

Healthy Cities Toolkit

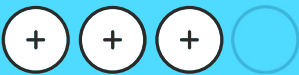
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Housing interventions

Moderate positive impact based on low quality evidence with moderate resource implications.

Impact



Resources



Evidence



Studies



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[Access data](#)

Related: [Exposures in housing](#), [Sanitation](#)

Description

Housing refers to houses or buildings collectively, with a house defined as a building for human habitation, often the place of residence of a family (Oxford English Dictionary, 2022). In the literature, housing was investigated as either an intervention or an exposure. This Toolkit page focuses on housing interventions.

Findings

Six reviews examined the health impact of housing interventions from over 200 primary studies. Interventions involved changing area characteristics ([Gibson 2011](#)), structural refurbishments and modifications ([Kua 2021](#); [Ige 2019](#)), provision of adequate heating, improvements to ventilation and water supply, initiatives for prioritizing housing for vulnerable groups ([Ige 2019](#)), and the upgrading of slums ([Henson 2020](#); [Turley 2013](#)) and informal settlements ([Weimann 2019](#)). Overall, housing interventions decreased communicable and vector-borne diseases and improved general health, mental health, and well-being.

Most reviews considered all age groups or did not specify age. One review restricted its geographical scope to South Africa ([Weimann 2019](#)) and another to low- and middle-income countries ([Henson 2020](#)).

In one review, housing refurbishment and modifications, provision of adequate heating, and improvements to ventilation and water supply were associated with improved respiratory outcomes, quality of life and mental health ([Ige 2019](#)).

Interventions to improve deprived areas via employment, training, housing, crime reduction, environment and quality of life had a positive impact, improving standardised mortality rates ([Gibson 2011](#)). Prioritization of housing for vulnerable groups also led to improved well-being ([Ige 2019](#)).

Heating and energy efficiency interventions positively impacted general health, respiratory health and mental health outcomes ([Gibson 2011](#)).

Modifying ceilings to close eaves, mosquito trapping systems, screening windows and doors, and netting covering gable ends reduced indoor vector densities of *Aedes* and *Anopheles* mosquitoes and had a significant effect on the incidence of clinical malaria in southeast Asian homes ([Kua 2021](#)).

In slums, providing homes with cement flooring was associated with improved maternal mental health and satisfaction with the quality of life ([Turley 2013](#)). Slum upgrading had a positive impact on rates of communicable disease with a lower diarrhoeal incidence in intervention groups, which was associated with a lower incidence of nutritional deficiencies and a positive impact on general health and wellness ([Turley 2013](#); [Weimann 2019](#)). In informal settlements, upgrading housing types from “shacks” to “subsidised housing” was associated with improvements in noise, violent crime, safety and reductions in alcohol and substance use ([Weimann 2019](#)).

Impact

Most reviews found that housing interventions had a positive impact on health outcomes. Recommendations from the literature include:

- Collaboration between business, academia and the public sector to increase research and implementation
- Governments should encourage homeowners and landlords to make housing modifications that will improve health by providing financial incentives and assistance
- Development and implementation of building regulations that incorporate international guidance on practices in design and construction that support health and wellbeing

Resources

Resource implications for housing interventions were reported in four reviews, which overall were ranked as moderately high.

One review concluded that moving disadvantaged people to lower-poverty areas was cheaper than focused investment in deprived areas ([Gibson 2011](#)). However, it does not help improve conditions in high-poverty areas. Therefore, focused investment would be more cost-effective due to assisting all populations.

The investment required to construct new housing for reducing vector-borne diseases was reported as significantly higher than insecticidal methods using insecticide-treated bed nets or indoor residual spraying ([Kua 2021](#)).

A cost-benefit analysis of slum upgrading on water expenditure was included in one review, with evidence that monthly water-related expenditure was reduced after intervention ([Turley 2013](#)). The cost of further research on the effects of housing interventions in informal settlements on health was graded as high due to resource and logistical constraints resulting in challenges of evaluation ([Henson 2020](#)).

Quality of the evidence

There were four formal systematic reviews (one with meta-analysis, one using mixed-methods, and one Cochrane review), one literature review and one overview of systematic reviews. Searches for evidence were conducted between 1998 and 2020 in a median of 8 databases (IQR: 6-14). Four reviews used tools to assess the risk of bias or quality of their included studies, with two reviews having low quality and two reviews with moderate

quality evidence, giving the overall score of low-quality evidence.

To improve the quality of the evidence, future research should:

- Adhere to existing guidelines on the reporting of systematic reviews e.g. PRISMA
- Gather longitudinal data comparing change over time in the intervention and control communities
- Evaluate the differential impact of housing interventions across different sub-groups
- Develop and utilise reliable and comparable outcome measures to determine the effect of housing interventions on health

External links to related sources

- WHO (2018): [Housing and health guidelines](#)
- UK Parliament (2022): [Housing](#)
- Crisis (2022): [Housing](#)
- Designing Buildings (2021): [Lifetime homes](#)
- National Housing Federation (2022)
- Resolution Foundation (2022): [Housing outlook](#)
- The Health Foundation (2022): [Housing](#)
- The Health Foundation (2021): [Relationship between health and number of housing problems](#)
- The Health Foundation (2020): [Better housing is crucial for our health and the covid-19 recovery](#)
- The Health Foundation (2017): [How does housing influence our health](#)
- The King's Fund (2022): [Housing – our work on housing and its role in people's health](#)
- The King's Fund (2018): [Housing and health – opportunities for sustainability and transformation partnerships](#)
- The King's Fund (2016): [The economics of housing and health – the role of housing associations](#)
- The King's Fund: [Warmer and safer homes](#)

References of included reviews

Gibson, Marcia, Mark Petticrew, Clare Bambra, Amanda J. Sowden, Kath E. Wright, and Margaret Whitehead. 2011. "[Housing and Health Inequalities: A Synthesis of Systematic Reviews of Interventions Aimed at Different Pathways Linking Housing and Health.](#)" *Health & Place* 17 (1): 175–84.

Henson, Rosie Mae, Ana Ortigoza, Kevin Martinez-Folgar, Fernando Baeza, Waleska Caiaffa, Alejandra Vives Vergara, Ana V. Diez Roux, and Gina Lovasi. 2020. "Evaluating the Health Effects of Place-Based Slum Upgrading Physical Environment Interventions: A Systematic Review (2012-2018)." *Social Science & Medicine* 261.

Ige, Janet, Paul Pilkington, Judy Orme, Ben Williams, Emily Prestwood, D. Black, Laurence Carmichael, and Gabriel Scally. 2019. "The Relationship between Buildings and Health: A Systematic Review." *Journal of Public Health* 41 (2): e121–32.

Kua, Kok Pim, and Shaun Wen Huey Lee. 2021. "Randomized Trials of Housing Interventions to Prevent Malaria and Aedes-Transmitted Diseases: A Systematic Review and Meta-Analysis." *PloS One* 16 (1): e0244284.

Turley, Ruth, Ruhi Saith, Nandita Bhan, Eva Rehfuss, and Ben Carter. 2013. "Slum Upgrading Strategies Involving Physical Environment and Infrastructure Interventions and Their Effects on Health and Socio-Economic Outcomes." *Cochrane Database of Systematic Reviews*, no. 1 (January): CD010067.

Weimann, Amy, and Tolu Oni. 2019. "A Systematised Review of the Health Impact of Urban Informal Settlements and Implications for Upgrading Interventions in South Africa, a Rapidly Urbanising Middle-Income Country." *International Journal of Environmental Research and Public Health* 16 (19). <https://doi.org/10.3390/ijerph16193608>.



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