

A rapid scoping review of reviews on the evidence on housing and its relationship to wellbeing



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What Works Centre for Wellbeing is an independent organisation set up to produce robust, relevant and accessible evidence on wellbeing. We work with individuals, communities, businesses and government, to enable them to use this evidence make decisions and take action to improve wellbeing.

The Centre is supported by the ESRC and partners to produce evidence on wellbeing in four areas: work and learning; culture and sport; community; and cross-cutting capabilities in definitions, evaluation, determinants and effects.



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List of abbreviations

ABI Area Based Initiatives

ADL Activities of Daily Living

ASSIA Applied Social Sciences Index and Abstracts

BHMP Baltimore Housing Mobility Program

CASP Critical Appraisal Skills Programme

CEBM Centre for Evidence Based Medicine

ERCF Estate Renewal Challenge Fund

ESRC Economic and Social Research Council

GDP Gross Domestic Product

HACT Housing Associations' Charitable Trust

HAPPI Housing our Ageing Population: Panel for Innovation, Homes and Communities Agency

HCVP Housing Choice Voucher Program

HIV Human Immunodeficiency Virus

IADL Instrumental Activity of Daily Living

LGBT Lesbian, Gay, Bisexual and Transgender

MT Mixed tenure

MTO Moving to Opportunity Program

NHS National Health Service

NICE National Institute for Health and Care Excellence

OECD Organisation for Economic Co-operation and Development

ONS Office of National Statistics

PEFR Peak Expiratory Flow Rate

PRISMA Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PROSPERO International prospective register of systematic reviews

PSR Psychiatric Rehabilitation

RCT Randomised controlled trials

SMI Severe Mental Illness

UK United Kingdom

US United States

WWC-WB What Works Centre for Wellbeing

1. Introduction

Background to the review

This report has been commissioned by the What Works Centre for Wellbeing (WWC-WB). The WWC-WB is part of a network of What Works Centres; an initiative that aims to improve the way the government and other organisations create, share and use high quality evidence for decision-making. The WWC-WB aims to understand what governments, businesses, communities and individuals can do to improve wellbeing. They seek to create a bridge between knowledge and action, with the aim of improving quality of life in the UK. This work forms part of the Community Evidence Programme, whose remit is to explore evidence on the factors (including community level factors) that determine individual and community wellbeing.

The Community Evidence Programme undertook an extensive stakeholder engagement exercise (June - October 2015) with a view to identifying key priority topics in which stakeholders would benefit from new evidence synthesis work (Community Evidence Programme 2015). Housing was identified as both a central component of wellbeing and a topic which would benefit from further evidence synthesis work.

Participants across the different modes of engagement (stakeholder workshops, on-line questionnaire, community sounding boards, one-to-one interviews) consistently raised housing as a key ingredient to both individual and community wellbeing. Universal access to safe, clean affordable housing was frequently noted as essential to wellbeing and housing related factors were seen as a determinant of neighbourliness and sense of community belonging. Community Sounding Boards in London and Grimsby highlighted the importance of the availability of safe, clean affordable housing to quality of life.

Four public dialogues conducted by the WWC-WB (in Belfast and Bristol) also found that “good quality housing at an affordable price was seen as fundamental to having a good quality of life for participants in both locations” (van Mil and Hopkins 2015 p 19). Indeed, affordable housing was viewed as one of the most important components of basic needs. Participants related this to the importance of feeling safe both inside their house and within their neighbourhood and the ability to have a stable home.

Workshop participants perceived a gap in evidence for evaluating supported community based living for vulnerable people, an area in which wellbeing was seen as a critical outcome. Stakeholders working in the area of housing and the built environment also expressed a desire to have housing evidence that measured the impact of policies on wellbeing and could help commissioners understand the value

for money of potential interventions. Stakeholders working on housing and health saw a useful role for wellbeing evidence in encouraging 'a person-centred/holistic approach', and facilitating a breakdown of 'silo' working.

In response to the clear importance of housing to current wellbeing in the UK, and the potential use of wellbeing evidence to support local level policy, housing was chosen as a topic for new evidence synthesis research to be undertaken by the WWC-WB.

The primary aim of this evidence synthesis is to undertake a systematic review. In order to identify a focused and relevant research question for this systematic review, a scoping review of the already published systematic review level evidence has been conducted and is reported here. Undertaking a 'review of reviews' prevents duplication of existing work, and focuses the scope of the later systematic review on existing and important gaps in evidence synthesis. Undertaking a scoping review allows a greater understanding of the concepts underpinning a research area and the evidence available in this research area.

Purpose of the review

This review is a Stage 1 scoping review of existing review-level evidence, to identify the strengths and weaknesses in existing knowledge and current gaps in the evidence base. Findings from the scoping review will be used as the basis for identifying priority areas for more in-depth consideration, through systematic review of the primary research evidence base (Stage 2). Box 1 contains further information on the stages of evidence synthesis.

This review of reviews was conducted rapidly, and presents the range of evidence in the topic area, rather than answering a specific question about effectiveness alone (this will be the purpose of the full systematic review conducted Stage 2). A review of reviews only includes the findings from previously published systematic reviews of the evidence. This scoping review of reviews presents an overview of the range of evidence on the topic area, rather than answering a specific question about effectiveness alone.

FIGURE 1 STAGES OF EVIDENCE SYNTHESIS (COMMUNITIES EVIDENCE PROGRAMME)

Stage 1: ‘Scoping’ reviews to identify the current state of review level evidence on the key community wellbeing topic areas identified during initial stakeholder and end user engagement exercises. The scoping reviews are designed to identify the strengths and weaknesses in existing knowledge and current gaps in the evidence base. Findings from the scoping review are then used as the basis for identifying priority areas for more in-depth research through systematic review of the primary evidence.

Stage 2: Systematic reviews of priority areas for research into the community wellbeing impacts of specific interventions identified during the scoping reviews, and through further engagement with end-users. The systematic review will examine the evidence from primary studies of interventions.

Stage 3: Based on the findings of stages one and two, identification of a ‘roadmap’ for future research.

Aims of the review of reviews

The review of reviews had four aims:

1. Identify all published reviews on housing interventions and policies with an impact on individual wellbeing or community wellbeing
2. Review publications and highlight housing related interventions and policies that enhance individual wellbeing or community wellbeing, giving particular attention to those that enhance wellbeing for disadvantaged groups
3. Highlight gaps in the review level evidence and make recommendations for a future systematic review
4. Open a dialogue with stakeholders in housing relating to the use of evidence, the importance and policy relevance of the review level evidence and gaps within the evidence base which can be filled through conducting a systematic review.

2. Questions, definitions and scope of the review

Research question

The intention was to cover a broad overview of the published evidence on the links between housing and housing interventions and both individual and community wellbeing. The research question asked within the scoping review was:

What is the scope and nature of review level evidence linking housing and wellbeing?

- What is the review level evidence on relationships between housing and individual and community wellbeing?
- What is the review level evidence on the effectiveness of housing interventions in terms of individual and community wellbeing?

The breadth of the research question meant that a review of reviews would allow the topic to be scoped out in terms of identifying the reviews that exist on the topic and any gaps in the current review-level evidence base. Identification of the scope of the evidence allowed additional questions to be formulated to be answered by a systematic review.

Definitions

Individual wellbeing

The terms wellbeing and quality of life are often used interchangeably as a broad judgement of how good an individual's life is. We can distinguish between a number of different conceptions of wellbeing, some focus on: (a) subjective experiences and judgements individuals make themselves (often referred to as subjective wellbeing), (b) objective criteria such as independence, employment, good health, strong social ties etc., (c) whether an individual gets what they want in life or (d) whether individuals lead flourishing and meaningful lives.

The definition of wellbeing adopted for this review is that agreed by the What Works Centre for Wellbeing¹ itself taken from Office for National Statistics (ONS) (2015) which defines national wellbeing as having 10 broad dimensions which have been shown to matter most to people in the UK as identified through a national debate. These dimensions are set out in Table 1. We use the term wellbeing in this report in its broadest sense without aligning it to any particular theory of wellbeing. Depending on which theoretical view of wellbeing is adopted, these dimensions can either be

¹ (<http://whatworkswellbeing.org/wellbeing-2/>)

seen as components or aspects of what it is to have a good life, or as important determinants of future wellbeing.

TABLE 1 DIMENSIONS OF WELLBEING (ONS)

Dimension	Explanation of the dimension
Personal (subjective) wellbeing	A subjective assessment of how people feel about their own lives. How satisfied people are with their lives, their levels of happiness and anxiety, and whether or not they think the things they do are worthwhile.
Our relationships	Good social relationships and connections with people around us e.g. trust in others, satisfaction with our family life.
Health	Life expectancy and good physical and mental health.
What we do	How people spend their time (e.g. employment, volunteering, arts, culture and exercise) and how satisfied they are with its use (e.g. job satisfaction, satisfaction with amount of leisure time).
Where we live	How people feel about where they live, including: crime, fear of crime, access to the natural environment, sense of belonging to the neighbourhood, access to transport, satisfaction with accommodation.
Personal finance	Whether people are coping financially, including: median income and wealth, feelings of satisfaction with income and whether getting by financially.
Education and skills	The level of skills: qualifications, human capital.
Governance	The level of political engagement: involvement in the democratic process (e.g. voting), trust in the government.
The economy	Strength of the economy: GDP/capita, inflation, government debt.
The natural environment	Environmental sustainability (protecting natural resources from depletion): greenhouse gas emissions, energy from renewables, domestic recycling, and protected areas.

The 'natural environment' dimension, whilst clearly important in terms of the long term sustainability of wellbeing, is not part of any conception of a current good quality of life or high wellbeing. As such it is not taken forward into the scoping review. The dimension about 'the economy' relates to national economic performance and stability, however, our interest is not to measure national wellbeing

rather individual and community wellbeing; we therefore focus only on outcomes of economic performance at a local level.

Our focus on wellbeing necessitates a very broad picture in terms of relevant outcomes. An individual's wellbeing covers every minute of every day and all aspects of their life. Housing cuts across all of the nine dimensions of interest. Housing is the largest single expenditure faced by households (21% of household weekly expenditure in 2014 (ONS Family Spending 2015, table 2.2) and represents a far higher proportion of household expenditure for lower income groups and renters². It also strongly influences people's financial security and the likelihood of falling into poverty (Tunstall et al., 2013). The location and infrastructure of our homes influences our employment chances, our access to services, public transport, and nature, our opportunity for contact with others, our levels of privacy and even the air we breathe. It influences whether we stay warm (and how much of our income is dedicated to that) and whether we feel safe and secure. Consequently, the quality and allocation of housing impacts directly and indirectly on people's lives via a number of different processes. In this review we wanted to gain an understanding of the existing review level evidence across all of these direct and indirect pathways.

The perspective adopted is broad, not just in terms of the outcomes of interest for the individual, but in considering all relevant impacts, both to others within the household and to other impacted households. Housing interventions can impact not just on an individual but on other members of the household or family unit; an intervention may be beneficial for one member of the household but not another. Similarly, a housing change for one household can impact upon others in the neighbourhood or beyond. For example, one household moving in an area of greater opportunity requires consideration of all those within that new area who are impacted and an understanding of potential impact on the previous area that they have left; similarly house price changes have impacts both on the house owner and future owners.

Community wellbeing

Community wellbeing has been defined in a number of different ways (Lee and Kim, 2015). Chanan (2002) for example defines community as "a number of people who have some degree of common identity or concerns often related to a particular locality or conditions".

² Figure 2.8 in Belfield et al, 2014 charts the rising percentage of income spent on housing costs by tenure type since the 1970s, and the widening gap between social and private renters versus mortgage holders, particularly following the historically low interest rates since 2007.

When community is identifiable with a locality, they note that community wellbeing is intimately connected with:

“how well that locality is functioning; how well that locality is governed; how the services in that locality are operating; and how safe, pleasant and rewarding it feels to live in that locality.”

The stakeholder engagement conducted by the Communities Evidence Programme discussed the concept of ‘community wellbeing’ as distinct from individual wellbeing. Mostly, this was interpreted as the quality of neighbourhood level social networks and connectedness (Voice of the User Report 2015). Participants within the Public Dialogue also discussed the concept and expressed it as “*a sense of belonging*”, and “*feeling rooted*” (CPD 2015 p20). One participant linked it to feeling part of something and having support:

“It’s nice to feel that you’re part of something and that you’ve got people you can turn to even for trivial things” Bristol (CPD 2015 p20)

The perception of community wellbeing was therefore more firmly rooted in connectedness and relationships than the above definition by Chanan (2002).

Lack of exclusion was described by those working in the voluntary and community sector as important to community wellbeing, suggesting an important role for social justice within their view of a flourishing community.

We define community wellbeing therefore as “the levels of trust, connectedness, social support and feelings of belonging, along with inclusion” within an area. The level of community wellbeing in a neighbourhood is a determinant of the subjective wellbeing of individuals (Dolan et al. 2008); it is also likely to be a determinant of aspects of their own broader wellbeing, such as their own social relationships (it is easier to talk to your neighbours in an area where the social norm is that neighbours talk to each other). Although the level of community wellbeing in a neighbourhood is influenced by individual action, the level of community wellbeing cannot be set by one individual alone. As such it is important to understand how government and local actions impact upon this resource. This definition of community wellbeing implies we will consider both evidence that assesses individual wellbeing as an outcome and evidence that assesses outcomes indicative of a flourishing community such as the quality of relationships with other members of the community.

Housing

In this review, housing is defined as – “the usual residential home of an individual or family” (Taske et al. 2005 p3). The typology proposed by the UK Housing Review (Wilcox, Perry and Williams 2015), along with assistance from the review advisors, were used as a starting point to guide the review.

Scope of the review

We adopted a broad view of wellbeing, including the nine dimensions as listed in Table 1, and looked to see what review level evidence links housing and these dimensions. Due to the limited timescale for completion of the review, we took a view of housing interventions where the intervention is focussed clearly on housing. We looked at review level evidence of both how housing is *linked* to wellbeing and of the housing interventions that might improve wellbeing.

3. Review Methods

This chapter outlines the rapid scoping reviews research team, the methods used to develop the protocol, how evidence was identified and screened and how the data from reviews was extracted and synthesised.

The review team

The internal review team consisted of experts in wellbeing (TP, JB) and review methods specialists (SP, LP and AC).

Two external review advisors were also members of the research team (Dr Kesia Reeve – Principal Research Fellow, Sheffield Hallam University and Jim Vine – University of Essex and formerly Director of Evidence, Data and Insight, HACT (Housing Associations' Charitable Trust). In addition, information and advice was sought from the What Works Centre for Wellbeing, Communities Evidence Programme team. The review advisors' role was to provide independence and transparency to the review process by commenting on and clarifying the protocol, particularly in relation to inclusion criteria, commenting on included evidence, informing the review team of studies that might have been missed and peer reviewing the draft final report.

Development of the review protocol

The protocol was developed iteratively by the lead author (LP). An initial draft was shared with the research team and changes made. This version was then compared to the Review Methods Guide for the What Works Centre for Wellbeing³ to ensure consistency. The revised protocol was shared, for comment, with the wider Communities Evidence Programme team and the two review advisors. The final protocol can be found in Appendix One. Changes made to the protocol were recorded in a table which can also be found in Appendix One.

Identification of evidence

The first substantive stage of the process was to identify evidence in the form of reviews, to be used as the data for our rapid, scoping review. The search for evidence involved balancing the need for a transparent, clearly documented and reproducible search with our need to identify the best available evidence while keeping search results to manageable numbers within the available timeframe.

³ A guide to our evidence review methods. This is a regularly updated document.
https://whatworkswellbeing.files.wordpress.com/2016/02/what-works-wellbeing-methods-guide_february-2016_final-1.pdf

The search was developed by highly experienced information specialists (LP and AC). The aim of the search was to identify all housing reviews that related to any of the ONS dimensions of individual and community wellbeing. The definition of the concepts that underpin these dimensions are not always clear, are not consistent and there is overlap between wellbeing terminologies. As such there was a risk that if the search focused on terms relating to the specific wellbeing dimensions, key evidence may be missed. The keyword strategy developed to search the databases therefore focused on housing terms and was not restricted by terms relating to wellbeing dimensions.

The search had three stages:

- A broad Google search for housing, wellbeing and reviews.
- Search of databases which contain only systematic reviews using a set of housing keywords developed for this review. The databases were the Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Campbell Library, Joanna Briggs Institute, Epistemonikos and PROSPERO.
- Searches of general and topic specific databases, using a search strategy that combined the same housing keywords as in Search 2 with a systematic review filter. The databases that searched were Medline via OVID, ASSIA via Cambridge Scientific Abstracts, Cochrane Library via Wiley Interscience, PsycINFO via OVID, Web of Science via Web of Knowledge via ISI, Avery Index to Architectural Periodicals (ProQuest) and Emerald Insight. For this stage, free text searching was undertaken at title level only. This methodological decision was based on the clear terminology used to describe housing. As the search aimed to identify review level evidence, rather than undertaking a sensitive search of all literature relating housing and wellbeing, the chance of missing any relevant evidence (in the form of reviews) that do not use any housing terms is minimal.

The search was not restricted in terms of the countries of interest as published search filters to identify evidence from specific countries are not always successful.

Searches were limited to articles published between 2005 and the present day to ensure results were manageable and relevant to the current housing context. Searches were also limited to English language as translation was not possible due to the rapid nature of the review.

A copy of the search strategy is available in Appendix Two

Screening references

All of the references retrieved from the searches were screened according to the criteria outlined in Table 2. The aim of this stage of the review of reviews was to

identify reviews linking housing situations and housing interventions to health or wellbeing outcomes, both at an individual and/or community level.

TABLE 2 INCLUSION AND EXCLUSION CRITERIA

Criteria	Inclusion	Exclusion
Population	Evidence relating to homes. Both permanent and temporary accommodation. Any other dwelling that is considered a home e.g. a traveller caravan or sheltered housing/warden assisted housing.	Locations where people live that are not considered to be homes (e.g. prisons, care homes, schools, universities etc. as these are unlikely to be affected by housing policy changes).
Intervention	Interventions to either people's houses/homes OR their housing situation.	Interventions that are delivered within the home but are not about housing e.g. a cooking intervention to increase vegetable consumption.
Outcome	Any wellbeing outcome for individuals or neighbourhoods.	Interventions reported in terms of housing outcomes only.
Study Type	Systematic review of qualitative or quantitative evidence. Narrative reviews where outcomes are reported.	Primary research, secondary data analysis.
Setting	OECD countries.	Developing countries.
Other	English Language, 2005-2016.	

Screening at title and abstract level was undertaken in EndNote. Three reviewers each independently screened a proportion of the results, and then a fourth reviewer screened a random sample of 10% of the results that they had not already screened. To check consistency across reviewers a Kappa co-efficient was calculated. Disagreements were resolved via discussion between the three reviewers. Full paper screening was undertaken by two reviewers. Papers that were selected for full paper scrutiny were assessed by one reviewer who made a decision about the inclusion or exclusion of the review, with reference to the criteria outlined in Table 2.

Data extraction

Following the selection of the reviews for inclusion, extraction of data from these reviews and an assessment of the review study quality were undertaken. This allowed us to focus on the most critical information to include in the review of reviews and to assess how the study quality might influence the conclusions drawn from the reviews. Data was extracted into summary tables. The data tables were developed using the What Works Centre for Wellbeing Review Methods Guide and tested on two different studies by four members of the research team (LP, AC, SP and TP). Once modifications had been made, data extraction was undertaken by three reviewers (AC, LP and SP). The data extraction tables are in Appendix Three.

Quality assessment

In a review of reviews, the legitimacy of the conclusions drawn is based on the results from the reviews that are included, which in turn are based on the results from the primary studies included in the review. Two questions therefore needed to be addressed:

- (1) Was the review undertaken appropriately and
- (2) Was quality assessment of the primary studies included in the review undertaken?

In order to do this data was extracted from the reviews about whether quality assessment of their included studies was undertaken and what this quality assessment consisted of. In addition, the quality assessment tool we used examined specific features of the body of evidence, namely type of the review, quality of the review, consistency of the review findings, and consistency between unanswered research questions and how relevant the research is to the current UK policy context. Quality assessment was undertaken using a bespoke form, which included the Quality Assessment Instrument Centre for Evidence Based Medicine (CEBM) Systematic Review Checklist⁴ alongside the other issues listed above. Quality assessment was undertaken by three reviewers. The purpose of the quality assessment of the included reviews was not to include or exclude studies based on quality, rather to provide information for the assessment of the overall validity of the review. There was no double screening of data extraction and quality assessment forms due to the nature of the review. However, the forms used were trialed by all four members of the review team. These can be found in Appendix Four.

⁴ <http://www.cebm.net/wp-content/uploads/2014/06/diy-systematic-review-appraisal-worksheet.pdf>

Evidence synthesis

We gave equal weight to reviews in the evidence synthesis and did not favour evidence from reviews for any reason, related to either quality or relevance. However, both the relevance and quality of the included reviews and their included studies were considered as part of the analysis. The synthesis of the evidence derived from the data extraction of the reviews had a number of stages.

- Development of evidence clusters. The included reviews were scrutinised at title and abstract level to identify the research questions and topics being addressed. The reviews were then organized into thematic clusters according to the topics and research questions.
- Table of review crossover - Where a significant number of reviews on the same topic area were identified they were mapped against one another to see what overlap there was in the primary studies included within the reviews. These tables have not been included in the report as they are extensive and unwieldy. Copies are available on request.
- Narrative synthesis of review evidence - The evidence included in the reviews was read repeatedly in order to develop familiarisation with the content of the evidence. A set of specific aspects to be addressed in the assessment of the reviews was developed by the review team. These formed subheadings which were used to guide the analysis of the data and to ensure a consistent analytic approach across the thematic clusters. These subheadings were developed iteratively through discussion within the research team and were inductive and evidence driven.
- Evidence map linking included studies to wellbeing dimensions – In order to focus the analysis on the assessment of wellbeing, the outcomes reported in the included reviews within each thematic cluster were mapped to the ONS wellbeing dimensions.

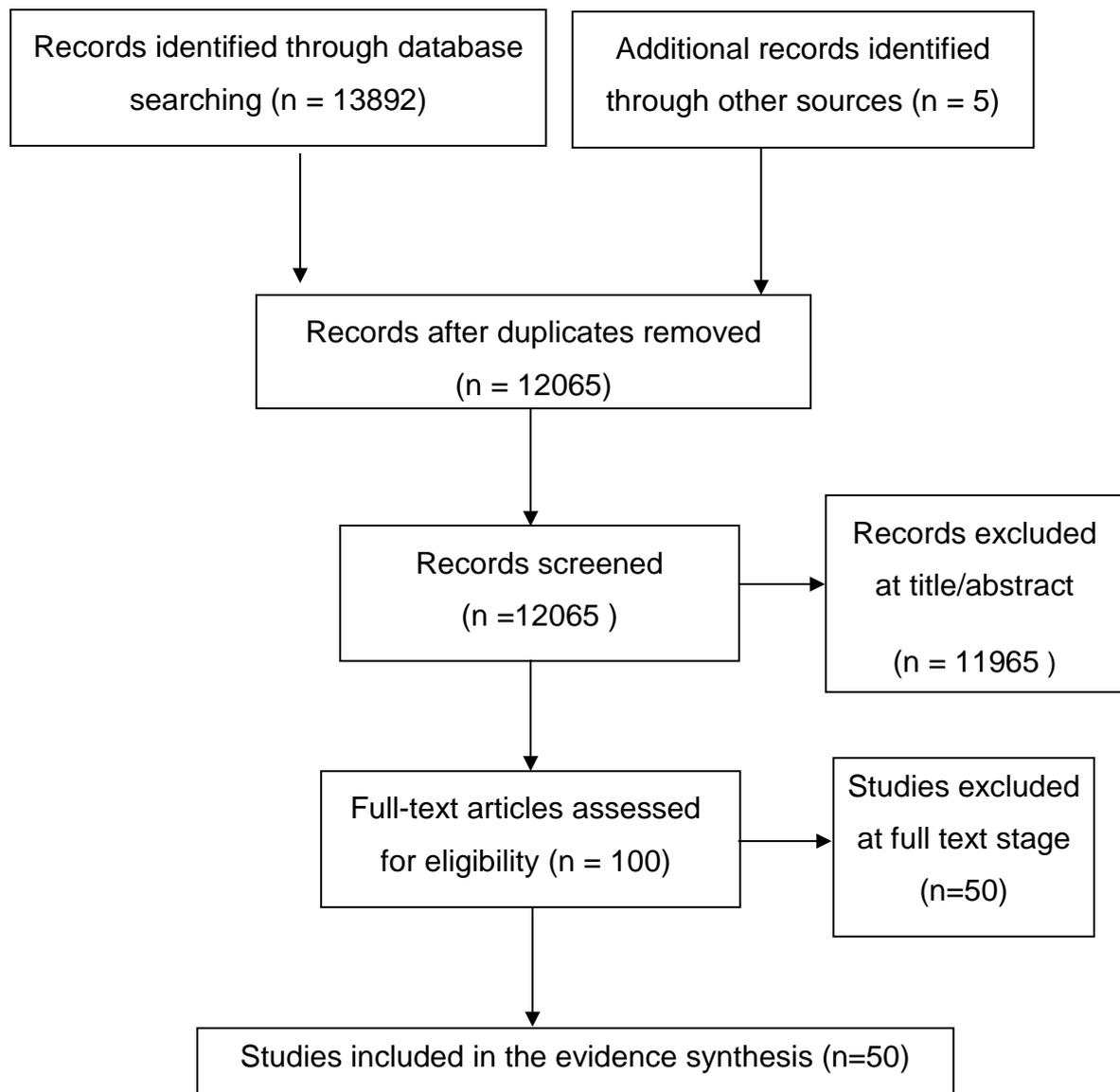
Reporting

The narrative synthesis of review evidence was reported and discussed according to the thematic clusters. A reflection of the review process was undertaken and the implications of the overall existing review-level evidence for the conduct of the future systematic review of primary evidence were considered. Recommendations for the topic and scope of the systematic review of primary evidence were made.

4. Results of the literature search

The results of the literature search presents the studies identified in the searches, the screening process and the final list of included studies, with a clear description of the decisions made about the evidence to include and exclude from the review. The process is summarised in the modified PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) diagram below (Moher et al. 2009).

FIGURE 2 PRISMA FLOW DIAGRAM SHOWING THE PROGRESSION OF STUDIES (REVIEWS) THROUGH THE SCOPING REVIEW OF REVIEWS



Screening of the database

The initial literature search identified a total of 12065 unique records which were sifted for inclusion in the review according to the predefined inclusion and exclusion criteria at title and abstract level. A second level of sifting of full papers was then undertaken. This resulted in 50 papers which met our inclusion criteria. In order to check the screening consistency of the three reviewers, a fourth reviewer screened approximately 10% of the references. A Kappa coefficient was calculated demonstrating good agreement between reviewers: – $K = 0.855$, 95% CI, 0.739-0.971.

Full paper exclusions

This section outlines specific evidence areas in which full papers were excluded in the review, to give some context and scope to the evidence that was included.

- Evidence on interventions delivered **within** the home but not relating to either the home environment or an individual housing situation, for example, there were a number of reviews on the development of smoke free homes
- Interventions which were not directly related to housing but were delivered to a group vulnerable in relation to their housing (e.g. soup kitchens for homeless people). Whilst these interventions may have a beneficial impact on their wellbeing, if the intervention is not related to housing then it is outside the scope of the review.
- Reviews with housing outcomes but no wellbeing outcomes
- Publication type exclusions - papers derived from or included in a larger review, typically a Cochrane Review or a National Institute for Health and Care Excellence (NICE) Review that had already been included, expert panel reviews of evidence, meta regression, editorials or opinion/discussion pieces supported by limited evidence.

Development of evidence review clusters

From the 50 papers that met our initial inclusion criteria, evidence clusters were developed into which the papers were arranged using information from the title and abstract. These evidence clusters were scrutinised and decisions were made regarding how to deal with the evidence included in specific clusters. The evidence clusters are presented in Table 3.

TABLE 3 EVIDENCE CLUSTERS

Evidence cluster	Topics included	Papers included (n)
The physical infrastructure of housing	Home safety (accidents including poisonings, injuries including falls, chemical emissions) Cold, damp and mouldy homes Pest management Fuel poverty and warmth and energy efficiency	18
The economic housing situation of individuals	Insecure housing Housing mobility and tenure issues	7
Housing and neighbourhood regeneration	Neighbourhood regeneration Urban regeneration	5
Housing for vulnerable groups	Individuals with intellectual disability Homeless people Individuals with mental health issues People living with HIV/AIDS Older Lesbian, Gay, Bisexual and Transgender (LGBT) people	18
Housing design and housing environment	Housing design to promote healthy behaviours Housing to promote independent living	2

We identified two reviews where housing was covered more generally across a number of the evidence clusters (Thomson 2009 and Thomson 2013). Evidence from these was included in the relevant evidence clusters, rather than considered as a whole. Three reviews of reviews (Sautkina 2012, Gibson 2011, Taske 2005) were also identified. These were used as a means of identifying reviews for inclusion in the current review of reviews and as supporting information.

Data extraction

Pragmatic decisions were made about the appropriate level of data extraction for each evidence cluster. This was necessary in order to ensure the main objective of the review was met - that of identifying questions / topics for the new systematic review which would add value to the field. Decisions on the level of detail of data extraction were based on a number of factors:

- the amount and complexity of evidence within each evidence cluster

- the priorities identified within the consultation exercise and Voice of the User Report
- advice from project experts on which clusters constitute important, priority topics.

The following decisions were made about how to address the evidence.

- Evidence relating to the physical infrastructure of housing was plentiful and the evidence cluster contained a number of Cochrane and NICE reviews on the topic. It was therefore decided that the evidence in this cluster would only be extracted if it was a Cochrane Review, a NICE review, a review on a topic that was not covered by either a Cochrane or NICE review or published since 2014.
- Evidence in clusters where there was sufficient evidence to allow us to address the scope of the topic was restricted to review level evidence that was not in a narrative format. Where there was a paucity of evidence within a cluster, narrative evidence was included.

The results of the review of reviews are presented in the following chapters, based on the evidence clusters presented above. In each chapter the quantity and quality of reviews is presented, with an assessment of the outcomes considered and the wellbeing dimensions addressed. Results by topic are outlined before a discussion of the implications of the results is presented.

5. Physical infrastructure of housing

The reviews included in this section assessed the evidence on the impact of housing infrastructure on physical health.

Quantity of reviews

There are 18 reviews in this section (Beswick 2008, Chase 2012, Gillespie 2012, Gotzsche 2008, Haak 2011, Kendrick 2012, Krieger 2010, Liddell 2010, Mendell 2011, Nankervis 2015, Pearson 2011, Sandel 2010, Sauni 2013, Sheikh 2010, Thomson 2009, Thomson 2013, Turner 2011, Wynn 2015)

The reviews cover the followings aspects of housing infrastructure:

- Home safety
 - Education on home safety equipment (Kendrick 2012)
 - Supply and/or installation of home safety equipment (Pearson 2009)
 - Interventions to reduce childhood poisoning (Wynn 2015)
 - Modifications to the home environment to reduce environmental hazards (Turner 2011)
- Community multifactorial interventions to prevent or reduce falls in older people (Beswick 2008, Chase 2012 and Gillespie 2012). These programmes varied but often incorporate several of the following approaches:
 - Home assessment and modifications:
 - Hazard identification
 - Structural changes to inside of home
 - Structural changes to outside of home
 - Provisions of assistive technology and devices:
 - Provision of aids for personal mobility
 - Provision of aids for protection
 - Adaption to homes
 - Aids for communication
 - Aids for information
 - Aids for signalling
 - Group education
 - Counselling
- Dampness/Mould
 - Remediation of damp buildings (Sauni 2013)
 - The association between indoor dampness or mould and respiratory or allergic health (Mendell 2011)
 - Interventions to reduce exposure to indoor biologic asthma triggers (Krieger 2010)
- Pest management

- Interventions to reduce exposure to house dust mite antigens (Gotzsche 2008, Nankervis 2015, Sheikh 2010)
- Interventions to reduce exposure to indoor biologic asthma triggers (Krieger 2010)
- Chemical agents
 - Interventions to reduce exposure to chemical agents (Sandel 2010)
- Fuel poverty
 - Interventions to tackle fuel poverty (Liddell 2010)
- Interventions to improve warmth and energy efficiency (Thomson 2009 and Thomson 2013)

Quality of reviews

All of the reviews were conducted using systematic review methodology. Six of the eighteen reviews are Cochrane systematic reviews (Gillespie 2012, Kendrick 2012, Sauni 2013, Sheikh 2010, Thomson 2013 and Turner 2011) which are considered high quality systematic reviews.

Quality of included evidence

Studies included in these reviews were RCTs (randomised controlled trials), non-randomised controlled trials, controlled before and after studies. The included studies were conducted worldwide. Most of the reviews included UK studies. Two of the systematic reviews on falls included only RCTs (Beswick 2008 and Gillespie 2012) with the other (Chase 2012) including predominantly RCTs.

Outcomes considered

A broad range of outcomes were included across the eighteen reviews. These are presented in Table 4.

TABLE 4 PHYSICAL INFRASTRUCTURE OF HOUSING - OUTCOMES

Topic	Outcomes
Home safety	Reduction in injury rates Increase in safety practices Injury rates Presence of correctly installed safety equipment Cost-effectiveness of interventions Change in injury or risk Change in prevalence of safety features Change in prevalence of hazards Safe medicine storage Safe storage of other products Risk of not living at home Nursing home admissions Death

	<p>Hospital admissions</p> <p>Falls</p> <p>Physical function</p> <p>Fear of falling</p> <p>Rate of falls</p> <p>Number of fallers</p> <p>Number of fall-related fractures</p> <p>Adverse effects of the intervention</p> <p>Economic outcomes</p> <p>Rate of functional decline</p> <p>Balance</p> <p>Strength</p>
Dampness/Mould	<p>Respiratory tract symptoms</p> <p>Respiratory tract infections</p> <p>Asthma and asthma-related symptoms</p> <p>Asthma morbidity</p> <p>Mould symptoms</p>
Pest management	<p>Cockroach allergens</p> <p>Asthma and asthma-related symptoms</p> <p>Asthma morbidity</p> <p>Mould symptoms</p> <p>Respiratory symptoms</p> <p>Subjective wellbeing</p> <p>Medication usage</p> <p>Days of sick leave from school or work</p> <p>Number of unscheduled visits to a physician or hospital</p> <p>FEV1 (forced expiratory volume in 1 second)</p> <p>PEFR (peak expiratory flow rate)</p> <p>PC20 (provocative concentration that causes a 20% fall in FEV1)</p> <p>Eczema</p> <p>Eczema medication used</p> <p>Sensitivity of house dust mite allergen using a marker</p> <p>Adverse effects</p>
Chemical agents	<p>Radon-induced lung cancer</p> <p>Cardiovascular mortality</p> <p>Neurological effects</p> <p>Exposure to pesticides</p> <p>Exposure to lead paint</p> <p>Exposure to radon</p>
Fuel poverty	<p>Mortality</p> <p>Self-reported physical health</p> <p>Self-reported mental health</p>

	Hospital attendance Weight for age Caregiver and child health reports
Interventions to improve warmth and energy efficiency	Health impact Changes to general health Changes to respiratory health Changes to mental health Impact on illness or symptoms

Consideration of individual and community wellbeing

Consideration of wellbeing in these reviews arises mostly through physical health and mental health (Thomson 2009 and Thomson 2013), and independence (living at home) (Beswick 2008). The impact on community wellbeing is not considered.

Results

Home safety

Home safety interventions are effective in increasing a range of safety practices. Most commonly provided interventions were one-to-one face-to-face education with the provision of safety equipment. There is some evidence that such interventions may reduce injury rates but further studies are still needed to confirm this. Providing education about poison prevention, cupboard and drawer locks and emergency contact numbers in the event of poisoning helped improve poison prevention practice but further research would be needed to determine the effect on poisoning rates (Wynn 2015).

The systematic reviews that reviewed interventions to prevent or reduce falls (Beswick 2008, Chase 2012, Gillespie 2012) found that interventions were generally effective at reducing the risk of falls and of not living at home and reducing nursing-home and hospital admissions. The reviews found that in general, a client-centred intervention plan that includes a mix of exercise, education, home modification and assistive technology is supported by the best evidence for falls prevention and occupational performance in community-dwelling older adults. The evidence for the effectiveness of multifactorial interventions was strong, however it was difficult to determine which aspect of the intervention was most effective. The evidence for the effectiveness of home assessments and home modifications was moderate. Interventions delivered by an occupational therapist were found to be more effective than interventions not delivered by an occupational therapist.

The evidence for the effectiveness of interventions for falls did not suggest that one format of care provision was better than another; hence the possibility might exist to tailor different formats of care to the needs and preferences of the individual. Home modification studies were seen as often missing opportunity to measure outcomes related to maintained or increased ability to complete Activities of Daily Living (ADLs) or Instrumental Activities of Daily Living (IADLs). The use of standardized outcome

measures for functional status and safety in the home was recommended in order to provide a consistent way to examine change by assessing the wide range of environments in older adults participate, including home and community. Additionally a qualitative meta-synthesis (Haak 2011) focused on very old, single-living people's experience of home in relation to participation, independence and health. This study reviewed four connected qualitative studies that used data from the Swedish ENABLE-AGE in-depth study. The study results showed that over time the participants experience three intertwined processes: turning points (within the process of ageing, points when it was no longer possible to continue living as before); struggle (to remain independent and continue with meaningful activities); and negotiations (adaptations and changing priorities). These three processes take place in the context both of a desire for a familiar, functional, safe yet meaningful and home-like environment and an awareness of their own frailty. Perceptions of health are tied into a desire to maintain participation and independence in their own home. Results can help to develop guidelines for more holistic approaches to housing provision for senior citizens.

Dampness/Mould

There was moderate to low-quality evidence that repairing mould-damaged houses and offices decreases asthma-related symptoms and respiratory infections in adults compared to no intervention (Sauni 2013). The elimination of moisture intrusion, leaks and removal of mouldy items improved respiratory and asthma symptoms. The causation review (Mendell 2011) found evidence that dampness or mould had consistent positive association with multiple allergic and respiratory effects. Thus, prevention and remediation of indoor dampness and mould are likely to reduce health risks.

Pest Management

Multifaceted, in-home, tailored interventions for asthma improved/reduced asthma and respiratory symptoms (Krieger 2010). Cockroach control reduced cockroach allergens (Krieger 2010). Chemical and physical methods to reduce exposure house dust mite allergens cannot be recommended to improve asthma symptoms (Gotzcsche 2008). The studies on the impact of dust mite reduction on eczema symptoms were too low-quality to enable firm conclusions to inform clinical practice (Nankervis 2015).

Generally small and poor methodological trials make it difficult to offer firm conclusions or recommendations on the role, if any, of house dust mite avoidance measures in the management of house dust mite sensitive allergic rhinitis. The use of acaricides and extensive bedroom-based environmental control programmes may be of some benefit in reducing rhinitis symptoms (Sheikh 2010).

Chemical agents

Four interventions had sufficient evidence to demonstrate their effectiveness: radon air mitigation by using active soil depressurisation systems, integrated pest management to reduce exposure to pesticides, smoke-free home policies and residential lead hazard control. These housing improvements are likely to help reduce radon-induced lung cancer, cardiovascular mortality related to second-hand smoke and neurological effects from exposure to pesticides and lead paint (Sandel 2010).

Fuel poverty

Tackling fuel poverty has modest effects on adult physical health but caregivers and children perceive there to be significant impacts on children's respiratory health. There also appears to be significant effects on the physical health of infants and the mental health of adults and adolescents. There are methodological problems with the included studies. Measures that extend beyond physical health could beneficially be considered, for example quality of life, social engagement and mental wellbeing (Liddell 2010).

Interventions to improve warmth and energy efficiency

Interventions to improve the warmth of homes lead to improvements in general, respiratory and mental health. There was no consistent effect reported for other illnesses or symptoms for similar outcomes between studies, and within studies the overall impact was unclear (Thomson 2009).

Discussion

The review level evidence on the physical infrastructure of homes covered a large quantity of evidence. Despite the volume of research many reviews still call for further methodologically sound research, preferably with RCT design, validated outcomes, and large sample sizes so that the effects can be measured.

The main outcome within this body of evidence was physical health. This is appropriate in situations, such as the impact of allergens and chemical agents, where the most important benefit of interventions is via changes in physical health. However, there is a need for long term cost effectiveness modelling studies to complement this work to ensure the full consequences (direct and indirect costs and benefits) of any intervention are considered. The reviews draw on international research, however, the health impacts of housing conditions are likely to be transferable to the UK. Mental health of householders was a key outcome in studies evaluating fuel poverty and cold houses. A greater use of psychological wellbeing outcomes (such as confidence, loneliness and worry) would also be beneficial in evaluations of interventions reducing falls in the elderly.

None of the reviews assessed the evidence from an explicit wellbeing perspective. An attempt therefore has been made to map the outcomes and results to the ONS dimensions of wellbeing. (See Table 5).

TABLE 5 PHYSICAL INFRASTRUCTURE OF HOUSING REVIEWS: MAPPING OUTCOMES TO THE ONS WELLBEING DOMAINS

Wellbeing domain	Yes / No	Outcomes reported	Main conclusions
Personal wellbeing (subjective wellbeing)	✓	Mental health Risk of not living at home	Tackling fuel poverty appears to have significant effects on the mental health of adults and adolescents. Interventions for reducing or preventing falls were generally effective at reducing the risk of not living at home.
Our relationships	✗		
Health	✓	Physical health Mental health	Tackling fuel poverty has modest effects on adult physical health but caregivers and children perceive there to be significant impacts on children's respiratory health. There also appears to be significant effects on the physical health of infants and the mental health of adults and adolescents. Interventions to reduce mould and allergens within the house were generally effective at improving respiratory health.
What we do	✓	Days of sick leave from school or work	This outcome was only assessed in two trials so further studies are required to determine the true effect.
Where we live	✓	Safety of home Ability to live at home	Home safety interventions are effective in increasing a range of safety practices. Interventions for reducing or preventing falls were generally effective at reducing the risk of not living at home.
Personal finance	✗		
The economy	✗		

Wellbeing domain	Yes / No	Outcomes reported	Main conclusions
Education and skills	✓	Days of sick leave from school or work	This outcome was only assessed in two trials so further studies are required to determine the true effect.
Governance	✗		

6. Economic Housing Situation

The reviews included in this section considered issues and assessed interventions relating to affordability of housing, tenure, housing mobility, mortgage foreclosure and disparity in home ownership.

Quantity of reviews

Seven reviews were included (Clark 2007, Lindberg 2010, Narine 2014, Sautkina 2012, Tsai 2015, Varady 2010, Varady 2013). Four reviews assessed the effectiveness of housing interventions (Lindberg 2010, Varady 2010, Varady 2013, Sautkina 2012), including housing mobility programmes (Lindberg 2010, Varady 2010, Varady 2013) and mixed tenure policy (Sautkina 2012). Three reviews considered observational or theoretical studies on mortgage foreclosure (Tsai 2015), tenure (Clark, 2007) and disparities in home ownership (Narine 2014). Four reviews included studies with US populations (Lindberg 2010, Narine 2014, Varady 2010, Varady 2013), one review included studies with UK populations (Sautkina 2012), two reviews included some UK evidence (Clark 2007, Tsai 2015). All of the reviews reported results using narrative synthesis methods.

Quality of reviews

Four reviews were conducted using systematic review methods (Clark 2007, Lindberg 2010, Sautkina 2012, Tsai 2015). Three reviews did not report any formal systematic reviews methods or review methods were unclear (Narine 2014, Varady 2010, Varady 2013).

Quality of included evidence

None of the reviews identified high quality evidence. Five reviews specified included evidence as being of poor quality (Clark 2007, Lindberg 2010, Sautkina 2012, Tsai 2015, Varady 2013). Two reviews did not comment on the quality of included evidence or the quality of included evidence overall was unclear (Narine 2014, Varady 2010). Limitations in the quality of evidence typically reported included a lack of longitudinal and/or comparative evidence, subjective or self-reported outcome measures, no controlling for or analysis of confounding factors or causal relationships. Poor quality reporting was also reported as a limitation.

Reviews of housing mobility programmes

Interventions included

The reviews included evidence on a number of US housing mobility ('voucher') programmes aimed at providing opportunities to move away from high poverty neighbourhoods and/or neighbourhoods with a high concentration of minority groups or poor quality housing requiring demolition or revitalisation. The following housing mobility programmes were included:

- Housing Choice Voucher Program (HCVP) (Lindberg 2010, Varady 2010)
- Gautraux I and II Programs (Varady 2010, Varady 2013)
- HOPE VI Program (Lindberg 2010, Varady 2010)
- Moving to Opportunity Program (MTO) (Lindberg 2010, Varady 2010, Varady 2013)
- Baltimore Housing Mobility Program (BHMP) (Varady 2013).

A number of adjunct interventions, including screening Program participants (screening out multi-problem families), providing relocation counselling and advice (pre and post relocation), landlord engagement and monitoring levels of population clustering in destination neighbourhoods were also considered (Varady 2013).

Outcomes considered

The following outcomes were considered:

- Physical health (self-reported perceived health and physical activity, some objective health measures) (Lindberg 2010)
- Mental health (self-reported). (Lindberg 2010)
- Housing condition (Lindberg 2010, Varady 2010)
- Housing mobility (Varady 2010, Varady 2013)
- Social and economic outcomes, described as social capital and social, economic and environmental wellbeing (Lindberg 2010) and social mobility (Varady 2010) and including educational attainment (Varady 2010), employment / earnings (Varady 2010).
- Impact on community, including clustering and negative spillovers in destination neighbourhoods (e.g. community opposition) (Varady 2013.)

Consideration of individual and community wellbeing

One review describes social and economic outcomes as social, economic and environmental wellbeing but does not address wellbeing according to a formal definition (Lindberg 2010). One review refers to the quality of life of programme participants but does not give a formal definition of quality of life, nor link it to the concept of wellbeing. Overall studies do not address the impact of housing mobility interventions from a wellbeing perspective.

One review considers the impact of housing mobility programmes on the community in terms of destination areas (neighbourhoods to which Program participants move) but not communities from which participants move. Overall, there is very little consideration of the impact of housing mobility interventions from a community perspective.

Results of the reviews of housing mobility programmes

Improved physical health was reported by participants in the MTO and HOPE VI Programs although the physical health status of HOPE VI participants was still significantly below the national average (Lindberg 2010).

Evidence on healthy behaviours, in terms of smoking and substance abuse, was mixed in the MTO Program, with adolescent girls improving in health behaviour and adolescent boys' behaviour worsening.

In terms of housing conditions, the HCVP Program was associated with better, safer housing and with a reduction in the mean number of people per room (Lindberg 2010, Varady 2010). This was seen as being due to the level of housing condition required for landlords to be included in the Program.

Evidence on self-reported mental health was mixed with persistent mental health problems reported for the HOPE VI Program but improvements in perceived mental health amongst adolescent girls in the MTO Program.

Housing mobility was reported as being poor for the MTO and Gautraux Programs. Clustering of participants in destination neighbourhoods was perceived as high. The proportion of participants making a second move back to high poverty areas was reported as high and was seen as being associated with wanting to be near family and familiar social networks. Housing mobility was reported as good for the BHMP. This was reported as being due to adjunct interventions to the Program, including relocation counselling and advice for participants, engagement with landlords participating in the Program and screening of families for inclusion in the Program (Varady 2013).

Overall there was no consistent evidence of improvements in social and economic outcomes. There was no evidence of social mobility in terms of benefitting from a 'middle class neighbourhood effect' for the HCVP, Gautraux and MTO Programs (Varady 2010). There was mixed evidence in terms of educational attainment in the MTO Program, with an improvement in educational outcomes for adolescent girls but deterioration for adolescent boys. (Lindberg 2010, Varady 2010) There was no evidence of improvements in employment in the HOPE VI Program (Lindberg 2010). There was improvement in economic outcomes in the HCVP Program, with a reduced proportion of income being spent on rent (Lindberg 2010, Varady 2010). However, this was also associated with reduced self-sufficiency, with participants perceived as being more welfare dependent (Varady 2010).

Overall there was no impact, in terms of negative spillover effects or community opposition in destination areas (Varady 2013). An exception was reported for the Gautraux 2 and MTO Programs where an increase in the anti-social behaviour of adolescent boys was reported (Varady 2013).

Discussion on reviews of housing mobility programmes

The key messages from the reviews of housing mobility programmes suggest that programmes can provide better housing conditions for participants. Adjunct interventions, such as relocation counselling and screening for eligibility in programmes appear to be important to secure the longer term mobility of participants, particularly where adjunct interventions form a long term part of the housing mobility programme. Overall, there is no evidence of social or economic benefits of the programmes. The reviews find minimal evidence of negative spill overs on destination areas.

Overall, the quality of evidence included in reviews is reported as being of poor quality. Developments in research methods are often cited as a recommendation for future research. Two of the reviews are also assessed as being of poor quality in terms of systematic review methodology. Although their value is limited in terms of evidence of effectiveness, they have been included as they provide useful insights into the delivery of complex housing interventions.

None of the reviews assess outcomes according to a formal definition of individual or community wellbeing. However, many of the reported outcomes fall within the scope of the ONS definition of wellbeing and therefore could be considered to provide indirect evidence of wellbeing. An attempt to map the reported outcomes to the ONS dimensions of wellbeing is presented in Table 6.

All of the reviews focussed on US populations and housing mobility programmes. The extent to which the US evidence is relevant for the UK is unclear. Area effects may be stronger in the US than Europe due to the close connections between housing quality, income and employment which are mitigated in much of Europe by the Welfare State and social housing (Ostendorf et al. 2001). However, it has been argued that the UK's income divisions and concentration of low income social housing tenants make the US evidence more applicable to UK than other European countries (Stephens et al. 2002). The situation of racial segregation of the US also challenges the relevance of the findings of these programmes. Indeed, it has been argued that the situation of racial segregation in the US means it is almost impossible to disentangle race issues from US housing evidence (Sautkina et al., 2012).

Review of mixed tenure (MT) policy

Interventions included

The review of MT policy (Sautkina 2012) included evidence on MT areas in England (71% of study areas) and Scotland (29% of study areas). Included studies focussed mainly on different type of MT arrangements. They included different sizes of study area (from fewer than 650 dwellings to over 1000 dwellings), different proportions of

tenure type (i.e. owner occupiers versus tenants) and different spatial configurations (i.e. integrated, segregate and mixed configuration tenure types).

Outcomes considered

Outcomes reported in included studies were grouped according to the following categories:

- Social capital: Sense of community, social cohesion, interaction, integration, kinship networks, role models, community participation, place attachment and identity.
- Human capital: Better health, school attainment.
- Residential outcomes: Residential and housing satisfaction, housing quality, increase in property values, increase in demand for social housing, reduction in residential turnover.
- Environmental outcomes: Neighbourhood satisfaction, improved physical environment, satisfaction with amenities and services, neighbourhood reputation and image.
- Safety outcomes: Fear of crime, perceived crime and anti-social behaviour, reduced crime and anti-social behaviour.
- Economic outcomes: Income mix, job opportunities, employment rates, local spending, local economy.

Consideration of individual and community wellbeing

The review does not address the issue of wellbeing as an explicit concept and does not assess studies according to a formal definition of wellbeing. However, several outcomes consider the impact of mixed tenure at community level, particularly social capital outcomes, environmental outcomes, safety outcomes and some economic outcomes.

Results of the review of mixed tenure

The review assessed the quality of evidence and reported results according to the strength of evidence. This approach is highlighted in the summary below.

Social capital: There was stronger evidence that MT supported local kinship networks. Shared public spaces such as schools supported cross-tenure interaction as did spatial integration, particularly where there was similar housing design across tenure types. Effects upon place attachment were mixed. There was no effect on peer behavioural influences. There was weaker evidence that MT had no effect on social cohesion and mixed effects on community participation.

Human capital: There was stronger evidence that MT had no impact on health outcomes and weak, mixed evidence of educational attainment.

Residential outcomes: There was stronger evidence that MT led to an increase property values, mixed effects on housing and residential satisfaction and on turnover. There was weaker evidence of the effects of MT on demand for social housing and on housing quality.

Environmental outcomes: There was stronger, though mixed, evidence of MT effects on neighbourhood satisfaction and service and amenities satisfaction. There was weaker and mixed evidence on neighbourhood reputation and quality of the physical environment.

Safety outcomes: Both the stronger and weaker evidence of MT effects on perceived and actual crime and anti-social behaviour was mixed.

Economic outcomes: Both the stronger and weaker evidence of MT effects on all economic outcomes was mixed.

Discussion on the review of mixed tenure policy

The key message from the review related to the paucity of evidence on mixed tenure strategies. The authors of the review concluded that the weakness of the evidence base, the heterogeneity of the mixed tenure arrangements and the lack of transparency in reporting meant that generalisations could not be drawn. Research recommendations focussed on improvements in study design.

The review itself was well conducted, although the interpretation of the effect on some outcomes was unclear. In particular, it is not clear whether increases in property values and in demand for social housing were viewed as positive or negative outcomes. This would clearly differ according to the perspective of the interpretation of the evidence.

The review did not assess outcomes according to a formal framework or definition of individual or community wellbeing although the concept of wellbeing was raised in the discussion. Many of the outcomes reported could be interpreted from a wellbeing perspective and fit the ONS definition of wellbeing (see Table 6).

The review focussed on UK evidence and identified mixed tenure strategies as being a key feature of UK housing and regeneration policy. The review therefore is highly relevant to the current review of reviews.

Review of home ownership disparity

One review on the disparity in homeownership highlighted the existing disparity in home ownership and housing values between white and Hispanic, Asian and African-American populations in the US and the lack of research and understanding of the determinants of these inequalities (Narine 2014). The review did not attempt to provide evidence of the determinants of these inequalities, but drew on research

evidence to develop theoretical explanations for housing disparities with a view to informing future research and housing policy.

Consideration of individual and community wellbeing

The review did not consider housing disparities from an explicit wellbeing perspective and did not consider the impact of housing disparities at a community or neighbourhood level.

Results of the review of home ownership disparity

Five possible determinants of home ownership and value were described:

- **Human capital perspective:** reflecting differential levels of success in the labour market and differences in disability and health status.
- **Financial capital perspective:** reflecting differential levels of income, inheritance, savings and interest.
- **Discrimination practices perspective:** reflecting discrimination in home lending and real estate markets resulting in a dual housing market and residential segregation.
- **Assimilation perspective:** reflecting differences in the level of social and economic assimilation and mobility achieved by minority and immigrant populations.
- **Housing policy perspective:** The review describes positive and negative effects which can result in housing policy being an unintentional source of housing inequality. In particular, the review highlights policies that are aimed at increasing home ownership but that have led to financial lending practices resulting in housing and economic crises.

Discussion of review of home ownership disparity

It is difficult to draw conclusions from the review of housing disparities as the review was restricted to defining possible theoretical explanations for further exploration and did not attempt to establish relationships between these explanations and recognised disparities in home ownership and values.

The review of housing disparities did not draw on evidence according to a systematic method and did not assess the quality of the evidence.

Review of home foreclosure

One review on home foreclosure reviewed qualitative and quantitative evidence on the impact of home mortgage foreclosure on physical and mental health predominantly in the US (Tsai 2015).

Outcomes considered

The following outcomes were considered:

- Mental health related outcomes
- Physical health outcomes, including health behaviour
- Domestic violence and/or child abuse

Consideration of individual and community wellbeing

The review does not address the issue of wellbeing as an explicit concept.

Results of the review of home foreclosure

All studies included in the review that assessed mental health outcomes reported worsened mental health outcomes, including depression, anxiety, alcohol use, psychological distress, suicide and shame.

Most studies that assessed physical health outcomes reported worsened health outcomes. These were mainly self-rated health and included unhealthy behaviours (e.g. smoking) and financial trade-offs resulting in unmet medical needs.

Evidence of impact on domestic violence or child abuse had mixed results.

Studies based on multi-level data suggested that degradation of the neighbourhood environment and an increase in community stressors created by the level of foreclosures in the area had an indirect, individual level effect on physical and mental health. That is, both proximate and personal experience of foreclosure could have an impact of health outcomes.

Of the 35 studies included in the review, only 2 examined impact of foreclosure on ethnic and racial minority populations.

Discussion of the review of home foreclosures

The key message from the review of home foreclosure was that both direct and indirect experience of foreclosure (i.e. by proximate individuals and at community level) could have an impact on physical and mental health. The evidence in the review of foreclosure was reported as being at high risk of bias. The personal impact of foreclosure identified using predominantly US evidence is likely to be transferable to the UK. However, given the lower rates of foreclosure in the UK, particularly in the last decade, the impact on health of the proximate experience of foreclosure may not translate to the UK.

Review of living in rental accommodation

The review on the impact of different types of tenure (Clark 2007) formed part of a broader review on the impact of the built and physical environment on mental health (Clark 2007). The impact of housing tenure formed one subset of studies within the review (5/99 studies). All five included studies considered the impact of living in rental accommodation (3 of which were from the UK).

Results of the review of living in rental accommodation

Overall the review found no clear association between mental health and rental housing tenure.

Consideration of individual and community wellbeing

The review did not consider the effects of rental tenure from an explicit wellbeing perspective and did not consider the effects of rental tenure at a community or neighbourhood level.

Discussion on the review of living in rental accommodation

The review of studies on rental housing tenure did not find an association with effects on mental health. The evidence in the review on housing rental tenure was assessed as being weak.

Discussion

The reviews included in this chapter cover a broad range of topics, making it difficult to identify main results and draw general conclusions. This section therefore brings together reflections on the evidence base included in this chapter, including a consideration of the evidence from a wellbeing and community perspective and in terms of relevance to the current review.

The quality of evidence in all three reviews looking at issues of affordability was challenged, and the quality of the evidence is therefore open to question.

The observational and theoretical reviews, which attempted to identify the impacts of various housing situations, highlight links between poor housing situations and poor physical and mental health outcomes. The reviews of housing interventions highlighted the difficulties of establishing the impact of interventions on outcomes, both in terms of establishing a causal pathway and of designing studies capable of measuring outcomes.

The review of mortgage foreclosure and the reviews of housing mobility interventions highlighted issues relating to unintentional effects of housing policy interventions, including the impact on mortgage foreclosure of policies encouraging home ownership and the impact on established social and family networks of housing mobility programmes.

In terms of wellbeing, none of the reviews measured or interpreted outcomes from a specific or formal wellbeing perspective. Table 6 below has attempted to do this by mapping outcomes specified in the reviews onto the domains of the ONS wellbeing definition. This has required a degree of subjective interpretation.

None of the reviews provided evidence on aspects of personal or subjective wellbeing beyond self-reported mental health. In addition, it was often difficult to differentiate in the reviews between self-reported mental health, which falls within the ONS personal wellbeing domain and objective measurement of mental health, which falls within the ONS health domain.

By the nature of the topic of the review, it has been possible to map a range of outcomes to the 'where we live' domain. However, the summary details reported in the reviews are, by necessity, brief. It is possible that this type of mapping would be more informative if carried out with primary level rather than review level studies.

Most reviews reported the impact on outcomes at the individual level, although some information of community level impact was reported in some reviews. For example, the housing mobility reviews considered the impact of programmes on destination neighbourhoods, the review of mixed tenure considered community level outcomes in terms of social capital, residential outcomes and environmental and safety outcomes and the review of housing foreclosure considered the impact of high rates of foreclosure on the neighbourhood.

Most reviews identified an improvement in the design of primary studies as a main research recommendation.

Two reviews (Narine 2014, Tsai 2015) highlighted impact on minority and immigration populations as important, under-researched areas and recommended further research. The impact of housing on specific populations has been identified as key theme of the current review of reviews. Advice on further important research gaps is welcome.

The reviews included in this chapter covered a range of housing situations and included a mixture of mainly US and UK populations. Advice on the relevance of the topics covered by these reviews would be welcome. Issues relating to the complexity of the topics covered appear highly relevant to the consideration of a future review of primary studies. For example, the importance of adjunct interventions to the success of complex interventions, such as the housing mobility programmes is a useful insight. The identification and discussion, within the reviews, of issues relating to the quality and design of included primary studies is also useful.

TABLE 6 ECONOMIC HOUSING SITUATION REVIEWS: MAPPING OUTCOMES TO THE ONS WELLBEING DOMAINS

Wellbeing domain	Yes / no	Outcomes reported	Main conclusions
Personal wellbeing (subjective wellbeing)	✓	Self-reported mental health	<p>No change or slight improvement for intervention studies.</p> <p>Foreclosure associated with worsened mental health outcomes from both direct and proximate experience of foreclosure.</p> <p>No association between rental tenure and mental health.</p>
Our relationships	✓	Kinships networks	<p>Distance from family and social networks problematic in housing mobility studies. (Adjunct interventions (e.g. counselling, advice) considered important in addressing this.)</p> <p>Mixed tenure supported kinship networks.</p>
Health	✓	Physical health Mental health	<p>No change or some improvement in physical health for intervention studies.</p> <p>Foreclosure associated with worsened self-reported physical health.</p> <p>Mental health – as for subjective wellbeing conclusions above.</p>

What we do	✓	Employment Healthy behaviours	No change in rates of employment in intervention studies. Mixed effects in terms of health behaviours in housing mobility (improved in adolescent girls, worsened in adolescent boys). Deterioration in healthy behaviours in foreclosure study.
Where we live	✓	Housing condition Satisfaction with housing Neighbourhood belonging, sense of community Perception of safety Residential turnover Community level outcomes	Improved housing condition in housing mobility programmes (due to standards required for inclusion in programmes). Mixed evidence on condition and satisfaction for mixed tenure study. Evidence of population clustering in housing mobility programmes. Mixed evidence on sense of community and neighbourhood satisfaction in mixed tenure study. Mixed evidence on anti-social behaviour in intervention studies and on perceived and actual crime in mixed tenure study. High overall residential turnover in housing mobility studies. Adjunct interventions (e.g. counselling, advice) considered important in addressing this. No evidence of community level 'negative spillover' effects in housing mobility programmes. Degradation of neighbourhood environment reported in foreclosure study.
Personal finance	✓	Housing mobility	Adjunct interventions seen as important in improving housing mobility in housing mobility studies.

		Social mobility Earnings	Overall no change in social mobility ('middle-class effect' or 'peer behavioural influence') in intervention studies. Mixed evidence on income mix in mixed tenure study.
The economy	✓	Local economy Property values Home ownership Housing inequality Economic effects of housing policy	Mixed evidence on local spending in mixed tenure study. Increase in property values in mixed tenure study. Home ownership and inequality discussed from theoretical perspective in housing disparity study. Negative economic effects of housing policy (i.e. to encourage home ownership) discussed in foreclosure study.
Education and skills	✓	Educational attainment	Mixed evidence on educational attainment in intervention studies, including evidence of improvement in adolescent girls and deterioration in adolescent boys in housing mobility studies.
Governance	x		

7. Housing and Neighbourhood

The reviews included in this section considered issues and assessed interventions relating to housing in the context of the wider community or neighbourhood, including community engagement, urban regeneration and relationships between neighbourhood institutions and the wider local neighbourhood.

Quantity of reviews

Five reviews were included. Four reviews assessed housing related interventions including community engagement initiatives (Milton 2012) and urban regeneration initiatives which were either housing led or which included a component relating to housing (Clark 2007, Thomson 2006, Thomson 2009). One review considered relationships between institutions, focussing on schools, and the wider local community, including housing as a 'neighbourhood feature' (Johnson 2012).

Housing formed a subtopic within all reviews. This review focusses on the housing aspects of each review with consideration of the context of the complete reviews.

Three reviews included studies with UK populations (Milton 2012, Thomson 2006, Thomson 2009). One review included only studies with US populations (Johnson 2012). One review included both UK and non-UK evidence (Clark 2007).

Quality of reviews

Four reviews were conducted using formal systematic review methods (Clark 2007, Milton 2012, Thomson 2006, Thomson 2009). The review methods of the remaining review were not clearly reported (Johnson 2012).

Quality of included evidence

All the reviews highlighted the paucity of high quality evidence, although one review identified the housing evidence as being 'stronger' relative to the other topics covered in the same review (Clark 2007). All reviews specified methodological weaknesses of included studies. The aim of one review was specifically to identify 'grey literature', in the form of evaluation reports, in the absence of formal research studies (Thomson 2006).

Limitations in the quality of the evidence typically included a lack of longitudinal evidence and of comparative routine or before and after data and no controlling for or analysis of confounding factors or causal relationships. Poor reporting within included studies was also commonly highlighted.

Review of community engagement

One review assessed community engagement initiatives (Milton 2012).

Interventions included

- The review assessed evidence on 13 community engagement initiatives, four of which were identified as housing management initiatives (Milton 2012). These were described as:
 - Tenant management organisations
 - Tenant participation compacts
 - Community ownership of social housing
 - Estate Renewal Challenge Fund (ERCF), aimed at bringing social housing up to Decent Housing Standard.

Outcomes considered

The review assessed social determinants of health and defined primary and intermediate outcomes as:

Primary outcomes:

- Individual and population health
- Health related risk factors
- Environmental and socio-economic indicators (e.g. housing)
- Health inequalities within/between communities

Intermediate outcomes:

- Level/diversity of community members engaged
- Communication between community and service providers
- Rates of service uptake or new services reflecting community-perceived needs
- Identification of community needs
- Community engagement (meeting members' expectations of involvement)
- Enhanced social inclusion, cohesion or capital
- Enhanced community wellbeing (e.g. sense of empowerment)
- Partnerships between communities, institutions and governments

Consideration of individual and community wellbeing

Enhanced community wellbeing was specified as an intermediate outcome with 'sense of empowerment' identified as an example. The focus of analysis was at community rather than individual level.

Results of the review of community engagement

The included studies presented no data on primary outcomes. There was a positive impact on housing management (completion of repairs, rent collection and re-letting, cleaning and caretaking). There was a positive impact in terms of perceptions of crime and neighbourhood safety. There was no conclusive evidence of impact on services. There were suggested benefits for 'bonding' social capital (strengthening relationships and trust) and social cohesion. In terms of social engagement there

were suggested benefits in terms of involvement of black and minority ethnic community members but insufficient evidence of 'reach' beyond existing community groups. In terms of community wellbeing there was suggested increased community empowerment by increasing members' sense of political efficacy.

Discussion on the review of community engagement

The key messages of the review are that, whilst there was some evidence of positive impact, it was not possible to attribute outcomes to engagement initiatives. Within the context of the broader review it is not possible to differentiate between different interventions (i.e. to compare housing related initiatives with other types of community engagement initiatives). Research recommendations focussed on improving research study design and on the development of methods for the evaluation of interventions at population level. The description of wellbeing at the community level and the focus on UK populations make the review highly relevant to the current review of reviews.

Reviews of urban regeneration initiatives

Three reviews assessed urban regeneration initiatives (Clark 2007, Thomson 2006, Thomson 2009).

Interventions included

Two reviews provided general descriptions of the types of regeneration interventions included, including housing interventions. (Clark 2007, Thomson 2009) The other review included evidence on nine UK Area Based Initiatives (ABIs) aimed at urban regeneration of which two were housing-led initiatives and three were multi-agency initiatives including a housing element. (Thomson 2006)

Outcomes considered

The following outcomes were considered:

- Mental health (Clark 2007, Thomson 2009)
- Health including general health, morbidity, respiratory health (Thomson 2009), self-reported health status (including quality of life, wellbeing) (Thomson 2006) and mortality (Thomson 2006).
- Socioeconomic determinants of health (housing, education, training, income, employment) (Thomson 2006, Thomson 2009).

Consideration of individual and community wellbeing

Wellbeing is reported as being included as part of the self-reported health status outcomes in the Thomson (2006) review though no results specific to wellbeing are reported. (Thomson 2006). The Clark (2007) and Thomson (2009) reviews did not consider regeneration initiatives from an explicit wellbeing perspective. Impacts are not considered at the community level.

Results of reviews of urban regeneration initiatives

Overall there was a positive association between regeneration initiatives and mental health (Clark 2007, Thomson 2009) although in higher quality studies there was no impact on mental health (Thomson 2009).

Evidence of impact on general health reported mixed results (Thomson 2006, Thomson 2009). Overall there was deterioration in self-reported health status (Thomson 2006, Thomson 2009) but some improvement in mortality (Thomson 2006). There was no evidence of improvements in respiratory health (Thomson 2009).

In one review, results were mixed for all socioeconomic outcomes both between studies and between case study areas within studies (Thomson 2006). In another review, higher quality studies reported reduced financial strain on individuals (Thomson 2009).

Discussion on reviews of urban regeneration initiatives

The key message of the reviews is that there is a small overall positive impact but that adverse impacts were also identified.

The quality of evidence overall is identified as being weak, with inadequate data. Future research recommendations include better assessment of confounding factors, incorporating a theory of change into evaluations and improving methods for before and after comparisons and comparisons with routine data.

Evidence was not assessed from an explicit wellbeing perspective. However, some outcomes fall within the scope of the ONS definition of wellbeing and could therefore be interpreted from a wellbeing perspective.

The reviews focussed on UK populations and on community level housing interventions and therefore is relevant to the current review of reviews.

Review of neighbourhood institutions and the wider local neighbourhood

One review explored the relationships between neighbourhood institutions and the wider local neighbourhood (Johnson 2012). The review focussed on schools as the institution and on educational attainment to characterise the relationship between schools and the local neighbourhood. The review considered schools within the ecological context of the wider neighbourhood and assessed the relative influence of schools and neighbourhood features on educational attainment. Housing or residential features were defined as neighbourhood elements influencing relationships in four out of 23 included studies.

Consideration of individual and community wellbeing

The review does not address the issue of wellbeing as an explicit concept and does not assess studies according to a formal definition of wellbeing. The review provides a good example of an attempt to understand within-community relationships and influences and their relative overall impact on the neighbourhood or community rather than focussing on specific entities within communities.

Results of the review of neighbourhood institutions and the wider local neighbourhood

Housing related neighbourhood effects (e.g. residential stability, housing mobility to low poverty areas, public housing and area poverty) were reported as having a greater impact on educational outcomes than school-related characteristics. Within the context of the broader review approximately half of included studies reported larger neighbourhood effects than school effects on educational attainment. The remaining half of included studies was evenly split between studies reporting larger school effects than neighbourhood effects and studies reporting equal or undetermined relative influences.

Discussion on the review of neighbourhood institutions and the wider local neighbourhood

The key message of the review is the importance of understanding the interdependent relationships and relative influences of the different entities that make up a neighbourhood community. Whilst this US only review may not be directly applicable to the UK (particularly given the differences in racial segregation and school systems), the importance of understanding these interdependencies at the local level is likely to be universal.

The findings of the review are reported as being subject to ‘numerous methodological issues’ relating to the included studies. Bidirectional flow of influence is highlighted as an important consideration whereby, for example, school characteristics may influence house prices and choice of residence, which in turn could influence educational attainment.

Evidence was not assessed from an explicit wellbeing perspective. However, education falls within the scope of the ONS definition of wellbeing and is likely to be important to the child’s future life chances and wellbeing (see Layard et al., 2014).

Discussion

This section brings together reflections on the evidence base included in this chapter, including a consideration of the evidence from a wellbeing and community perspective and in terms of relevance to the current review.

Overall the reviews reported mixed results for most outcomes. This was in part due to the quality of the included studies and the heterogeneity of interventions

considered but also, importantly, this was due to the difficulties of identifying a causal relationship between the interventions and outcomes. Of all the reviews, the widest range of benefits were suggested by the review of community engagement but this was qualified by a statement that it was not possible to attribute any impacts to community engagement initiatives nor to differentiate between the types (e.g. housing and non-housing) of initiative.

In terms of wellbeing, none of the reviews measured or interpreted outcomes from a specific or formal wellbeing perspective. Table 7 below has attempted to do this by mapping outcomes specified in the reviews onto the domains of the ONS wellbeing definition. This has required a degree of subjective interpretation. Given the mixed results reported in the reviews it is not possible to draw an overall conclusion on the impact on wellbeing. In addition, the main conclusions should be considered in the context of the overall quality of the evidence included in all reviews and of the difficulties of attributing any impact on outcomes to the interventions and issues studied.

None of the reviews included outcomes that could be mapped to the personal (subjective) wellbeing or relationships domains. The intervention studies provided very little evidence or no evidence on the education and skills, personal finance and economy domains.

Although reporting little in the way of evidence of impact, the review of community engagement initiatives (Milton 2012) and the review of institutions in the wider local neighbourhood (Johnson 2012) are good examples of community level analyses. The community engagement review reported on a wide range of community related outcomes including community partnerships and communication, social cohesion and community wellbeing (the latter being defined through the example of empowerment) (Milton 2012). The review of neighbourhood institutions highlighted the interdependent and bidirectional relationships of the separate entities that make up a single community, providing a 'community effect' analysis of these relationships.

The review of community engagement initiatives identified health and related risk factors, environmental and socioeconomic indicators of health and health inequalities as primary outcomes but was unable to identify any evidence on these outcomes in the included studies.

None of the reviews reported outcomes that could be mapped on to the ONS personal wellbeing domain making it difficult to make observations about any relationship between individual subjective wellbeing and community wellbeing.

The review of community engagement initiatives suggested a positive impact on community level wellbeing but commented that the evidence was not of sufficient quality to establish the benefits as being attributable to the initiatives. This highlights

an important gap in the available evidence on the possible benefits of incorporating co-production within housing interventions.

The reviews covered in this section included, mainly, evidence on UK populations. This and the community level perspective included in some reviews appear highly relevant to the identification of questions to be addressed by a future review of primary studies.

TABLE 7 NEIGHBOURHOOD AND COMMUNITY LEVEL REVIEWS: MAPPING OUTCOMES TO THE ONS WELLBEING DOMAINS

Wellbeing domain	Yes / no	Outcomes reported	Main conclusions
Personal (subjective) wellbeing	x		
Our relationships	x		
Health	✓	Physical health Mental health	Overall, mixed results on general physical health in the intervention studies, including a deterioration in self-reported health status and an improvement in mortality. No impact on respiratory health or other illnesses in intervention studies. Mixed results in terms of mental health from positive impact to no impact on mental health.
What we do	✓	Employment	Mixed results relating to rates of employment
Where we live	✓	Community engagement Social inclusion, cohesion or capital Communication / relationship with service providers Community wellbeing (e.g.	Main conclusions all drawn from the review of community engagement: Suggested benefits in terms of community engagement on the part of black and ethnic minority community members, but little evidence of 'reach' beyond existing community groups. Suggested benefits for 'bonding' social capital (stronger relationships and trust) and social cohesion. No evidence on impact on services. Positive impact on community wellbeing (see governance below). Positive impact on housing management.

Wellbeing domain	Yes / no	Outcomes reported	Main conclusions
		empowerment) Housing condition and management Crime and neighbourhood safety	Positive impact on perceptions of crime and neighbourhood safety.
Personal finance	✓	Income	Mixed results from reviews of urban regeneration reviews, including increased social rents in some studies but reduced financial strain in others.
The economy	✗		
Education and skills	✓	Education and training	In the review of neighbourhood institutions, housing related effects (e.g. residential stability, housing mobility) suggested as having greater impact on educational outcomes than school characteristics.
Governance	✓	Partnerships between communities, institutions and governments	Suggested increased community empowerment by increasing members' sense of political efficacy in the review of community engagement (reported as example of community wellbeing).

8. Housing and vulnerable groups

The reviews in this section considered issues and assessed interventions relating to the housing situation of specified groups, including homeless people, people living with mental illness, people with HIV, lesbian, gay, bisexual and transgender (LGBT) populations and older people. The evidence regarding housing for people with mental health, housing for people with HIV and housing for homeless people is being presented together. An initial examination of the narrative and systematic reviews in these topic areas showed that there was considerable overlap between the evidence (primary research) included in the reviews on homelessness and HIV and the reviews on mental health and homelessness (there was no overlap between the primary research included in the mental health and HIV reviews).

Quantity of reviews

Eighteen reviews were included. Six reviews had homelessness as their primary focus (Atyeo 2013, Bassuk 2014, Benston 2015, Fitzpatrick Lewis 2011, Meadows Oliver 2005 and Nelson 2007). Eight reviews focused on housing for people with mental illness (Browne 2010, Burgoyne 2014, Chilvers 2006, Kyle 2008, Leff 2009, Mansell 2009, Reif 2014 and Rog 2014). Three addressed housing and HIV (Aidala 2016, Leaver 2007 and Milloy 2012) and the one addressed housing for older, lesbian, gay, bisexual and transgender (LGBT) people (Addis 2009).

The majority of the evidence was from studies undertaken in the US, although many reviews also included articles from the UK, Canada and Australia. There was one review with solely UK papers (Burgoyne 2014).

The majority of the evidence is from studies based on large, US housing programmes for homeless people or those with mental health illness, or the population of mentally ill homeless people.

Quality of reviews

Of the reviews included, the majority were systematic reviews of specific housing interventions. There was one qualitative systematic review (Burgoyne 2014) and the observational reviews tended to include both qualitative and quantitative reviews.

Quality of included evidence

Tools used to assess the quality of included evidence were CASP (Critical Appraisal Skills Programme) checklists, bespoke assessment criteria (Addis 2009), Cochrane Risk of Bias for Randomised Controlled Trials, Newcastle/Ottawa Quality Appraisal tool for non-intervention studies, the Effective Public Health Practice Project tool.

Many of the reviews found significant limitations in the primary evidence. This is due to the nature of the research questions being addressed. The ethics surrounding the use of randomized controlled trials to deliver housing and healthcare interventions to

vulnerable populations are complex and require sensitive consideration which, by necessity, can have implications for the design of studies.

Kyle (2008) commented that as much of the evidence in this area is cross sectional and longitudinal, greater emphasis needs to be placed on ensuring sample sizes are sufficient to account for drop outs. There was also frequent mention of the lack of implementation fidelity assessment in the primary research that populated the reviews.

One review (Bassuk 2014) used mostly grey literature evaluations of interventions and therefore these rated poorly in terms of quality of included evidence.

Benston (2015) reported the main limitations as being selection bias, response bias, attrition, problems in defining housing programmes and lack of study controls. These were themes that ran throughout the evidence assessment sections of the included reviews.

Results

Observational evidence

Kyle (2008) examined the relationship between housing as an independent variable and health as a dependent variable and found relationships between housing stability and reduced hospital use. In relation to mental health, the key finding was that actually being housed was more important than the type of housing and that the most unequivocal evidence in terms of outcomes, comes from housing for homeless people, rather than for people in an unstable housing situation.

Addis (2009) examined the specific housing needs of older, LGBT people. Their meta narrative review found that older LGBT people are more likely to live alone, rather than with their partner. Independence, particularly in terms of housing was important, as prior discrimination on the grounds of sexuality meant that social care or housing institutionalisation was perceived as a threat and these facilities were seen as being much more focused towards heterosexual individuals or couples.

Reviews of interventions

A substantial number of interventions examined in this review of reviews are delivered to two of the groups presented in this evidence cluster - for example the review by Nelson (2007) examines housing interventions for people with mental illness who have been homeless and the extensive review on HIV and housing (Aidala, 2016) looks at the effect of being unstably housed on health service utilisation for people with HIV/AIDS.

Interventions for homeless people

Reviews considered the following interventions: Housing First, Rapid Rehousing, Section 8 vouchers, Housing Subsidies, Emergency Shelters, Transitional Housing Programme, Sound Families Permanent Supportive Housing. There were also interventions which offered support for homeless people to access healthcare which may have an effect on their housing situation (Fitzpatrick Lewis 2011). As previously discussed, there is a real overlap between this body of evidence and that for homeless people: Recovery housing (Reif 2014), Permanent supportive housing e.g. 'Housing First', Pathways to Housing, HUD-VASH (Nelson 2007, Rog 2014), Housing First (Benston 2015), Psychiatric rehabilitation in relation to residential environments (Atyeo 2013), Permanent Supportive Housing (Nelson 2007).

Permanent supportive housing improved outcomes in terms of housing stability and health outcomes in the review by Rog (2014). Housing interventions not contingent on abstinence were preferred by service users, and had the largest effect of all housing models. Benston (2015) also looked at permanent supportive housing and found that 11 of the 12 included studies found a statistically significantly better performance in housing-related outcomes for the intervention as compared to the control. There were mixed outcomes for clinical and substance use indicators and the outcomes for wellbeing and self-reported psychological states were also mixed.

Bassuk (2014) examined the specific group of homeless families but would not make statements about the three types of interventions compared, only that to make conclusions based on the evidence was not possible.

Fitzpatrick Lewis (2011) looked at healthcare interventions for homeless people, and some of these interventions had housing outcomes. For example, intervention groups had better outcomes compared to control groups in a post hospital discharge intervention. Participants enrolled in a Pathways Housing First (n=225) intervention spent 66% fewer days homeless compared to baseline ($p < 0.001$).

Interventions for people with HIV

Fitzpatrick Lewis (2011) examined housing interventions for people living with HIV/AIDS and demonstrated that housing significantly improved outcomes for this group (decreased mortality).

Aidala (2016) examined evidence on the association between housing and healthcare/health outcomes for people living with HIV/AIDS. Across 152 studies representing nearly 140,000 people, housing status was independently associated with worse healthcare outcomes for patients, controlling for a range of variables. Interestingly, this association only persisted for the time in which an individual was unstably housed; there was little long term effect. There was little analysis of the pathways that determined this relationship and which factors were protective and which were damaging to health outcomes, other than being housed or not being

housed. The findings of this review by Aidala (2016) were in line with those of Milloy (2012) and Leaver (2007).

Interventions for people living with mental illness/substance misuse/intellectual disabilities

Nelson (2007) compared one housing intervention (permanent supportive housing) with two non-housing interventions for homeless people with severe mental illness and found that the best outcomes were where housing and support were combined (effect size 0.67) as compared to when one was delivered without the other.

The qualitative systematic review by Burgoyne (2014) developed a model of how housing affects adults receiving mental health treatment – the Tripod model found that service users needed a domain (home) but could only achieve this with facilitation (support) and having these in place led to autonomy which allowed them to exercise choice over their living conditions.

A review of recovery housing (delivered to people leaving inpatient care who are not ready to live independently) by Reif (2014), found that there was moderate evidence that recovery housing positively affected health outcomes, but no housing outcomes were examined.

Psychiatric rehabilitation (PSR) was used in a number of primary studies examined by Atyeo (2013) to improve the housing situation of people with severe mental illness (SMI). This package of skills training and environmental support supported people with SMI to incorporate improved housing into their recovery.

The review by Nelson (2007) compared Permanent Supportive Housing with two non-housing interventions for homeless people with severe mental illness. Of the 16 experimental or quasi experimental studies included, the stability of housing as a result of the intervention was measured. The most favourable outcomes were for permanent housing, as opposed to housing during treatment only, and where support is adjunct to the housing intervention.

Two reviews had people with intellectual disabilities as their population (Browne 2010 and Mansell 2009). Mansell (2009) investigated the evidence for the quality and costs of dispersed or clustered housing for people with intellectual disabilities. Browne (2010) reviewed the evidence around consumer participation in housing for people with intellectual disabilities. The two reviews on people with intellectual disabilities included quantitative and qualitative studies (Browne 2010 and Mansell 2009).

Review of consumer participation in housing

This review included any study that incorporated consumer participation in housing for people living with mental illness. The following outcomes were considered:

- Impact on recovery
- Did housing design meet consumer needs

The review discussed the importance of social support for recovery and building of friendships and social networks. The review on consumer participation found that people with intellectual disabilities had a strong desire to live in their own home. The provision of supportive housing has a positive impact on recovery through a number of different factors. The opportunity to choose their housing encouraged empowerment. Client goals included staying healthy, having a better quality of life, with enhanced living skills and social networks in addition to living in their own home. There was often found to be poor correlation between staff and client housing goals.

Consumer participation was found to be an uncommon topic in the recent literature, despite there being significant public policy pressure to promote it. Appropriate housing is very important for the recovery of people living with mental illness. Housing initiatives that are well-resourced and well-meaning can still fall short of meeting consumers' recovery goals when they don't incorporate the expressed needs of consumers. Expressed needs include keeping units small in size and employing drop-in support models.

Review of dispersed or clustered housing

The review included evidence on dispersed or clustered housing for people with intellectual disabilities. Dispersed housing was defined as housing in the community, typically a small group home where a number of people live together with support from paid staff. Clustered housing was described as a number of living units that form a separate community from the surrounding population. The majority of the evidence was from the UK.

Study outcomes were measured on the eight quality of life domains: social inclusion, interpersonal relations, material wellbeing, emotional wellbeing, physical wellbeing, self-determination, personal development and rights.

This review reported explicit wellbeing outcomes. Community wellbeing was considered in terms of interpersonal relations, social inclusion and rights.

The systematic review on dispersed and clustered housing found that clustered settings had some advantages in the quality of life domains of interpersonal relations, emotional, and physical wellbeing. However these mostly refer to village communities and not to campus housing or clustered housing. Generally, campus and cluster housing provided poorer outcomes than dispersed housing for people with intellectual disability. In terms of the quality of life domains of social inclusion, material wellbeing, emotional wellbeing, physical wellbeing, there were no studies that reported on the benefits of clustered settings.

Clustered housing is generally less expensive than dispersed housing due to lower staffing levels. Two of the three studies that examined costs, controlling for user characteristics, found that there was no statistically significant difference.

Dispersed housing was found to be superior on the majority of quality indicators. The only exception being that village communities for people with less severe disabilities were found to have some benefits. However, this model is not feasible to provide for everyone. There is no evidence that cluster housing can deliver the same quality of life as dispersed housing at a lower cost. Additionally, it is worth noting that in 2007 the UK Department of Health closed all NHS residential campuses due to major problems found in local services.

There were three significant research gaps in this area. Firstly, there is no research on village communities that serve people with severe and complex needs. Secondly, while there is research on clustered setting for people with intellectual disabilities, there is no research for clustered settings with people with other disabilities. Finally, the majority of studies are point-in-time comparisons and therefore are unable to address whether the services change or how they perform over the longer term. Fourteen of the included studies were in the UK making the evidence applicable. However, much of the evidence is from the 1990s so the currency is debatable.

Discussion

The health issues that face homeless people, the challenge that people with mental illness face in remaining stably housed and the risks associated with being unstably housed and therefore unable to access healthcare services are just three issues that highlight how these populations are not discrete and also how housing interventions delivered alone without adjunct interventions will face greater challenges in addressing the needs of a specific population group.

With reference to the homeless population, due to the number of trials and evaluations in this area, many of the reviews tend to focus on a specific population (e.g. families, mothers) or a specific intervention (e.g. psychosocial rehabilitative housing). Therefore to bring together the body of evidence and make conclusions is challenging.

The difference between the traditional type of 'recovery housing' intervention and 'permanent supportive housing' shows the difference between interventions that are contingent on specific behaviour and those which focus on housing as the first of a cascade of interventions.

The reviews included in this chapter considered explicit wellbeing and quality of life related outcomes. These have been mapped, for the purposes of the current review of reviews, to the ONS wellbeing dimensions (see Table 8).

Aidala (2016) makes the key point that housing is not a binary state. Individuals can be classed as moving from homeless to housed, if they move into a shelter for homeless people. However there is a real difference between being housed in a shelter (which in the UK is still considered as temporary accommodation and therefore as homelessness) to interventions such as permanent supportive housing, and the difference in outcomes is not always clear. Distinctions between the homeless and the 'roofless' are complex.

As Atyeo (2013) states, housing is not a blanket intervention. As well as having different types of housing, there are also different outcomes from the same intervention. For some individuals, housing means stability and better access to health services, for others it can allow them to improve their functional status. Housing also improves people's social networks and directly improves their health, both directly and by proxy. Bassuk (2014) makes a similar point, asking whether homelessness represents only the lack of a house, or the lack of social networks (both personal and community) and opportunity?

Although much of the evidence on vulnerable groups draws from the US, much of this will be applicable to vulnerable groups in the UK who face similar housing-related difficulties. Issues relating to cost implications to the public sector (for example of Housing First initiatives) and issues based on discrimination require a UK specific focus.

TABLE 8 VULNERABLE GROUPS AND HOUSING REVIEWS: MAPPING OUTCOMES TO THE ONS WELLBEING DOMAINS

Wellbeing domain	Yes / no	Outcomes reported	Main conclusions
Personal (subjective) wellbeing	X		
Our relationships	✓	Independent living	Independence important for various groups (LGBT older people)
Health	✓	Mental health Mortality	For people who are homeless and have mental illness – best outcomes are where health and housing interventions are delivered together. Housing not contingent on abstinence was preferred by service users and had best outcomes. Housing for unstably housed people with HIV/AIDS improved health outcomes.
What we do	X		
Where we live	✓	Permanence of housing situation. Wellbeing outcomes	Permanent housing was both preferred and more effective when compared with other intervention types. Dispersed housing has better outcomes than clustered housing for people living with intellectual disabilities. Being housed more important than the type of housing for people with mental health problems

Personal finance	<i>x</i>		
The economy	<i>x</i>		
Education and skills	<i>x</i>		
Governance	<i>x</i>		

9. Housing design and the home environment

The reviews included in this section reviewed the evidence on how the home environment can influence sedentary behaviour and physical activity.

Quantity of reviews

There are two reviews on the theme of housing design and the home environment (Kaushal and Rhodes 2014 and Maitland et al 2013). Both of these reviews assessed interventions and observational studies relating to the impact of the home environment on physical activity and sedentary behaviour. One review (Maitland 2013) considered the evidence relating to children and the other (Kaushal and Rhodes 2014) reviewed the evidence relating to children and adults. Both reviews included studies from a variety of countries including evidence from the UK where available.

Quality of reviews

The two reviews were conducted using systematic review methodology.

Quality of included evidence

The two reviews included experimental and observational studies. Experimental studies were reported as being small RCTs although quality appraisal found that not all of these were true RCTs. Included observational studies were prospective, longitudinal and cross-sectional designs. Where possible the results of longitudinal studies were discussed separately to differentiate this stronger class of evidence but the majority of studies were cross-sectional. Both of the reviews were unable to draw firm conclusions due to the limitations of the quality of included studies. Important limitations were the study design and also measurement validity. The included studies used a variety of measures to assess physical activity and sedentary behaviour making any comparisons across studies difficult. Additionally, some of the scales used were not validated and studies using validated scales did not make use of subscales within the specified measures.

Interventions included

The two reviews included interventions to the home environment designed to increase physical activity or reduce sedentary behaviours. The following interventions were included: introduction of a TV limiting device and the introduction of exercise equipment.

The observational studies investigated the influence of the physical and social environment within the home by observing the following: quantity of exercise equipment in the home, quantity of TV equipment in the home, location of TV equipment in the home, quantity of media equipment in the home and the location of media equipment in the home

Outcomes considered

Physical activity behaviour (most common moderate to vigorous physical activity) and sedentary behaviour (most common TV watching)

Consideration of individual and community wellbeing

The reviews did not explicitly discuss specific outcomes or their findings related to community or wellbeing.

Results

Kaushal and Rhodes (2014) reviewed 49 studies that investigated children and adults, of which 20 were experimental and 29 were observational. Included studies investigated the presence or introduction of equipment to the family home to increase physical activity (exercise equipment, exergaming devices) or of equipment that increased sedentary behaviour.

The included experimental studies were described as being RCTs. Three of the experimental studies that attempted to reduce sedentary behaviour by introducing TV limiting devices were found effective for children; the results were limited for adults though. The other 17 experimental studies investigated the introduction of exercise equipment and its effect on physical activity. The introduction of large equipment (treadmills) and prominent exergaming equipment (dance mats, exergaming bike) was more effective than smaller devices.

The 29 observational studies had prospective and cross-sectional study designs. The review found that the location and quantity of televisions was associated with sedentary behaviour with the latter having a greater impact on girls. Behaviour in females also positively correlated with the quantity of physical activity equipment in the home.

Maitland et al (2013) reviewed 38 observational and 11 experimental studies that investigated the influence of the home physical environment on physical activity and sedentary behaviours of children aged 8-14 years.

The experimental studies reviewed either introduced a TV limiting device or an active video game. Five RCT studies on TV limiting devices were included. Three of the studies found that introducing TV limiting devices successfully reduced TV viewing. Two of the studies found that the children's sedentary behaviours did not change. However one of the studies did find that the overall household TV viewing was reduced. The review included six experimental studies on introducing an active video gaming device, four of which were RCTs. Overall, these studies found inconsistent evidence for the impact of the introduction of exercise equipment on activity outcomes.

The 38 observational studies consisted of 33 cross-sectional studies and 5 longitudinal studies. The observational studies on media equipment in the home found limited inconsistent associations with levels of physical activity. The studies on the quantity of media equipment in the home generally found it to be positively associated with sedentary behaviour. Half of the observational studies investigating the impact of media equipment in the bedroom found a positive association with sedentary behaviour.

Discussion

The key messages from the reviews of the impact of the home environment were that interventions introducing large exercise equipment could increase physical activity and the introduction of TV limiting devices could reduce TV watching in children.

Neither of the reviews assessed outcomes from a specific wellbeing perspective. An attempt has been made, therefore, to map the reported outcomes to the ONS wellbeing dimensions (see Table 9). The mapping exercise found that outcomes could only be mapped to dimensions that considered physical health.

Both reviews discussed the limitation of the included studies and recommended that further high-quality research was needed in this area that considered longer-term outcomes and made use of objective validated measures. Further studies would need to consider methods to objectively measure the home physical environment. Additionally, future studies should include objective measures of the home and prioritise investigating environmental influences within the home space on objectively measured sedentary time at home and home context specific behaviours. Furthermore, research on the actual home space could be useful, considering the size of the home itself and any outside area and the impact on physical activity or sedentary behaviours. Finally studies that examine the mediators of gender discrepancy found in current studies could also be useful.

TABLE 9 HOUSING DESIGN AND THE HOME ENVIRONMENT REVIEWS: MAPPING OUTCOMES TO THE ONS WELLBEING DOMAINS

Wellbeing domain	Yes / no	Outcomes reported	Main conclusions
Personal wellbeing (subjective wellbeing)	✓	Physical activity behaviour Sedentary behaviour	The introduction of large exercise equipment could increase physical activity. The introduction of TV limiting devices could reduce TV watching in children.
Our relationships	✗		
Health	✓	Physical activity behaviour Sedentary behaviour	As above
What we do	✓	Physical activity behaviour Sedentary behaviour	As above
Where we live	✗		
Personal finance	✗		
The economy	✗		
Education and skills	✗		
Governance	✗		

10. Implications and conclusions

Key findings

None of the studies were conducted from a wellbeing perspective. None of the studies measured individual or community wellbeing using a formal wellbeing measure.

In an attempt to interpret the evidence base from a wellbeing perspective, the outcomes reported in included studies have been mapped to the dimensions of the ONS wellbeing definition.

The following evidence map (Table 10) highlights how the outcomes within each theme of the current review have been interpreted as providing evidence on the specific dimensions of the ONS wellbeing definition. The map demonstrates where evidence on specific dimensions exists and where there are gaps in the evidence. Detailed discussion on the results reported in included studies is found within each chapter.

TABLE 10 MAPPING EVIDENCE CLUSTERS TO THE ONS WELLBEING DOMAINS

	Physical infrastructure of housing	Economic housing situation	Housing and Neighbourhood	Housing and vulnerable groups	Housing Design and environment
Personal (subjective) wellbeing	✓	✓	x	x	✓
Our relationships	x	✓	x	✓	x
Health	✓	✓	✓	✓	✓
What we do	✓	✓	✓	x	✓
Where we live	✓	✓	✓	✓	x
Personal finance	x	✓	✓	x	x
The economy	x	✓	x	x	x
Education and skills	✓	✓	✓	x	x
Governance	x	x	✓	x	x

Gaps in the review level evidence

A number of gaps within the review level evidence were identified:

- the impact of rough sleeping on health and wellbeing (including mental health, substance abuse);
- housing access and discrimination (e.g. in relation to young people, minority ethnic households, Gypsy and Travellers);
- and the housing situations and experiences of minority ethnic households, and recent immigrant households.

Challenges for the review

This review of reviews draws together reviews of differing quality, conducted across different disciplines with different research traditions.

Housing straddles a number of different disciplines including, health, public health, social care, political science, urban studies, history, social administration, sociology, geography, law, planning and economics. As such research in the area of housing studies adopts a range of approaches and methodologies. Standard research approaches within health, such as RCTs, are prevalent within some areas of this review but others have relied more heavily on observational data analysis. Relying upon review level evidence implies relying upon the review authors to adequately interpret evidence across this very broad range of disciplines, some of which may be very specialist.

The systematic review methodology is well established in health, hence the high quality reviews identified exploring housing infrastructure and health. In other areas the systematic review approach is more novel and less widely applied. The limited use of systematic review methods is raised in Sautkina et al. (2012) in relation to an earlier review of reviews on mixed tenure (Bond et al, 2011) that identified the selective nature of inclusion of studies within their identified reviews and lack of transparency of how deficiencies in the evidence influenced review conclusions.

Limitations

Review of reviews approach: A review of reviews does not allow an opportunity to focus closely on individual studies or to assess the quality of individual studies separate to that reported within the reviews. As noted above some topics within housing fall into disciplines which have a strong tradition of conducting reviews but in those areas without such a tradition, review level evidence may not adequately reflect the depth and breadth of evidence available.

Evidence type Our search relied upon published material to the exclusion of grey literature and therefore does not cover reviews conducted or sponsored by Government departments or non-government organisations, such as Joseph Roundtree Foundation (who play a key role in creating and reviewing housing-related evidence, particularly that from the UK). Whilst this was intentional in order to capture the vast quantities of housing-related evidence and cover the range of review level material, it does result in academic theoretical material being favoured over the more policy relevant and timely review and analysis produced from government and non-government organisations. The next-stage systematic review will capture the grey literature.

Search strategy: The review relied upon a single search strategy which aimed to cover varied topics within the housing literature; this covered the breadth of housing research but did not capture all relevant papers within any individual housing theme. To cover these topics more thoroughly an iterative process would be required, which would involve additional searches on the identified themes. The intention of the scoping review however was not to achieve a comprehensive retrieval of the evidence on these themes but to explore review level evidence on the ‘housing’ aspect of these topics with sufficient coverage to inform a next stage systematic review and open up a way into these topics.

Data extraction: Pragmatic decisions were made, in conjunction with review advisers, regarding the level of data extraction and the depth of analysis between the evidence clusters. As a result the analysis of evidence within the economic housing situation and vulnerable groups clusters was more in depth than in the physical infrastructure cluster. This was done partly by necessity to keep the review within the time limit. More importantly it was done to focus resources on clusters which were more likely to be recommended for the future systematic review of primary evidence (e.g. where there were few or no substantial existing systematic reviews) or which were seen as a priority in terms of potential impact on the full range of dimensions of community and individual wellbeing beyond dimensions relating to physical health. The approach therefore has been to capture all housing reviews relating to a very broad perspective on wellbeing and community wellbeing and focus in on that evidence where subjective wellbeing and community wellbeing were (or could be) key outcomes.

Implications

Stakeholder engagement - The most important aim of this review was to open a dialogue with stakeholders around the gaps within the review level evidence base and the suggested recommendations for the remit of a future systematic review on a specific housing topic. This overview of review level evidence provides background knowledge on the current state of the review level research to feed into this dialogue.

The intention at this stage has not been to draw out policy and intervention recommendations on 'what works' for improving wellbeing – although that will explicitly be the aim for the main systematic review.

Economic modelling - The aim of the What Works Centre is to encourage the use of evidence in local and national policy making. To make this a reality within the area of housing, evidence needs to be supported by long term economic models - yet cost effectiveness modelling is generally limited across housing interventions (see Fenwick, et al 2013). Combining short-term and long-term outcomes within a model allows transparency and completeness. Both beneficial and adverse outcomes can be considered. This can include different outcomes within the household (e.g. the MTO Program found that adolescent girls showed improvement in health behaviour and education outcomes but adolescent boys outcomes worsened) and across different households and community groups (e.g. those who gain following a housing mobility programme and those who lose). Economic models are an important means of addressing the question of value for money. They concentrate attention specifically on effect size and on the opportunity costs of opting for one course of action over another. Models would by necessity incorporate uncertainty, and allow greater exploration of the robustness of findings across alternative assumptions.

There is also the potential to explore equity considerations alongside those of efficiency, and the possibility of explicitly giving different weight to gainers/losers with different characteristics. There are many difficulties in conducting economic models in this area, and potential limitations must be identified and reported. Where the important outcomes are predominantly health-related the same approaches to those applied in health care evaluation could be adopted including the use Quality Adjusted Life Years as the outcome measure (e.g. Barton et al, 2007). However, health is only one of the relevant outcomes for housing interventions. Whilst full cost-benefit models could be undertaken there are well known difficulties in valuing changes in health and other beneficial outcomes (education, emotional wellbeing, crime, social capital etc.) in monetary terms. We lack a single unit of outcome for comparison across different sectors - there is no comprehensive wellbeing measure which captures the range of important outcomes considered within the housing literature. There are likely to be gaps in the data, particularly in relation to resource use (especially into the longer term), however, the sophistication of models can improve as data becomes available. The level of extraction of cost and resource use data within the reviews considered here has been limited (Fenwick et al, 2013 is an exception). A future systematic review should pay particular attention to evidence on resource implications in terms of both costs of interventions/policies and consequences, with a view to informing future cost-effectiveness models.

11. Future Systematic Review

We warmly welcome contributions towards the scoping and remit of the next steps of this research. We are open to suggestions and comment and are particularly keen to hear from potential users of a future systematic review within this field.

The following suggests where we consider a systematic review (with a wellbeing focus) to be of benefit and gives some justification around those topics that we do not consider best taken forward by the WWC-WB communities team. We welcome comment on these recommendations. If you have any comments or would like to find out more please contact the corresponding author.

Figure 3 Systematic review proposal

Housing and vulnerable groups: The review level evidence base suggests housing is particularly important for vulnerable groups, and finds positive outcomes from 'Housing First' type approaches.

We recommend a future systematic review covering 'Housing Plus' type models, applicable to the UK, covering vulnerable groups. This could extend beyond the groups identified within this review, with a clear intention to extract current and future resource use, either directly or through links to other outcomes.

More broadly, a systematic review on the wellbeing implications of sustaining tenancy arrangements and stability of housing situation, and interventions that support stability, would be useful.

Our initial recommendation for the scope of this would be to exclude housing for older people (Extra care housing, housing with care, supported living) partly on the basis that there is some reasonably recent review level evidence on this topic (see Atkinson et al, 2014), and partly as this is a separate (and large) evidence base.

Groups that could potentially be vulnerable in relation to their housing status that will be considered are:

- Homeless people, rough sleepers, roofless people, living in temporary accommodation, past experience of homelessness/rough sleeping
- People with experience of poor mental health
- People with a learning disability
- People who have experienced domestic violence
- Asylum seekers, refugees, recent immigrants
- People with HIV or STD
- Substance users and former substance users
- Travellers/ Gypsy populations
- Troubled families, those with complex needs
- Ex-offenders
- Veterans
- Teenage parents
- Young care leavers
- Those with a long term disability, including sensory impairments
- LGBT
- Those with complex needs

Topics considered for systematic review

The following topics were considered for the full systematic review but were excluded based on the assessment of evidence in the review of reviews. An outline of the evidence considered and the reasons underlying the decision not to recommend a systematic review of primary evidence on these topics is given below.

Physical infrastructure: The relationship between health (particularly physical health) and housing infrastructure is widely researched and reviewed, in many cases using high quality systematic reviewing methods. Practitioner focused dissemination also exists, such as Effectiveness Matters (2014)⁵.

⁵ <http://www.york.ac.uk/crd/publications/effectiveness-matters/housing-home-safety/>

The reviews considered here make a number of recommendations for future research with larger sample sizes, improved RCT designs and more cost-effectiveness analysis. Additionally, there is the potential for better wellbeing outcomes to be captured within particular topics, such as cold and fuel poverty, that impact beyond mental health to aspects of subjective wellbeing, security and emotional wellbeing. The full consequences and potential interconnections of infrastructure interventions are not well captured in the evidence identified in our review of reviews. For example, there is a growing body of evidence that links home energy efficiency and air tightness of a property to unintended negative health consequences (e.g. Shrubsole et al, 2014, Milner et al. 2014, Hamilton et al, 2015).

We do not see this as a topic which is best taken forward into systematic review within the WWC-WB Community Evidence Programme team. The impact on wellbeing of most infrastructure projects is predominantly via health, both mental and physical.

Economic housing situation: The reviews identified on housing mobility and mixed tenure provide evidence towards the potential existence and impact of neighbourhood effects (the idea that living in a more deprived neighbourhood has a negative effect on residents' life chances over and above the effect of their individual characteristics) along with an indication of the effectiveness of policies based on the premise of the existence of neighbourhood effects. The focus in this review has been on housing interventions, and the search strategy was deliberately limited to 'housing' terms. As such only reviews with a clear focus on housing were identified, which will only be part of the 'neighbourhood and area effects' and 'mixed communities' evidence base. A number of recent systematic reviews have been conducted on neighbourhood effects; such as on education attainment (Nieuwenhuis and Hooimeijer 2016), mortality (Meijer et al, 2012), alcohol consumption (Bryden et al, 2013), birth outcomes (Metcalf et al, 2011), and suicide (Rehkopf and Buka, 2006). A three volume text edited by Van Ham and Manley⁶ provides analysis of

⁶ <http://www.neighbourhoodeffects.org>

much of the evidence to that date, and analysis of the policy implications for the UK. Van Ham et al (2012) note that despite extensive nature of the research into neighbourhood effects little is known about the magnitude of neighbourhood effects, their causal mechanisms, the circumstances under which they are most important, or the most effective policy response (van Ham et al. 2012).

Van Ham and Manley (2012) give ten recommendations for future neighbourhood research which includes recommending the addition of subjective wellbeing as an outcome “we should not forget to ask the question whether people are happy where they live”. A more thorough consideration of community wellbeing as both a mechanism for neighbourhood effects and as an outcome would also be an important addition - particularly as housing mobility and mixed community programmes have the potential to change (for good or bad) community cohesion and social capital.

We do not recommend taking housing mobility or mixed communities forward for the full systematic review by the Communities Evidence Programme. They are reasonably well researched and reviewed topics. The well conducted systematic review of mixed tenure by Sautkina et al (2012) reviewed evidence from 1999 to 2009. Given the mixed findings of the evidence up to that point there is a case for updating this review to incorporate recently published evidence. However, this was considered a lesser priority than the review on housing interventions for vulnerable groups.

The economic situation of housing covers all aspects of housing allocation, including choice, control, stability and affordability. At the review level little evidence has been identified on policies and interventions to support affordability – yet affordability was identified as a key concern amongst the public and an important driver of their wellbeing.

There is a gap in the systematic review level evidence on policies across the UK and internationally designed to ensure affordability for home ownership and in the rental sector. These may include evidence on Housing Zones, links to planning, use of guarantees, shared ownership, Help to Buy, Right to Buy, Affordable Homes

Programme, rent controls and innovative financing (see Gibb et al, JRF 2013). A systematic review of the evidence on affordability initiatives would provide useful evidence for both central and local policy. However, we do not recommend that the WW-WB Community Evidence Programme takes this forward. The impact upon wellbeing is indirect and the key outcomes are affordability, sustainable mortgages, and equity. Given the less direct role of subjective wellbeing we feel less a priority for the WW-WB Community Evidence Programme. Furthermore, this is a key theme within the future ESRC Evidence Centre on UK Housing.⁷

Housing and neighbourhoods: The identified reviews on neighbourhoods and urban regeneration had difficulties in separating out the housing aspect of any intervention over other neighbourhood interventions. Given the nature of the interventions, interdependencies across interventions and potential synergies are to be expected.

The review level literature on regeneration showed a very clear role for community wellbeing, via social cohesion and engagement. However, as the role of housing itself is not necessarily central to this over and above the role of other aspects of regeneration, we don't suggest this is taken forward within the housing systematic review.

Housing design and home environment: The reviews identified within this theme covered only physical activity and sedentary behaviour. These reviews identified gaps in good quality research that adequately identify the magnitude of the long-term impact of housing design features.

No reviews were identified that captured evidence on the built environment and subjective wellbeing or broader wellbeing outcomes.

⁷ <http://www.esrc.ac.uk/funding/funding-opportunities/evidence-centre-on-uk-housing/>

There is a gap in the systematic review evidence covering design for wellbeing (including aspects such as feelings of security and safety, and independence of older people) and community wellbeing (such as social capital and contact with neighbours). This could consider evidence on aspects of housing that have been linked to wellbeing (colour, light (day light and types of artificial light), use of space (communal and private), sound proofing, views, connections to nature (e.g. plants) feeling safe etc.). (UK Green Building Council, 2016). An initial scoping search identified a limited number of potential published studies in this topic, although there is likely to be a considerable amount of relevant non-published material, particularly in the area of design for the elderly (for example, the 2009 HAPPI panel and report⁸)

Although this topic would benefit from a systematic review that could collect, synthesise and appraise the grey literature we do not recommend that this is taken up by the WWC-WB Communities Evidence Programme team in the first instance as the review on interventions to support vulnerable groups is more in line with evidence demands of key stakeholders.

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⁸ Housing our Ageing Population: Panel for Innovation, Homes and Communities Agency, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/378171/happi_final_report_-_031209.pdf

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