Abstract

Background: The implementation of housing with support is rapidly expanding, particularly as life expectancy is increasing throughout the world. This expansion is likely to intensify in the context of coronavirus disease 2019 (COVID-19), which has revealed the risks of relying primarily on nursing homes. This mixed-methods systematic review aims to: 1) explore older people's perceptions and experiences of housing with support and 2) examine the impact of providing housing with support for older people.

Methods: The databases Ovid Medline, Ovid Social Policy & Practice, EBSCO CINAHL, and EBSCO SOCIndex will be searched, and grey literature will also be identified. Quality assessment will be carried out using Joanna Briggs Institute's Critical Appraisal Checklist for Qualitative Research as well as a tool from the National Institutes of Health for observational cohort studies. This review will employ convergent parallel design; as such, qualitative and quantitative findings will be synthesised separately in the initial stage of analysis. The results from the qualitative and quantitative synthesises will then be integrated in the final stage of the analysis.

Conclusion: This systematic review will synthesise the evidence regarding older people's perceptions and experiences of housing with support and the impact of providing housing with support for older people on their quality of life.

Keywords
systematic review, mixed-methods, protocol, housing, older people
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Author roles: Coyle C: Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Supervision, Validation, Writing – Original Draft Preparation, Writing – Review & Editing; Buggy S: Conceptualization, Formal Analysis, Investigation, Methodology, Validation, Writing – Original Draft Preparation, Writing – Review & Editing; Cagney O: Conceptualization, Formal Analysis, Investigation, Methodology, Validation, Writing – Original Draft Preparation, Writing – Review & Editing; Farragher L: Methodology, Software, Validation, Writing – Review & Editing; Lee C: Methodology, Software, Validation, Writing – Review & Editing; Patje D: Validation, Writing – Review & Editing; Long J: Conceptualization, Formal Analysis, Funding Acquisition, Investigation, Methodology, Supervision, Validation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

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The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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Background

Housing plays a fundamental role in quality of life, particularly for groups of people who spend more time in the home, including older people. It is also well established that older people prefer to age and die in place. Yet, the quality and appropriateness of an older person’s home environment modulates the extent to which they can take care of themselves or be cared for at home. Housing with support aims to enable older people to age with dignity and independence by providing accessible housing and by connecting them with services that meet their social and healthcare needs. Moreover, housing with support may have the potential to reduce hospitalisation and institutionalisation among older people.

The implementation of housing with support is rapidly expanding, particularly as life expectancy is increasing throughout the world. This expansion of housing with support is likely to intensify in the context of coronavirus disease 2019 (COVID-19), which has revealed the risks of relying primarily on nursing homes. Efforts to reduce reliance on nursing homes and shift towards housing with support ought to be informed by both qualitative and quantitative evidence. In order to ensure that housing with support meets the needs of the population it aims to serve; we need to explore the perceptions and experiences of older people themselves. Doing so will allow those involved in policy and practice to incorporate the preferences of older people, which could contribute to efforts to increase demand for housing with support. Additionally, it is imperative that the expansion of housing with support be informed by a systematic and comprehensive assessment of its impact thus far. Addressing these key knowledge gaps would make an important contribution to the literature and to public policy.

Therefore, this mixed-methods systematic will examine the following research questions: 1) What are older people’s perceptions and experiences of housing with support? and 2) What is the impact of providing housing with support for older people on their quality of life? For the purposes of this systematic review, ‘housing with support’ will be defined as purpose-built, non-institutional accommodation where older people have their own front door and where support or care services are available.

Methods

Study design

This mixed-methods review will employ convergent parallel design. As such, qualitative and quantitative data will be analysed separately, and the findings will then be integrated. By considering qualitative and quantitative studies in isolation prior to synthesising them, we will be able to do justice to each of the two overarching research paradigms before integrating our results.

Search strategy

The search strategy that was designed for this review is based around three overarching concepts – older people, models of housing with support, and mixed-methods research. One comprehensive search of the published, peer-reviewed research on housing with support for older people will be used to answer both research questions. Preliminary scoping searches indicated that research articles informing both research questions were to be found across a range of sources, including medical and sociological sources. The search strategy was initially developed for the MEDLINE (Ovid) database and was subsequently translated for use in the CiNahl, SocINDEX (both on the EBSCO platform), and Social Policy & Practice (Ovid) databases (see extended data for the full search strategy). These databases cover a range of subject areas, professions, and geographical areas, ultimately providing a wide scope of research sources.

No language limits were applied to the search strategy. Following trial searches of MEDLINE and the examination of references from previously published reviews, the decision was taken to limit the search to articles published from the year 2000 to present. For the purposes of this review, older people have been defined as adults aged 50 years and over, so where possible, limits to include only research on older people were applied.

A separate grey literature search will also be undertaken to inform each of the two research questions, based on key terms used for the database search and using the same inclusion and exclusion criteria that will be used for the database search.

The search strategy was developed by an information specialist (LF) in consultation with the research team. It was reviewed and modified following consultation with another information specialist on the team (CL).

Supplementary search strategies

The following supplementary search strategies will be used:

- Reference checking: The reference section of each included article will be checked for relevant articles.
- Citation chasing: Articles that cited the included articles will be checked for relevance.

These strategies will be used for each included study, including studies found through the supplementary search strategies and through the grey literature search. In addition, any systematic reviews that are identified at any stage in the screening process will be targeted and their reference sections will be checked for relevant studies.

Screening

All database search results will be imported into EPPI-Reviewer 4 for title and abstract screening for each research question. Therefore, the search results will be screened in full twice. This will ensure that screeners are able to focus on identifying relevant studies for each research question in isolation. EPPI-Reviewer’s priority screening function will be used to improve the efficiency of title and abstract screening.
Study selection
For the first research question, focusing on older people’s perceptions and experiences of housing with support, studies will be selected according to the criteria outlined in Table 1. Only studies that used one of five widely recognised qualitative methodologies – case study research, ethnography, grounded theory research, narrative analysis, and phenomenology – as outlined by Creswell & Poth (2017) will be considered for inclusion. Qualitative methodologies are often ill-defined, and we feel that it is important to limit our included studies to those that specify a methodology and, moreover, use a widely recognised methodology.

For the second research question, focusing on the impact of housing with support for older people, studies will be selected according to the criteria outlined in Table 2. Quantitative studies will not be excluded based on outcome or comparison group, because we did not want to risk excluding studies with outcomes that we may not have considered.

Disagreements regarding inclusion for both research questions will be resolved through discussion until consensus is reached.

Quality assessment and confidence in evidence
For the first research question, focusing on older people’s perceptions and experiences of housing with support, Joanna Briggs Institute’s Critical Appraisal Checklist for Qualitative Research will be used. Additionally, the CERQual (Confidence in the Evidence from Reviews of Qualitative Research) approach will be used to assess confidence in qualitative findings. The CERQual method enables reviewers to transparently assess and describe the extent to which a review finding is a reasonable representation of the phenomenon of interest, such that the phenomenon of interest is unlikely to be substantially different from the research finding. It includes four elements: 1) methodological limitations; 2) relevance to the review question; 3) coherence; and 4) adequacy of data. These elements are used to assess overall confidence in qualitative findings. There are four levels of confidence: high, moderate, low, or very low.

For the second research question, focusing on the impact of housing with support, quality assessment will be carried out using a tool for observational cohort studies from the National Heart, Lung, and Blood Institute of the National Institutes of Health in the United States of America. This tool uses 12 items to assess quality. We will also use British Medical Journal guidelines to assign levels of evidence to each quantitative study, and the GRADE certainty of evidence tool to write our strength of evidence recommendation for quantitative findings. In the GRADE tool, the levels of evidence range from one to four. The certainty of evidence can be high, moderate, low, or very low. The quality of evidence drives the strength of recommendation, which is one of the last translational steps of research and is most proximal to patient care.

For both research questions, each included study will be independently quality assessed by two reviewers, with any disagreements being resolved by consensus. Quality assessment results will not be used to exclude studies.

Table 1. Eligibility criteria for the perceptions and experiences research question.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
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<tbody>
<tr>
<td>Population</td>
<td>People aged 50 and over</td>
<td>Family members and carers</td>
</tr>
<tr>
<td>Intervention</td>
<td>Purpose-built housing for older people, where they have their own front door with personal living quarters and cooking facilities, and where support services are available on site.</td>
<td>Adaptations to the family home Age-friendly cities Age-friendly neighbourhoods Hospitals Housing purpose-built for homeless older people, blind older people, older people with dementia or disabilities Housing with shared rooms Inpatient care centres Naturally occurring retirement communities Nursing homes Skilled nursing facilities</td>
</tr>
<tr>
<td>Study design*</td>
<td>Grounded theory research Ethnographic research Phenomenological research Qualitative case studies Narrative analyses</td>
<td>Conceptual or theoretical articles Conference abstracts Letters to the editor Opinion pieces Books</td>
</tr>
<tr>
<td>Publication date</td>
<td>2000-present</td>
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*Only studies that used one of five widely recognised qualitative methodologies outlined by Creswell & Poth (2017) will be considered for inclusion.
**Table 2. Eligibility criteria for the impact research question.**

<table>
<thead>
<tr>
<th>Domain</th>
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</tr>
<tr>
<td>Study design</td>
<td>Quantitative studies with at least two data collection time points</td>
<td>Conceptual or theoretical articles Conference abstracts Letters to the editor Opinion pieces Books</td>
</tr>
<tr>
<td>Publication date</td>
<td>2000-present</td>
<td></td>
</tr>
</tbody>
</table>

**Data extraction**

Data will be extracted by a single reviewer into a bespoke extraction sheet for each research question (see extended data). For the research question focusing on older people's perceptions and experiences of housing with support, the following data will be extracted: first author and year of publication, study title, country, housing model, study design, data collection method, dates of data collection, population age, number of participants, proportion of males and females, and findings. For the quantitative research question focusing on the impact of housing with support, the following data will be extracted: first author and year of publication, study title, country, housing model, study design, timepoints, participants at baseline, participants at follow-up, loss to follow-up, population age, proportion of males and females, and findings.

Extracted data will be verified independently by a second reviewer. Journal websites for the included articles will be checked for supplementary data and errata, and authors will be contacted if data required for quality appraisal and analysis are missing.

**Data analysis**

Thematic synthesis will be used to integrate the results of the included qualitative studies. Thematic synthesis has three stages: 1) line-by-line coding of text; 2) the development of descriptive themes; 3) and the generation of analytical themes. We will use Dedoose (2020) software to code text and to develop our descriptive themes, which we will draw inductively from the included studies. The generation of analytical themes represents the stage of synthesis whereby reviewers integrate the primary studies and generate novel interpretations of findings. We will develop analytical themes by revisiting the descriptive themes in light of the qualitative research question – what are older people's perceptions and experiences of housing with support?

For the quantitative research question focusing on the impact of housing with support, we will conduct a feasibility assessment to identify the level of heterogeneity among the included quantitative studies, which will determine whether or not meta-analysis is suitable. A core assumption underpinning meta-analysis is that the studies being pooled are homogeneous; therefore, all sources of heterogeneity and variation must be assessed before conducting a meta-analysis. Our feasibility analysis will consider population, comparator, intervention, measurement scale, and length of time to follow-up. If meta-analysis is feasible, R software (2020) will be used.

If a meta-analysis is not feasible, we will present a narrative synthesis of the included quantitative studies using summary statistics, where available, and describing the influence of covariates, where such analysis is completed.
Dissemination of information
Findings will be disseminated as peer-reviewed publications.

Study status
The database search was conducted in November 2019. Full-text screening was completed in May 2020. It is anticipated that the review will be completed in November 2020.

Conclusion
This systematic review will synthesise the evidence regarding older people’s perceptions and experiences of housing with support and the impact of providing housing with support for older people.

Declarations
Data availability
Underlying data. No data are associated with this article


Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CCO 1.0 Public domain dedication).

Acknowledgements
This review was commissioned by the Department of Health of the Government of Ireland, in collaboration with the Department of Housing, Planning and Local Government.

References


11. NIH National Heart Lab: Study quality assessment tools. Quality assessment tool for observational cohort and cross-sectional studies. Bethesda, Maryland: NIH National Heart, Lung and Blood Institute; [No date].


This paper reports a study protocol for a mixed-methods systematic review that explores perceptions and experiences of older adults about housing with support and examines the impact of providing housing with support on older adult's quality of life. The study protocol is reported according to PRISMA-P. The rationale is well developed and the objectives are clearly articulated. However, it will be useful to provide references in paragraph 2 (background) to support the interesting ideas elaborated (for example, about quantitative and qualitative evidence). It will also be useful to provide more clarification about the definition of “housing with support” and a reference if available. It will be useful for better understanding of the rationale.

The systematic review method is globally appropriate for the research questions. The eligibility criteria are clearly defined, information sources are well described, search strategy are well elaborated, data management and the study selection process are well described. However, we suggest more details and justification about the study design to help readers, interested, to well understand your choices (for example why authors choose a convergent design and not a sequential one?). As recommended, a pair-screened study selection process and an explicit data extraction are planned. In addition, anticipated methods for assessing quality of assessment and confidence in evidence are clearly described (e.g. GRADE, CERQual). Data analysis described how qualitative and quantitative studies will be analyzed. A thematic approach will be used for qualitative studies synthesis and Dedoose, 2020 software will be used to perform the analysis. After assessing heterogeneity of quantitative studies, depending on the results of this assessment, a meta-analysis (using R Software) or a narrative synthesis is planned. The authors planned to evaluate the impact of the covariates. Unfortunately, they do not specify how this impact would be evaluated (by sensitivity analyses, subgroup analyses or other?). It might be useful to provide a final precision in order to refine the wonderful work that has been started. In total, authors
provided enough details about the methods to allow replication.

Since the study is a protocol, the data extraction sheet which is an overview of the datasets is well presented, useable and in accessible format (OSF Registration).

**Is the rationale for, and objectives of, the study clearly described?**
Yes

**Is the study design appropriate for the research question?**
Yes

**Are sufficient details of the methods provided to allow replication by others?**
Yes

**Are the datasets clearly presented in a useable and accessible format?**
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** My area of research is related to shared decision making, knowledge translation, housing options for older people, sex and gender, epidemiology, biostatistics.

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

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**Author Response 28 Oct 2020**

**Camille Coyle,** Health Research Board, Ireland

Thank you very much for your review of our protocol. Regarding your suggestion that we add references to the second paragraph of the background section, we have not done so because these sentences reflect original ideas regarding our justification for conducting the review. We agree that the protocol would benefit from further clarification regarding our definition of housing with support, so we have provided more detail. We also agree that further detail regarding our selection of convergent parallel design is important, therefore we have added to this section. Finally, we have added detail to our quantitative data analysis section, as suggested. Thank you again for your review of our protocol, we greatly appreciate your time and expertise.

**Competing Interests:** None
This paper reports a study protocol for a systematic review that evaluates perceptions/experiences of older adults related to housing with support, and quality of life impacts of housing with support for older adults. The rationale and objectives for this review were clearly stated. However, in the definition of housing with support, it is possible that one group of older adults may be excluded that would be relevant - that is the setting of assisted living facilities that provide meals and activities for seniors in a setting where the residents have a mini-kitchen but not cooking facilities in their apartments. This is a common model for older adults to receive support in their housing arrangements in the US.

The systematic review approach is appropriate for the research questions. The search strategy is transparent in text, with additional data provided in Open Science Framework documents. Inclusion criteria were clearly stated. Joanna Briggs Institute Critical Appraisal Criteria, and CERQual for qualitative research criteria will be used to assess quality of the evidence for the perceptions and experiences research question. For the quality of life question, NHLBI criteria for observational cohort studies will be used, along with BMJ guidelines and GRADE tool to assign levels of evidence. Independent assessment by two raters is planned. Data extraction will be conducted by a single reviewer with a clear data extraction sheet that is verified by a second reviewer. A thematic analysis will be used to integrate results of the studies, using Dedoose software. A feasibility assessment will be used to identify whether a meta-analysis is appropriate. These details of methods are sufficient to permit replication of this study.

As this is a study protocol, and the data are not yet provided, the dataset usability and accessibility criteria do not seem relevant to this review.

Is the rationale for, and objectives of, the study clearly described?
Yes

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Yes

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: My area of research is related to primary care, health information
technologies, mhealth applications and implementation science.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 28 Oct 2020

Camille Coyle, Health Research Board, Ireland

Thank you very much for your review of our protocol, we greatly appreciate your time and expertise. Regarding your suggestion that the criteria of cooking facilities could exclude older people in assisted living communities in the US who have their own mini kitchens, thank you for bringing this to our attention. We have removed cooking facilities from the inclusion criteria to ensure that this population will be included if relevant articles are identified.

Competing Interests: None