Southern Online Journal of Nursing Research

www.snrs.org

Issue 5, Vol. 3
November 2002

Food Choice in the Rural Dwelling Older Adult

Sharon Souter, PhD, RN[1]; Colleen S. Keller, PhD, RN, FNP[2]

[1]Director, Department of Nursing, New Mexico State University, Carlsbad, New Mexico;
[2]Professor, University of Texas Health Science Center at San Antonio School of Nursing

ABSTRACT

Much of the U.S. population, while healthier and living longer, will experience health problems with greater frequency as they age. In 1990, national health care expenditures totaled $666 billion with 30% of this associated with inappropriate dietary intake. Appropriate food choice is the first step toward improving dietary intake and is directly related to nutritional well-being. Recent studies have suggested that in order to develop intervention programs designed to address the nutritional needs of older adults, the process of food choice must be more fully understood.

An inductive approach was used to investigate the food choice process of older adults as participants were asked a series of open-ended questions regarding their food choice. Similarities in their responses were grouped into categories. From the data analysis, six categories were identified as having either a positive or a negative effect on food choice. The six categories were ease of preparation, changes in food sources, diminishing

resources, limited choices, health-related diet changes and a diminished desire. By exploring factors affecting food choice in the older adult population, this study more clearly delineated those factors affecting food choice and acquisition and their relationship to the nutritional well-being of community rural-dwelling older adults.

Key words: rural living, older adults, food choice, nutritional well-being

Introduction

Adequate nutritional intake plays a significant role in the maintenance of health and in increased longevity.[1-5] Appropriate food choice is an essential factor in maintaining body functioning and health [6-10] and influences the rate of physiologic and functional decline associated with the aging process.[11] Despite interventions such as congregate meals and Title III-C Nutritional Programs, older adults still experience nutrient and energy inadequacy.[12]

Research findings suggest that physiological and psychological factors, as well as, emotional and socioeconomic issues, affect food choice and consumption and may adversely affect nutritional well-being.[13-15] Living in a rural area may also function as barriers to nutritional well-being for the older adult because of decreased access.[16] In spite of the empirical evidence of factors that contribute to poor nutritional well-being, the characterization of poor nutritional intake is incomplete. Other developmental and ethnocentric factors may provide compelling evidence of factors that lead to the decline of nutritional well-being in older people.

While the background literature substantially contributes to the understanding of nutritional well-being of rural-dwelling older adults,[17-18] the factors that encourage or discourage the inclusion of specific food items, how and in what setting these items are consumed and any barriers to decision making remain unclear. Investigators must have a thorough understanding of the problem before interventions can begin. This understanding is manifested by identification of the multiple factors

that contribute to the problem and lead to its clear definition.[19] While the objective elements of poor nutrition have been identified, further study of the subjective experiences of food choice in the older adult population may clarify food choice and nutritional deficits in older people.[17-18,20] Such research will provide a more complete picture of the factors affecting appropriate food choice and food consumption that might influence nutritional well-being in older people. The purpose of this study was to describe, using their own words, the factors affecting food choice in rural community-dwelling older adults. The specific aim was to identify the Life Course factors that facilitate or hinder food choice among rural community dwelling older adults. Life Course, refers to events that occur throughout one's life.

There is a significant body of research describing the declining nutritional status of the older adult population.[21-26] Physiological and psychological variables that place individuals at risk for alterations in nutritional status and their impact on health care needs have been identified.[20-21] A number of both large and small-scale studies have shown that a large percentage of older Americans have inadequate intakes of energy-rich foods and certain nutrients.[18, 20, 27-28] In community residing older adults, 10 to 51% were found to be malnourished or to have inadequate nutrition.[20] Twenty to sixty percent of hospitalized older adult patients and up to 85% of nursing home patients show significant nutritional deficits.[20] The risk factors associated with undernutrition in older adults include inappropriate food intake, chronic illness, disability, polypharmacy and oral health problems such as gum disease and poorly fitting dentures.[14] Older adults who wear dentures have significantly higher nutrient intake than those with inadequate dental status.[29] Poor olfactory function is associated with decreased interest in food-related activities, lower preference for sour/bitter foods, and higher intake of sweets and of foods that are associated with a higher cardiovascular risk.[24, 26]

Along with the physiological variables associated with poor nutrition in the older adult, psychosocial variables have a direct impact on nutritional status.[18] Eating problems may stem from loneliness, a lack of desire or ability to cook, financial worries or

physical problems.[17] Social isolation is common, resulting in the older adult losing interest in preparing or eating regular meals.[30] Poverty has been found to be a factor contributing to poor nutritional status.[31] Loss of pleasures associated with food, such as the sharing of meals and the traditions involved in preparation of food, influenced the amount and quality of food eaten.[32] These factors lead to sub-clinical malnutrition that may be difficult to separate from the aging process.[21, 33-34] Sociocultural factors have been found to contribute to poor nutritional well-being in rural dwelling older people, and include rural residence, lack of support systems, poverty, medical problems, a lack of knowledge of resources, and personal food habits.[35]

The Life Course perspective provides a theoretical framework for understanding the effect of developmental and ethnocentric factors on changes in dietary intake observed in the older adult. Devine, Connors, Bisogni & Sobal[36] demonstrated that Life Course events shape nutritional choices and affect nutritional concerns in adults. Studies by Quandt and colleagues suggest these Life Course processes are also salient in the process of food choice in the older adult population. These processes reflect the choices of individuals and how these choices, made early in the life course, affect living in later phases of life.[8] The assumption underpinning the Life Course view is that events that occur throughout one's life shape future responses and choices.[37]

Furst and colleagues[38] developed a model of food choice in adults, and included factors in the model salient to the Life Course framework, including influences and the personal system. The model suggests that the Life Course shapes the entire food choice process. In the model, *influences* include ideals, social framework, personal factors, resources and food context. *Ideals* include such concepts as the definition of what constitutes a meal, such as "meals must contain meat and potatoes," or "eat what was placed in front of you," and "homemade is best." Personal factors included physical conditions and health status (dentition, physical limitations) and resources such as income and the ability to preserve food, as in the canning process.

Similar Life Course factors were reported by Quandt, et al.,[8] in a study of 556 rural dwelling older individuals

aged 55 to 96. The results of this study suggested that childhood memories, changes due to work or career, shifts from farming to industrial occupations and women working outside the home affected meal patterns. Dietary changes were linked to alterations in the family or household structure and changes in health, such as digestive problems and chronic disease.[39]

Quandt's[8] work is one of the few inductive studies on food choice in the older adult population. Results of Quandt's works suggest the factors identified in the Furst [38] model could also be important in the process of food choice by older adults. These concepts have not been validated in a population outside of the southeastern sections of the United States. This study built on upon Furst's work with a specific focus on the rural dwelling older adult from the southwestern areas of the U.S. and could add further validation to Quandt's work by increasing representation from a larger and more ethnically diverse segment of the older adult population. The study also elicited additional information about food choice in this population by expanding on the knowledge identified by Furst.

Methods

A narrative approach was used to guide the data collection and analysis in this study. The narrative method guides the investigator in describing the individual's understanding of their lives and their explanation of their lives through stories.[40] Narratives are stories, comprised of actions, happenings, characters and settings. The power of anecdotal narrative leads the reader to reflect and involves the reader personally.[41] The narratives elicited from study participants can provide a description of concepts that provide meaning for food choices, changes in food choice and for the barriers to nutritional well being in older persons.

Sample

Because rural older adults often encounter food choice problems that their metropolitan counterparts do not face, a rural setting was selected. Participants were recruited on a volunteer basis from individuals attending congregate meal settings at local senior citizen centers in the community of Carlsbad, New Mexico. Flyers about the study were posted and individuals willing to participate alerted

the investigator via a sign up sheet. Sixteen individuals, (10 women and 6 men) who were healthy, independent living elders and they, or someone in the home, were responsible for at least two meal preparations per day volunteered for the study. The inclusion of both those who cooked and those who did not allowed participation by husbands and/or wives or individuals from the same household who were not responsible for meal preparation, but wanted to participate in the study. All participants were capable of cooking. Participants were between the ages of 65 and 89 (Mean age = 72; 9 were Mexican-American, and 1 was Asian; the remainder were Caucasian). Each of the participants lived in single dwelling homes in a rural community; five participants lived outside the city limits.

Institutional Review Board approval was obtained, and the benefits and risks to the participants, as well as the time frame involved in completing the interview process, were explained to the participants. Confidentiality, anonymity and procedures for audiotaping were explained.

Data Collection and Analysis

Data collection took place over a 12-month time frame. The primary investigator conducted all of the interviews. Guided by the theoretical framework, each participant was asked to respond to a set of open-ended questions that included the following

- How do you decide what you want to eat?
- How is your eating different today than when you were younger?
- What things have led to this change?
- What things affect your ability to get food?

Each interview was conducted prior to the meal time in a secluded area at the senior citizen's center on a one-on-one basis. The time frame for the interviews was 60 to 90 minutes. With the permission of the participant, all interviews were audio taped and then transcribed verbatim using the grammar and sentence structure of the participants.

The transcriptions were reviewed against the audiotape for accuracy and if questions arose, transcripts were later reread to participants for clarification. Analysis of the data was performed by the primary investigator and included line by line analysis of data bits for

similarities in the data, coding and grouping of data bits in to categories, and contrasting and comparing the identified categories with the previously described life course events. A nutritionist and nurse specializing in gerontological nursing practice also reviewed the transcripts and the identified categories for consistency and as a measure of reliability.

Narrativists refer to the concept of validity as a process that is based on trustworthiness and credibility.[42] Trustworthiness was established by visiting with participants a second time to review and authenticate the interpretation of the findings. Credibility was established by examining techniques and methods to ensure the integrity, validity and accuracy of the findings.[43] Integrity, accuracy, and validity were addressed by review of audiotapes with transcripts to ensure authenticity. The use of bracketing was used by the primary investigator to identify and remove any preconceived thoughts about nutritional issues in this population, while at the same time focusing on the previous food choice data bits from earlier studies.[44] The study was begun with the basic assumption that research findings already exist that: describe the food intake of older adults, evaluate their nutritional status and identify factors impacting that status. However, the voices of the older adults have not been heard, regarding the factors affecting their nutritional well-being.

Results

From the narratives of the study participants, two broad categories and seven subcategories were identified and were viewed as having either a positive or a negative effect on food choice and acquisition. The two broad categories identified were “changing circumstances” and “changing eating patterns.”

Changing circumstances

Changing circumstances reflected the participant’s view of the life course processes that contributed to changes in how food was obtained and prepared from what the participants remembered from childhood or those they had been accustomed to in earlier years. Four subcategories were secondary to this category.

Ease of preparation

Ease of preparation was described as convenience and included ready-to-prepare meals, fast food, microwaveable meals, frozen foods, and sandwiches. Food that was easy to prepare influenced food choice in both a positive and negative manner. In the positive, participants identified ease of preparation as foods that freed them of the responsibility of preparation. Participants spoke of box and bag dinners providing them time to do other things such as volunteer activities or church events. Fast foods were referred to in terms of easy accessibility and inexpensive.

In the negative sense, participants suggested that easy to prepare individual meals and fast-foods meant the loss of family time and enjoying meals together during which new foods were added and the group atmosphere led to longer meal times and better food intake. They spoke of people being in too much of a hurry to enjoy and share with each other as had happened in earlier times when the family sat down and ate together. The participants had fond vivid memories of times shared together in which the day was reviewed and plans made for the future.

While some women identified that the loss of cooking for others was viewed with sadness,[8] participants in this study suggested they were tired of cooking and the constant responsibility of meal preparation. Participants also suggested this ongoing cooking requirement negatively affected their desire to eat. One woman suggested that she had spent time in the kitchen all of her life and now found it an almost unbearable task.

Changes in food sources

Participants identified changes in food sources as having a negative impact on food choice. Many of the participants grew up on a farm, and had large gardens or their own livestock. One woman stated, “When I was little, I could just walk over to the corn field and pull off an ear. The corn was so sweet and crisp. So were the tomatoes and green beans. Sometimes we ate the green beans raw.” Another person remarked:

> *We did our own slaughtering. Our pigs, our turkeys and our chickens, you name it, we had it. We didn’t have lots of money, but we had a good life and we enjoyed our lives.*

We all worked hard, little kids and all. We all had our jobs.

These food sources were significant to them and the quality and quantity of present food sources were evaluated based upon these memories.

The participants suggest that food today is not like it once was. To them, the food purchased in the store did not taste like the food they remembered when it was fresh from the garden. Food bought today is less aesthetically appealing and its source and method of preparation is often questionable. They spoke of those earlier foods as being safe and free of preservatives, and that they "used to eat food raw, right off the vine or plant" Some participants identified the use of congregate meal services as a food source. These participants suggested that "sometimes the food was good, and sometimes it wasn't." Overall, participants suggested that for many individuals congregate meal services or home delivered meals were significant food sources.

The study participants identified diminished mobility as the inability to get where you want to go when you want to go there. Several of the participants were dependent upon others for transportation. One spouse could still drive and one could not. Some were physically unable to shop and had no support systems. Several lived in rural areas where public transportation does not exist. One participant described her older aunt who "can't hardly come to town so she just sits at home." This lack of access directly diminished access to traditional food sources**.**

Diminishing resources

The category of diminishing resources was identified by many of the participants in this study. 'Not enough money to go around' and 'not enough money at the end of the month' were frequent comments. Participants discussed their food choice response to these diminishing resources was to limit their intake, participate in some of the local food programs such as the food kitchen, limit the number of meals eaten per day, or just eat bread and drink juice. Fixed income and decreased allocation of resources also affected their choices:

I have so much for food, so much for the bills, so much for the gas. Well, you know how it is. I have to shop smart. I look for bargains, or the two for one stuff.

Limited choices

Food choice became a matter of repetition for some study participants. In some instances, repetition was because there were only one or two foods available to eat. This repetition could be due to a lack of resources, but several participants spoke of making or receiving a large casserole and eating on it all week. Although eating cereal or the same food item several times a week is not an indicator of poor nutritional intake, the participants in this study suggested it limited their food intake due to becoming tired of the same food item.

Changing eating patterns

"Changing eating patterns" describes the changes in prescribed dietary changes the participants experienced due to chronic illness in themselves or their spouse, and the diminishing desire for a variety of foodstuffs. Life Course processes that relate to this category included alterations in health status that necessitated a change in dietary intake, e.g. diabetes or heart disease. In addition, the physiological changes associated with the aging process, e.g. loss of teeth or changes in gastrointestinal functioning, were related to the Life Course process.

Health related dietary changes

Food choice was often affected by an interruption in health status or by physician recommended dietary modification. These changes usually involved limitation or elimination of certain foods from the usual food choices. Some participants suggested that these changes were "easy" while for others the change was a process requiring "getting used to." Some participants had been instructed to lose weight and change their dietary patterns. One participant discussed a lack of understanding about what instructions she had received and therefore she "just cut my calories, so now I have quit eating ice cream and those fat items." The health of family members also impacts food choice. Among adults, wives often modified their food choice based upon the food needs of their husbands.[45] One participant in this study suggested that since her husband had had a heart attack, they rarely at any fat. The effect of health on food choice was seen in each of the studies of Life Course factors and food choices.[45-47]

Diminishing desire

Diminishing desire was based upon a lack of appetite, specifically a lack of hunger. Most participants could identify changes they had made because of differences in taste. Some of the individuals in this study were unable to identify specific reasons for their lack of hunger. One described being "forced" to eat:

> *My daughters, they made me eat. I would take one or two bites and would be full. Sometimes I just had to choke the food down. They think I still don't eat enough. They are always after me. Most times I don't eat much supper.*

Some participants (42%) suggested they could not think of things that "sounded good" to eat and would often just make a little sandwich of one slice of bread and a little piece of meat. Some participants related that because they were alone, eating lost its importance.

Discussion

The Life Course process suggests that the choices of individuals are reflective of events that have happened in earlier phases of their lives. The process allows for differences in individuals based upon these earlier experiences.[33] The factors that affect food choice in the older adult population are similarly complex. These complexities occur because individuals have different histories and different responses to the aging process. Place of residence also affects these life histories with rural dwellers frequently choosing "home grown" food items and comparing present food sources with past food sources. A recent study by Vitolins and colleagues[47] suggests that some older adults may have diminished ability to maintain a garden and that this contributes to changes in food choice. The participants in this study did not suggest such loss of ability in those terms but did exhibit feelings of loss over not being able to continue gardening as they had been able to do when they were younger. These earlier times were filled with positive memories that were associated with the comfort foods or food choices made throughout the life course.

Categories previously delineated by Falk and colleagues[7] and Devine and colleagues,[46] e.g., changes in health status and resources, were also seen in the categories delineated from the comments of the participants in this

study. In addition, new categories, e.g. diminishing desire to eat, convenience in the terms of ease of preparation, and diminished abilities, were elicited from the data of these participants.

Unlike the findings from Quandt[8] and Furst,[38] some of the participants in this study encountered a diminished desire to eat. Food taste and appearance were two primary sensory perceptions affecting intake. For example, food was described as not tasting the same. Differentiation was made between the taste of the food and changes in the ability of the individual to taste the food. In this study, participants suggested food was not as good today because vegetables have lost their crispness and freshness; it was not like the fresh food they remembered. The participants suggested they were "just not being hungry" or "just having to choke the food down." Several talked about eating one larger meal each day and snacking for other times of hunger. They were able to verbally differentiate the changes they perceived in overall taste from those they perceived as actual lack of hunger.

For these participants, the term "diminishing resources" was defined as money over a given time frame. Although they had experienced times when money had been scarce, it was "different today because there wasn't a garden to rely on." Having money early in the month and little left late in the month led to different food choices. Foods that are more expensive were available early in the month, such as fresh vegetables and meats, while cold cereal served as the meal in the last days of the month. Fast foods, although inexpensive, often lack nutritive value, and were often seen as the answer to lack of resources. Many participants spoke of using fast foods for several meals a day. Related to monetary issues were transportation needs. Lack of transportation was a frequent theme throughout many of the conversations in this study. For some, physical changes such as failing eyesight further complicate the problem. They spoke of the lack of home cooked meals brought about by ready-prepared food. Participant's reflected on enjoying meals together and the "good times they had (in earlier days) when everyone was together at meal time."

A concept salient to food insecurity identified by Wolfe and colleagues [48] is "food anxiety." The ability to get to the source of food provision was a major

portion of food anxiety. Food anxiety was especially prevalent among older individuals dependent upon others for food acquisition. Participants spoke of the lack of availability of a garden or market as they had when they were growing up. These perceptions are also related to changes in finances and perceptions regarding food, possibly resulting in some form of food anxiety. There is less self-reliance when in earlier years participants could grow the food they needed and are now dependent upon purchased food at times when money may not be sufficient to provide the items needed. Diminishing resources were identified as inadequate money or lack of assistance late in the month. This is an area in need of further investigation, especially in the area of intervention and options during this time frame. Diminishing mobility was often viewed as transportation. Rural dwelling older adults experience particular problems with transportation because many rural areas lack public transportation. This lack of transportation also manifests itself in limiting access to food sources. Diminishing mobility was also related to an unwillingness or inability to drive a vehicle. In the rural setting, increased distances make it difficult for family and friends, to provide transportation.

Psychological and physiological factors are known to contribute to a lack of hunger among the older adult.[14-15,18,30] Rolls[49] suggests that a sensory impairment that occurs with aging can result in a consumption of a monotonous diet. In the non-sensory impaired individual, the pleasantness of the taste of food declines, especially in commonly eaten foods, and this encourages consumption of new foods. Rolls further suggests that sensory changes result in older adults eating less and restricting their food choices.

Among this study's participants, sensory impairment and other health related changes were involved in the Life Course process of aging and adversely affected food choice among this study's participants. Food choice was also related to changes in food sources, e.g. the lack of a garden or access to fresh fruits and vegetables, and affected food choice in a negative manner. A lack of hunger and a sense of fullness were manifested in a diminished desire to eat or an unwillingness to eat at all. Several participants related they skipped meals or only ate two meals per day. Easy to prepare foods and the availability of one

large-volume food item led to repetition. In addition, repetition led to boredom with some foods and was associated with diminished desire.

A major area missing from the depth of research into the nutritional needs of the older adult is the responses, thoughts, feelings, and beliefs of older adults. The literature reviewed elicited only a few specific references to how older adults perceive cooking, eating, or the social aspects of food intake, and how these perceptions have changed with aging. Little information is available as to what processes older individuals employ in making food choices or in general decision making. These data confirm that the Life Course Process provides a logical and appropriate theoretical model to examine food choice in older adults. In several participant responses, the resulting categories were found to overlap as in the relationship between ease of preparation and diminishing resources (e.g., fast foods).

The participants in this study provided significant information as a source of subjective data regarding food choice, contributing to a further understanding of food choice in older adults. The information could be used as a portion of the subjective aspects of nutritional assessment in this population in relation to eating patterns, food sources and preparation.

It is important to note that the participants of this study were drawn from a congregate meal setting. The majority of participants were independent in their meal preparation, their activities of daily living, and in their living arrangements. Thus, generalization of the results to the older adult population at large cannot be made.

Through the stories of older adults, the subjective factors affecting food choice in rural, older adults are identified and the picture of the complex problem of risk to nutritional well being in older adults is more complete. Aside from the previously identified psychological, physiological and socioeconomic issues, a lack of interest in eating, changes in food sources and a perceived limit to the choices available also affect food choice in this population. In addition to the traditional methods of the assessment of nutritional status, practitioners need to include issues such as ability to access food sources, decreased interest in certain foods, and a change in the ability

to prepare food as they intervene with older adults who may be experiencing risk to nutritional well-being.

References

1. Perry, D. (1995). Researching the aging well process. *American Behavioral Scientist, 39*(2): 152-171.

2. Bidlack, W. R. (1996). Interrelationships of food nutrition, diet and health: The National Association of State Universities and Land Grant Colleges White Paper. *Journal of the American College of Nutrition, 15*(4): 422-433.

3. Anonymous (1995). Cost-effectiveness of medical nutrition therapy – Position of the American Dietetic Association. *Journal of the American Dietetic Association, 95*: 88-91.

4. Chima, C. S., Barco, K. D. & Maeda, M. (1997). Relationship of nutritional status to length of stay, hospital costs, and discharge status of patients hospitalized in the medicine service. *Journal of the American Dietetic Association, 97*(9): 975-980.

5. Tucker, H. N. & Miguel, S. T. (1996). Cost containment through nutrition intervention. *Nutrition Reviews, 54*(4): 111-116.

6. Matteson, M. A. (1997). Functional assessment in the elderly. *Nurse Practitioner Forum, 8*(3): 91-98.

7. Falk, L. W., Bisogni, C. A. & Sobal, J. (1996). Food choice process of older adults: A qualitative investigation. *Journal of Nutrition Education, 29*(5): 257-265.

8. Quandt, S. A., Vitolins, DeWalt & Roos (1997). Meal patterns of older adults in rural communities: Life course analysis and implications for undernutrition. *The Journal of Applied Gerontology, 18*(2): 152-171.

9. Rainey, C. J., Mayo, R., Haley-Zitlin, V., Kemper, K. A. & Cason, K. L. (2000). Nutritional beliefs, attitudes and practices of elderly, rural southern women. *Journal of Nutrition for the Elderly, 20*(2): 3-27.

10. Khaw, K. T. (1997). Epidemiological aspects of ageing. *Philosophical Transactions of the Royal Society of London – Series B: Biological Sciences, 352*(1363): 1829-1835.

11. Blumberg, J. (1997). Nutritional needs of seniors. *Journal of the American College of Nutrition, 16*(6): 517-23.

12. Prothro, J. W. & Rosenbloom, C. A. (1999). Description of a mixed ethnic, elderly population. I. Demography, nutrient/energy intakes, and income status. *Journals of Gerontology, 54A*(6): M315-M324.

13. Marshall, J. A. Lopez, T. K. Shetterly, W. M.. Morgenstern, N. E., Baer, K., Swenson, C., Baron, A., Baxter, J. & Hamman, R.F. (1999). Indicators of nutritional risk in a rural elderly Hispanic and Non-Hispanic white population: San Luis valley Health and aging study. *Journal of the American Dietetic Association, 99*(3): 315-319.

14. McCormick, P. (1997). Undernutrition in the elderly population living at home in the community: A review of the literature. *Journal of Advanced Nursing, 97*(26): 856-863.

15. Coutts, A. (2001). Nutrition and the life cycle 5: Nutritional needs of older adults. *British Journal of Nursing, 19*(9): 603, 605-607.

16. Quandt, S. A. & Chao, D. (2000). Gender differences in nutritional risk among older rural adults. *Journal of Applied Gerontology, 19*(2): 138-150.

17. Rosenbloom, C. A. & Whittington, F. J. (1993). The effects of bereavement on eating behaviors and nutrient intakes in elderly widowed persons. *Journal of Gerontology, 48*(4): S223-S229.

18. Vailas, L. I., Nitzke, S. A., Becker, M. & Gast, J. (1998). Risk indicators for malnutrition are associated inversely with quality of life for participants in meal programs for older adults. *American Dietetic Association, Journal of the American Dietetic Association, 98*(5): 548-553.

19. Sidani, S. & Braden, C. J. (1998). *Evaluating Nursing Interventions. A Theory-Driven Approach*. Thousand Oaks, CA: Sage.

20. Imai, T, Sakai, S. Mori, K., Ando, F. Niino, N. & Shimokata, H. (2000) Nutritional assessments of 3-day dietary records in National Institute for Longevity Sciences—Longitudinal Study of Aging (NILS-LSA). *Journal of Epidemiology, 10*(1): S70-S76.

21. Vitolins, M. Z., Quandt, S. A., Bell, R. A., Arcury, T. A. & Case, L. D. (2002). Quality of diets consumed by older rural adults. *Journal of Rural Health Care, 18*(1): 49-56.

22. Coulston, A. M. Craig, L. & Coble, A. (1996). Meals-on-wheels applicants are a population at risk for poor nutritional status. *Journal of the American Dietetic Association, 96*(6): 570-573.

23. Dormenval, V., Budtz-Jorgensen, E., Mojon, P., Bruyere, A. & Rapin, C. H. (1998). Associations between malnutrition, poor general health and oral dryness in hospitalized elderly patients. *Age and Aging, 27*(2): 123-128.

24. Duffy, V. B., Backstrand, J. R. & Ferris, A. M. (1995). Olfactory dysfunction and related nutritional risk in free-living, elderly women. *Journal of the American Dietetic Association, 95*(8): 879-895.

25. Elmstahl, S., Persson, M., Andren, M. & Blabolil, V. (1997). Malnutrition in geriatric patients: A neglected problem. *Journal of Advanced Nursing, 97*(28): 845-850.

26. Millen, B. E., Silliman, R. A., Cantey-Kiser, J., Copenhafer, D. L., Ewart, C. V., Ritchie, C. S., Quatromoni, P. A., Kirkland, J. L., Chipkin, S. R., Fearon, N. A., Lund, M. E., Garcia, P. I. & Barry, P P. (2001). Nutritional risk in an urban homebound older population. The nutrition and healthy aging project. *Journal of Nutrition Health and Aging, 6*(4): 269-277.

27. Marshall, T.A., Stumbo, P. J., Warren, J. J. & Xie, X. (2001). Inadequate intakes are common and are associate with low diet variety in rural, community dwelling elderly. *Journal of Nutrition, 131*: 2192-2196.

28. Quinn, C. (1997). The nutritional screening initiative: Meeting the nutritional needs of elders. *Orthopaedic Nursing, 16*(6): 13-23.

29. Appollonio, I., Carabellese, C., Frattola, A. & Trabucchi, M. (1997). Influence of dental status on dietary intake and survival in community-dwelling elderly. *Age and Ageing, 26*(6): 445-456.

30. Newbern, V. B. & Krowchuk, H. V. (1994). Failure to thrive in elderly people: A conceptual analysis. *Journal of Advanced Nursing, 19*(5): 840-489.

31. Herbert, C. (1996). Assessing nutrition in elderly patients. *Nursing Standard, 10*(17): 35-37.

32. Payette, H., Gray-Donald, K., Cyr, K. & Boutier, V. (1995). Predictors of dietary intake in a functionally dependent elderly population in the community. *American Journal of Public Health, 85*(5): 677-783.

33. Sahyoun, N. R., Jacques, P. F., Dallal, G. E. & Russell, R. M. (1997). Nutrition screening initiative checklist may be better awareness/educational tool than a screening one. *Journal of the American Dietetic Association, 97*(7): 760-764.

34. Lee, J. S. & Frongoli, E. A. (2001). Understanding needs is important for assessing the impact of food assistance program participation on nutritional and health status in U. S. elderly persons. *Journal of Nutrition, 131*: 765-773.

35. Klesges, L. M., Pahor, M. Shorr, R. I., Wan, J. Y., Williamson, J. D. & Guralnik, J. M. (2001). Financial difficulty in acquiring food among elderly disabled women: Results from the Women's Health and Aging Study. *American Journal of Public Health, 91*(1): 68-75.

36. Devine, C. M., Connors, M., Bisogni, C. A. & Sobal, J. (1998). Life-course influences on fruit and vegetable trajectories: Qualitative analysis of food choices. *Journal of Nutrition Education, 30*(6): 361-370.

37. Clausen, J. A. (1986). *The Life Course: A Sociologic Perspective*. Upper Saddle River, NJ: Prentice-Hall.

38. Furst, T., Connors, M., Bisogni, C. A., Sobal, J. & Falk, L. W. (1996). Food choice: A conceptual model of the process. *Appetite, 23(3)*: 247-266.

39. Davis, M. A., Murphy, S. P. Neuhaus, J. M., Gee, L. & Quiroga, S. S. Living arrangements affect dietary quality for U. S. adults aged 50 years and older: NHANES III 1988-1984. *Journal of Nutrition, 130*(9): 2256-2264.

40. Hones, D. P. (1998). Known in part: The transformational power of narrative inquiry. *Qualitative Inquiry, 4*(2): 225-248.

41. Denzin, N. K. & Lincoln, Y. S. (1998a). *Collecting and Interpreting Qualitative Materials*. Thousand Oaks, CA: Sage.

42. Bailey, P. H. (1996). Assuring quality in narrative analysis. *Western Journal of Nursing Research, 18*(2): 186-194.

43. Denzin, N. K. & Lincoln, Y. S. (1998b). *Strategies of Qualitative Inquiry*. Thousand Oaks, CA: Sage.

44. Denzin, N. K. & Lincoln, Y. S. (1998a). *Collecting and Interpreting Qualitative Materials*. Thousand Oaks, CA: Sage.

45. Devine, C. M., Wolfe, W. A., Frongillo, E. A. & Bisogni, C. A. (1999). Life Course and experiences: Association with fruit and vegetable consumption in 3 ethnic groups. *Journal of the American Dietetic Association, 99*(3): 309-314.

46. Devine, C. M. & Olson, C. M. (1991). Women's dietary prevention motives: Life stage influences. *Journal of Nutrition Education, 23*(6): 269-274.

47. Vitolins, M. Z., Quandt, S. A., Case, L. D., Bell, R. A., Arcury, T. A. & McDonald, J. (2000). Ethnic and gender variation in the dietary Intake of rural elders. *Journal of Nutrition for the Elderly, 19*(3): 15-29.

48. Wolfe, W. S., Olson, C. M., Kendall, A., Frongillo, E. A. (1998). Hunger and food insecurity in the elderly. *Journal of Aging and Health, 10*(3): 327-350.

49. Rolls, B. J. (1992). Aging and appetite. *Nutrition Reviews, 50*(2): 422-426.

	This is an interactive article. Here's how it works: Have a comment or question about this paper? Want to ask the author a question? Send your email to the Editor who will forward it to the author. The author then may choose to post your comments and her/his comments on the Comments page. If you do not want your comment posted here, please indicate so in your email, otherwise we will assume that you have given permission for it to be posted.

Acknowledgement:

Grateful acknowledgement is given to Dr. Suzanne Yarbrough and Alicia Hernandez for their assistance in the preparation of this work.