

Housing and Health

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In Latin America and the Caribbean, health issues and the housing deficit are two deeply interconnected challenges. Studies have shown that factors such as poor design and substandard materials, lack of water and sanitation services, affordability issues, and unstable housing tenure directly impact people's health. The most significant effects are linked to gastrointestinal illnesses and related infant mortality, as well as increased levels of stress, anxiety, depression, and respiratory diseases. These, in turn, are indirectly connected to people's economic conditions, nutritional status, and cognitive development. All these impacts disproportionately affect women, older adults, and children.

Habitat for Humanity promotes access to decent housing in the region through affordable financing, quality housing standards, and strategies that strengthen the economic security of families—especially women. Its holistic approach demonstrates that improving housing conditions contributes to community well-being and development.

Keywords: housing, health, diseases, well-being, women, older adults, children.

Adequate housing is more than just a physical structure of four walls and a roof. It is a fundamental human right that comprises seven essential elements: security of tenure, availability of services, materials, facilities, and infrastructure, affordability, habitability, accessibility, location, and cultural adequacy (UN-Habitat, 2019).

These interrelated characteristics determine the adequacy of housing, and their degree of fulfillment directly impacts people's physical and mental health—affecting specific population groups in different ways.

For the sake of synthesis, this report groups these characteristics into the following categories: location, water and sanitation services, housing design and materials, affordability, and security of tenure. It then explores the specific relationships between each of these aspects and people's health. It also identifies how deficiencies in these areas disproportionately affect women, children, and older adults.

Finally, the article provides concrete examples that illustrate how Habitat for Humanity contributes to

people's health and well-being through its programs and projects.

- 1 SECURITY OF TENURE
- 2 AVAILABILITY OF SERVICES, MATERIALS, FACILITIES AND INFRASTRUCTURE
- 3 AFFORDABILITY
- 4 HABITABILITY
- 5 ACCESSIBILITY
- 6 LOCATION
- 7 CULTURAL ADEQUACY



The 7 elements of adequate housing according to UN-Habitat, 2019. Illustration sourced from the website: [UN-Habitat – Elements of Adequate Housing](https://www.unhabitat.org/elements-of-adequate-housing).

What is the housing and health situation in Latin America and the Caribbean?

It is estimated that 45% of households in Latin America and the Caribbean (LAC) lack adequate housing, representing approximately 300 million people.

This includes both the quantitative deficit (5%) and the qualitative deficit (95%). The extent of this reality varies from country to country. For example, in Costa Rica, approximately 11% of the population experiences housing inadequacy, while in Nicaragua, the rate exceeds 80% (IDB, 2024).

The qualitative deficit includes issues such as insecurity of tenure, especially in urban and peri-urban areas, where Paraguay has the lowest level (13%) and Guatemala the highest (33%). Combined, Mexico and Brazil account for 50 million people facing tenure insecurity (Prindex, 2023).



The qualitative deficit includes homes that need improvements, such as adequate flooring. © Habitat for Humanity International / David Estrada

Another major factor contributing to the region's high qualitative deficit is the lack of access to water and sanitation. In 2020, only 75.4% of the population of Latin America and the Caribbean had access to safely managed drinking water, and just 34.1% had access to safe sanitation systems (UN, 2021).

Housing affordability is also a critical factor explaining the high qualitative deficit (Habitat for Humanity International, 2016). One study showed that in 2010, only 42% of people between the ages of 15 and 39 were homeowners (IDB, 2012).

Additionally, substandard housing design and materials are prevalent, particularly in informal settlements (Torres Parra et al., 2024). In 2022, more

than 1.12 billion people were living in informal settlements and slums (UN-Habitat, 2024b).

In Latin America, the quality of housing directly impacts physical health.

Inadequate housing has been linked to various health issues, including respiratory infections, vector-borne diseases, injuries, and gastrointestinal illnesses (Jacobs & Kelly, 2003; Torres Parra et al., 2024). In 2016, deficits in access to water, sanitation, and hygiene were directly linked to approximately 40% of all diarrhea-related deaths in the region (CAF, 2023). Additionally, overcrowded living conditions and inadequate ventilation in substandard housing contribute to the spread of infectious diseases (Pan American Health Organization, 2022).

Mental health is also an increasing challenge in Latin America. Mental and neurological disorders account for nearly one-quarter of the region's disease burden (World Bank, 2015). In 2017, the WHO reported that Brazil had the highest anxiety rate in the world (9.3% of the population) and the fifth highest rate of depression (5.8% of the population) (The Dialogue, 2023).

Poor housing conditions, economic insecurity, and discrimination contribute to mental health issues such as stress, anxiety, and depression (Chinchilla et al., 2021).



Manuel and his son, Miguel, walk through the streets of their community in Chalco, Mexico. There, families face shortages and a lack of community services. ©Habitat for Humanity / Marco Calvo.

There is a significant treatment gap for mental health disorders in Latin America, primarily due to insufficient funding (The Dialogue, 2023).

What is the relationship between adequate housing and people's health?

How does housing location affect people's health?

Proximity to polluted sites, such as industrial facilities, electrical substations, pesticide-treated agricultural land, high-traffic roads, nuclear power plants, and gas stations, has a negative impact on physical health. These environments are linked to pregnancy complications, such as congenital disabilities and low birth weight, due to exposure to heavy metals and volatile organic compounds that interfere with fetal development. Additionally, there is a higher incidence of asthma, chronic obstructive pulmonary disease (COPD), cardiovascular diseases, certain childhood cancers, and an elevated risk of end-stage kidney disease and diabetes due to constant exposure to air pollutants and toxic chemicals (Kihal-Talantikite et al., 2017; Brender et al., 2011).

People living in peripheral or segregated areas with limited access to basic services and urban infrastructure tend to experience greater social isolation, which increases the risk of depression, stress, and anxiety. Segregation and poorly located housing also hinder access to support networks and employment opportunities, reinforcing feelings of exclusion and perpetuating situations of abuse or violence (Libertun de Duren, 2017).

Social cohesion and access to green spaces help reduce stress and anxiety by providing support and recreational opportunities, which promote relaxation and improve people's overall well-being. Having trustworthy neighbors reinforces a sense of belonging and reduces loneliness by providing emotional support during difficult times (Gómez et al., 2019). Conversely, perceptions of insecurity limit outdoor activity and social interactions, leading to isolation and heightened anxiety. Constant exposure to urban noise further exacerbates stress by disrupting rest and making it difficult to relax at home, which can result in sleep disturbances and irritability (Evans, 2003).

How does access to water and sanitation affect people's health?

According to the WHO (2022), a lack of access to safe drinking water, sanitation, and hygiene resulted in 829,000 deaths from diarrheal diseases in 2016, accounting for 1.9% of the global disease burden.

Investing in water and sanitation infrastructure could prevent up to 2.2 million child deaths annually.

Investing in water and sanitation infrastructure could prevent up to 2.2 million child deaths annually in the developing world, with an average annual cost per life saved equivalent to between 65% and 80% of these countries' per capita GDP (Günther & Fink, 2011).

In informal settlements, the lack of safe sanitation and drinking water, combined with overcrowding, exposes residents to pathogens that cause diseases such as gastroenteritis, diarrhea, and parasitic infections. Poor hygiene and increased risk of food and water contamination—due to shared sanitation facilities—further contribute to these health risks (Núñez, Collado & Wang, 2020; World Health Organization (WHO), 2022).

How do housing design and materials affect people's health?

Elevated dwellings constructed with durable materials, such as wooden or aluminum walls and roofs, provide effective protection against moisture and direct contact with contaminated soil, reducing the transmission of gastrointestinal pathogens. Replacing dirt floors with concrete floors makes cleaning easier. It also creates a more hygienic environment that is less prone to the proliferation of microorganisms, thereby minimizing the risk of household infections that cause diarrheal diseases (Galiani, Gertler & Undurraga, 2017; Habitat for Humanity, 2024).

Overcrowding and inadequate ventilation in confined spaces increase the risk of transmitting respiratory diseases such as tuberculosis, pneumonia, and influenza by facilitating the spread of airborne pathogens due to high population density and close contact. Proper ventilation is essential for reducing indoor air pollutants (WHO, 2022; Bungau et al., 2024).

The lack of adequate materials for extreme climates in social housing has a negative impact on residents' physical health. In areas of extreme heat in Mexico, using concrete and hollow blocks in semi-arid regions increases the risk of heat stress and heatstroke. Symptoms include fatigue, dehydration, loss of consciousness, and organ damage in severe cases (González, Herrera & Solís, 2023). Conversely, in temperate to cold regions, such as the mountains

of Colombia, homes with uninsulated concrete walls expose residents to an increased risk of bronchitis and colds. These risks can be mitigated by using insulating materials and better window frames (Rodríguez et al., 2019). Older homes, particularly those with outdated and poorly maintained kitchens, expose residents to carbon monoxide and lead, increasing the risk of poisoning, neurological problems, and chronic respiratory illnesses.

Humidity in these spaces promotes mold growth, contributing to asthma and other respiratory conditions, while deteriorating paint and structural elements increase the risk of lead poisoning, injuries, and pest infestations. Energy poverty leads to the use of low-cost fuels and biomass stoves in poorly ventilated spaces, which increases the risk of developing COPD, lung cancer, and chronic bronchitis due to prolonged exposure to harmful particles and toxic gases that irritate and damage the respiratory system (Novoa et al., 2014; WHO, 2022; Orlando-Romero et al., 2023; Kim, Jahan & Kabir, 2011; Torres-Duque et al., 2008).



In the Arequipa region of Peru, families build informally. © Habitat for Humanity International / Tatiana Guerrero

According to the WHO (2022), the risks of injury and burns in the home pose a public health concern, particularly in unsafe housing conditions.

Housing conditions such as overcrowding, lack of privacy, and insecurity of tenure significantly impact residents' mental health, fostering chronic stress, anxiety, and depressive symptoms. Overcrowding also contributes to these symptoms by generating stress and reducing personal space, which can lead to cognitive fatigue and frustration

(Ruiz-Tagle & Urria, 2020). These effects intensify over time and increase the risk of family conflicts, as a lack of privacy in densely populated spaces heightens tension and irritability, potentially leading to episodes of domestic violence (Raphael, 2001).

Lack of natural light in living spaces can cause stress and discomfort, as it prevents occupants from feeling connected to the outside environment—a connection that enhances mood and helps regulate circadian rhythms (Atamewan, 2022).

Adequate and stable housing strengthens residents' self-esteem by providing them with greater control over their environment, meeting their needs for comfort and security, and fostering a more positive self-perception (Rohe & Stegman, 1994). This effect is confirmed in a study by Galiani, Gertler, and Undurraga (2017), which demonstrated that providing prefabricated housing improved the quality of life for low-income families in Latin America.

How do housing affordability and security of tenure affect people's health?

Affordability is directly linked to mental health. Chronic stress increases when a significant portion of household income must be spent on housing costs and can force families to sacrifice essential needs such as food and healthcare, resulting in a deterioration of their mental health. This precarious affordability exacerbates economic insecurity and contributes to a perception of poor health. As well, a lack of stable housing increases the fear of losing one's home and reduces control over one's environment, thereby exacerbating symptoms of depression and anxiety (Pollack, Griffin & Lynch, 2010; Lindberg et al., 2010; Balchin & Stewart, 2001).

Affordability and overcrowding also have a more pronounced impact on women, who often face greater financial pressures and less economic stability, thus increasing their exposure to stress and anxiety (Baker et al., 2013).

Insecurity of tenure generates chronic stress, anxiety, and depressive symptoms among residents.

Security of tenure also has a positive influence on children's health. In Ecuador, households with property titles are less likely to resort to child labor because

tenure security enables adults to work outside the home without constantly worrying about protecting their property (Rose, 2006).

Which conditions disproportionately affect women, older adults, and children?

Children, older adults, and women tend to spend a greater amount of time at home, increasing their exposure to health risks associated with housing conditions (WHO, 2022). For children, substandard housing increases the risk of injuries and respiratory problems due to toxins such as lead and mold (Reece, 2021).

A lack of adequate sanitation also significantly affects children. In Brazil, expanding sanitation coverage has reduced hospitalizations and illnesses such as chronic diarrhea, which impairs child development. In Mexico and El Salvador, improving access to safe drinking water has reduced exposure to contaminated sources and improved the health of children in vulnerable communities. A study in the United States found that children in households receiving rental subsidies have a lower incidence of malnutrition because families can allocate more resources to a balanced diet (Lindberg et al., 2010).

Distance from healthcare services in low- and middle-income countries is also linked to higher rates of infant mortality, particularly during the perinatal and neonatal periods, when immediate access to medical care is crucial (Okwaraji & Edmond, 2012).

Issues with building materials, lack of thermal insulation, inadequate protection from extreme temperatures, and poor ventilation can negatively impact older adults, who are particularly vulnerable to respiratory and cardiovascular diseases when exposed to cold and damp indoor environments, mold, and other pollutants that harm physical health and exacerbate pre-existing conditions (Lawrence, 2010; Bungau et al., 2024; González, Herrera & Solís, 2023).

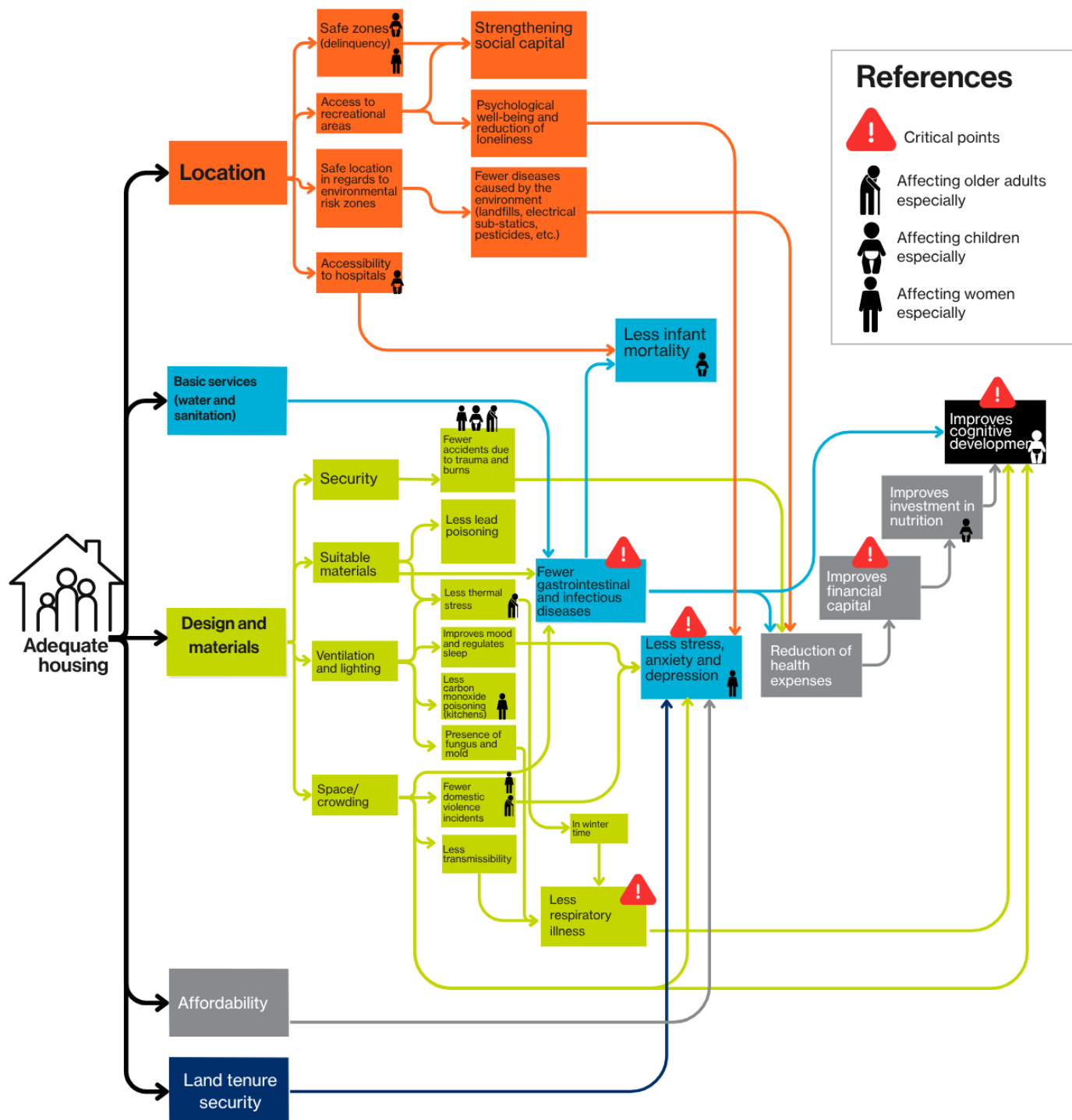
Women are disproportionately affected by indoor air pollution from wood-burning stoves and cookstoves, particularly in rural communities and developing countries, where they often spend a significant amount of time in cooking areas. Prolonged exposure to pollutants such as carbon monoxide and fine particles increases the risk of severe respiratory diseases (Kim, Jahan & Kabir, 2011; Torres-Duque et al., 2008).

In addition, overcrowding raises the risk of infectious diseases due to close contact with others—especially for women in traditional caregiving roles within the home (WHO, 2018; WHO, 2022).

Prolonged exposure to dampness and inadequate heating further increases women's risk of respiratory illness and negatively affects their mental well-being, as they tend to spend more time at home in caregiving roles.

Finally, insecurity and vandalism in the surrounding environment increase women's stress and anxiety because they often worry not only about their own safety but also that of their children and family members. This fear is intensified in high-crime areas (Pevalin et al., 2008).

In summary, this is how housing is connected to people's health:



How does Habitat for Humanity's work contribute to people's health?

Habitat for Humanity (HFH) is a non-governmental organization that has worked since 1976 to ensure that every person has a decent place to live. It operates in more than 70 countries worldwide, including 17 in Latin America and the Caribbean. Globally, HFH has served more than 62 million people. Over the past decade (2014–2024), it has directly impacted nearly 6.5 million people in Latin America and the Caribbean, reached over 12 million more through partnerships with the housing sector, and potentially influenced the lives of more than 35 million people through changes in public policies or housing market practices. The total number of people directly, indirectly, and potentially reached by HFH in Latin America and the Caribbean over the past decade is roughly equivalent to one in five people currently experiencing a housing deficit in the region¹.

Over the past decade, Habitat for Humanity has positively impacted one in five people in the region who face a housing deficit.

Habitat's approach to addressing the housing crisis focuses on acting strategically within the housing ecosystem to increase equitable access to housing. HFH recognizes that housing is a means to achieve prosperity and prioritizes generating evidence to demonstrate how housing contributes to people's quality of life—with health being a key focus area. This systemic, people-centered strategy is implemented across four areas of expertise: affordability, habitability, tenure security, and basic services. These areas are integrated into the organization's programs and projects.

HFH is committed to the quality of its projects, including construction. Based on the UN-Habitat standards explained above, Habitat has developed its own housing quality standards, which are:

- design (housing materials, safety, spatial quality, etc.)
- location
- water
- sanitation
- security of tenure

These standards are applied uniformly and mandatorily across all construction programs worldwide, accompanied by a vision of incremental building and technical assistance that prioritizes balancing desires, needs, and affordability in housing solutions.



Every five hours, Habitat for Humanity delivers a home in Guatemala. © Habitat for Humanity Guatemala / Diana Reyes

These standards also enable the organization to measure its efforts in terms of types of housing improvements and to recognize how each contributes to other aspects of quality of life, such as health. In addition, Habitat also implements programs and projects with a deliberate focus on improving the health of individuals and communities. For example, Habitat for Humanity Argentina leads a program called *Salud y vivienda* (Health and Housing), which promotes improvements to owner-built bathrooms. HFH Paraguay has run an annual campaign for over ten years called *Salud al agua* (Cheers to Water), combining fundraising, public advocacy, and constructing adequate bathrooms for families living in informal settlements.

Habitat also promotes multi-year regional or sub-regional projects, such as the *100,000 Floors to Play On* initiative, which aims to replace dirt floors with adequate flooring to improve families' health, education, and economic development. The initiative also measures the impact to document how having an adequate floor makes a difference in these aspects of families' quality of life.

¹ Data sourced from Habitat for Humanity's Global Measurement Tool (2014–2024).

The most recent impact assessment in the Dominican Republic showed, among other findings, that families with an adequate floor save 79% on healthcare expenses compared to families without one.



Eimel and Eimy are siblings living in Rancho al Medio, San Cristóbal, Dominican Republic. Their home received an upgrade with a concrete floor. © Habitat for Humanity Dominican Republic / Media Crew

Since housing is a pathway to prosperity and community building, HFH develops projects that promote financial inclusion—particularly for women. Examples include productive housing initiatives in the Dominican Republic and training and job placement programs for women plumbers in Bolivia. In terms of social cohesion and promoting social ties and support networks, HFH takes a highly community-based approach. It has been demonstrated that people's social capital increases when homes are located in more urbanized environments, as recently confirmed in an evaluation study conducted in Paraguay (HFH Paraguay, 2024).

Conclusions

Several studies show that improved housing can lead to enhanced mental and physical health. Factors such as overcrowding, lack of infrastructure, inadequate water and sanitation services, tenure insecurity, and unaffordable housing contribute to stress, anxiety, and depression. The literature also

indicates that poor housing conditions—such as inadequate ventilation and lighting, poor-quality materials, unsafe kitchens and bathrooms, and insufficient space leading to overcrowding—can increase stress levels, cause respiratory and gastrointestinal illnesses, lead to household accidents, worsen sleep quality and mood, and trigger situations of violence, among other effects.

Housing policies must consider these factors to promote urban planning that ensures homes are located in suitable areas, creates affordable housing conditions, and fosters market integration to close systemic gaps that prevent people from accessing adequate housing.

Habitat for Humanity's experience demonstrates that an integrated approach, combining equitable access to housing, affordable financing, quality standards, and strengthened community networks, is essential for reducing domestic violence and improving people's quality of life in the region.

References

- Atamewan, E. E. (2022). Appraisal of Day-lighting in Sustainable Housing Development in Developing Countries. *Journal of Studies in Science and Engineering*, 2(2): 59-75. <https://doi.org/10.53898/josse2022225>
- Baker, E., Mason, K., Bentley, R., & Mallett, S. (2013). Exploring the bi-directional relationship between health and housing in Australia. *Urban Policy and Research*, 32(1), 71–84.
- Balchin, P. N., & Stewart, J. (2001). Social housing in Latin America: Opportunities for affordability in a region of housing need. *Journal of Housing and the Built Environment*, 16, 333-341.
- Bungau, C. C., Bendea, C., Bungau, T., Radu, A. F., Prada, M. F., Hanga-Farcas, I. F., & Vesa, C. M. (2024). The Relationship between the Parameters That Characterize a Built Living Space and the Health Status of Its Inhabitants. *Sustainability*, 16(5), 1771.
- CAF – Development Bank of Latin America and the Caribbean. (2023). CAF Impact: Water and sanitation – Full report. <https://www.caf.com/media/4663661/impacto-caf-agua-y-saneamiento-informe-completo.pdf>

- Chinchilla, M., Yue, D., & Ponce, N. A. (2021). Housing Insecurity Among Latinxs. *Journal of Immigrant and Minority Health*, 24(3), 656–665. <https://doi.org/10.1007/s10903-021-01258-9>
- Evans, G. W. (2003). The built environment and mental health. *Journal of Urban Health*, 80(4), 536–555.
- Galiani, S., Gertler, P. J., Undurraga, R., Cooper, R., Martínez, S., & Ross, A. (2017). Shelter from the storm: Upgrading housing infrastructure in Latin American slums. *Journal of Urban Economics*, 98, 187–213.
- Gómez, L. F., Soto-Salazar, C., Guerrero, J., García, M., & Parra, D. C. (2019). Neighborhood environment, self-rated health and quality of life in Latin America. *Health Promotion International*. doi:10.1093/heapro/day117.
- González, A. J., Herrera, J. A. Q., & Solis, J. V. (2023). Living in a context of climate vulnerability during a heat wave in Torreón, Coahuila, Mexico. *Ciencia Nicolaita*, (87).
- Günther, I., & Fink, G. (2011). Water and sanitation to reduce child mortality: The impact and cost of water and sanitation infrastructure. World Bank Policy Research Working Paper, (5618).
- Habitat for Humanity, 2024. Qualitative evaluation of the 100,000 Floors to Play On initiative in Guatemala. [Evaluación cualitativa de 100 mil pisos para jugar Guatemala | Habitat For Humanity](#)
- Habitat for Humanity, 2024. Qualitative evaluation of the 100,000 Floors to Play On initiative in Nicaragua. [Evaluación cualitativa para medir la contribución de la iniciativa 100 mil pisos para jugar en Nicaragua | Habitat For Humanity](#)
- Inter-American Development Bank. (2012). Latin America and Caribbean face large and growing housing deficit, IDB study says. <https://www.iadb.org/en/news/latin-america-and-caribbean-face-large-and-growing-housing-deficit-idb-study-says>
- Jacobs, D. E., & Kelly, T. J. (2003). Housing and Health: A Review of the Evidence. *Public Health Reports*, 118(5), 484–497.
- Kihal-Talantikite, W., Zmirou-Navier, D., Padilla, C., & Deguen, S. (2017). Systematic literature review of reproductive outcome associated with residential proximity to polluted sites. *International Journal of Health Geographics*, 16, 1–39.
- Kim, K. H., Jahan, S. A., & Kabir, E. (2011). A review of diseases associated with household air pollution due to the use of biomass fuels. *Journal of Hazardous Materials*, 192(2), 425–431.
- Lawrence, R. J. (2010). Housing and health promotion: moving forward. *International Journal of Public Health*, 55, 145–146.
- Libertun de Duren, N. R. (2017). The social housing burden: comparing households at the periphery and the center of cities in Brazil, Colombia, and Mexico. *International Journal of Housing Policy*, 18(2): 177–203. doi:10.1080/19491247.2017.1298366
- Lindberg, R. A., Shenassa, E. D., Acevedo-Garcia, D., Popkin, S. J., Villaveces, A., & Morley, R. L. (2010). Housing interventions at the neighborhood level and health: a review of the evidence. *Journal of Public Health Management and Practice*, 16(5): S44–S52.
- Novoa, A. M., Bosch, J., Díaz, F., Malmusi, D., Darnell, M., & Trilla, C. (2014). The impact of the economic crisis on the relationship between housing and health. Best practice policies to reduce health inequalities associated with housing conditions. *Gaceta Sanitaria*, 28, 44–50. doi:10.1016/j.gaceta.2014.02.018
- Núñez Collado, J. R., & Wang, H.-H. (2020). Slum upgrading and climate change adaptation and mitigation: Lessons from Latin America. *Cities*, 104, 102791. doi:10.1016/j.cities.2020.102791
- Okwaraji, Y. B., & Edmond, K. M. (2012). Proximity to health services and child survival in low-and middle-income countries: a systematic review and meta-analysis. *BMJ Open*, 2(4), e001196.
- Orlando-Romero, L., Vives-Vergara, A., Valdebenito, R., Cortinez-O’Ryan, A., Baeza, F., & Rasse, A. (2023). “My life is going to be much better than it has been”: A qualitative study on the link between social housing regeneration, quality of life, and health. *Cadernos de Saúde Pública*, 39, e00149822.
- Pan American Health Organization. (2022). WHO Housing and Health Guidelines [Internet]. (<https://www.ncbi.nlm.nih.gov/books/NBK583405/>)
- Pevalin, D.J., Taylor, M.P., & Todd, J.J. (2008). The Dynamics of Unhealthy Housing in the UK: A Panel Data Analysis. *Housing Studies*, 23, 679 - 695.
- Pollack, C. E., Griffin, B. A., & Lynch, J. (2010). Housing affordability and health among homeowners and renters. *American Journal of Preventive Medicine*, 39(6), 515–521.
- Prindex. (2023, January). Prindex-WP-LA-Regional-report-DIGITAL_2.pdf. (https://prindex-dev-bucket.s3.eu-west-2.amazonaws.com/documents/Prindex-WP-LA-Regional-report-DIGITAL_2.pdf)
- Raphael, J. (2001). Public Housing and Domestic Violence. *Violence Against Women*, 7(6), 699–706. doi:10.1177/10778010122182677
- Reece, J. (2021). More than shelter: Housing for urban maternal and infant health. *International Journal of Environmental Research and Public Health*, 18(7), 3331.
- Rodríguez, C. M., Medina, J. M., Pinzón, A., & García, A. (2019). Post-occupancy strategy to improve

thermal comfort in social housing in tropical mountain climates: A case study in Bogotá, Colombia. *Informes de la Construcción*, 71(555), e305. <https://doi.org/10.3989/ic.61006>

American Health Organization. License: CC BY-NC-SA 3.0 IGO. <https://doi.org/10.37774/9789275325674>.

Rohe, W. M., & Stegman, M. A. (1994). The Effects of Homeownership on the Self-Esteem, Perceived Control and Life Satisfaction of Low-Income People. *Journal of the American Planning Association*, 60(2), 173–184. doi:10.1080/01944369408975571

Rose, 2006. The formalization of urban land tenure in developing countries. [Microsoft Word - urban land tenure formalisation](#)

Ruiz-Tagle, J., & Urria, I. (2020). Household Overcrowding and Mental Well-being: Better Safe than Sorry. Santiago: Department of Economics, Faculty of Economics and Business, University of Chile.

The Dialogue. (2023, March 27). Toward a Paradigm Shift on Mental Health in Latin America. <https://www.thedialogue.org/analysis/toward-a-paradigm-shift-on-mental-health-in-latin-america/>

Torres-Duque, C., Maldonado, D., Pérez-Padilla, R., Ezzati, M., & Viegi, G. (2008). Biomass fuels and respiratory diseases: a review of the evidence. *Proceedings of the American Thoracic Society*, 5(5): 577-590.

Torres Parra, C. A., Saldeño Madero, Y. N., González Méndez, M., Fasolino, I., Villegas Flores, N., Grimaldi, M., Carrillo Acosta, N., & Cicalese, F. (2024). Evaluation of the Impact of Informal Settlements on the Physical and Mental Health of Residents—Case Study Santa Marta—Bogotá, Colombia. *Sustainability*, 16(5), 1964. <https://doi.org/10.3390/su16051964>

United Nations. (2021). The Sustainable Development Goals Report 2021. <https://www.un.org/en/unpdf/sdg-2021-07>

UN-Habitat. (2024b, October). HSP_OEWG-H.2024_3s.pdf. <https://unhabitat.org/sites/default/files/2024/10/2416772s.pdf>

United Nations Human Settlements Programme (UN-Habitat), 2019. UN-Habitat - Elements of Adequate Housing.

World Bank. (2015, July 13). Poor mental health, an obstacle to development in Latin America. <https://www.worldbank.org/en/news/feature/2015/07/13/bad-mental-health-obstacle-development-latin-america>

World Health Organization. (2018). WHO Housing and Health Guidelines. <https://www.who.int/publications/i/item/WHO-CED-PHE-18.10>

World Health Organization. (2022). WHO Housing and Health Guidelines. Washington, D.C.: Pan