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Likelihood of African American Primary Caregivers and Care Recipients Receiving Assistance From Secondary Caregivers: A Rural–Urban Comparison

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Abstract

We examine rural–urban differences in reliance on secondary caregivers for African American female primary caregivers (250 rural, 242 urban) and their care recipients. Logistic regression was used to identify caregiver and care recipient characteristics significantly associated with the likelihood of having a secondary caregiver within rural and urban samples. Post hoc Wald chi-square tests were used to identify significant between-sample differences in regression coefficients. Secondary caregivers were more common in urban than rural contexts. Having a secondary caregiver was more strongly related to primary caregivers' poorer physical health and nonresidence with care recipients in rural than urban contexts. Findings suggest that policy initiatives, such as the National Family Caregivers Support Act and the cash and counseling model, may benefit rural and urban residents, particularly rural residents as the majority of them lacked secondary caregiver assistance.

Keywords

caregiving systems models; contextual caregiving approaches; critical human ecology perspective

Scholars recognize the importance of investigating whether older adults' informal caregiving systems include a collection of helpers often involving primary caregivers and secondary caregivers—unpaid persons assisting older adults and primary caregivers—and the factors influencing secondary caregivers' presence (Dilworth-Anderson, Williams, & Cooper, 1999; Tennstedt, McKinlay, & Sullivan, 1989). Studies of frail older adults, patients discharged home, and older adults with dementia document reliance on secondary caregivers (Bedard et al., 2001; Li, Morrow-Howell, & Proctor, 2006; Wolff & Kasper, 2006). An examination of whether primary caregivers with main responsibility for elder care provide assistance as part of a collection of helpers is essential for understanding how older adults' care needs are met and institutionalization may be delayed (Gaugler et al., 2000). Enhanced knowledge about the role of secondary caregivers may be particularly relevant for understanding how care needs of older African Americans are met. Historically, these older adults' support systems have heavily relied on a collection of extended kin and nonkin for informal help (Chatters, Taylor, & Jackson, 1986; Gibson & Jackson, 1987; Pinquart & Sörensen, 2005) and caregiving (Dilworth-Anderson, Williams, & Gibson, 2002).

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The importance of and lack of attention to the geographical contexts in which older adults' informal care is provided are also increasingly recognized (Glasgow, 2000). Variability in the life conditions and resources of older adults across environmental contexts suggests dissimilar care needs and informal care resources in rural and urban contexts (Glasgow, 2000; Robert, 2002). For example, studies document rural–urban differences in older adults' chronic conditions, self-rated health (Rogers, 2002), limitations in activities of daily living (ADLs; Morala-Dimaandal, 2009; Rogers, 2002), and utilization of formal and informal services (McAuley, Spector, & Van Nostrand, 2009; Wagner & Niles-Yokum, 2006). These patterns generally favor urban residents.

Furthermore, older rural African Americans report poorer health and lower ADL functional status than either older urban African Americans or older rural White Americans (Coward, Netzer, & Peek, 1998). Literature is inconclusive on whether rural or urban older African Americans receive more informal assistance, as information about such assistance is based largely on urban samples (Coward et al., 1998). Despite the significance of geographical context, recent reviews on rural informal caregiving reported that it is understudied, particularly ethnic or racial caregiving (Goins, Spencer, & Byrd, 2009; Wagner & Niles-Yokum, 2006). In addition, little information about rural informal caregiving exists in systematic reviews on ethnic and racial caregivers (Connell & Gibson, 1997; Dilworth-Anderson et al., 2002; Janevic & Connell, 2001; Pinquart & Sörensen, 2005). As older adults' informal caregiving needs and resources likely differ in rural and urban contexts (Glasgow, 2000), more research is needed on how these different environments shape informal caregiving systems for older African Americans and their primary caregivers.

The need for research on older African Americans' informal caregiving systems in rural environments is further justified by in-place population aging, a global phenomenon in rural places and more pronounced in Southern and Midwestern regions of the United States than other regions (Bureau of the Census, 2001; Kinsella, 2001). This phenomenon is evident among older African Americans (Bureau of the Census, 2000): the total rural Black population includes proportionally more older persons (10.5%) than the comparable urban population (7.9%), although total Black population density is greater in urban areas (McKinnon, 2003).

In this study, we investigated rural–urban differences in reliance on secondary caregivers as well as characteristics of older African Americans and primary caregivers that may be associated with that reliance within samples of female primary caregivers. Particularly for rural residents whose informal caregiving systems are understudied, this investigation can facilitate understanding the informal caregiving system's capacity to provide elder care and guide development of supportive caregiver programs that consider the environmental contexts in which elder care is provided.

Conceptual Frameworks

Caregiving systems models undergirded our focus on reliance on secondary caregivers. These models assume that older adults' needs may be met by not only a single individual or primary caregiver but also by a collective unit, which often includes primary and secondary caregivers (Dilworth-Anderson et al., 1999; Pyke & Bengtson, 1996). This assumption was supported for older African Americans, who rarely receive informal assistance only from primary caregivers; instead, secondary caregivers were typical and collective caregiving was prominent (Dilworth-Anderson et al., 1999).

Contextual perspectives in caregiver stress process models (Dilworth-Anderson & Anderson, 1994; Pearlin, Mullan, Semple, & Skaff, 1990) emphasize the role of different aspects of the caregiving context itself, such as the influence of primary caregiver and care

recipient characteristics in shaping caregiving outcomes. Although we do not examine caregiving stress, contextual caregiving approaches guided our selection of specific primary caregiver and care recipient characteristics that might be associated with reliance on secondary caregivers (Figure 1, Arrow *a*). These characteristics include background characteristics of primary caregiver and care recipient, the relationship of caregiver to care recipient, primary caregiver's history of caregiving, and care recipient's assistance needs.

We also adapted a critical human ecology perspective on aging, which assumes the lives of older adults cannot be understood apart from the physical and social environments in which they live (Keating & Phillips, 2008). We relied on this approach to conceptualize possible rural–urban differences in reliance on secondary caregivers and care recipient and primary caregiver characteristics that may be associated with reliance on secondary caregivers in different environmental contexts. The ecological conceptual lens directs attention to differences in the environmental attributes across urban and rural settings such as the dispersion of populations, level of in and out migration among kin (Glasgow, 2000; Robert, 2002), and the availability of older adults' informal and formal resources (Bliesner, Roberto, & Singh, 2001–2002; McAuley et al., 2009; Wagner & Niles-Yokum, 2006). The schematic model in Figure 1 illustrates how a critical human ecology approach undergirded our focus on whether rural–urban differences exist in characteristics of older African Americans and their primary caregivers (Arrow *b*), inclusion of secondary caregivers in collective informal caregiving systems (Arrow *c*), or relationships between individual characteristics and the presence of secondary caregivers (Arrow *d*).

Literature on Reliance on Secondary Caregivers

We found a sparse literature pinpointing which characteristics of older adults and primary caregivers are associated with reliance on secondary caregivers. Care recipients' limited utilization of formal services and poor functioning in ADLs are associated with such reliance (Dilworth-Anderson et al., 1999; Stoller & Pugliesi, 1991). Secondary caregivers' involvement appears less likely when primary caregivers are older or not married (Tennstedt et al., 1989), or not employed (Given, Given, Stommel, & Lin, 1994), but caregivers' employment appears not relevant among African Americans (Dilworth-Anderson et al., 1999). Coresiding primary caregivers and care recipients are less likely to rely on secondary caregivers, but whether particular coresidence/relationship combinations (e.g., with spouses or children) are relevant is unclear (Stephens & Christianson, 1986; Stommel, Given, & Given, 1998). Aforementioned contextual caregiving approaches suggest the primary caregiver's duration of caregiving role may be associated with more reliance on secondary caregivers; however, we found no study addressing this association.

The Present Study

We identified no study that explored rural–urban differences in reliance on secondary caregivers or determinants of such reliance, although such differences are suggested by a critical human ecology and environmental perspective on aging (Keating & Phillips, 2008). To build knowledge and close this gap, we addressed three research questions: (a) Are there rural–urban differences in having a secondary caregiver among older African Americans and their female primary caregivers? (b) Which care recipient and primary caregiver characteristics are associated with care recipients/primary caregivers having a secondary caregiver in rural and in urban settings? (c) Which characteristics of care recipients/primary caregivers associated with having a secondary caregiver in rural or urban settings represent statistically significant rural–urban differences?

We studied female primary caregivers because of their overrepresentation as caregivers and relatively high vulnerability for poor health outcomes (Navaie-Waliser, Spriggs, & Feldman,

2002). Practical considerations also justify this decision, as recruiting a male sample sufficient for appropriate analyses of gender effects would have been prohibitively expensive.

Design and Method

Research Design, Sample, and Data Collection

Data came from a cross-sectional study of 521 Midwestern African American female primary caregivers of older African Americans (ages 65 and older). The institutional review board of Washington University in St. Louis approved the study, which was conducted between 1999 and 2002 (Chadiha et al., 2004).

To obtain information from representative samples of urban and rural older African American adults used to recruit caregivers, investigators adapted Picot et al.'s (Picot, Samonte, Tierney, Connor, & Powel, 2001) reverse sampling methodology. Medicare files formed the sampling frame, as in the National Long-Term Care and Informal Caregiver Surveys (Wolff & Kasper, 2006).

Investigators acquired lists of names, addresses, birth dates, and genders of African American Medicare enrollees aged 65 and above residing in seven historically rural Southeast Missouri counties and Metropolitan St. Louis. Rural counties met U.S. Census criteria for a nonstandard metropolitan statistical area (population size ranging from 2,500 to 20,000 and non-adjacent to a metropolitan area); metropolitan St. Louis met U.S. Census criteria for a standard metropolitan statistical area (Cromartie & Bucholtz, 2008). Sampling consultants from the University of Michigan Survey Research Center selected a stratified urban random sample ($n = 9,419$) from Metropolitan St. Louis enrollees based on zip code, age, and gender. All rural Medicare enrollees ($N = 1,804$) and sampled urban enrollees were sent letters explaining the study before any contact attempts. Subsequent telephone or in-person contacts with enrollees were designed to determine those meeting the study's eligibility criteria and to have eligible older persons identify their primary caregivers (Chadiha et al., 2004).

Eligibility criteria for older African Americans were self-identified as African American, Black, Negro, or Colored; 65 years of age or older; resided within targeted areas; and currently received any unpaid help from an African American female with at least one ADL (bathing, grooming, dressing, walking, bed transfer, feeding, toileting) or one Instrumental ADL (IADL; shopping, housekeeping, preparing meals, managing money or bills, taking medication, doing yard work, traveling outside) or with decision making. Eligible older adults/proxies identified up to two unpaid African American women who provided help—one who helped the most and another who also helped; 95% of the final caregiver samples were those identified as helping the most. Identified caregivers were contacted to verify eligibility (self-identifying as an African American female, 18 years or older, and currently providing unpaid help to the older adult with ADLs, IADLs, and/or decision making) and gain oral consent to an in-person interview.

After eligible caregivers granted written consent, local African American women trained by investigators conducted in-home computer-assisted personal interviews (averaging approximately 2.5 hr). Interviews with 521 primary caregivers (256 urban, 265 rural) were completed, representing an 88% overall response rate (84% urban, 93% rural) among contacted eligible caregivers. Participating caregivers were compensated US \$15 for participation.

Measures

Secondary caregivers—The dependent measure, primary caregivers' reports of the presence of any informal secondary caregiver (1 = *yes*), was derived from two questions adapted from Proctor and Morrow-Howell (n.d.): "Are there any people who help you provide care to (ELDER), but are not paid? How many other people like this provide care to (ELDER)?" Secondary caregivers could be any gender or race.

Care recipient characteristics—Gender was coded as 1 (*female*). Age was in years. Three measures of need for help were used. First, a measure of ADL dependency used caregivers' reports on care recipients' functional limitation in seven ADLs (walking, bathing, toileting, grooming, dressing, feeding, bed transferring), based on the Older American Resources and Services instrument (Duke University Center for the Study of Aging and Human Development, 1978). For each ADL, need for help was scored 2 (*unable to perform task*), 1 (*had some ability performing task*), or 0 (*no task help needed*). The ADL dependency measure summed these scores (range = 0–14); higher scores represented greater dependency. Second, a measure of recipients' number of physical health problems, adapted from Chappell (1981), indicated whether a doctor had told the caregiver/care recipient about the presence of 13 common chronic conditions (e.g., arthritis/rheumatism, diabetes, Alzheimer's disease, glaucoma, and up to two additional health problems). Positive replies were summed (range = 0–11). Third, caregivers indicated recipients' use of five formal services (in-home delivered meals, in-home care [nurse, personal care, and chore help], day care, senior center, and transportation) within the past 6 months. Caregivers could add other services (range = 0–4).

Primary caregiver characteristics—Background measures included age and duration of caregiving in years, marital status, education in years to assess socioeconomic status, and employment status. We used the Short Form Health Survey (SF-12) to measure caregivers' health status (Ware, Kosinski, & Keller, 1998). Items focus on the extent physical health or emotional problems limited activities in the last 4 weeks. Employing published algorithms by Ware et al. (1998), we used all 12 items to derive distinct and standardized summary scores for physical health (PCS-12) and mental health (MCS-12), with higher scores indicating better health. Following Ware et al.'s recommendation, we include both the PCS-12 and MCS-12 in analyses although our interest was the association between primary caregivers' physical health and likelihood of having a secondary caregiver. PCS scores ranged from 12.1 to 65.0; MCS scores ranged from 17.3 to 68.4. A combined measure of the primary caregiver's coresidence/relationship to the care recipient included four categories: (a) resident spouse/partner, (b) resident daughter, (c) resident other (granddaughters, nieces, in-laws, and friends), and (d) nonresident (daughters, granddaughter, nieces, cousins, and in-laws).

Analysis

We used *t* tests and chi-squares to test rural–urban sample differences on all measures and partitioning of chi-square, a post hoc method for identifying specific categories responsible for an overall significant chi-square (Rindskopf, 1996). When analyses of categorical measures violated ordinary chi-square assumptions due to low expected values (<5) for some categories, exact permutation methods (Mehta & Patel, 1999) were used to estimate the overall and partitioned chi-square tests. Guided by aforementioned contextual and critical human ecology perspectives as well as empirical literature, we identified the measures to include in logistic regression analyses examining which care recipient and primary caregiver characteristics were significantly associated with the likelihood of older adults/primary caregivers having any secondary caregiver. Recipient's ADL dependency rather than age was used because it was a more salient measure of need; gender was

excluded because it was highly correlated with primary caregiver–care recipient relationship. The 17 covariates included in the final model were appropriate to sample sizes, with both urban and rural samples exceeding the recommended 10 cases per covariate (Hosmer & Lemeshow, 2000). Diagnostic tests showed no multicollinearity problem, as indicated by a variance inflation factor under the recommended threshold of 10 (O'Brien, 2007). Finding no unequal residual variance in beta coefficients, we used the traditional Wald chi-square to test for statistically significant rural–urban differences in coefficients (Allison, 1999).

All analyses used the Statistical Analysis System (SAS) for Windows Version 9.13, set significance levels at .05 or less, and used 242 urban and 250 rural primary caregivers. These *N*s reflect excluded cases identified as influential observations in logistic regression diagnostics ($n = 2$ and 6 for urban and rural samples, respectively; see Hosmer & Lemeshow, 2000) or missing data on any covariate in the logistic regressions ($n = 12$ and 9 for urban and rural samples, respectively).

Results

Table 1 shows rural care recipients had significantly lower ADL assistance needs than urban ones. Rural recipients used significantly more services than urban recipients, particularly in-home meal and care services. Rural and urban care recipients were similar on gender, number of physical health problems, and utilization of day care, senior centers and transportation.

Table 2 indicates rural primary caregivers had significantly less education, were younger, and had somewhat different marital histories than urban caregivers, with a lower proportion of divorced/separated rural than urban caregivers (20% vs. 32%; post hoc partitioned $\chi^2_{(1)}=8.33, p < .01$; Rindskopf, 1996). Rural primary caregivers had significantly better mental health scores than urban ones on the SF-12. Scores on both the mental and physical components health of the SF-12 in both samples were close to the normative mean of 50 and a standard deviation of 10 in the general U.S. population (Ware et al., 1998). The significant difference in the pattern of primary caregivers' coresidence/relationships to the care recipient reflected certain differences when tested by post hoc partitioning of chi-square (Rindskopf, 1996). Rural primary caregivers, compared to urban ones, had a higher proportion of nonresident caregivers (60% vs. 48%, $\chi^2_{(1)}=8.21, p < .01$), a lower proportion of coresident daughter caregivers (16% vs. 23%, $\chi^2_{(1)}=4.49, p < .05$), and a lower proportion of coresident females other than the care recipient's wife/partner or daughter (5% vs. 10%, $\chi^2_{(1)}=5.41, p < .05$). Rural primary caregivers reported significantly more years of caregiving than urban ones. Significantly fewer rural (38%) than urban (56%) primary caregivers reported help from secondary caregivers and indicated a significantly lower mean number of secondary caregivers. Primary caregivers in both samples reported similar employment patterns and physical health.

Table 3 shows an overall rural–urban difference only for the first-mentioned secondary caregiver's relationship to the care recipient. Post hoc partitioning of chi-square using exact permutation methods (Mehta & Patel, 1999) indicated that this difference was due to spouse/partner secondary caregivers being less likely in rural than urban contexts (0% vs. 6%; $\chi^2_{(1)}=5.41, p < .05$).

Likelihood of Having a Secondary Caregiver

Logistic regression analyses within rural and urban samples (Table 4) show similarities and differences in covariates significantly associated with having a secondary caregiver. In both samples, the likelihood of having a secondary caregiver was significantly reduced by two primary caregiver characteristics (being widowed vs. married and being a coresident spouse vs. not residing with the care recipient). Seven covariates were not significantly related to having a secondary caregiver in either sample (recipients' age and service use; caregivers' education, age, employment status, mental health status, and duration of caregiving).

For rural residents only, each unit increase in recipients' need for ADL assistance significantly increased the odds of having a secondary caregiver by almost 20% and each unit-increase in caregivers' PCS-12 scores, reflecting better physical health, significantly reduced the odds of having a secondary caregiver by almost 5%. Rural widowed primary caregivers, like urban ones, were significantly less likely (by 80%) than married ones to have a secondary caregiver, but unlike urban caregivers, rural divorced/separated and married caregivers did not differ significantly. All types of coresiding rural caregivers were significantly less likely to have a secondary caregiver than nonresident caregivers. Compared to nonresident caregivers, the odds of having a secondary caregiver were 95% lower among coresiding spouses/partners, more than 65% lower for coresiding daughters, and more than 90% lower for coresident caregivers in other relationships to the older adult.

For urban residents only, the odds of having a secondary caregiver were significantly increased, by almost 25%, with each additional recipient's physical health problem. Secondary caregivers were less likely among urban divorced/separated caregivers (by 69%) and widowed caregivers (by 75%) than for married ones. As well, secondary caregivers were less likely among urban coresiding spousal primary caregivers than nonresident caregivers (by 70%), but other coresident caregivers did not differ significantly from nonresident caregivers.

Results of post hoc Wald chi-square tests (Table 5) show significant between-sample differences in four covariates reflecting primary caregiver characteristics (physical health status and comparisons of resident spouses, resident daughters, or other resident caregivers to nonresident caregivers). Each covariate had a stronger relationship to the presence of a secondary caregiver in the rural than urban sample.

Discussion

Adapting a critical human ecology perspective emphasizing the interplay among older adults' supportive resources, aging, and physical environments, we focused on secondary caregivers as resources for older African Americans and their female primary caregivers within rural and urban contexts. Findings pinpoint previously unidentified rural–urban differences and similarities in the presence of secondary caregivers, characteristics of caregivers and older adults in these environmental contexts, and associations of these characteristics with having a secondary caregiver.

Physical attributes of rural and urban environments, such as their sizes and dispersions of populations and services, are recognized as important for the lives of older adult residents—especially how they and their support systems handle challenges to older adults' limited personal resources (Glasgow, 2000; Robert, 2002). The significantly larger proportion of urban than rural primary caregivers reporting secondary caregivers affirms this literature indicating physical environments can shape the supply of informal resources that are indispensable to meet the long-term care needs of older adults. This same finding is consistent with a greater urban than rural Black population density (McKinnon, 2003) and a

greater rural than urban spatial dispersal of formal services and potential informal helpers (Glasgow, 2000). It also supports a critical human ecology perspective emphasizing the importance of environmental contexts for older adults' lives and supportive resources (Keating & Phillips, 2008). The greater risk of solo caregiving for rural than urban residents and its environmental explanations suggest the importance of service providers identifying ways to facilitate supplemental care resources for older African American rural residents, especially given the higher proportion of older adults in rural than urban Black populations (Bureau of the Census, 2000).

Slightly more than half of urban and one third of rural primary caregivers reported reliance on secondary caregivers, a difference consistent with a critical human ecology perspective emphasizing the importance of environmental context (see Figure 1, Arrow *c*). These findings vary from studies supporting the assumption of caregiving systems models that collective informal caregiving is a predominant pattern (Dilworth-Anderson et al., 1999; Pyke & Bengtson, 1996). In light of older African Americans' heavy dependence on informal care resources (Pinquart & Sörensen, 2005), the present findings concerning urban and especially rural residents' limited reliance on secondary caregivers raise important policy concerns. Solo primary caregivers, more common in rural contexts, may face very demanding caregiving tasks, and the older adults they assist may lack sufficient informal supports to meet daily assistance needs. The importance of addressing possible care burdens of solo primary caregivers is buttressed by reports from primary caregivers in both environments of receiving a weekly average of 20 hours of assistance from secondary caregivers. This evidence supports caregiving systems models' emphasis on the critical support secondary caregivers can provide.

Consistent with contextual caregiving approaches (Dilworth-Anderson & Anderson, 1994; Pearlin et al., 1990) and a critical human ecology perspective (Keating & Phillips, 2008), our findings showed rural–urban similarities and significant differences in the care recipient and primary caregiver characteristics associated with reliance on secondary caregivers. Care recipients' greater needs for assistance (ADL dependency and health problems) were associated with an increased likelihood of having a secondary caregiver in both physical environments; this finding reinforces the importance of using older adults' assistance needs to gauge their service provision regardless of environmental context. This similarity is consistent with contextual approaches emphasizing how the personal context for care provision may influence caregiver outcomes (Dilworth-Anderson & Anderson, 1994; Pearlin et al., 1990) and studies documenting the importance of care recipients' health and functional limitations for reliance on secondary caregivers (Dilworth-Anderson et al., 1999; Given et al., 1994). In both physical environmental contexts primary caregivers who were themselves widowed or divorced/separated were less likely than those who were married to have secondary caregiver assistance, suggesting that formerly married primary caregivers may be more isolated from informal support networks than are married ones. These findings diverge from a study involving a predominantly White sample of primary caregivers and frail older adults that found widowed primary caregivers had a greater likelihood than married ones of having a secondary caregiver (Tennstedt et al., 1989). Established ethnic/racial differences in informal caregiving patterns (Pinquart & Sörensen, 2005) suggest sample differences may explain these divergent findings. Our findings further suggest that supplemental resources may benefit formerly married African American primary caregivers in rural and urban areas.

Findings showing significant rural–urban differences in association between certain primary caregiver characteristics and reliance on secondary caregivers are consistent with a critical human ecology perspective (Keating & Phillips, 2008) emphasizing interplay among aging and older adults' supportive resources and physical environments (see Figure 1, Arrow *d*).

Specifically, primary caregivers coresiding with the care recipient and reporting better physical health were significantly more likely to lack secondary caregivers in rural than in urban contexts. These findings suggest that rural primary caregivers with these characteristics may have less access to informal assistance than comparable urban primary caregivers. These findings and their environmental explanations, implying the relevance of greater dispersion of potential informal caregivers and out-migration of younger cohorts in rural than in urban areas (Glasgow, 2000), require confirmation in further research. If confirmed, they highlight the value to service providers and policy makers of recognizing that the need for supplementing resources and approaches for addressing them may differ in rural and urban areas.

The regional-, gender-, and race-specific nature of study data as well as the lack of the perspectives of secondary caregivers and older adults are possible limitations. The cross-sectional design precluded causal inferences about significant associations between having a secondary helper and characteristics of care recipients/caregivers. As a reviewer noted, other factors (e.g., types of family structures in which older adults and primary caregivers are embedded or primary caregivers' specific coping mechanisms) may also be associated with likelihood of reliance on secondary caregivers. Examination of such factors was beyond this study's scope. These limitations suggest future research directions. Despite limitations, the importance of findings is enhanced by samples of primary caregivers being based on data from Medicare enrollees, as Medicare covers 97% of Americans 65 years and older (Health Care Financing Administration, 2000).

Policy and Practice Implications

To reiterate, key findings show that collective caregiving was not predominant in either setting although secondary caregivers were more likely among urban than rural residents. Having any secondary caregiver was linked to the care recipients' ADL dependency and number of health problems in both contexts, whereas such reliance was more strongly influenced by primary caregivers' poorer health and coresidence with care recipients among rural than urban residents. This set of findings suggest the importance of policy and practice efforts to intervene in caregiving systems in both environmental contexts to supplement resources to solo caregivers and ensure that older adults' needs are met. As the majority of rural residents lacked assistance from other caregivers, these residents' resource needs appear greatest.

Wagner and Niles-Yokum (2006) identify promising policy initiatives that may assist older rural African Americans and support primary caregivers. The National Family Caregivers Support Act (NFCSA) of 2000, according to these authors, embraces family caregivers as the target population and also considers the constellation of caregivers assisting older adults. Thus, the act appears sensitive to the family-centered collective caregiving systems among older African Americans. Consumer-directed models (e.g., cash and counseling demonstration evaluations) may represent another useful type of family-centered initiative (see Wagner & Niles-Yokum, 2006). They provide recipients cash funds to reimburse kin or nonkin helpers and counseling support to develop user-friendly care plans to meet care recipients' needs. Particularly for rural residents, consumer-directed models may enable primary caregivers and care recipients to tailor supportive care services to care needs and available environmental resources, either through fostering access to additional informal caregivers, paid caregivers, or both types of helpers. Wagner and Niles-Yokum highlight the significance of the formal and informal care interface in rural areas (pp. 152–154). The higher proportions of this study's rural than urban primary caregivers reporting older adults using in-home meal and care services establish the importance of home-based services and interfacing formal and informal resources for rural residents. Flexibility in consumer-directed models suggests that older rural adults and their primary caregivers might be able to

develop strategies for supplemental care that compensate for ecological challenges, such as low population density, out-migration of younger family members, and inadequate access to some types of congregate formal care. In conclusion, any supportive care initiatives adopted or adapted for African American female primary caregivers and for care recipients must be guided by evidence-based research, for which we hope this study will provide baseline evidence.

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Figure 1.

A schematic model for receipt of secondary caregivers' assistance by African American older adults and primary caregivers

Note: A focus on the likelihood of secondary caregivers reflects caregiving systems model. Arrow *a* depicts proposed linkages between care recipient/caregiver characteristics and reliance on secondary caregivers, based on contextual caregiving approaches. A critical human ecology perspective was the basis for Arrows *b–d* describing possible influences of rural and urban residence on care recipient/caregiver characteristics, reliance on secondary caregivers, and the linkages between care recipient/caregiver characteristics and reliance on secondary caregivers.

Table 1**Rural–Urban Comparisons of Care Recipients' Characteristics**

Characteristics	Rural (<i>n</i> = 250)	Urban (<i>n</i> = 242)	<i>p</i>
Females (%)	65.6	63.2	<i>ns</i>
Age (<i>M</i> [<i>SD</i>])	78.0 (8.6)	79.0 (7.9)	<i>ns</i>
ADL dependency score (<i>M</i> [<i>SD</i>])	1.6 (2.6)	2.5 (3.3)	<.001
No. of health problems (<i>M</i> [<i>SD</i>])	3.8 (2.0)	4.0 (1.8)	<i>ns</i>
No. of services used (<i>M</i> [<i>SD</i>])	1.1 (1.0)	0.8 (0.9)	<.01
In-home meals (%)	38.4	20.3	<.001
In-home care (%)	48.8	38.6	<.05
Day care (%)	1.6	2.1	<i>ns</i>
Senior center (%)	5.2	4.9	<i>ns</i>
Transportation (%)	14.0	19.0	<i>ns</i>

Note: ADL = activities of daily living, with higher scores representing greater dependency; CG = caregiver; *ns* = not significant. Age is in years. Percentages may not total 100% due to rounding error. The *p* values assess urban–rural differences, based on chi-square tests for percentages and *t* tests for means.

Table 2**Rural–Urban Comparisons of Primary Caregivers' Characteristics**

Characteristics	Rural (<i>n</i> = 250)	Urban (<i>n</i> = 242)	<i>p</i>
Education (<i>M</i> [<i>SD</i>])	11.5 (2.6)	13.1 (2.5)	<.001
Age (<i>M</i> [<i>SD</i>])	51.6 (15.0)	55.2 (14.7)	<.01
Marital status (%)			<.05
Married	40.8	36.0	
Divorced/separated	20.4	31.8	
Widowed	11.2	11.6	
Never married	27.6	20.7	
Employment status (%)			<i>ns</i>
Full-time	38.4	37.2	
Part-time	10.4	6.6	
Not working	51.2	56.2	
Physical health (PCS-12)	46.6 (11.0)	47.2 (10.4)	<i>ns</i>
Mental health (MCS-12)	52.3 (8.8)	50.1 (10.4)	<.05
Residence/relationship to CR (%)			<.01
Resident spouse/partner	19.2	19.0	
Resident daughter	15.6	23.1	
Resident other ^a	4.8	10.3	
Nonresident ^b	60.4	47.5	
Duration of caregiving (<i>M</i> [<i>SD</i>])	11.2 (11.6)	6.3 (5.5)	<.001
Any secondary CG (%)	38.4	56.2	<.001
No. of secondary CGs (<i>M</i> [<i>SD</i>])	1.9 (1.3)	2.4 (1.8)	<.01

Note: PCS-12 and MCS-12 = Physical and Mental Component Scores of the SF-12 Health Survey, respectively; CG = caregiver; *ns* = not significant. Percentages may not total 100% due to rounding error. Age, education, and duration of caregiving are in years. Higher scores represent better health. The *p* values assess urban–rural differences, based on chi-square tests for percentages and *t* tests for means.

^a Includes other relatives and nonrelatives.

^b Includes daughters, other relatives, and nonrelatives.

Table 3

The Relationship of Secondary Caregivers to Care Recipients: Comparisons Between Rural and Urban Primary Caregiver Samples

Relationship	First mentioned secondary caregiver		Second mentioned secondary caregiver	
	Rural (%) (<i>n</i> = 96)	Urban (%) (<i>n</i> = 136)	Rural (%) (<i>n</i> = 45)	Urban (%) (<i>n</i> = 83)
Spouse/partner	0.0	5.9	2.2	1.2
Daughter	45.8	35.3	31.1	26.5
Son	22.9	17.6	31.1	27.7
Other relative ^a	22.9	33.8	26.7	31.3
Nonrelative ^b	8.3	7.4	8.9	13.2
<i>p</i>	<.05		<i>ns</i>	

Note: *ns* = not significant. Column may not total 100% due to rounding error. The *p* values assess urban–rural differences, based on chi-square tests.

^aIncludes siblings, grandchildren, nieces, nephews, aunts, former spouses, daughters-in-law, and other in-laws.

^bIncludes friends, neighbors, and clergy.

Table 4

Logistic Regression Models Predicting Any Secondary Caregiver Within Rural and Urban Primary Caregiver Samples

Covariate	Rural (<i>n</i> = 250)	Urban (<i>n</i> = 242)
	OR (95% CI)	OR (95% CI)
CR characteristics		
Age	0.99 (0.95, 1.03)	1.01 (0.97, 1.05)
ADL dependency score	1.18 (1.04, 1.36)*	1.11 (1.00, 1.23)
No. of health problems	1.16 (0.99, 1.36)	1.24 (1.05, 1.47)*
No. of services used	0.86 (0.63, 1.16)	0.98 (0.69, 1.39)
Primary CG characteristics		
Education	1.06 (0.93, 1.21)	1.14 (1.00, 1.31)
Age	1.00 (0.97, 1.03)	0.99 (0.96, 1.02)
Divorced/separated ^a	0.51 (0.21, 1.20)	0.31 (0.12, 0.77)*
Widowed ^a	0.20 (0.05, 0.64)**	0.25 (0.07, 0.82)*
Never married ^a	1.04 (0.45, 2.41)	0.54 (0.18, 1.56)
Not working ^b	1.53 (0.72, 3.28)	0.80 (0.38, 1.69)
Working part-time ^b	0.96 (0.34, 2.67)	0.99 (0.29, 3.38)
PCS-12	0.97 (0.94, 1.00)*	1.02 (0.99, 1.05)
MCS-12	1.02 (0.98, 1.05)	0.99 (0.96, 1.02)
Resident spouse/partner ^c	0.04 (0.01, 0.14)***	0.30 (0.09, 0.93)*
Resident daughter ^c	0.31 (0.12, 0.74)*	1.34 (0.59, 3.06)
Resident other ^c	0.07 (0.01, 0.41)*	0.99 (0.36, 2.78)
Duration of caregiving	1.03 (1.00, 1.06)	0.95 (0.90, 1.01)
Likelihood ratio χ^2	60.93***	49.40***
-2 log likelihood	272.07	282.36

Note: OR = odds ratio; CI = confidence interval; CR = care recipient; CG = Caregiver; ADL = activities of daily living, with higher scores representing greater ADL dependency; PCS-12 and MCS-12 = Physical and Mental Component Scores of the SF-12 Health Survey, respectively, with higher scores representing better health. Age, education, and duration of caregiving are in years. Likelihood ratio χ^2 statistics have 17 degrees of freedom.

^aReference category is married.

^bReference category is working full-time.

^cReference category is nonresident.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Wald Chi-Square Statistics Testing Rural–Urban Differences for Significant Covariates of the Presence of Any Secondary Caregivers

Covariate	Rural (<i>n</i> = 250) Beta (<i>SE</i>)	Urban (<i>n</i> = 242) Beta (<i>SE</i>)	Ratio of beta coefficients	Wald χ^2
CR characteristics				
ADL dependency	0.16 (0.07) *	0.10 (0.05)	0.62	0.49
No. of health problems	0.15 (0.08)	0.21 (0.08) *	1.40	0.28
Primary CG characteristics				
Divorced/separated ^a	−0.67 (0.44)	−1.18 (0.48) *	1.76	0.61
Widowed ^a	−1.63 (0.63) **	−1.39 (0.62) *	0.85	0.07
PCS-12	−0.03 (0.01) *	0.02 (0.01)	0.67	12.50 **
Resident				
Spouse/partner ^b	−3.31 (0.72) ***	−1.21 (0.59) *	0.36	5.09 *
Daughter ^b	−1.17 (0.46) *	0.29 (0.42)	0.25	5.47 *
Other ^b	−2.73 (1.05) *	−0.01 (0.52)	0.00	5.43 **

^aReference category is married.

^bReference category is nonresident.

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$