Cont.

Source and Location	Research Focus	Methodology	Key Findings
[39] Germany	Housing preferences (potential moving plans) of future retirees.	Mixed method ( $n = 140$ interviews and $n = 5500$ questionnaires, aged 50–60)	Extremely high satisfaction with residents' current housing situation, high attachment with the place of residence and the neighbourhood. Ageing in place proved to be the main preference among future seniors in Germany.
[6] Sweden	Changing preferences with ageing. Current housing situation and future intentions and preferences for housing situation.	Survey ( $n = 2400$ , aged 55+) Data from 2013 SHIELD (Survey of Housing Intentions among the ELDERly in Sweden) Study	Age had highly significant impact on preferences. With increasing age there was gradual change from large to small housing, from owner-occupation to rented property, and increased desire to live in a small town (decreased desire to live in the countryside or outskirts of a major city). There was greater preference for rented apartments in municipalities that had higher proportions of persons that lived in rented housing. The oldest age group were most attached to their current home and more reluctant to consider moving.
[41] Ireland	Current and anticipated housing needs of the elderly in standard and sheltered social housing.	Survey ( $n = 380$ , aged 60+). Examined statistical differences in preferences of those in standard vs sheltered housing	Most social housing occupiers were happy with their current home and did not want to move. Social housing occupiers (standard and sheltered) had similar housing needs. Home adaptations (particular in bathrooms) were crucially important to improve independence and safety, and flexible housing design. Elderly in sheltered social housing were more satisfied with the physical home design, whereas elderly in standard social housing were less likely to have necessary adaptations to facilitate ageing-in-place.
[35] Sweden	Changing residential preferences of the elderly. Examines the extent to which preferences are linked to age, gender, socio-economic status and geographical area. Respondents presented with 21 housing and environment characteristics asked to select the 7 most important ones (the 21 characteristics were related to the design of the home, its functions and location).	Survey ( $n = 2400$ , aged 55+) Data from 2013 SHIELD (Survey of Housing Intentions among the ELDERly in Sweden) Study	Age was the independent variable that had the most significant effect on housing preferences. Gender and type of geographical area also effected housing preferences, but socio-economic status had less pronounced impact. For older age groups, an elevator, single-storey housing and good design for independent living were most important. With increasing age there was greater preference for a dwelling designed for disability, an elevator (if higher than second floor), on one floor and located in an area where one 'feels at home'. With increasing age there was decreased preference to be close to public transport, to be close to forests/land, to have garden space, own the dwelling, to have pets, space for family to stay/social events, practice hobbies, easy maintenance of the home. Women found it most important to be located close to the family, have a balcony/terrace, an elevator, to be close to public transport. Men found it most important to own the dwelling, be close to forest/land, have a private garden, parking facilities, and possibility to practice hobbies in the dwelling.
[36] Slovenia	Elderly's attitudes to different housing options and attachment to current dwelling.	Telephone survey in 2015 ( $n = 930$ , aged 50+) Acceptance scale of 1 to 5 (1 = totally unacceptable to 5 = perfectly acceptable)	Acceptability of different living options for the elderly was, overall, quite low. Though already established/well-known living arrangements (e.g., old people's home and sheltered housing) were considerably more acceptable to older people than less well known housing options (e.g., co-housing, multigenerational residential building, living with a caregiving family for older people). Staying in the current dwelling was acceptable for a large majority (>70%) of the respondents.

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