

**Socially sustainable housing and built environments to support the health and social inclusion of older adults**

**Protocol for a scoping review and stakeholder consultation**

Sturge, Jodi; Miedema, Elke; Elf, Marie; Nordin, Susanna

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# BMJ Open Socially sustainable housing and built environments to support the health and social inclusion of older adults: protocol for a scoping review and stakeholder consultation

Jodi Sturge <sup>1</sup>, Elke Miedema,<sup>2</sup> Marie Elf <sup>3</sup>, Susanna Nordin<sup>3</sup>

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<sup>1</sup>Department of Design, Production and Management, University of Twente, Enschede, The Netherlands

<sup>2</sup>Faculty of Architecture and the Built Environment, TU Delft, Delft, The Netherlands

<sup>3</sup>School of Health and Welfare, Dalarna University, Falun, Sweden

**Correspondence to**  
Dr Jodi Sturge;  
[j.l.sturge@utwente.nl](mailto:j.l.sturge@utwente.nl)

## ABSTRACT

**Introduction** Housing and the ageing population are issues that pose challenges for social, health and economic policies. Therefore, there is a need for more knowledge on how to design housing and public infrastructure to improve the social engagement and well-being of older adults who age in place. This project aims to provide an overview of the existing literature on design features that support socially sustainable living environments for older adults.

**Methods and analysis** A systematic scoping methodology was used to identify and summarise the findings. Four databases were searched (CINAHL (Cumulative Index to Nursing and Allied Health Literature), Scopus, Medline and Embase) to identify the articles. Articles were included if published in English in the last 15 years (eg, from January 2008 to June 2023) without restricting the study location or country. Articles were included if they were based on empirical qualitative, quantitative and mixed-method data. The results of the review will be discussed with a panel of 15 stakeholders (n=15) from Canada, Sweden and the Netherlands (five per country). The interdisciplinary stakeholders will have expertise in housing, architecture, engineering and social and health services. The consultations will provide content expertise to the literature findings and an opportunity to build evidence-based solutions that support the design of socially sustainable living environments for older persons.

**Ethics and dissemination** Ethical clearance for this project has been granted by the Swedish Ethical Review Authority for Dalarna University (dnr 2023-01543-01) and the Natural Sciences and Engineering Sciences (NES) Ethics Committee at the University of Twente in the Netherlands (dnr 230407) has approved this project. Stakeholders will be asked to provide signed consent to participate in the study. The results of this project will be disseminated through web seminars, community advisory groups, peer-reviewed journals and policy documents to support the development of housing and public health policy.

**Trial registration number** OSF, <https://doi.org/10.17605/OSF.IO/PR2NC>.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ A comprehensive approach to inform the design of social sustainability housing and health policy based on literature and stakeholder engagement.
- ⇒ A systematic summary of literature to identify gaps in the literature and suggestions for future research on the design of housing environments and social inclusion.
- ⇒ A purposive sample of international experts in housing, architecture and care provision will provide content expertise to inform housing and health policy for older adults.
- ⇒ The scope of the literature includes only English language articles, excluding literature in other languages.
- ⇒ The stakeholder perspectives will be limited to the researchers' network, limiting the sample's diversity.

## INTRODUCTION

The health and well-being of older adults are a significant concern for health and social care worldwide.<sup>1</sup> The risk of frail health due to a decline in physical and cognitive functions contributes to the vulnerability of older adults with an increased risk of negative health outcomes. Therefore, it is critical to identify strategies to promote older adults' physical and cognitive health.<sup>2</sup> To improve the health of older adults, the WHO has highlighted the need for age-friendly cities and communities.<sup>3</sup> As per this approach, age-friendly cities and communities include policies that 'encourage active ageing' through developing resources, such as age-friendly housing, outdoor spaces and buildings, community support and health services, social participation, civic participation, respect and social inclusion. Simultaneously, there is an emphasis on healthcare policies, such as ageing-in-place, which makes it possible for the oldest old and those with poorer health to stay at home. These policies



support living safely, independently and comfortably in one's home and community, regardless of age, financial situation or ability level.<sup>4</sup> However, age-friendly and ageing-in-place policies often falsely assume that built environments suit inhabitants' needs and that a healthy family structure or social network is available to support social health and well-being.<sup>5</sup> Therefore, there is a need for new and innovative ways to support health, social inclusion and well-being among the older population beyond medical treatment. The support must consider the person's entire lifeworld and daily life. Thus, built environments that support older adults' social, mental and physical health needs are an urgent priority.

The built environment can impact how successfully older adults can age in place. Housing features, such as adequate heating and ventilation, have improved residents' health outcomes.<sup>6</sup> The layout of dwellings, such as having a bathroom, bedroom and kitchen on the same floor, can encourage older adults to live at home and avoid housing relocation.<sup>7</sup> In addition, flexible housing design, such as retrofits, can meet the changing needs of ageing inhabitants<sup>8</sup> and provide the possibility to live at home even with frail health. However, several countries have a shortage of suitable, affordable and secure housing.<sup>9 10</sup> These challenges are further constrained when older adults have limited financial or social resources to 'successfully' age in place.<sup>11</sup> For instance, older adults tend to experience housing insecurities related to limited incomes, unaffordable dwellings or living in housing that is not suitable to support their independence.<sup>12</sup>

Without access to resources, such as finances, community services or transportation, older adults often experience social isolation and loneliness, which are risk factors for poor mental and physical health.<sup>13</sup> Social isolation and loneliness among older adults is a global concern.<sup>14</sup> The two terms are independent concepts. According to Fakoya *et al*,<sup>15</sup> social isolation is defined "as a state in which an individual lacks a sense of belonging socially, lacks engagement with others, and has a minimal number of social contacts which are deficient in fulfilling quality relationships" (pp.9). In comparison, loneliness is defined as a "subjective state based on a person's emotional perception of the number and quality of social connections needed compared to what is being experienced at the time". Social isolation and loneliness can be experienced by older adults living in a variety of housing types. For instance, older adults living in subsidised housing often have high levels of isolation, depression and loneliness.<sup>16</sup> However, social isolation is not necessarily income-dependent, where some older adults who are homeowners living in neighbourhoods with a mix of older and younger inhabitants can experience a dynamic social environment. However, when families and children leave the neighbourhood during the day, this absenteeism of the community can create a sense of loneliness for older adults.<sup>17</sup> This scenario is especially the case for those dependent on automobiles who lose their ability to drive.<sup>18</sup>

As a result, there is growing interest in how the design of housing, technology and the built environment can alleviate the social isolation or loneliness of older adults.<sup>15 18–20</sup> Several concepts have been used to inform the design of living environments for older adults, including design for all, universal design (UD) and inclusive design.<sup>21</sup> A UD approach with specific attention to the needs of vulnerable populations can make an environment more physically accessible for older adults. For instance, constructing barrier-free and wheelchair-accessible apartments to allow for wheelchair manoeuvrability<sup>22</sup> or including specific design features (eg, door handles that are easy to operate) that can support the independence of older adults.<sup>23</sup> Nevertheless, building regulations are rarely based on evidence linking building design to promoting better health and well-being.<sup>6</sup> Additionally, when spaces in the built environment are created for social interaction, these spaces may not work as intended. For instance, inner courtyards of housing projects may be a designated space for social interaction. However, the designs of such spaces are not considered welcoming or used by all resident groups.<sup>24</sup> Therefore, there is a need for knowledge on how to design built environments to mitigate the social isolation and loneliness of all residents, including older adults.

One approach to creating such knowledge for design is to create sustainable built environments that have social benefits for building users.<sup>25</sup> Although the concept of sustainable development has three pillars, most attention has been on the economic and environmental domains of sustainability and less on the third pillar, social sustainability.<sup>26 27</sup> Unlike the other domains, social sustainability is neither consistently defined nor commonly reflected in government policies.<sup>28–31</sup> For this paper, we refer to Komp-Leukkunen and Sarasma's<sup>31</sup> understanding of the concept of social sustainability in ageing populations, which includes exploring what measures make societies desirable, impact quality of life and balance the interests of future generations. The authors relate the term to the fabric of society, enhancing social integration, cohesion and participation. A promising way to create socially sustainable housing environments is to design based on how people use their environments as they age or experience disabilities.<sup>32</sup> Additionally, a focus on research on how the unit type and layout can result in the social isolation of older adults<sup>33</sup> can inform the design and construction of housing that can respond to social and demographic changes.

Designing socially sustainable environments for older adults goes beyond the boundary of the home environment. For example, a focus on the characteristics of a neighbourhood can provide valuable insights into the social dynamics with the physical and spatial aspects of the built environment. Such neighbourhood features can support mobility, social health and well-being. For older adults with dementia, the availability of design features such as accessible outdoor furniture can support both autonomies (eg, providing a space for rest or wayfinding)

and a place for positive social interactions across generations.<sup>17 34</sup>

To create socially sustainable housing and built environments for older adults, there is a need for a research overview of best practices to understand how design features can positively impact older inhabitants' levels of social engagement and well-being. Thus, in this project, we aim to explore how to design housing and built environments to support social sustainability and support older adults' social inclusion and health outcomes. By combining the results of a systematic scoping review and an expert consultation with multiple international stakeholders, we aim to create design solutions that support the social inclusion and well-being of older adults ageing in place.

## METHODS AND ANALYSIS

The project will use two integrated methods: a scoping review and consultation with an expert panel of multiple stakeholders. The project will be performed in three phases: (1) a scoping review, (2) consultation with an expert panel and (3) dissemination of the results and recommendations. The objective of phase 1 is to identify and synthesise characteristics of a socially sustainable housing design that supports older adults' social interactions and well-being. Based on the results from this phase, the objective of phase 2 will be to validate and elaborate the findings with established community advisory committees that engage older adults as decision makers from Sweden, Canada and the Netherlands. Finally, in phase 3, we will formulate recommendations for housing supply policy and disseminate the findings.

### Phase 1—identify and synthesise the literature

The project began in June 2023 with a synthesis of knowledge on socially sustainable housing supply focusing on older adults. The overall aim of the scoping review was to provide an overview based on the existing literature on the role of design features that support socially sustainable housing supply, specifically for older adults. Scoping reviews are also beneficial to identify evidence-practice gaps in the literature. The review was based on the methodology outlined by Arksey and O'Malley<sup>35</sup> and recommendations by the Joanna Briggs Institute<sup>36</sup> were applied. The framework includes the following five stages: (1) identifying the research question, (2) identifying relevant studies, (3) selecting studies, (4) charting

the data and (5) collating, summarising and reporting the results. The study selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) reporting guidelines,<sup>37</sup> and the review was registered, along with the search strategy, through Open Science Framework. These steps and actions can aid in study replicability.

For the scoping review, research questions, keywords and search terms (table 1) were developed in consultation with a specialist librarian and researchers with expertise in housing, older adults and designing built environments. Four electronic databases (CINAHL (Cumulative Index to Nursing and Allied Health Literature), Scopus, Medline and Embase) were searched to identify the relevant studies and select the studies based on the eligibility criteria. The inclusion and exclusion criteria for the selected studies were based on the population, concept and context framework.<sup>36</sup> Articles were included if there is mention, or include, people aged 65 years or older (population), describe social sustainability criteria of housing design (concept) and relate to the housing environment (context). Furthermore, articles were included if published in English in the last 15 years (eg, from January 2008 to June 2023) without restricting the study location or country. The 15-year time frame was determined based on discussions between the research team and an information specialist librarian who noted trends in the literature. Peer-reviewed articles or conference proceedings were included if they were based on empirical qualitative, quantitative and mixed-method data. Grey literature, systematic reviews and research protocols were excluded.

The reference manager software EndNote X9 will be used to manage the data and export results into a systematic review application, such as Covidence or Rayyan.<sup>38</sup> The research team will evaluate which application is best for the purpose of this review to share citations and blindly include and exclude results. Once all articles have been evaluated and agreed on by two reviewers, conflicts in decisions will be discussed and resolved. The final results will be extracted to Microsoft Excel. A descriptive analysis of the characteristics of the studies and the findings will be summarised narratively. The summary data will be provided as a digital object identifier (DOI) dataset and available as a technical appendix and open access. The scoping review will be published in a peer-reviewed

**Table 1** Example of terms for database search strategy

Category A	Category B	Category C	Category D
older adult*	includi*	housing	design*
ageing	social support	ageing in place	planning
senior*	social mix	home	environment design
elderly aged	social interaction	residen*	facility design and construction
	social health	living environment	policy
	engage*	architectural barrier	
	community support	access*	

journal. The overview of the literature, which will be considered the project's preliminary findings, will also inform the methods used in the second phase of the project.

### Phase 2—validate and collaborate

The purpose of the project's second phase is to validate and elaborate on the scoping review findings based on stakeholder consultations. Fifteen stakeholders from Canada, Sweden and the Netherlands (five per country) will be recruited in June 2023 based on the professional network of the COORDINATEs project.<sup>39</sup> COORDINATEs is a multipronged, interdisciplinary project with principal investigators in Sweden, the Netherlands and Canada. The project team brings international expertise in housing, healthcare, architecture and vulnerable populations, including older adults. We will identify stakeholders with knowledge and experience in designing, constructing and operating housing projects. Stakeholders will also include older adults living in housing as experts by experience, housing providers, spatial planners and technical experts (eg, municipalities, architects or networks). Furthermore, we will try to have stakeholders representing the intracountry and intercountry differences between urban and rural environments. To guide the recruitment and gain stakeholder buy-in, we will develop an information package for stakeholders detailing the purpose of the consultation, time commitment and how the information will be gathered, analysed and reported. Stakeholders will be engaged in two facilitated interactive online sessions using a visual collaboration platform. The session facilitators have experience in research methods, including focus groups and codesign facilitation. The objective of these sessions will be to identify international best practices of designing, developing and operating housing environments that promote social inclusion for older adults. Before the online sessions, stakeholders will be asked to provide consent to participate in the study, whereas the online sessions will be recorded and transcribed verbatim. During the online sessions, we will refer to a semi-structured interview guide and the preliminary results from the scoping review. The interview guide will include questions about policy and design approaches that result in design solutions to building liveable and socially sustainable housing environments for older adults. The questions will be made available in a subsequent manuscript detailing the results of the consultations. Stakeholders will also be asked to validate the preliminary results of the scoping review, and asked about how the knowledge represents their understanding and practice. These sessions also allow time for questions, discussions and international networking. We may schedule multiple interactive sessions to accommodate different languages and time zones.

The interview transcripts will be translated into English and analysed thematically using ATLAS.ti software package. Three of the researchers will conduct the analysis referring to the six-step approach developed by Braun

and Clarke<sup>40</sup>: (1) getting familiar with transcription data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes and (5) defining and naming themes and (6) producing a final summary. All authors will discuss coding and interpretations of the data to avoid personal bias and achieve consensus to develop a theme. These themes will be the basis of policy recommendations on how to design socially sustainable housing for older adults and identify the direction of future research. The policy briefs will be translated from English into Dutch and Swedish and shared with stakeholders to disseminate among their networks. This phase of the project will be completed by January 2024.

### Phase 3—formulate recommendations and disseminate results

Through the first two project phases, we will identify social sustainability indicators and design features that support a socially sustainable housing supply for older adults. The design principles and solutions identified based on the literature and international perspective can support the development and planning of housing projects now and in the future.

The final scoping review and results from the consultation phase will be published in academic, peer-reviewed journals. A concluding webinar will be scheduled by June 2024 with the stakeholders to transfer the knowledge that can be applied in practice in their respective institutions and countries. During the webinar, we will provide examples of how policy processes and stakeholder engagement can relate to support decision making to design and develop socially sustainable housing and architecture. An inventory of design features, recommendations and policies will be summarised into a policy brief, including a description of the policy processes to support decision making to design and develop socially sustainable housing and architecture.

### Patient and public involvement

As described above, stakeholders will be asked to validate and elaborate on the scoping review findings, plus provide insight into the policy processes in each country. Additionally, stakeholders will be asked to assist with co-producing and validating knowledge and assist with disseminating results to a broader audience.

### ETHICS AND DISSEMINATION

The Swedish Ethical Review Authority (dnr 2023-01543-01) has provided Dalarna University in Sweden with ethical clearance for this project. Additionally, the Natural Sciences and Engineering Sciences (NES) Ethics Committee at the University of Twente in the Netherlands (dnr 230407) has approved this project. Before the online consultations, stakeholders will be provided with an information letter stating the purpose of the projects and a description of how the data will be collected and stored. All other project

data will be gathered, stored and protected per a data management plan. Stakeholders will be asked to provide signed consent to participate in the study.

The results of this project will be disseminated through web seminars, community advisory groups, peer-reviewed journals and policy documents to support the development of housing and public health policy.

## DISCUSSION

The knowledge gained from this project can provide design solutions to inform a socially sustainable housing sector and housing policy. As stated in the introduction, socially sustainable housing and the ageing population are two issues that have global, societal relevance. This project will use a knowledge translation (KT) approach to bring evidence into practice. This approach aligns with the WHO policy framework on active ageing, which recognises the need for KT to address health issues, such as ageing and health.<sup>41</sup> KT frameworks include connecting research with the people who can put the evidence into practice and have been defined as a knowledge-to-action framework that bridges the gap between research and practice. KT strategies are a best practice, often used in healthcare to cocreate transdisciplinary knowledge among researchers and stakeholders to increase the relevance and impact of research.<sup>42</sup> Stakeholders, community advisory committees and other project participants will be asked to evaluate their experience participating in transdisciplinary knowledge sharing and how likely they are to use it in their practice. This brief evaluation will provide feedback to the research team on the KT process and help the team reflect on ways to improve the process for future projects.

This research review will have empirical design contributions and policy implications. Empirically, the scoping review will provide an overview of the socially sustainable housing supply literature for older adults. This type of literature overview on this specific topic is yet to be explored. The stakeholder consultations will validate the literature findings and provide theoretical design solutions and policy recommendations based on the empirical analyses. These solutions will be presented as policy recommendations. Further, the consultations will provide content expertise to the findings and an opportunity to build evidence-based design solutions for socially sustainable housing supply for all generations. These findings will support the development of a conceptual model for socially sustainable built environments, new insights into what socially sustainable housing is and how the conditions of these environments help prevent older adults from becoming socially isolated. The literature synthesis and international stakeholder engagement will contribute to new global knowledge that will contribute to developing socially sustainable

housing internationally. Additionally, this project will bring together researchers and stakeholders from three countries and a variety of organisations, resulting in new, strengthened partnerships in the socially sustainable housing sector. The findings from this project will be disseminated through web seminars, peer-reviewed journals and policy documents to support the development of socially sustainable housing for older adults and public health policy.

A strength of this project will be the comprehensive approach to inform the design of social sustainability housing and health policy based on literature and stakeholder engagement. This summary of the literature will identify knowledge gaps and suggestions for future research on the design of housing environments and social inclusion. Additionally, the purposive sample of international experts in housing, architecture and care provision will provide content expertise to inform the future of housing and health policy for older adults. The limitations of the study include identifying only English language literature and excluding literature in other languages. Further, stakeholder perspectives will be limited to the network of the researchers, limiting the diversity of the sample. These limitations, and others which will emerge through the study, will be explored in more detail in subsequent publications once the research is complete.

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**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not applicable.

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## ORCID iDs

Jodi Sturge <http://orcid.org/0000-0002-7598-1558>

Marie Elf <http://orcid.org/0000-0001-7044-8896>

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