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Risk Factors for Poor Health Among U.S. Older Adults in Rural and Urban Areas: Injury, Food Insecurity, and Lack of Social and Emotional Support

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Key Findings

- Nearly 30% of rural (29.6%) and urban (28.5%) older adults reported experiencing at least one of the selected risk factors (injury, food insecurity, or lack of social and emotional support).
- Of the three risk factors, lack of social and emotional support was the most common, reported by over 18% of older adults from both rural (18.5%) and urban (19.9%) areas.
- Injury was the second-most reported risk factor and was more commonly reported by rural (10.8%) than urban (9.2%) older adults ($p<0.05$).
- Food insecurity was experienced by 4.9% of rural and 4.4% of urban older adults.

Purpose

Research on rural-urban health disparities among older adults often focuses on clinical outcomes, providing a limited understanding of overall differences in older adult social, emotional, and physical well-being and safety by rurality. We address this in this brief by examining three risk factors for poor health outcomes: injury, food insecurity, and lack of social and emotional support among older adults by rural-urban residence.

Background and Policy Context

Rural areas of the United States (U.S.) have a larger proportion of older adults compared to urban areas, and older adults are the fastest-growing age group within rural areas.[1] Rural older adults (and rural communities as a whole) experience inequities in health and health care access and the potential for distance-related isolation.[2] A holistic understanding of the social, emotional, and physical well-being and safety of older adults in rural areas is necessary to inform effective policy to address health inequities among rural older adults.

Injury

While physical injury is a health risk factor across the lifespan, risk of injury increases with age, and older adults face unique short- and long-term consequences after suffering a bodily injury.[3] One in three older adults falls every year,[3,4] making falls the leading cause of injury among adults age 65 and older.[5] Rural residents also have higher rates of both motor vehicle injuries and death rates from unintentional falls.[6] Physical injuries like those caused by falls and motor vehicle accidents can lead to more serious issues such as traumatic brain injury, fractures, and long-term disability among older adults.[5,7,8]

Food Insecurity

Food insecurity - defined as the lack of consistent access to an adequate amount and variety of nutritious foods[9] - is an important driver of poor health. Low food security among older adults is an area of public health concern given its link to poorer cognitive functioning,[10] increased health care utilization,[11] and multiple chronic diseases.[12] A 2021 survey[13] estimates that 5.5 million

(or 1 in 14) U.S. adults age 60 and older are food insecure, with rural residents,[14] younger older adults (ages 60-69), and Black and Hispanic older adults disproportionately affected.[15] It is likely that this number has increased in recent years, given high inflation-related food costs.[15] Qualitative research has highlighted how rural older adults face unique and intersecting financial, sociocultural, and structural barriers to food access, including transportation challenges.[16]

Lack of Social and Emotional Support

Social well-being is an important driver of health and well-being.[17] One component of social well-being is social and emotional support; that is, the subjective strength of social relationships that individuals have with others, including availability of resources from others in times of crisis.[18] Importantly, the influence and advantages of social and emotional support differ across sociodemographic groups and have a cumulative impact upon health across the life course.[19] While many older rural adults do have strong social networks and social cohesion,[20,21] rural residents also experience inequities in health care access, health outcomes, and aging support networks.[22] In addition, older adults in rural areas may be at increased risk for older adult maltreatment and neglect related to social and geographic isolation.[2,23] For example, older adults have higher rates of living alone, chronic disease, physical impairment, and loss of close others compared to other age groups—all of which are related to loneliness and decreased levels of social and emotional support.[24]

Poor health, injuries, food insecurity, and lack of social and emotional support are often experienced in tandem among older adults.[25,26] Research on the health of rural older adults too often focuses on individual-level clinical outcomes rather than considering the larger geographic and social context that these individuals live in, which is foundational to informing policy aimed at improving older adult health, well-being, and safety. This study describes rural-urban differences and rural subgroup differences in the rates of self-reported injury, food insecurity, and lack of social and emotional support among older adults.

Approach

We used weighted data to create population estimates from the 2020 and 2021 National Health Interview Surveys (NHIS)[27] on 18,230 older adult respondents, which we further restricted to rural respondents (N = 3,229) for the rural-only analyses. "Older adult" was defined as those aged 60 years and older. We align the age of our sample with the Centers for Disease Control and Prevention definition used for elder abuse, given the overlap between the risk factors we are studying and commonly tracked indicators of elder mistreatment.[28] We used the publicly available measure of rurality in the NHIS, which defines rural residents as respondents who live in nonmetropolitan counties.[29] To protect respondent anonymity, we suppressed all cells with sample sizes below n = 10, indicated in the Results.

We examined differences in selected risk factors for poor health between rural and urban older adults, and among rural older adults by several sociodemographic characteristics including sex, race and ethnicity, employment status, family income (as a ratio relating to the federal poverty level (FPL), which we refer to henceforth as the household income-to-poverty ratio), sexual orientation, marital status, and education. We used chi-square tests to determine statistically significant differences in rates between rural and urban older adults, and among rural residents by sociodemographic characteristics.

Selected outcomes (risk factors) were self-reported by survey respondents. "Injury" was defined as having an accident or injury where any part of the body was hurt in the past three months, excluding repetitive strain injuries. "Significant injury," a subset of "injury," was defined as being physically limited by an injury for at least 24 hours in the past three months. Household "food insecurity" was defined as scoring a "low food security" or "very low food security" on the NHIS 30-day food security scale.[30] "Lack of social and emotional support" was defined using a measure of perceived lack of social and emotional support in which older adults were given response options of *"Always," "Usually," "Sometimes," "Rarely,"* and *"Never"* to the question: *"How often do you get the social and emotional support you need?"* Responses of *"Always"* and *"Usually"* were coded as "No Lack of Social and Emotional Support," while responses of *"Sometimes," "Rarely,"* and *"Never"* were coded as "Lack of Social and Emotional Support." We excluded all respondents who were missing responses for one or more of the variables we investigated.

Results

Figure 1 shows rates of selected risk factors for poor health in rural and urban older adults. Rural older adults were significantly more likely than urban older adults to report experiencing injury (10.8% vs 9.2%, $p<0.05$), although rates of significant injury were not statistically different between the two groups (6.5% vs 5.9%). There was no statistically significant difference between rural and urban older adults in household food insecurity (4.9% vs 4.4%) or lack of social and emotional support (18.5% vs 19.9%).

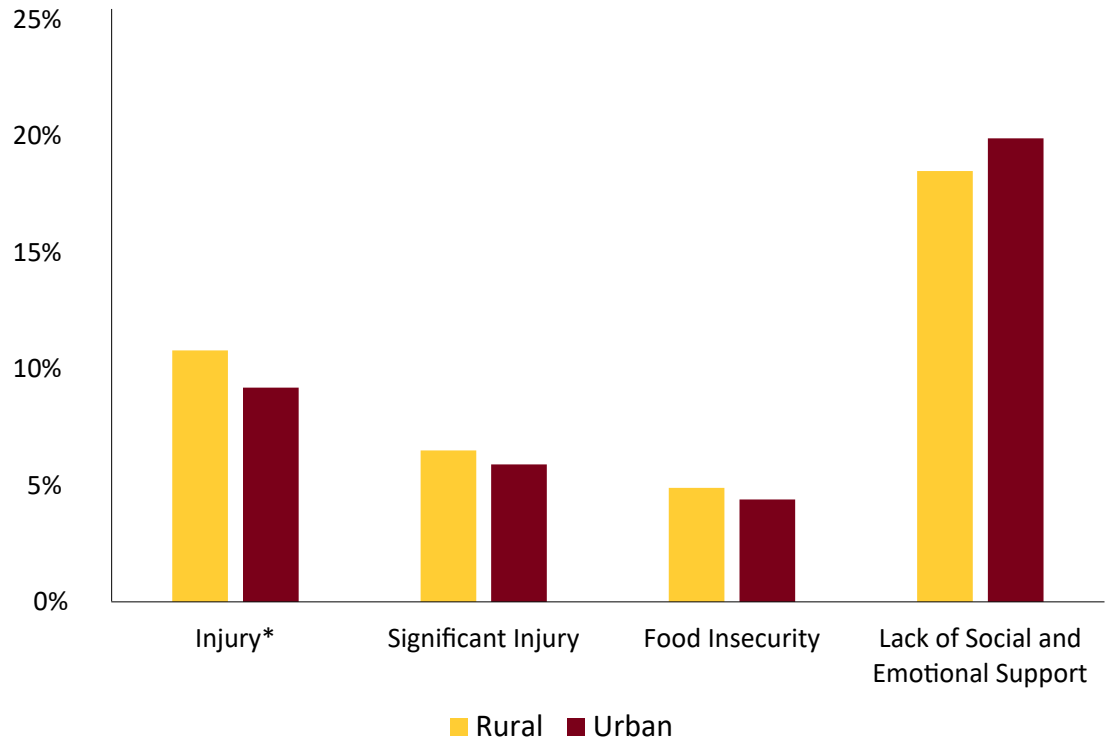
Table 1 shows the rate and estimated U.S. population of older adults experiencing no, one, or two or more risk factors for poor health by rurality. There was no statistically significant difference between rural and urban older adults; 70.3% of rural and 71.5% of urban older adults reported experiencing no risk factors, 25.5% of rural and 24.7% of urban older adults reported experiencing at least one risk factor, and 4.2% of rural and 3.8% of urban older adults reported experiencing two or three risk factors.

Table 1. Percentage of U.S. Older Adults Experiencing Risk Factors for Poor Health, by Rurality

	Rural	Urban
No Risk Factors (Weighted N)	70.3% (6,448,227)	71.5% (32,318,694)
One Risk Factor (Weighted N)	25.5% (2,344,061)	24.7% (11,179,416)
Two or Three Risk Factors (Weighted N)	4.2% (383,218)	3.8% (1,701,818)

Table 2 shows differences in injury and significant injury among rural older adults by sociodemographic characteristics. Reports of injury differed significantly by educational status; rural older adults who completed some college/associate degree or bachelor's degree were most likely to report experiencing injury (12.1% and 13.2% of older adults reporting injury), while rural older adults with less than a high school degree were least likely to report experiencing injury (6.7%, $p<0.05$). This trend did not hold for reports of significant injury.

Figure 1. Percentage of U.S. Older Adults Experiencing Risk Factors for Poor Health, by Rurality



**p-value: <0.05*

Table 2. Injury and Significant Injury Among Rural U.S. Older Adults, by Sociodemographic Characteristics

	Any Injury	p-value	Significant Injury	p-value
Sex		0.324		0.070
Female	11.4%		5.5%	
Male	10.2%		7.5%	
Race and Ethnicity		0.599		--
Non-Hispanic Black	6.9%		n/a*	
Asian	n/a*		n/a*	
Hispanic	n/a*		n/a*	
American Indian/Alaska Native	18.5%		n/a*	
Multiracial/Multiethnic	n/a*		n/a*	
Non-Hispanic White	10.9%		6.7%	
Employment Status		0.447		0.440
Not Employed (including retired)	10.5%		6.3%	
Employed	11.8%		7.3%	
Household Income-to-Poverty Ratio		0.169		0.777
<100%	10.5%		6.4%	
100-199%	10.9%		6.9%	
200-299%	8.2%		5.6%	
300%+	12.0%		6.8%	
Sexual Orientation		--		--
Lesbian, Gay, Bisexual	n/a*		n/a*	
Heterosexual	10.8%		6.6%	
Marital Status		0.120		0.460
Married/Partnered	10.8%		6.5%	
Separated/Divorced	9.4%		6.5%	
Widowed	12.9%		7.4%	
Never Married	5.6%		n/a*	
Education		**<0.05**		0.110
Less Than High School Degree	6.7%		4.5%	
High School Degree/GED	10.2%		6.0%	
Some College (including Associate Degree)	13.2%		8.1%	
Bachelor's Degree or Higher	12.1%		7.4%	

**sample size below n=10*

Table 3 shows differences in household food insecurity among rural older adults by sociodemographic characteristics. Non-Hispanic Black older adults were most likely to report household food insecurity and Non-Hispanic White older adults were the least likely (12.9% vs 3.6%, p<0.001).

Other sociodemographic covariates were significantly associated with differences in household food insecurity. Household income-to-poverty ratio was inversely correlated with household food insecurity; rural older adults in households below the FPL were most likely to report food insecurity (14.2%) and older adults in households with income ratios 200-299% of the FPL were least likely to report food insecurity (2.2%, p<0.001). Rural older adults who were separated or divorced were most likely to report food insecurity (11.0%) and married or partnered older adults were least likely to report food insecurity (3.6%, p<0.001). Educational status was inversely correlated with food insecurity; older adults with less than a high school education were most likely to report food insecurity (11.6%) and older adults with at least some college were least likely to report food insecurity (3.6%, p<0.001).

Table 4 shows differences in those reporting a lack of social and emotional support among rural older adults by sociodemographic characteristics. Asian, American Indian/Alaska Native and Non-Hispanic Black older adults were most likely to report a lack of social and emotional support, with group percentages ranging from 30.9% - 46.8%, while Non-Hispanic White, Hispanic, and Multiracial/Multiethnic older adults were least likely, with group percentages ranging from 16.8% - 20.9% (p<0.001).

Examining employment and household income-to-poverty ratio, we found that employed rural older adults were less likely than rural older adults who were not employed to report a lack of social and emotional support (15.3% vs 19.5%, p<0.05). Household income-to-poverty ratio was inversely correlated with a lack of social and emotional support; rural older adults in households below the poverty level were most likely to report a lack of social and emotional support (33.8%) and rural older adults in

Table 3. Houshold Food Insecurity Among Rural U.S. Older Adults, by Sociodemographic Characteristics

	Food Insecurity	p-value
Sex		0.686
Female	5.1%	
Male	4.6%	
Race and Ethnicity		**<0.001**
Non-Hispanic Black	12.9%	
Asian	n/a*	
Hispanic	n/a*	
American Indian/ Alaska Native	n/a*	
Multiracial/Multiethnic	n/a*	
Non-Hispanic White	3.6%	
Employment Status		0.095
Not Employed (including retired)	5.4%	
Employed	3.3%	
Household income-to-poverty ratio		**<0.001**
<100%	14.2%	
100-199%	10.9%	
200-299%	2.2%	
300%+	n/a*	
Sexual Orientation		--
Lesbian, Gay, Bisexual	n/a*	
Heterosexual	4.9%	
Marital Status		**<0.001**
Married/Partner	3.6%	
Separated/Divorced	11.0%	
Widowed	4.8%	
Never Married	n/a*	
Education		**<0.001**
Less Than High School	11.6%	
High School Degree/GED	4.7%	
Some College (including Associate Degree)	3.6%	
Bachelor's Degree or Higher	n/a*	

**sample size below n=10*

Table 4. Lack of Social and Emotional Support Among Rural U.S. Older Adults, by Sociodemographic Characteristics

	Lack of Social and Emotional Support	p-value
Sex		0.532
Female	18.9%	
Male	18.0%	
Race and Ethnicity		**<0.001**
Non-Hispanic Black	30.9%	
Asian	46.8%	
Hispanic	20.6%	
American Indian/ Alaska Native	36.1%	
Multiracial/Multiethnic	20.9%	
Non-Hispanic White	16.8%	
Employment Status		**0.041**
Not Employed (including retired)	19.6%	
Employed	15.3%	
Household income-to-poverty ratio		**<0.001**
<100%	33.8%	
100-199%	22.0%	
200-299%	20.0%	
300%+	12.3%	
Sexual Orientation		0.349
Lesbian, Gay, Bisexual	24.0%	
Heterosexual	18.4%	
Marital Status		**<0.001**
Married/Partner	14.9%	
Separated/Divorced	26.6%	
Widowed	22.9%	
Never Married	30.1%	
Education		**<0.001**
Less Than High School	25.4%	
High School Degree/GED	19.9%	
Some College (including Associate Degree)	16.4%	
Bachelor's Degree or Higher	12.6%	

**sample size below n=10*

households with income ratios 300% or greater of the poverty level were least likely to report a lack of social and emotional support (12.3%, p<0.001).

We found differences in lack of social and emotional support by marital and educational status as well. Rural older adults who were never married were most likely to report a lack of social and emotional support (30.1%) while married or partnered rural older adults were least likely to report a lack of social and emotional support (14.9%, p<0.001). Educational status was inversely correlated with a lack of social and emotional support, as older adults with less than high school education were most likely to report a lack of social and emotional support (25.4%), while older adults with bachelor's degree or higher were least likely (10.3%, p<0.001).

Discussion and Implications

Over one-fourth of all rural and urban older adults reported experiencing at least one of the risk factors for poor health that we examined: injury, food insecurity, or lack of social support. Lack of social and emotional support was the most commonly reported risk factor among surveyed older adults, followed by injury (which was more commonly reported by rural than urban older adults), significant injury, and household food insecurity. Some of these risk factors differed among rural and urban older adults, and among rural older adults by sociodemographic groups as well. Previous research finds these risk factors are interconnected and linked to serious downstream health problems, encompassing both physical and mental health issues, such as functional limitations, depression, and mortality.[31–33] Understanding who is most susceptible to these risks is a matter of public health importance.

The finding that rural older adults were statistically more likely to experience injuries than urban older adults should cause concern. While these data do not allow us to identify the type of injury, any injury requiring medical care may be particularly challenging in rural areas where access to care is a persistent issue.[34] Unintentional injuries rank among the top ten leading causes of death for older adults;[3] rural-urban differences in injury rates may exacerbate existing health inequities.[35]

While we did not find rural-urban differences in food insecurity, we did find that rural-dwelling older adults who are unpartnered, have lower incomes, and/or have lower educational attainment are more likely to experience food insecurity, aligning with prior research.[15,36] Our findings also add to the large body of evidence that rural American Indian/Alaska Native, Non-Hispanic Black, Hispanic, and Multiracial/Multiethnic older adults are more likely to experience food insecurity compared to their Asian and Non-Hispanic White counterparts.[13,37,38] Our findings underscore the fact that food insecurity is a pressing challenge for rural older adults belonging to minoritized racial and ethnic groups. This then places these individuals at elevated risk of the many poor physical and mental health outcomes correlated with lacking a varied, nutritious diet.

Suboptimal social and emotional support was common among respondents, with nearly one-fifth of older adults in both rural and urban areas reporting a lack of social support. Social well-being is a key driver of both physical and mental health over the life course,[39,40] making this an area of public health concern with multiple policy implications.[41] Among rural older adults, lack of social and emotional support was especially high for Black Americans, American Indian/Alaska Native individuals, those not employed, those with lower levels of income and education, and those who are unpartnered. This is consistent with other research exploring differences in social isolation and rurality among older adults.[42]

Taken together, these findings provide important information for clinicians, social service providers, and policymakers engaged in efforts to improve health and well-being for older adults, especially in rural communities. Injury, food insecurity, and inadequate social and emotional support are independently and synergistically risk factors for a host of acute and chronic health conditions prevalent among older adults. Further, these findings may be of interest to researchers and clinicians dedicated to addressing elder self-neglect, defined as extreme lack of self-care.[43,44] Despite self-neglect being the primary type of elder mistreatment case reported to the Adult Protective Services (APS)[45] and being a topic of growing public health concern,[46] research on this topic is limited, with rural-specific research almost nonexistent. While our study did not examine self-neglect directly, the three risk factors examined in this analysis are relevant within previously-published conceptual frameworks for how the deterioration of cognitive and physical health contributes to self-neglect.[47,48] Physical injuries - especially from falls - are associated with functional limitations.[49] Food insecurity may be both a symptom of and risk factor for caregiver- or self-neglect among older adults and may work in a negative feedback loop, where malnutrition-associated declines in health and functional ability make it increasingly difficult for an older adult to access, prepare, and consume a nutritious diet.[50] Finally, a small or nonexistent social network is frequently seen in cases of elder abuse.[51]

Policies that support older adults aging in place and promote connection and social support networks within rural communities would be especially impactful and should be tailored to be inclusive to the needs of racially/ethnically marginalized groups within rural areas.

Conclusion

Physical injury, food insecurity, and lack of social and emotional support are important risk factors of poor health among older adults in rural and urban areas. This brief demonstrates that almost 30% of older adults in both rural and urban areas are experiencing at least one of these risk factors, and that these risk factors are distributed unevenly across rural populations with differences by race and ethnicity, employment status, income, education, and marital status.

As each of these risk factors are related to the physical and mental well-being of older adults, these findings raise serious public health concerns. However, they also represent health policy intervention opportunities to prevent adverse health outcomes in older adult populations. By tailoring policy to promote less injury, less food insecurity, and increased social and emotional support among older adults, especially in rural settings and among marginalized older adult subpopulations, policy can potentially decrease health inequities and future adverse health outcomes among older adults.

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