Meaning and Management of Food Security Among Rural Elders

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Food insecurity is the limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways. This study uses fixed response and textual data obtained through in-depth interviews with adults 70 years and older from a multiethnic population in rural North Carolina to examine the incidence of food insecurity and how older adults experience food insecurity and maintain food security. We interviewed 145 elders up to five times over the course of 1 year. Responses to standard food insecurity questions indicate that only 12% of older adults experience food insecurity. However, analysis of textual data reveals common themes concerning food insecurity that suggest that these questions may underestimate the number of rural elders who are food insecure and not tap the potential vulnerability of others who are dependent on precarious nutritional self-management strategies to meet their needs.

Older adults are widely acknowledged to be a group vulnerable to nutritional risk (Posner, Jette, Smigelski, Miller, & Mitchell, 1994). Age-related biological factors increase older adults' risk of nutritional deficiencies (Atkinson & Fox, 1992; Bell & High, 1997; Marcus, Kaste, & Brown, 1994; Roe, 1989; Rolls, 1992). Social and economic factors also affect their nutritional status through insufficient food or limited food choice (Quandt, Vitolins, DeWalt, & Roos, 1997; Rosenbloom & Whittington, 1993; Ryan, Martinez, Wysong, & Davis, 1989). These factors include poverty and economic stress due to lack of income and assets, as well as to competing demands for money, such as medications, health care, transportation, and housing costs. Because of these economic issues, concerns have been raised

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The Journal of Applied Gerontology, Vol. 20 No. 3, September 2001 356-376

that elders may bear a disproportionate share of the burden of food insecurity and hunger in the United States (Posner, Jette, Smith, & Miller, 1993). Attempts to better define and measure these phenomena have resulted in studies of food insecurity specific to the elderly (Burt, 1993; Food Research and Action Center, 1987; Governor's Task Force on Hunger, 1988; Quandt & Rao, 1999), as well as the addition of a sample of older adults and food insecurity questions to national population surveys such as NHANES III (Briefel & Woteki, 1992).

Food security has been defined by Anderson (1990) as "access by all people at all times to enough food for an active, healthy life and includes at a minimum: (a) the ready availability of nutritionally adequate and safe foods, and (b) the assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)" (p. 1560). When such foods are unavailable or a person's ability to acquire them is limited, food insecurity exists. If food supplies are so low that persons experience the painful or uneasy physical sensations of insufficient food, hunger exists. As these definitions imply, hunger is defined by sensory perceptions in contrast to food insecurity, which is more closely related to economics and mobility.

Individuals who report food insecurity have significantly lower intakes of key foods and nutrients than those who report having sufficient food (Frongillo, Rauschenbach, Olson, Kendall, & Colmenares, 1997; Rose, 1999; Rose & Oliveira, 1997). This demonstrates the utility of food security measurement for identifying persons at nutritional risk in regional and nationwide surveys, and there has been a concerted effort in the 1990s to develop benchmark data and statistically validate measurement instruments for food insecurity (Carlson, Andrews, & Bickel, 1999; Frongillo, 1999). However, there has been little study of whether the widely used measures are equally sensitive across populations subgroups (e.g., age groups, ethnic groups, rural/urban) for identifying persons who are food insecure. Certain dimensions of food insecurity are culturally and socially defined, including what is acceptable food and what are socially acceptable sources. Like other aspects of food ideology, these definitions should be expected to vary both within and between cultures (Quandt, 1999). Wolfe, Olson, Kendall, and Frongillo (1998) have conducted one of the only studies in the United States that begins to examine the experience and meaning of food insecurity among older adults. Their study of food-insecure rural White and urban Black elders in upstate New York used in-depth interviews to identify stages of food insecurity, starting with consuming diets of compromised quality, and then progressing to experiencing anxiety and uncertainty, consuming socially unacceptable meals, and finally using emergency strategies to get food. Several

existing food security questionnaires were administered and varied in their level of sensitivity and specificity, compared to the in-depth interviews. Using national level data, Hamilton et al. (1997) proposed a sequence of steps similar to those of Wolfe et al. (1998) that households go through as they become food insecure. Both Hamilton et al. and Wolfe et al. present food insecurity as a situation actively managed by households, but neither identify factors that would cue households to begin management activities. Neither these studies nor others have focused on how elders across the general population, not just those who are food insecure, think about food insecurity. Such a study could provide clues concerning the degree of food insecurity that is accepted as normal and at what point elders would take action.

The existence and extent of food security among older adults is of interest because food security is considered a basic measure of population well-being. The United States has committed to decreasing by one half the number of persons who are food insecure (U.S. Department of Agriculture, 1996), and a number of food assistance programs have been designed to prevent food insecurity and hunger (American Dietetic Association, 1998). These include food stamps, available to older adults as well as the general population, and the Title III nutrition programs that provide for congregate meals and home-delivered meals specifically for older adults (Ponza et al., 1996; U.S. Department of Health and Human Services, 1992).

For older adults living in rural areas, several factors promote more food insecurity, relative to the general population of older adults. Rural elders have lower incomes and poorer health than their urban and suburban counterparts (Glasgow, 1993; Van Nostrand, 1993). Costs for food purchase are often higher and selection more limited in rural areas (Crockett, Clancy, & Bowering, 1992; Morris, Bellinger, & Haas, 1990). Formal assistance programs are more unevenly distributed in rural areas than in urban or suburban areas, and access to those that exist may be limited by distance and by lack of public transportation (Krout, 1994, 1998). There has been resistance to using some food assistance programs by older adults because of pride and the reluctance to use services considered to be welfare (Heltsley, 1976; Ralston & Cohen, 1994).

On the other hand, certain features of rural environments and characteristics of rural elders may protect against food insecurity. Many rural elders have traditionally practiced gardening and other forms of home food production, as well as a variety of food preservation techniques (Quandt, Popyach, & DeWalt, 1994). These practices contribute to home food stores and so may help to sustain households when financial resources are strained. Older adults in rural areas are also more likely to be married (McLaughlin & Jensen, 1998). Because of traditional gender roles, being married means

more regular household food preparation for men. For females, being married brings with it a greater likelihood of there being a car and a licensed driver in the household for transportation to grocery stores (Kington, Reuben, Rogowski, & Lillard, 1994). Rural adults who are lifelong residents of their communities are likely to have at least one child living within a 30-minute drive (McCulloch & Kivett, 1998).

A variety of domestic studies in the past decade has attempted to measure food security in the United States, including some that have focused on older adults. Most of the data have been collected in surveys. Rates of food insecurity from these vary widely, from 5% to 40%, reflecting differences in measurement and sampling. Little attention has been given to rural elders. Quandt and Rao (1999) published results from an Appalachian rural site of the Urban Institute's national survey (Burt, 1993). They found that almost one quarter of elders reported food insecurity or taking actions to manage insecurity, but their results may not generalize beyond the Appalachian region. The survey format used in that study provided little opportunity to examine the community context of food insecurity. The purpose of the research reported here is to contribute to the existing body of food insecurity studies by examining food insecurity in rural, multiethnic communities using a multimethod approach. In this report we (a) quantify food insecurity using standard questionnaire methods, and then (b) use qualitative data to explore the meaning of food insecurity to rural elders, how they interpret standard questionnaire items, and how interpretation may affect measurement of food insecurity among rural elders.

Method

These data come from an ongoing, largely qualitative, ethnographic study of the nutritional self-management of community-dwelling adults 70 years and older in two rural counties in central North Carolina. These counties were chosen because they are typical in many ways of rural communities in the southeastern United States. Their populations include a large proportion of minority elders; 29% of the population 65 years and older is either African American or Native American. Approximately 28% of persons older than age 65 in these counties are below the poverty level. Economies have traditionally been based on subsistence and commercial agriculture, with rural manufacturing (e.g., textiles, clothing, food processing) providing off-farm employment.

A sample of male and female adults 70 years and older was recruited using a site-based approach. This approach resulted in a representative, nonrandom

Table 1. Study Participants by Gender and Ethnicity

	Ethnicity			
Gender	*African American*	*European American*	*Native American*	*Total (%)*
Female	32	32	24	88 (61%)
Male	16	22	19	57 (39%)
Total	48 (33%)	54 (37%)	43 (30%)	145 (100%)

sample of 145 adults (see Table 1), drawn to represent the range of health and economic statuses in the research area and to overrecruit male and minority (African American and Native American) elders so that gender and ethnic comparisons could be made. The sampling strategy builds on the approach of Trost (1988) and is more fully described in Arcury and Quandt (1999) and Quandt, McDonald, Bell, and Arcury (1999). *Sites* are places, organizations, or services used by members of the population of interest. We selected sites that varied in terms of the gender, ethnicity, household economic status, and health status of the persons who used the sites; these are characteristics expected to be associated with variation in health and nutrition-related behaviors. The sites for this study included home health care agencies, senior centers, senior clubs, churches, social service agencies, and veterans' organizations. Because social service users have been found to differ from nonusers, we intentionally selected sites so the sample would not be biased toward users. By including a variety of churches (mainstream denominations to regional sects), clubs (civic, social, veterans), and patient lists from physicians, we capture different parts of the population, including those who would never participate in a social service program.

We recruited participants from 45 of the 73 identified sites, stopping recruitment when the target sample had been achieved. At most sites, the site director introduced the investigators to potential participants. In a few situations (particularly senior centers and churches), the investigators gave a short presentation on the project and asked for volunteers or approached potential participants. In some sites, a combination of these methods was used. Participants were recruited over 11 months by four members of the research team. The investigators maintained counts of recruited subjects by gender and ethnicity. Emerging patterns of health and economic status across the sample were reviewed regularly, and additional sites were added as needed during data collection to help achieve target distributions of participants.

Participants were interviewed up to five times during a 1-year period using in-depth semistructured techniques. Participant observation was also used, as one of the investigators took up residence in the rural area and others spent considerable time there (Quandt et al., 1999). Interviews covered a wide range of nutrition- and health-related topics. Nutrition topics were structured around the conceptual model of nutritional self-management (Quandt, Arcury, & Bell, 1998), which divides food-related tasks into the domains of (a) acquiring food, (b) using food, and (c) maintaining food security. At the initial interview, informants were asked questions to produce descriptions of their routine behaviors in the three self-management domains. Extensive probing was used to produce full accounts of situations and incidents related to food security and insecurity. At subsequent interviews, informants were asked for updates, including any modifications related to health and changes in household circumstances. At the final interview, informants were presented with fictitious scenarios about nutrition-related problems and were asked how older residents of their community would solve these problems. These scenarios were designed to reveal local values, as well as elders' knowledge of community resources. Almost all of the interviews took place in informants' homes, providing opportunities to observe gardens, food storage facilities, and general living conditions.

For the purpose of the present article, we concentrate on interview segments that elicited behavior and attitudes related to food security. Interviews were tape-recorded and transcribed verbatim. A coding system was designed to allow accurate identification of text segments and minimize bias. A coding dictionary was developed for key terms. Two codes relate to food security: *Food insecurity* was used to mark any segments containing information on instances of food insecurity, and *prevent insecurity* was used to mark segments with information on behaviors used to prevent food insecurity. The definition of food insecurity used for both codes is that of Anderson (1990). After training and practice coding sessions, each transcript was coded by one member of the research team, and then codes were checked and corrected, if necessary, by another. Codes were entered in the text analysis software program, *The Ethnograph v4.0* (Seidel, Friese, & Leonard, 1995), to facilitate retrieval and sorting of text segments.

Qualitative analysis of text included variable-based and case-based analyses (Miles & Huberman, 1994). Variable-based analysis consisted of an iterative review and sorting of segments to identify recurrent themes in the way informants talked about food insecurity. For case-based analysis, transcripts for informants were reviewed as sets to identify individuals of different food security statuses, how situations of food insecurity had developed, and how

the informant attempted to resolve these situations. Segments presented in this article are identified by the ethnicity (AA = African American; EA = European American; NA = Native American), gender (f = female; m = male), and food security status (s = secure; i = insecure) of the informant.

Food security status was defined by the following process. The initial interview included a series of three fixed-response food security questions that were used in the national survey of elderly nutrition conducted in 1993 and 1994 by the Urban Institute (Burt, 1993; Cohen, Burt, & Schulte, 1993) and subsequently included in an examination of a number of food security instruments by Wolfe et al. (1998). These focus on *enough* food defined by the subject and on the economic aspect of food insecurity in the past year, asking (a) if there has been any time when he or she had trouble getting enough food to eat, (b) whether he or she has had to choose between buying food and paying bills, and (c) whether he or she has had to choose between buying food and buying medications. An affirmative response to any one of these was used to categorize a person as food insecure.

Quantitative Results

Data from the fixed-response food insecurity items indicate that current trouble getting enough food or purchasing food is relatively rare. Seventeen of 145 people reported any food insecurity, for a crude annual incidence rate of 12%. There were no significant gender differences in the proportions reporting any food insecurity; 7 reporting food insecurity were male and 10 female. Six of the 7 males reporting food insecurity were currently married; one was widowed. Nine of the females were widowed, and the 10th had never married. Those reporting food insecurity were primarily members of minority groups (African American = 13, Native American = 2). Being short of food in the past year was reported by 5 persons, all female (see Table 2). Having to choose between buying food and paying bills was reported by 10 persons, as was the third indicator, having to choose between buying food and buying medications. For each of these, a higher proportion of males reported food insecurity. Seven persons reported experiencing more than one food insecurity indicator.

Qualitative Results

The review of qualitative data for the total sample identified sets of themes related to two different aspects of food security (see Table 3). The first set of

Table 2. Characteristics of Individuals Reporting Food Insecurity (from total sample of 145)

	Food Insecurity Indicator			
	Short of Food (n = 5)	*Food or Bills (n = 10)*	*Food or Medications (n = 10)*	*> 1 Indicator (n = 7)*
Gender				
Female	5	4	5	3
Male	0	6	5	4
Ethnicity				
African American	4	8	8	6
European American	1	1	0	0
Native American	0	1	2	1

Table 3. Summary of Themes Related to Food Security (from total sample of 145)

Category	*Theme*
Nature of food security	"You can't always get what you want"
	Self-sufficiency was instilled by upbringing
	Pride in weathering hard times
	Good fortune, luck, and God
Managing food security	Coping with periodicity of food supply
	Food production and preservation
	Use of informal support
	Dislike of credit
	Being financially responsible

themes related to the nature of security: how food security was defined and talked about, as well as the historical and cultural context in which food security was interpreted. The second set of themes was more concrete, reflecting the local strategies used by elders to manage food security, including preventing food insecurity and dealing with it in relation to family and community when it occurred. Whereas these themes are distinguished here to demonstrate the range of ideas about food insecurity, illustrative segments often contain evidence of more than one theme, showing that these ideas are highly integrated in the minds of informants to form a conceptual framework within which food security is understood in these communities.

The Nature of Food Security

The most pervasive theme on the nature of food security we label, "You can't always get what you want." This appeared throughout the interviews with surprisingly similar wording from male and female informants of all three ethnic groups. Frequently, statements related to this theme were made in response to the first fixed-response food insecurity item, whether the person had had trouble getting enough to eat. Whereas most informants did not think they had experienced times in the past year when they had trouble getting enough food to eat, many did feel that they had had to make compromises.

> "I've seen a time when I wanted something different, but never when I didn't have a little bit." (EA-f-s)
> "Might not've been what I wanted, but I ain't never been hungry." (AA-f-s)
> "I may not have all I'd love to have, just the right food, but I've got plenty of food." (NA-f-s)
> "We've come up short, but we always tried to make our money enough to have us something to eat. Maybe it wasn't exactly what we wanted, but it was something eatable." (NA-m-s)
> "I have food, not like I'd like to have. But Lordy me, I'll be all right, I have something to eat." (AA-f-i)
> "Might be sort of short now, 'cause the money might run kind of low. But I can always sort of eat. Might not be what I want, but I can stay full." (AA-f-i)

Although there was no question that their food had been sufficient to avoid hunger, there were still some feelings of deprivation.

A second theme related the ability to maintain food security to the value of self-sufficiency instilled in their upbringing. Elders remembered their parents struggling to farm and feed large families and attributed their own ways to this upbringing. They had been raised with a sense of responsibility for their own food supply, as well as the knowledge of how to provide for themselves.

> "Daddy always raised what we ate, and that made me be smart, too. Made me know how to get out and go to work . . . . I never did want to be a beggar." (AA-f-s)
> "We had eight children. We was poor people, but they was fed." (NA-f-s)
> "I was born that way. I was used to being where you had some food in the house." (AA-f-i)
> "We wasn't trained that every time you prepare a meal you had to go to the store. You put some food in the cupboard. Go back to Biblical training . . . prepare yourself . . . make an effort to have some food in your house." (AA-f-i)

This training allows them to make do, to be self-sufficient even now that their economic strategies have changed from subsistence agriculture. They learned that families ate what they had—and they had what they produced.

A third and closely related theme reflects the pride elders displayed when they discussed weathering hard times and still managing to eat. Some of the examples were in the past, but for many, the most recent crisis was Hurricane Fran, which devastated this inland region in September 1996, leaving many without power for weeks.

> "[My parents raised a family during the Depression] and there was always food, even if they had to buy it on credit." (EA-f-s)
> "After Hurricane Fran, I had jars of stuff that we had put up. I went to cooking on that gas cooker out there, and we eat just like we didn't have no storm. My nephew had an outside pump, and we could go over there and tote water." (AA-m-s)
> "My wife, she always keeps canned goods in case of disaster or something. [We've been through] several different [hurricanes]. I think the longest one we had to stay without Duke [electricity] was Hurricane Hazel. We had to move our freezer to [another town in the county] and hook it up there a few days." (NA-m-s)

Despite having the values and knowledge from their upbringing, food security was seen by these older adults as, ultimately, beyond one's own control. Demonstrating this fourth theme, those who considered themselves food secure attributed their situation to good fortune, to good luck, and most often, to God. Those who were food insecure trusted that these same forces would provide a solution to their problem.

> "I say the Lord's been good to us. Put down," [he instructs the interviewer] "that the Lord supplieth all our needs so far." (EA-m-s)
> "We've been fortunate [never to lack money for food]—we've been blessed." (EA-f-s)
> "We've been lucky, we've had enough. The Lord supplies us what we need." (EA-m-s)
> "Sometimes things come up and you think you're gonna be left out [and not have food]. Then one of my children will send $100 . . . and I pick right back up." (NA-f-s)
> "Sometimes I don't have no nothing to get food with, but the Lord'll make a way, somehow or another." (AA-f-i)

Thus, elders in this community take compromises in the composition of their diet as the norm. They interpret this within a historical and experiential framework of rural cycles. They value self-sufficiency but acknowledge that

circumstances can be beyond their control. Their faith—in God or simply in luck—sustains them.

Managing Food Security

These elders' discussions of their nutritional strategies reveal a number of ways in which they manage their food security. One of the most common themes relates to the ways they cope with the periodicity of the food supply.

> "At the end of the month, when you live on a fixed income, there are lean days. And you find you can substitute something else that you have in the house rather than doing without." (EA-f-s)
> "We keep potatoes or something, and if it gets to that point, let's cook potatoes, or we cook up a pot of beans . . . ." (EA-m-s)
> "When my money gives out, I eat what little I have in that freezer there . . . whether I want it or not." (AA-f-s)

In a rural population with a strong agricultural tradition, seasonality of production for food crops as well as for income-producing crops like tobacco and cotton has long affected the diet and food supply of rural families (Chambers, Longhurst, & Pacey, 1981). These annual cycles of scarcity and plenty are paralleled by the monthly income cycles now experienced as elders' incomes come primarily from pensions and social security.

In this rural community, one of the primary means of managing food security is preventing insecurity in the first place, and elders consider storing amounts of food against shortages to be the norm.

> "I try to catch sales—buy enough that I can store it back in case something happens . . . ." (AA-m-s)
> "We don't have a garden any more, but we buy vegetables in big boxes, dry packed, froze, and put it in individual bags." (EA-m-s)
> "I have a freezer and a pantry. Growing up in the Depression, this was instilled in you." (EA-f-s)
> "I store food. I have two freezers around yonder, and do the tops of two refrigerators with a freezing compartment on top." (NA-f-s)

The norm of storing large quantities of food reflects the agricultural traditions. Whereas storing food is the norm, this accentuates the limited amount of food some individuals in this study have. Many now are limited in their ability to garden and preserve food due to functional impairments. Even some of these persons maintain their supply of produce to eat and store, despite disability. For example, several informants had a sharecropper

arrangement. They rented or loaned land they owned to others for a garden in exchange for a share of the produce.

Informal support from family, friends, and community members is evident as a way that food security is maintained. Community members who have experienced food shortage have received support.

> "I ran out of food and didn't know how I was going to get it, but the lady down on second floor, she always tries to help me when I get that way." (AA-f-i)
> "It was a year before I ever got my retirement straightened out. If it hadn't been for my wife knowing people that she knows, I don't know what we would have done for food." (AA-m-i)

Family members also provide the means to prevent food insecurity.

> "No, I haven't had to choose [between buying food and buying medications]. If my money gets low, I can call [my daughter] who lives in [a nearby city], and she'll pay for it. And then I'll, like when I get more, I'll give it back to her. I don't beg, but she'll do it for me." (EA-f-s)

Even for those without severe problems in getting food, the ubiquitous sharing of food that is the norm supplies them with extra food, particularly garden produce. Much of this sharing occurs between church members.

> "When it looks like I need some vegetables and don't have them, some way someone will bring me something." (EA-m-s)
> "A lot times you ain't even thinking about it, and somebody says, 'I got so and so—I'm gonna bring you some over.' Bring you out the field, corn and stuff. You don't even know you gonna get it." (AA-f-s)

The norm of informal support is summed up by a resident of one of the small towns: "It's hard to go hungry in [this town]" (NA-m-s).

There is a widely held belief that one should not rely on credit to obtain food, except in the most dire circumstances.

> "If we find something and we don't have the money, we leave it where it's at. And we don't use no credit cards whatsoever . . . no way, shape, form or fashion. No going into debt and getting a noose tied around your neck . . . ." (NA-m-s)
> "I just got it in me, if I ain't got the money to pay for it, I don't get it." (AA-m-s)

Some individuals who were food insecure did, in fact, report shopping at small country stores to get credit, but it was clearly not their first choice of payment method. Another person had been given a credit card by her children, but she would not use it.

Along with not using credit, being financially responsible for bills was seen as an imperative.

> "When I get my little check, I know what I got to buy. And I keep it and go buy that. Some people take it and spend it for something else and then whenever they needs something to eat or medicine or something, they ain't got it. I go get mine every time. I pay all my bills the day I get them." (AA-m-s)
>
> "I've never had to choose bills or food. I've always paid our bills. And I've been lucky, because not everyone can say that and tell the truth." (EA-m-s)
>
> "[When I have difficulty getting enough food] I economize as much as I can. Don't cook different, just a little less of it. [If I don't have enough money,] I just do without. I always squeeze a little bit to have a little bit along so I can get something at least to eat. The bills must be paid." (AA-f-i)
>
> "When I don't have a little left to buy food, I'll just leave some of the food off and pay my bills. I pays off—keep my bills paid. If I got to pay, I just go ahead and pay them. And some, most of the time, I'll have a little food. Regardless of what it is, I just go ahead and eat what I got. When I get out of food, what I don't have, I just don't worry about. I just eat what I got." (AA-f-i)

Because of the resistance to using credit and emphasis on paying bills, informants reported not budgeting for food. When asked whether they budgeted for food and how much they generally spent, these elders did not know. They could report their income and list their utility payments, their medication costs, and their rent if they paid rent. However, food was clearly bought out of whatever was left over, no matter what that amount might be.

Discussion

The 12% incidence rate obtained with the three food security questions is lower than that reported by the Urban Institute community study of elders (Burt, 1993). Thirteen percent and 11% of their respondents reported having to choose between food and medications or bills, respectively, compared with 7% for both in the present study. The disparity was more extreme for trouble getting enough food (9% for the Urban Institute vs. 3.5%). As in the Urban Institute study, those in the present study responding positively to indicators of food insecurity were more likely to be minority elders, probably reflecting lower lifetime earnings and lower current incomes.

Considering that the poverty rates for elders in these counties are 28% and that food insecurity taps the economic dimension of food, the 12% food insecurity rate appears conservative. The qualitative data suggest that the questions asked, about having trouble getting enough food and having to choose between food and bills or medications, do in fact underestimate food

insecurity. Widely held attitudes are likely to be affecting how elders interpret these questions. In addition, the framework for assessing one's food security is such that elders may not recognize food insecurity.

The theme "you can't always get what you want" was echoed by persons food secure and insecure, and across all three ethnic groups. This suggests that the theme reflects a common base of experience and represents a widely held value of accepting compromises in food consumption. Such compromises may be in quantity or variety of food consumed, but elders do not seem to believe that the adequacy of the diet is affected. These elders might see themselves as falling short of Wolfe et al.'s (1998) first stage of food insecurity (compromised quality) but within Hamilton et al.'s (1997) first stage, concern about food supply and adjustment to food management.

Explanation for the lack of serious concern expressed by most elders for their compromised diet may lie in several areas. One is the widespread understanding of the periodicity of food insecurity expressed by many. The periodicity in this population is both a monthly cycle between social security or pension checks, as well as an annual cycle with plentiful garden produce in summer and competing need for cash in winter to pay heating costs. Such cycles are a common feature of rural agrarian life, and rural populations have developed coping strategies for weathering such hard times (Chambers et al., 1981). This may be the reason for the pride expressed by these elders in their ability to withstand hardships related to food and their proud references to self-sufficiency as their family heritage. A second explanation for lack of concern may be reflected in the frequent reference to trust in God. Religious faith is an integral part of the lives of many rural elders (Chalfant & Heller, 1991; Rowles, 1986), and religious coping is a common strategy for dealing with adversity (Koenig, 1998).

This endurance of hard times and pride in self-sufficiency can negatively affect nutritional well-being. For older adults whose regulation of food intake is less precise than that of younger persons (Roberts et al., 1994), access to less food due to periods of low income may lead to unintentional weight loss, a concern for older adults because of its association with increased mortality (Wallace, Schwartz, LaCroix, Uhlmann, & Pearlman, 1995). Use of senior nutrition programs could even out cycles of food insufficiency. However, older adults who do not think they need food and who take pride in self-sufficiency may not make full use of nutrition services. There is some reluctance among rural elders to use senior nutrition programs because they are perceived to be a form of welfare (Arcury, Quandt, Bell, McDonald, & Vitolins, 1998). In general, rural elders are at a disadvantage in terms of food assistance programs, relative to their urban and suburban counterparts, in the availability of such programs (Krout, 1998). Although senior nutrition

programs, including congregate meals and home-delivered meals, exist in these counties, as in most rural areas they can serve only limited areas due to lack of volunteers and limited transportation services (Arcury et al., 1998; Quandt & Rao, 1999; Ralston & Cohen, 1994). Thus, rural elders must take greater initiative to access these programs than nonrural elders. Other services may not reach as many rural elders as they might urban and suburban elders because a greater proportion of rural elders own their own homes free and clear (Van Nostrand, 1993). Therefore, rural elders sometimes do not qualify for assistance programs. The food stamp program is one example. Most elders in the study counties who qualify for food stamps can get only 10 dollars per month in food stamps and must requalify every few months. For some, this means paying a neighbor several dollars each way for a ride to pick up the food stamps. Almost none of the elders in the present study receive food stamps. Those who do question whether they are worth the hassle.

An additional factor that might affect the answers to the food security question on choosing between food and paying bills is the widespread negative feelings toward debt and credit. Few report that they had to choose between bills and food. In light of comments about debt and credit, it is clear that there is little perceived choice! These elders pay their bills, even if it means cutting back on food purchases. Thus, questions that posit a choice to measure food insecurity in this way will not be able to measure food insecurity accurately. Distrust of credit seemed to be a general theme across this community. However, African American elders were particularly vocal in their rejection of credit as a means of acquiring food, perhaps reflecting experiences of dependence and exploitation.

Although rural elders' values, beliefs, and experiences may undermine the validity of the food insecurity questions used, the themes related to preventing food insecurity suggest that some rural elders benefit from a rural advantage when it comes to factors that promote food security. Elders' discussions of food were full of descriptions of food gifts. Food gifts were given child to parent, neighbor to neighbor, church member to church member, and anonymously, as bags of produce simply appeared on elders' porches. Gifts included produce, baked goods, purchased groceries, and prepared plates of food. In contrast to food obtained on credit, food gifts were considered socially acceptable and symbols of community. There seemed to be no expectation of immediate and specific reciprocity. One man bed-ridden for several years explained this as generalized reciprocity: "I used to help people when I was young, and now people help me." However, although socially acceptable, food gifts may not constitute a dependable source of food on an individual basis because they are not predictable. One disabled widower, for example, stopped receiving food gifts and other assistance from his sister

when she was diagnosed with cancer. In contrast to this study, Quandt and Rao's (1999) survey in rural Kentucky showed that obtaining government food commodities was the most commonly reported means of dealing with food insecurity. Although they appear quite different, commodities share some common elements with food gifts. They appear on an unpredictable schedule in communities, and the amount and composition are beyond the elder's control. Government commodities were distributed very infrequently in the study counties. However, a Native American nonprofit organization occasionally distributes a truckload of potatoes or other food, and a local food processing factory sometimes gives away surplus food. Like food gifts and commodities, these foods appear suddenly, with no warning, and are very well accepted. There is no need to demonstrate poverty to register, and the foods are available regardless of economic status.

Another rural advantage that promotes food security for older rural adults is home production, particularly gardening (Quandt et al., 1994). In these counties, food production results in a variety of fruits and vegetables in summer, and cool weather vegetables, such as greens, well into winter. Food preservation, particularly freezing, is widely practiced with no ethnic difference. This rural advantage of home production is not available to all rural elders, however. Those likely to be excluded are those in poor functional status or widowed (Quandt, McDonald, Arcury, Bell, & Vitolins, 2000), who cannot garden or process garden produce, or those without social networks of others to share their produce.

Conclusions

These findings demonstrate that rural values such as self-sufficiency and pride in "making do" affect how rural elders think about food security. Valued local traditions of food production and food sharing also affect perceptions of elders' food supply, even though they may not always provide a reliable source of food.

We suspect that the elders in this population are more precarious in their food security than the numbers suggest. And they may be more insecure than they know. They trust in God, depend on their children, and they make do. If we are to measure accurately food insecurity among these rural elders, we must pay careful attention to how we ask the questions. And we must interpret responses with reference to knowledge of the community. The use of qualitative methods provides a means to increase awareness of cultural issues that may affect reports of food insecurity. If we are to address adequately the food insecurity of these rural elders, programs must fit their values and

beliefs. Qualitative data can provide insight to help effectively match programs to communities.

Applications

Service providers in rural areas should be aware of how rural values may influence elders' answers to questions about food insecurity. It may be necessary to go beyond global questions that one might assume are proxies for food insecurity to probe specifically how much food is eaten and what food sources are available before assuming an elder is food secure. Reported dependence on family and friends should be assessed for its reliability. Changes in resources such as informal support occur over time, so periodic reassessment is necessary.

Rural values may also make elders reluctant to take advantage of reliable ways of supplementing a household's limited food supply, such as congregate meals. Using these services may be perceived as failure to meet personal expectations of self-sufficiency. Service providers may find that emphasizing the social aspects of meals or payment for services, although minimal, may make them more acceptable. Marketing these services to elders should try to build on community values to increase participation.

Established definitions and discussions of food insecurity list stealing and scavenging as socially unacceptable ways to access food (Anderson, 1990; Burt, 1993). Service providers need to be aware that no food sources are value-free and that the way any particular food source may be regarded as a potential solution to food insecurity is likely to vary from community to community. In this rural population, food that comes through social networks or even agencies as apparently random gifts appears to be acceptable across all demographic strata. With the community's agrarian past, all these elders understand that food production and food preparation can produce surplus. Ways to intentionally generate and distribute surplus, such as community gardens and community canneries, may be ways to increase the food for elders in socially acceptable ways. Whereas community gardening has been introduced in urban areas for nutritional as well as psychosocial benefits, it might provide an effective means of generating surplus in rural areas as well.

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Article accepted February 28, 2000.

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