

# Crowded Housing and Housing Cost Burden by Disability, Race, Ethnicity, and Rural-Urban Location

Alexis Swendener, PhD

Katie Rydberg, MPH

Mariana Tuttle, MPH

Hawking Yam, MS

Carrie Henning-Smith, PhD, MPH, MSW

## Key Findings

- A higher proportion of urban adults (18.8%) live in crowded housing than rural adults (14.4%), with differences by race and ethnicity. Urban Hispanic adults have the highest proportion in crowded housing, followed by both rural Hispanic adults and rural American Indian adults.
- A higher proportion of urban adults are housing cost burdened than rural adults, meaning they spend at least 30% of their income on housing. Looking across differences by race and ethnicity reveals that one-third of rural Black Americans are housing cost burdened as well.
- Over 35% of urban adults with disabilities and nearly 30% of rural adults with disabilities are housing cost burdened.

## Purpose

Housing is closely tied to health outcomes and well-being; however, little research examines housing factors by location. In this policy brief, we examine rates of crowded housing and housing cost burden by rural-urban location, as well as at the intersections of race, ethnicity, and disability status.

## Background

Housing is well documented as an important social determinant of health.<sup>1-3</sup> Inadequate housing quality can lead to negative health outcomes.<sup>1</sup> Two such housing quality factors that impact health include the financial burdens of housing (e.g., housing affordability) and the internal conditions of a home, such as overcrowding.<sup>2,3</sup> Overcrowding/crowded housing is commonly defined as having more than one person per bedroom, but other definitions have been used and all have benefits and limitations to fully understanding how crowded housing can affect multiple dimensions of health.<sup>4</sup> Housing affordability is often examined by computing housing cost burden, or the percentage of income a household spends on housing expenses. Common thresholds include housing cost burden of 30% or more while severe housing cost burden is defined as spending 50% or more of income on housing costs.<sup>5</sup>

It is important to acknowledge cross-cultural differences in desired family living situations (e.g., multi-family or multigenerational households), but regardless of preferences, individuals do suffer negative health outcomes when not enough space is available for whatever size household they have.<sup>6</sup> Crowded housing has been found to be associated with worse outcomes, including increased food insecurity and poorer mental health.<sup>7,8</sup> In addition, children are particularly affected by overcrowding, leading to lower academic achievement and worse behavioral and physical health problems.<sup>9</sup> Crowded housing is also related to higher rates of physical illnesses,<sup>10</sup> an important consideration in the context of the COVID-19 pandemic. Social distancing is emphasized as an important method of mitigating the transmission of COVID-19. However, social distancing is challenging for those living in crowded housing, leading to higher transmission rates of COVID-19.<sup>11</sup> Crowded housing has also been identified

as a potential risk factor for COVID-19 mortality.<sup>12</sup>

Another aspect of housing impacting health is the continuing rise in housing costs. In fact, the impacts of crowded housing and affordable housing are linked, as making housing more affordable helps to reduce crowding.<sup>13</sup> Affordable housing has other benefits for health and well-being as well. The stresses of housing-related cost burden, such as financial burdens, frequent moving, and constraints in the ability to move when needed, are linked to poorer self-rated health and lower levels of psychological well-being.<sup>13</sup> Those who are housing cost burdened have less to spend on nutrition and health care expenditures, both of which are linked to worse health outcomes.<sup>13</sup> This includes postponing medical care, not filling needed prescriptions, and having difficulty buying food.<sup>1,13</sup>

Disparities in crowded housing and housing cost burden vary by sociodemographic groups shaped by structural inequalities as well. Racially minoritized households are more likely to be housing cost burdened compared to their white counterparts.<sup>5</sup> Individuals with disabilities are also more likely to experience housing cost burdens compared to individuals without a disability.<sup>14</sup>

Although housing has been linked to health equity, what is less understood is how these housing characteristics vary by geography, particularly by rural or urban location. Differences in housing characteristics among various demographics of rural and urban adults is one mechanism that can be used to better understand population-level health inequalities, especially among marginalized populations.

## Approach

In this study, we used data from the 2015-2019 American Community Survey (ACS) Public Use Microdata Sample (PUMS), accessed through IPUMS USA at the University of Minnesota.<sup>15</sup> We limit the data to adults living in households (N=11,962,082), excluding adults living in group quarters. We define urban and rural populations based on whether the majority of each Public Use Microdata Area's (PUMA) population resides in a 2013 metropolitan area, and assign corresponding rural or urban status to all individuals in the PUMA.<sup>16</sup> PUMAs are the only sub-state

area identified in the public use data.

Disability status was measured using survey respondents' reports of having any of the following disabilities in the ACS: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care/activities of daily living difficulty, or independent living difficulty.<sup>17</sup> Racial/ethnic identity was measured as Hispanic/Latino, non-Hispanic White, non-Hispanic Black, American Indian/Alaskan Native, Asian American/Pacific Islander, Other racial identity, or Two or more racial identities.

We defined crowded housing as those reporting more than one person per bedroom in their household, with the exception of couples needing only one bedroom. This is a slightly more conservative estimate of commonly used crowded housing measures that count more than one person per bedroom.<sup>4</sup> Our measure reflects the reality that married or cohabiting couples can occupy one bedroom without it substantively being considered overcrowded. For example, a couple with one child in our measure is not counted as being in crowded housing by living in a two bedroom home, but would be considered in crowded housing by the standard measure of more than one person per bedroom. We computed housing cost burden as the percentage of the household's monthly income that goes toward housing-related costs (e.g., rent/mortgage, utilities, fees/taxes). We categorized this based on commonly used levels, such as at least 30% of income being used for housing or, with severe housing cost burden, more than 50% of income being used on housing.<sup>5</sup>

We used chi-square tests to determine statistically significant differences between rural and urban adults overall in proportion in crowded housing or levels of housing cost burden, as well as differences between rural and urban adults by disability status and racial/ethnic group. We also compare proportions within rural populations and urban populations to compare housing characteristics across and within various intersections of rural-urban location and either disability status or racial/ethnic identity. We used Stata 17 for all analyses and employed survey weights to generate nationally representative estimates.

**Results**

Overall, significantly higher proportions of urban residents lived in crowded housing (19%) compared to rural residents (14%), as seen in Table 1. Urban residents also had higher proportions reporting housing cost burden of at least 30% of their monthly income (28%) or experiencing severe housing cost burden of over half of income being spent on housing (13%) compared to their rural counterparts (21% and 9% respectively,  $p < .001$ ). Meanwhile, a significantly higher proportion of rural residents reported any disability (20%) while just over 14% of urban residents did ( $p < .001$ ).

Figure 1 shows that adults without a disability are more likely to live in crowded housing among both rural and urban populations, with significantly higher proportions of urban residents (just under 20%) without a disability in crowded housing compared to 15% of rural residents without disabilities. In addition, urban residents with disabilities had the highest proportion who were housing cost burdened, with almost 37% spending 30% or more on housing and 19% spending more than half of their income on housing. Comparing within location, people with disabilities were significantly more likely to be housing cost burdened at either level within both urban and rural locations (all comparisons  $p < .001$ ).

**Table 1. Housing Characteristics, Race/Ethnicity, and Disability Status by Rural-Urban Location**

	Rural	Urban
Crowded Housing (>1 person per bedroom)	14.4%	18.8%
Housing Cost Burden (>30%)	21.0%	28.0%
Severe Housing Cost Burden (>50%)	9.2%	12.6%
Has any disability	20.0%	14.3%
<i>Race and Ethnicity</i>		
Hispanic/Latino	6.9%	17.5%
<i>Not Hispanic/Latino</i>		
White non-Hispanic	81.6%	61.0%
Black non-Hispanic	7.0%	12.4%
Asian American or Pacific Islander	1.0%	6.7%
American Indian or Alaska Native	1.9%	0.4%
Other race	0.1%	0.2%
2+ races	1.4%	1.8%

ACS 2015-2019 5-Year Sample, IPUMS USA.

$N = 11,962,082$ . All differences significant at  $p < 0.001$

**Figure 1. Prevalence of Crowded Housing and Housing Cost Burden by Rural-Urban Location and Disability Status**

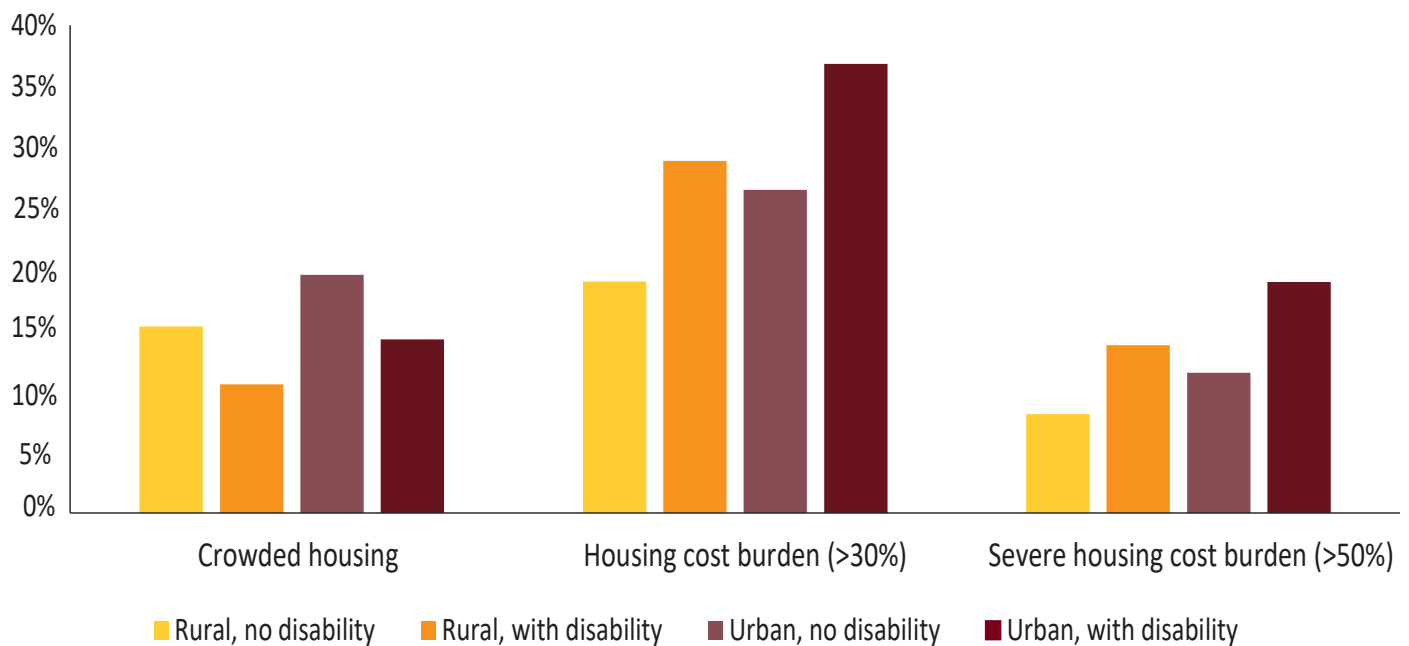


Figure 2 shows the proportion in crowded housing across racial/ethnic groups by rural-urban location. Black, Hispanic, Asian American, and Other racial/ethnic identity groups have statistically significant higher proportions of crowded housing among those living in urban locations compared to rural ( $p < .001$  except for Other  $p < .01$ ). Meanwhile, non-Hispanic white and

American Indian adults have higher rates of crowded housing among rural residents compared to their urban counterparts ( $p < .001$ ). But, overall, urban Hispanic adults have the highest proportion in crowded housing (40%), followed by both rural Hispanic and rural American Indian populations who each have one-third of people in crowded housing.

**Figure 2. Prevalence of Crowded Housing by Rural-Urban Location and Race/Ethnicity**

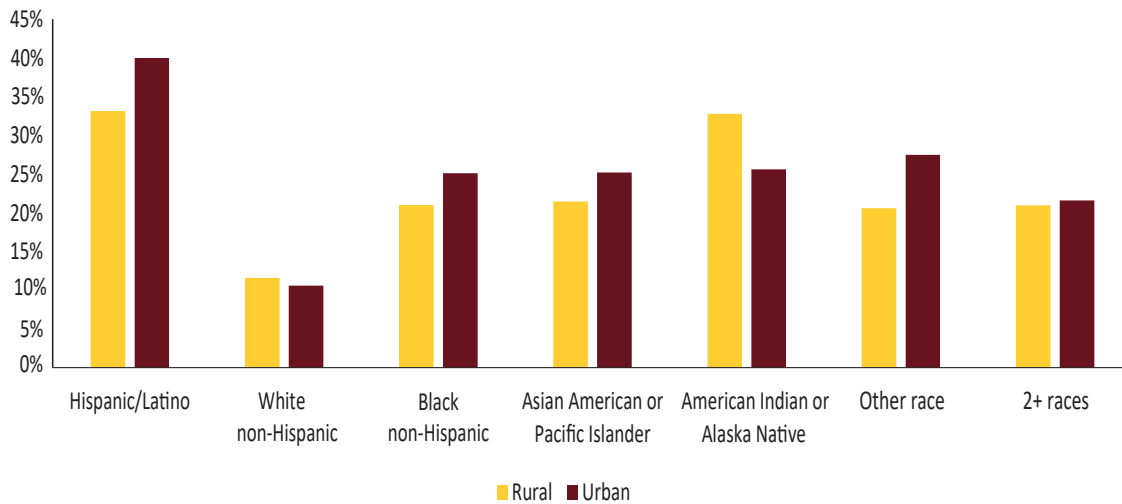
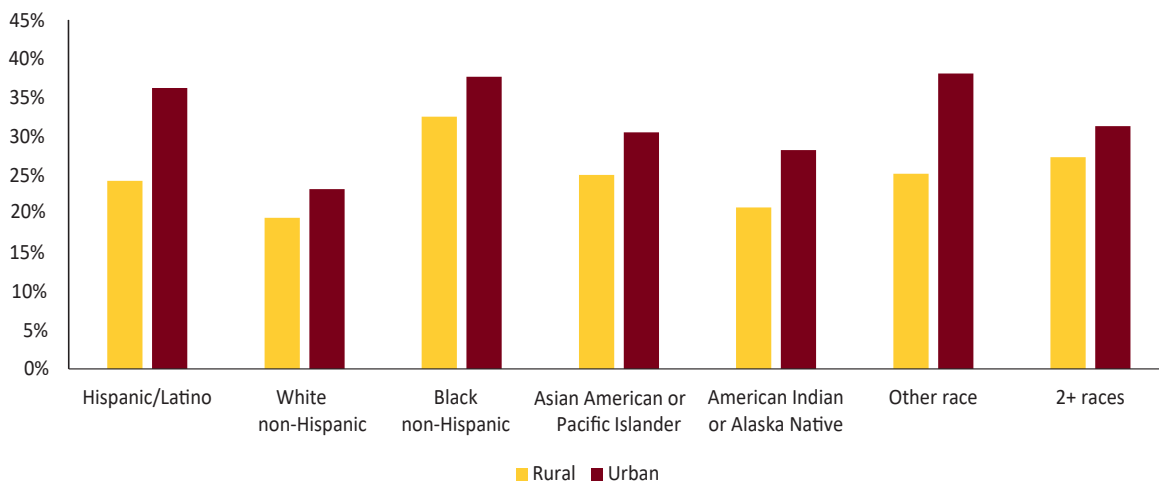


Figure 3 shows the proportion experiencing at least 30% housing cost burden across racial/ethnic identity by rural-urban location. Higher proportions of urban residents experience at least a 30% housing cost burden compared to rural residents in each racial/ethnic group ( $p < .001$ ). Overall, urban Other race and urban Black

adults have similar and the highest proportions of people experiencing at least 30% housing cost burden, followed by urban Hispanic adults – all with over one-third of their groups being burdened by housing costs. This is followed by rural Black adults, where just under one-third are housing cost burdened at this level.

**Figure 3. Proportion Experiencing >30% Housing Cost Burden by Rural-Urban Location and Race/Ethnicity**



**Figure 4. Proportion Experiencing Severe Housing Cost Burden (>50%) by Rural-Urban Location and Race/Ethnicity**

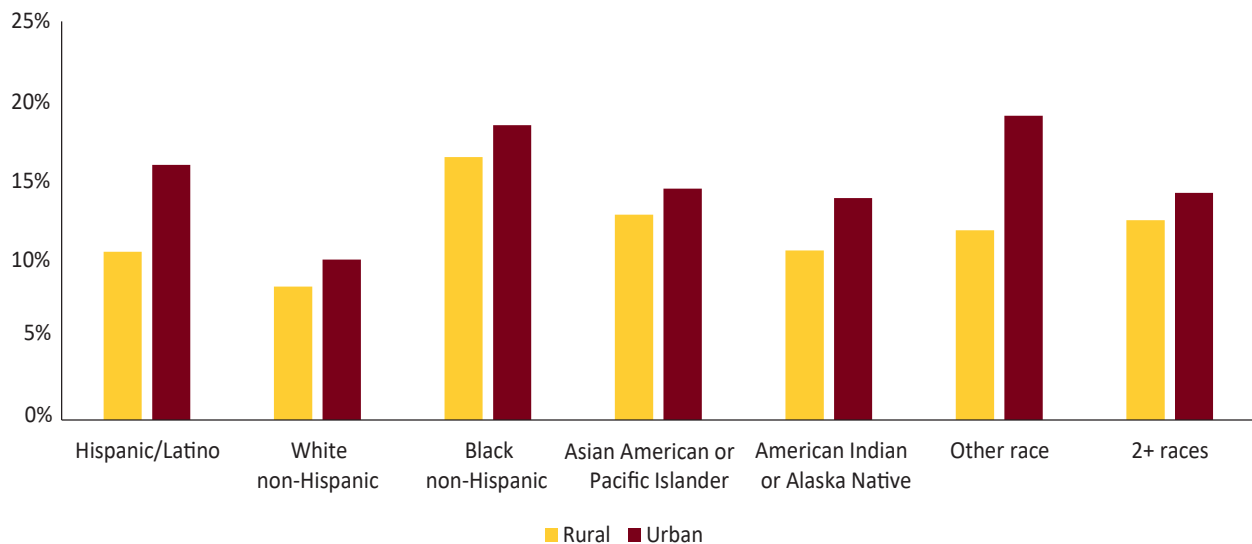


Figure 4 shows the proportion experiencing over 50% housing cost burden across racial/ethnic identity by rural-urban location. Again, examining within racial/ethnic categories, higher proportions of urban residents are severely housing cost burdened compared to rural residents in each group ( $p < .001$ , except Asian American  $p < .01$ ). Overall, urban Other race adults and urban Black adults have similar and the highest proportions of people experiencing severe housing cost burden at 19%. This is followed by rural Black adults, who are the rural group with the highest proportion experiencing severe housing cost burden (16.5%), followed next by urban Hispanic adults (16%).

## Discussion and Implications

Housing characteristics are associated with individual health and well-being, but much less is known about these characteristics among rural and urban residents or how they vary by other demographics, such as race/ethnicity and disability, combined with location. This policy brief addresses these gaps, and we find complex variations in crowded housing as well as housing cost burden by different intersections of race, ethnicity, disability status, and rural-urban location. Overall, compared to rural adults, a higher proportion of urban adults live in crowded housing and are housing cost burdened, but important differences are found among racial/ethnic groups and people with disabilities by

location. Adults without a disability are more likely to live in crowded housing among both rural and urban populations, likely driven by adults with disabilities' increased likelihood of facing the opposite issue—living completely alone, especially among older adults.<sup>16,17</sup> While most racial/ethnic groups have a higher proportion of urban residents in crowded housing, non-Hispanic white and American Indian adults have higher rates of crowded housing among rural residents. For non-Hispanic white adults, one contributing factor may be overrepresentation in mobile homes in rural areas with potential for higher crowding.<sup>18</sup> In addition, according to the 2020 Census, about 40% of American Indians live in rural areas.<sup>19</sup> The National Congress of American Indians explains that American Indian individuals living on reservations face issues around substandard housing, and almost one-third of homes are overcrowded due to a lack of affordable or available housing.<sup>20</sup> Past assessments of housing for American Indians have shown slower growth in housing stock and lower vacancy rates in certain rural areas of the country, which can contribute to the lack of available and affordable housing.<sup>20</sup> While some American Indian families may choose larger households as a cultural preference, many are reliant on crowded homes as a strategy to prevent homelessness.<sup>20</sup>

In addition, urban adults with disabilities reported the highest proportion experiencing housing cost

burden by disability status, followed by rural adults with disabilities. People with disabilities who receive Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) face income limits, which make it difficult to afford housing and to improve one's financial situation.<sup>14,21,22</sup> A higher proportion of urban adults are housing cost burdened. Looking across racial/ethnic groups reveals that nearly one-third of rural Black Americans spend at least 30% of their income on housing as well. In addition, rural Black Americans have the third highest proportion experiencing severe housing cost burden across all 14 rural-urban racial/ethnic groups. This is significant as most rural areas typically have a lower cost of living and housing costs.<sup>23</sup>

These findings have implications for public policy. Rural housing policy should be tailored to the needs of marginalized groups, many of whom are at greater risk of being housing cost burdened or in crowded housing situations. For example, structural racism and historically racist housing policies are factors that continue to impact people of color.<sup>2</sup> Within the context of the COVID-19 pandemic, the disparities in housing cost burden and crowded housing amplify higher transmission and mortality rates among marginalized populations, such as American Indians and Black Americans.<sup>20,24</sup> Further, COVID-19 related inequities have been especially pronounced at the intersection of racism and rurality,<sup>25</sup> and access barriers to affordable, quality housing may have exacerbated those issues. Continued or increased investment in federal rural housing initiatives, such as the USDA's Section 502 direct home loan program<sup>26</sup> and Section 515 rental housing loan program,<sup>27</sup> is one potential policy lever to alleviate these issues. However, policymakers may need to consider additional investments in infrastructure and other lacking resources to address root causes that hinder development in the most remote rural areas, including Tribal lands.<sup>28</sup> Overall, a greater investment in affordable housing in rural communities would lessen the cost burden and reduce the incidence of crowded housing. In both rural and urban environments, individuals with disabilities would benefit from additional supports and policies that prioritize affordable housing for individuals with disabilities in order to reduce their housing cost burden.

## Conclusion

The affordability and quality of a person's housing circumstances directly impact their health outcomes. This policy brief reveals the link between housing cost burden, crowded housing, and health by race, ethnicity, disability status, and rurality. Our findings indicate that urgent attention is needed to address crowded housing in rural areas, particularly for American Indian, Hispanic, and Black rural residents. Further, policy to lessen housing cost burden should be directed especially toward those with disabilities, both in urban and rural areas. Improving housing conditions and cost is an important way to address the social determinants of health and improve health equity.

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## References

1. Taylor L. Housing and Health: An Overview of the Literature. *Health Aff Brief*. Published online 2018. <https://www.healthaffairs.org/doi/10.1377/hpb20180313.396577/full/>
2. Swope CB, Hernández D. Housing as a determinant of health equity: A conceptual model. *Soc Sci Med*. 2019;243:112571. doi:10.1016/j.socscimed.2019.112571
3. Capasso L, D'Alessandro D. Housing and Health: Here We Go Again. *Int J Environ Res Public Health*. 2021;18(22):12060. doi:10.3390/ijerph182212060
4. Blake KS, Kellerson RL, Simic A. Measuring Overcrowding in Housing. *US Dep Hous Urban Dev Off Policy Dev Res*. Published online 2007. [https://www.huduser.gov/portal/publications/ahsrep/measuring\\_overcrowding.html](https://www.huduser.gov/portal/publications/ahsrep/measuring_overcrowding.html)
5. Joint Center for Housing Studies of Harvard University. The State of the Nation's Housing 2022. Published online 2022. <https://www.jchs.harvard.edu/state-nations-housing-2022>
6. Evans GW, Lepore SJ, Allen KM. Cross-cultural differences in tolerance for crowding: Fact or fiction? *J Pers Soc Psychol*. 2000;79(2):204. doi:10.1037/0022-3514.79.2.204
7. Krieger J, Higgins DL. Housing and Health: Time Again for Public Health Action. *Am J Public Health*. 2002;92(5):758-768. doi:10.2105/AJPH.92.5.758
8. Campagna G. Linking crowding, housing inadequacy, and perceived housing stress. *J Environ Psychol*. 2016;45:252-266. doi:10.1016/j.jenvp.2016.01.002
9. Solari CD, Mare RD. Housing crowding effects on children's wellbeing. *Soc Sci Res*. 2012;41(2):464-476. doi:10.1016/j.ssresearch.2011.09.012
10. Saegert S, Evans GW. Poverty, Housing Niches, and Health

- in the United States. *J Soc Issues*. 2003;59(3):569-589. doi:10.1111/1540-4560.00078
11. Maru D, Maru S, Bass E, Masci J. To Stem The Spread of COVID-19, Address The Challenges Of Crowded Housing. *Health Aff Forefr*. doi:10.1377/forefront.20200521.144527
  12. Varshney K, Glodjo T, Adalbert J. Overcrowded housing increases risk for COVID-19 mortality: an ecological study. *BMC Res Notes*. 2022;15(1):126. doi:10.1186/s13104-022-06015-1
  13. Maqbool N, Viveiros J, Ault M. The Impacts of Affordable Housing on Health: A Research Summary. *Center for Housing Policy*. Published online April 1, 2015. <http://www.nhc.org/2015-impacts-of-aff-housing-health>
  14. Burns SP, Mendonca R, Pickens ND, Smith RO. America's housing affordability crisis: Perpetuating disparities among people with disability. *Disabil Soc*. 2021;36:10.1080/09687599.2021.1960276. doi:10.1080/09687599.2021.1960276
  15. Ruggles, Steven, Flood, Sarah, Goeken, Ronald, Schouweiler, Megan, Sobek, Matthew. IPUMS USA: Version 12.0. Published online 2022. doi:10.18128/D010.V12.0
  16. Schroeder J, Henning-Smith C, Tuttle M. *Demographics and Disability Status of Adults Living Alone in Rural Areas*. University of Minnesota Rural Health Research Center Policy Brief; 2021. <https://rhrc.umn.edu/publication/demographics-and-disability-status-of-adults-living-alone-in-rural-areas/>
  17. Henning-Smith C. Where do community-dwelling older adults with disabilities live? Distribution of disability in the United States of America by household composition and housing type. *Ageing Soc*. 2017;37(6):1227-1248. doi:10.1017/S0144686X16000210
  18. Consumer Financial Protection Bureau, Office for Older Americans. Data Spotlight: Profiles of older adults living in mobile homes. Consumer Financial Protection Bureau. Published May 10, 2022. <https://www.consumerfinance.gov/data-research/research-reports/data-spotlight-profiles-of-older-adults-living-in-mobile-homes/full-report/>
  19. Office of Minority Health, United States Department of Health and Human Services. Profile: American Indian/Alaska Native. Published 2022. <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62>
  20. Pindus N, Kingsley GT, Biess J, et al. *Housing Needs of American Indians and Alaska Natives in Tribal Areas: A Report From the Assessment of American Indian, Alaska Native, and Native Hawaiian Housing Needs*. Office of Policy Development and Research, US Department of Housing and Urban Development; 2017:1-200. <https://www.huduser.gov/portal/publications/HNAIHousingNeeds.html>
  21. Musumeci M, Jun 23 KOP, 2021. Supplemental Security Income for People with Disabilities: Implications for Medicaid. KFF. Published June 23, 2021. <https://www.kff.org/medicaid/issue-brief/supplemental-security-income-for-people-with-disabilities-implications-for-medicaid/>
  22. Disability Benefits Help. What Are My Income Limits on Social Security? Published 2022. <https://www.disability-benefits-help.org/faq/how-much-to-earn-to-qualify>
  23. National Debt Relief. The Costs of Rural vs. Urban Living. National Debt Relief. Published January 6, 2023. <https://www.nationaldebtrelief.com/the-costs-of-rural-vs-urban-living/>
  24. Vasquez Reyes M. The Disproportional Impact of COVID-19 on African Americans. *Health Hum Rights*. 2020;22(2):299-307.
  25. Henning-Smith C, Tuttle M, Kozhimannil KB. Unequal Distribution of COVID-19 Risk Among Rural Residents by Race and Ethnicity. *J Rural Health*. 2021;37(1):224-226. doi:10.1111/jrh.12463
  26. United States Department of Agriculture, Rural Development. *Rural Home Loans (Direct Program)*.; 2022. [https://www.rd.usda.gov/sites/default/files/508\\_RD\\_COVID19\\_FS\\_RHS\\_SF502Direct.pdf](https://www.rd.usda.gov/sites/default/files/508_RD_COVID19_FS_RHS_SF502Direct.pdf)
  27. The Housing Assistance Council. *USDA Rural Rental Housing Loans (Section 515)*.; 2011. <https://ruralhome.org/wp-content/uploads/storage/documents/rd515rental.pdf>
  28. National Low Income Housing Coalition. *Housing Needs on Native Tribal Lands*.; 2022. <https://nlihc.org/sites/default/files/Native-Housing.pdf>

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For more information, contact Carrie Henning-Smith ([henn0329@umn.edu](mailto:henn0329@umn.edu))

University of Minnesota Rural Health Research Center  
Division of Health Policy and Management, School of Public Health,  
2221 University Avenue SE, #350 Minneapolis, MN, 55414