POLICY BRIEF
January 2026

UNIVERSITY OF MINNESOTA
RURAL HEALTH
RESEARCH CENTER

Rural-Urban Differences in Homebound Status by Health and Functional Limitations

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Key Findings

- Rural and urban Medicare beneficiaries age 65 and older reported similar rates of being homebound (5.7% and 6.1%).
- Rural older adults in very good health (on a scale from poor to excellent) were less likely than their urban counterparts to be homebound (0.4% vs. 2.1%, $p<0.01$). However, rural older adults in poor health were more likely to be homebound than urban older adults in poor health, although the difference was not statistically significant (35.7% vs. 27.1%).
- Among both rural and urban older adults, the highest rates of being homebound were among people with diagnoses of dementia (26.6% and 26.2%, respectively) and stroke (24.0% and 13.3%).

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Purpose

Being homebound is associated with poorer health outcomes for older adults. Additionally, rural older adults experience poorer health and unique constraints to accessing services and health care. Yet, little is known about how rates of being homebound differ between rural and urban older adults by specific health indicators. This brief addresses that gap.

Background and Policy Context

The U.S. population is aging, especially in rural areas, and most older adults would prefer to age at home rather than move to a new home, community, or institutional setting.[1] However, age is sometimes accompanied by changes in mobility and physical and mental functioning, which can make it challenging for older adults to leave their homes and engage in their communities. In some cases, such functional limitations cause an older adult to be classified as "homebound"; that is, not able to leave their home without help, or at all.[2] While many older adults with such high levels of functional limitations receive care in institutional settings (e.g., nursing homes and assisted living facilities), not all do. Without access to adequate institutional or home and community-based care, older adults may become homebound, a state that is associated with poorer health outcomes, higher rates of hospitalization and emergency department use, and greater risk of social isolation, functional decline, and mortality.[3–9]

Overall, however, the prevalence of and risk factors for being homebound remain understudied, especially among rural older adults. Rural-urban differences in the health status and socio-demographic characteristics of older adults, combined with rural-urban differences in informal caregiving and access to institutional-level care, require a more nuanced understanding of rural-specific risks associated with being homebound. In particular, rural older adults are older, are in poorer health, have higher rates of disability, and have fewer economic resources than urban older adults.[10] Altogether, this may put rural older adults at higher risk of being homebound than their urban counterparts, but more research is needed to confirm this and to identify which rural older adults are at greatest risk.

Approach

Data

Data for this study come from the round 12 cycle of the National Health and Aging Trends Study (NHATS) conducted in 2022/23. NHATS was established in 2011 and consists of a nationally representative sample of Medicare beneficiaries age 65 and older.[11] Annual interviews are conducted with participants to support research aimed at improving the quality of life as people age, minimizing disability, and enhancing health and independent functioning.[11,12]

Measures

The key focus of this brief was the homebound status of NHATS respondents, which describes individuals who either do not leave their homes at all or have a very difficult time leaving them. Homebound status was constructed utilizing the NHATS mobility variable, which was measured by asking individuals how often they leave their homes. Respondents were given five response options: "Every day (7 days a week)," "Most Days (5-6 days a week)," "Some Days (2-4 days a week)," "Rarely (once a week or less)," and "Never." Consistent with prior research, we classified those respondents who answered "Rarely" or "Never" as homebound.[4,13]

NHATS utilizes Rural-Urban Continuum Codes (RUCC) to identify rurality, releasing a dichotomous variable in its public use files, which we used for this brief. All respondents with a RUCC code of 1-3 are classified as "urban," and 4-9 are classified as "rural."

For information on overall health, we utilized several variables from NHATS, including self-rated health (SRH), the Patient Health Questionnaire-2 (PHQ-2), the Generalized Anxiety Disorder-2 (GAD-2), chronic conditions, and functional limitations. Self-rated health was measured on a 5-point scale from "Excellent" to "Poor." PHQ-2 and GAD-2 are screening tools for depression and anxiety, respectively. These measures were assessed on a 4-point scale, ranging from "Not at all" to "Nearly Every Day." The NHATS includes measures of 10 different chronic conditions: heart attack, heart disease, high blood pressure, arthritis, osteoporosis, diabetes, lung disease, stroke, dementia, and cancer. NHATS asked respondents to report whether they have been diagnosed by a doctor with any of those conditions. Finally, we included functional limitations, which comprises 12 questions that respondents answered with either "Yes" or "No" about whether they could: walk six blocks, walk three blocks, walk up 20 stairs, walk up 10 stairs, carry 20 pounds, carry 10 pounds, get down on their knees, bend over, lift a heavy object overhead, reach overhead, open a sealed jar with their hands, and grasp small objects. For walking three blocks, walking up 10 stairs, and carrying 10 pounds, respondents were only asked if they responded that they could not do the more difficult activity (i.e., walking six blocks, walking up 20 stairs, and carrying 20 pounds.)

Analysis

Utilizing NHATS survey weights to generate nationally representative estimates, we generated descriptive statistics with chi-square tests to compare whether rates of being homebound varied by rurality for each health indicator.

Results

Overall, 5.7% of rural older adults and 6.1% of urban older adults were classified as homebound ($p=0.884$). The highest rates of being homebound were observed among individuals who rated their health as poor, with rates of 35.7% for rural residents and 27.1% for urban residents (see Table 1). Rural residents rating their health as excellent were slightly more likely to be homebound (1.6% vs. 1.0%), although the difference was not statistically significant. However, rural residents who rated their health as very good were less likely to be homebound than urban residents who rated their health as very good (0.4% vs. 2.1%, $p<0.01$).

Table 1. Rates of Being Homebound by Self-Rated Health

Self-Rated Health	Rural	Urban	P-value
Excellent	1.6%	1.0%	0.586
Very Good	0.4%	2.1%	0.007
Good	3.5%	5.1%	0.501
Fair	13.3%	14.4%	0.866
Poor	35.7%	27.1%	0.515
Homebound Sample	N=116	N=593	

Within categories of chronic conditions, rural and urban residents had relatively similar rates of being homebound (see Table 2). However, while not statistically significant, there were some notable differences. Rural residents who had had a stroke were more than 10 percentage points more likely to be homebound than urban residents who had had a stroke (24.0% vs. 13.3%, p<0.255). Additionally, rural residents who had had a heart attack or lung disease were four to five percentage points more likely to be homebound, respectively.

Table 2. Rates of Being Homebound by Chronic Condition Diagnosis

Chronic Condition	Rural	Urban	P-value
Heart Attack	13.%	8.4%	0.415
Heart Disease	12.8%	9.6%	0.561
High Blood Pressure	7.4%	7.5%	0.978
Arthritis	7.1%	7.4%	0.917
Osteoporosis	10.4%	8.9%	0.745
Diabetes	8.2%	9.1%	0.837
Lung Disease	14.2%	8.7%	0.298
Stroke	24.0%	13.3%	0.255
Dementia	26.6%	26.2%	0.977
Cancer	3.8%	5.0%	0.669
Homebound Sample	N=116	N=593	

Rates of being homebound also differed among rural and urban residents, depending on the type and severity of functional limitations, although there were no statistically significant differences between rural and urban residents (see Table 3). For both, the highest rates of being homebound were among individuals who were not able to reach over their head (rural: 27.9%, urban: 26.7%), not able to grasp small objects (rural: 27.8%, urban: 25.2% homebound), and not able to carry 10 pounds (rural: 23.9%, urban: 26.7% homebound).

Table 3. Rates of Being Homebound by Functional Limitation

Variable	Rural	Urban	P-value
Not Able to Walk 6 Blocks	16.4%	17.9%	0.845
Not Able to Walk 3 Blocks	19.6%	21.1%	0.862
Not Able to Walk up 20 Stairs	19.1%	20.1%	0.904
Not Able to Walk up 10 Stairs	23.8%	24.0%	0.980
Not Able to Carry 20 Pounds	18.2%	19.6%	0.861
Not Able to Carry 10 Pounds	23.9%	26.7%	0.777
Not Able to Get Down on Knees	9.7%	10.3%	0.896
Not Able to Bend Over	22.0%	22.6%	0.948
Not Able to Lift Heavy Objects Over Head	19.7%	22.4%	0.755
Not Able to Reach Over Head	27.9%	26.7%	0.907
Not Able to Open a Sealed Jar with Hands	12.8%	14.3%	0.823
Not Able to Grasp Small Objects	27.8%	25.2%	0.850

Discussion and Implications

Overall, we found that rural and urban older adults were similarly likely to be homebound, with approximately 6% of all Medicare beneficiaries age 65 and older being restricted to their home setting. This represents a slight increase over prior research[13] and should raise concern about the number of older adults who are confined to their home setting most or all of the time. While most older adults prefer to age in place, that is, remain in their own home as they get older and their health changes,[1] being able to leave one's home for regular errands and outings remains important. Being homebound is associated with poorer health and functional status, including higher risk of mortality, depressive symptoms, and future functional impairment, even after adjusting for differences in health.[8,9] Rural older adults who are homebound may face additional barriers to accessing services, health care, nutrition, and social opportunities, especially if they live alone.[14]

We found few statistically significant rural-urban differences in the rates of being homebound by health status, chronic condition diagnoses, and functional limitations. The limited amount of statistical significance may be related to small sample sizes. It also may be indicative of the fact that certain conditions pose higher risk factors for being homebound regardless of location. For example, more than 26% of all older adults with dementia were homebound, the highest rates for any of the chronic conditions we examined, and with no differences by rurality. Similarly, certain functional limitations, such as not being able to walk up 10 stairs, carry 10 pounds, bend over, grasp small objects, and reach overhead, were all strongly correlated with being homebound. For each limitation, more than 20% of older adults were homebound, regardless of rurality.

The one domain where statistically significant differences emerged by rurality was in rates of being homebound by self-rated health. Rural older adults who rated their health as very good were less likely to be homebound than urban older adults who rated their health similarly (0.4% vs. 2.1%), perhaps indicating some protective effect of very good health for rural older adults. Still, nearly 36% of rural older adults who rated their health as poor were homebound, compared with 27% of urban older adults. While that difference was not statistically significant, likely because of a small sample size, it warrants further research. It is possible that rural older adults in poor health require additional support to leave their homes. It is also possible that rural older adults who are homebound have poorer health outcomes. Both the directionality and severity of outcomes for rural older adults in that group should be examined more closely.

Conclusion

Overall, we found few differences by rurality in rates of being homebound, both overall and by specific health indicators. Still, the relatively high rates of rural older adults who are homebound among those who report poor health, stroke, dementia, and functional limitations deserve additional research, clinical, service, and policy attention. Rural older adults with specific conditions may require additional support in order to ensure that their needs for daily activities, socialization, and care are being met.

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Suggested Citation

Henning-Smith C, Bailey D, Lahr M, and Rydberg K. Rural-Urban Differences in Homebound Status by Health and Functional Limitations, *UMN Rural Health Research Center Policy Brief.* January 2026. https://rhrc.umn.edu/publication/rural-urban-differences-in-homebound-status-by-health-and-functional-limitations

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Funded by the Federal Office of Rural Health Policy
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Support for this study was provided by the Federal Office of Rural Health Policy, Health Resources and Services Administration, Cooperative Agreement U1CRH03717-13-00. The information, conclusions, and opinions expressed are those of the authors, and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.

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