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Title of the manuscript: Investigation of the food choice, promoters and barriers to food access issues, and food insecurity among low-income, free living Minnesotan seniors

Key words (up to 5): Seniors, food access, food security, food choice, health

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ABSTRACT

Objective: Investigate food choice, food access, and food insecurity among seniors.

Design: Eight focus groups were conducted in two counties with high and low SNAP participation rates.

Setting and Participants: Sixty-two seniors (≥ 60 y) were recruited and each attended one focus group at a community center. Sample was 79% female and majority was Caucasian (91%), similar to state demographics.

Phenomenon of Interest: How seniors make food choices and access food, and food insecurity perceptions among this population.

Analysis: Focus group themes were identified based on discussion commonalities. For quantitative data, p-value of 0.05 was defined as significant.

Results: Five themes emerged: a) former experiences impact eating behaviors; b) financial and food security drive use of food assistance programs; c) food access strategies- restaurants, retail markets, and alternative sources; d) physical changes associated with aging influence food access and intake; and e) social influences play a role in decision making.

Conclusions and Implications: Both SNAP and congregate dining offer food assistance to seniors, but SNAP usage was considered unacceptable by some seniors living in county 1 because of the negative stigma attached to the program or because they lacked program knowledge about income criteria. More effort needs to be made to educate seniors about SNAP. It is important to gain insight into how food insecurity affects their food choices.

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INTRODUCTION

The current cohort of older adults continues to grow as the baby boom generation reaches retirement.¹ In 2000, 16.3% of the U.S. population was 60 years of age and older; this number is expected to increase to 22.2% by 2020.² With the increasing prevalence of those 60 and older, it is imperative to focus on their nutritional needs and how they access food. Adequate nutrition has been shown to improve health and reduce acceleration of the development of chronic diseases³ and could reduce health care costs among elderly.⁴ Having limited access to food places seniors at greater risk for poor nutrition.⁵ In 2013, nearly 9% of food insecure households were occupied by seniors.⁶ Research has addressed issues related to the food insecurity problem in this population; however, these studies lack qualitative⁷⁻¹⁰ and recent data.⁸⁻¹⁰

Researchers have suggested plausible barriers including: lack of social support, limited neighborhood walkability,⁵ seasonal variation,⁷ and functional impairments.⁹ However, only Lee and Frongillo¹⁰ considered the use of food assistance options in their analyses. Furthermore, Smith and Miller¹¹ noted that reciprocal relationships (individuals sharing excess food with others) could also be an alternative source of food. These alternative food sources may contribute to a decreased need for the Supplemental Nutrition Assistance Program (SNAP), a program that provides money for low-income Americans to buy food, and could contribute to low SNAP participation in some areas. With only 1 in 3 eligible seniors using SNAP nationwide, decreased usage may also be attributed to stigma of the program.^{10,12} This study investigated food security, food access, and food choice among free living, lower income seniors who lived in counties with a high and low SNAP participation rate, using qualitative methodology.

METHODS

Study Population and Design

Counties were selected based on SNAP participation rates (1 with high and 1 with low rates), using the 2013 Rural-Urban Continuum Codes (RUCC). Counties had a RUCC of 1, signifying that both counties were located in a metro area with 1 million or more people.¹³ As of 2012, participation rates in county 1 were lower than in county 2 with 59% and 72% of eligible seniors using SNAP, respectively. Opinions were gathered to understand why SNAP usage rates differed between the 2 urban counties with the same RUCC.

Seniors, ≥ 60 years with ability to shop, were recruited through flyers and sign-up sheets at senior congregate meal sites, senior apartment homes, and community centers. During 2014, 2 researchers conducted 8 focus groups with 4 groups in each of the 2 counties. Discussions lasted about 90 minutes. One researcher facilitated the discussion while the other took notes and taped them with audio recorders.

A list of open-ended questions used during each focus group was developed by the researchers and approved by a review committee. Questions were developed to obtain information on food choices, shopping strategies, food access points, and food security issues using personal, behavioral, and environmental constructs of Bandura's Social Cognitive Theory (SCT).¹⁴ For examples of questions, see Table 1.

Seniors provided information on age, income, education, food security status, and use of food assistance programs. Following standard procedures, each participant was weighed and measured for stature (with outer clothing and shoes removed¹⁵) to calculate body mass index (BMI) as wt/ht^2 (kg/m^2). The University's Institutional Review Board (IRB) approved the study, informed consent was obtained, and seniors were given a small cash incentive.

Focus Group Analysis

All discussions were transcribed verbatim and both researchers independently analyzed them using an open coding method.¹⁶ Transcripts were first read to gain an overall understanding of the focus group and then each line was coded for concepts and ideas generated from the discussion. After independent analysis, researchers compared codes and reconciled minor discrepancies. Themes were then identified from the most prevalent codes found amongst the 8 transcriptions. Relevant quotes highlight the significance of each theme (Table 2).

Using Statistical Package for Statistical Sciences (SPSS) for Windows version 20.0, quantitative data were analyzed. Independent sample t-tests were used to analyze and determine statistical differences between groups for age, BMI and food security scores, with $p < .05$ determining significance. Food security scores were calculated using the U.S. Household Food Security Survey Module: Six-Item Short Form.¹⁷ Raw scores were calculated and classified according to food security status, with 0-1 representing high or marginal food security; 2-4 representing low food security; and 5-6 representing very low food security.¹⁷

RESULTS/DISCUSSION

This study investigated issues of food security, food access, and food choice among free living, Minnesotan seniors who lived in counties with either high or low SNAP participation rates. Of the 64 seniors who signed up, 62 participated. Most participants were female (79%) and 91% were NonHispanic White. No significant differences were found between counties for age, income, or BMI. Mean BMIs was $30.1 \pm 6.2 \text{ kg/m}^2$. About 23% of sample used food stamps, while 62% used a congregate meal site. Food security scores were significantly different between counties (county 1 mean: 0.7 ± 1.6 ; county 2 mean: 1.4 ± 2.1 ; $p = 0.01$); 13.4% of in county 1 had low to very low food security compared to 34.4% of County 2 participants.

Within the context of the SCT framework, it was evident that the environment and behavior constructs impacted seniors' food choice more than personal factors. Influences from past experiences framed the development of food choice, but food cost and access appeared to impact actual dietary patterns of seniors. The combined effects of limited incomes and rising food cost have caused seniors to seek out alternate food sources and assistance programs. The primary difference between focus group discussants in the 2 counties was the frequency of food insecurity. County 2 participants talked more about SNAP and other food assistant programs, while SNAP seemed to have a more negative stigma in county 1; this will be discussed in Theme 2. Otherwise, no distinctive differences were noted between the 2 counties, so qualitative information was grouped together for themes. Seniors had developed strategies to cope with incomes lowered as a result of retirement and increasing cost of living. Common themes identified across focus groups included: a) former experiences impact eating behaviors; b) financial and food security drive use of food assistance programs; c) food access points include restaurants, retail markets, and the alternative food system; d) physical changes associated with aging influence food access and intake; and e) social influences play a role in decision making.

Theme 1: Former Experiences Impact Eating Behaviors

Food choice among seniors was strongly influenced by foods consumed during childhood, family influence, and travel experience. Participants cited dishes they had growing up that they still enjoy today. One stated, "Well growing up on the farm, every Sunday we would have chicken, fried chicken. So I still make it." Family influence was another chief contributor to cooking style and ability. Most participants learned how to cook from their mothers as a child; however, a few participants did not cook and relied on their spouse to do so. Participants also

discussed that travel shaped their eating, not only influencing food choice, but cooking style as well. Many seniors found it difficult to uphold traditions when money was a limiting factor.

Theme 2: Financial And Food Security Drive Use Of Food Assistance Programs

Food insecurity was a concern among seniors in both counties, and in this sample, 24% (n=15) had low or very low food security. This rate is almost double what is found in the general population (14%).¹⁹ Food secure and insecure seniors believed their lack of income was triggered by retirement and increased food expenses. Other researchers found that seniors believed their income was inadequate once they stopped working and began to rely on social security.¹⁹ Wolfe et al.²⁰ found that seniors were unable to afford meat, relying increasingly on carbohydrates for calories. This imbalance of nutrients may contribute to the development of chronic conditions, which, in turn, may lead to an increase in health care expenditures.²¹

When money was constrained, seniors in County 2 used assistance programs (e.g. SNAP, food shelves, soup kitchens) to supplement their food resources, while seniors in County 1 turned to family and implemented thrifty shopping strategies. However, seniors in both county types used congregate dining because it provided great, affordable meals and social events. Congregate dining had no negative stigma attached to its use because most seniors paid something for their meal. Conversely, SNAP usage was controversial in 2 focus group discussions in County 1, with some seniors disapproving of its usage. Participants chose not to use SNAP because they a) could obtain food from family and friends, b) implemented thrifty shopping strategies, c) believed that their income was too high to qualify, and d) they viewed the program as a welfare program. Similarly, Martin et al.²² found that seniors were less likely to use food stamps because they felt uncomfortable using them. In contrast, other seniors, especially those in County 2, believed that the program was very helpful. One senior explained, “It goes by your income. I

make \$830/month and I maintain a car and my apartment- I pay \$230 I think for rent and if it wasn't for the food stamps, I wouldn't make it through the month.”

While some seniors were well-informed, especially in county 2, others lacked knowledge about programs available to them. The lack of familiarity and misunderstanding of eligibility criteria (some were surprised to hear that their incomes were low enough to qualify) may be an important barrier to the use of food assistance programs. Researchers have found that lack of information and limited awareness of eligibility criteria attributed to low program use.^{23,24}

Theme 3: Food Access Points include Restaurants, Retail Markets, and the Alternative Food System

While the safety net portion of the food system (e.g. congregate meal programs, SNAP, food shelves) was an important access point for many seniors, they also accessed food from other sources such as restaurants and the alternative food system. Each of these is a subtheme.

Subtheme 1: Retail markets (stores).

Many seniors, even those who were 89 years old, said they were still cooking and thus, still went shopping. They chose grocery stores based on locations near their home and price. Food price was most important. One man explained his store choice by saying, “Target has quite low prices on their food-[but] not a great selection. And so I find myself shopping there a lot and not going out to eat.” While seniors enjoyed eating out, many opted to eat at home in order to limit spending. When the retail food system was used, coupons were a vital part of seniors’ spending habits. Seniors reported using coupons frequently, but only for things they already planned to purchase. When buy 1, get 1 free offers were used, seniors either kept the free product or gave it to a friend. Keeping a list and buying only needed groceries, reduced waste.

Transportation was a common barrier to food access. Although seniors may have wanted to search out stores with lower prices in order to save money, transportation prevented access to them. Most participants were still able to drive, but chose not to because of associated expenses. Most seniors relied on family, friends or public transportation which was often limited because of scheduling. Food access was also influenced by functional impairments and grocery store environment⁹, which is consistent with the results of this study. Seniors in this study worked around these barriers by calling in a shopping list and have groceries delivered for a small fee.

Subtheme 2: Restaurants.

Participants often spoke of eating out at fast-food and casual dining restaurants. Although most restaurants visited were low or moderately priced, it appeared that seniors with higher incomes chose to eat out more frequently. However, some participants revealed that they focused on price when out at a restaurant even if they had no financial concerns. One participant said, "...maybe I should just forget about what it costs and buy what I want....but it's a habit. Comes from my upbringing- from the hard times." Some chose to eat out because they desired food they would not cook for themselves or to enjoy the convenience of not having to cook that day.

Subtheme 3: Alternative food system.

Three components of the alternative food system frequently used by seniors included gardening/fishing, assistance from friends and family, and reciprocity (e.g. trading/sharing food). Gardening was often incorporated into seniors' daily routines. It provided them with an inexpensive source of fresh produce and an increased activity level. Several community sites had garden plots specifically designated for seniors. Some mentioned that they still can their produce, thus saving money and providing produce throughout the year.

Friends and family also served as a common source of food assistance for seniors. Participants stated that family members often offered transportation, delivered food such as produce and fish, mailed food to them, and extended invitations to join them for meals at home or outings to restaurants. One woman stated, “I have a grandson that does commercial fishing in Alaska and I get salmon, halibut and moose, and caribou.” While some seniors enjoyed fish and other foods that were provided by family members, a few others still did their own fishing.

Reciprocity with peers (friends and neighbors) was also common among seniors. They cooked large meals and shared with neighbors instead of storing for later use. This idea of reciprocity has been seen in other research, demonstrating that it is a common strategy for seniors to save money.^{11,25,26} Smith and Miller¹¹ found that sharing food reduced food insecurity and was important to build a sense of community. Stoller²⁵ reported that older adults were more likely to provide help than receive help, so promoting reciprocity may foster community growth.

Reciprocal relationships also provided social interaction for seniors. Participants appreciated when family took them out to eat because of company and cost savings. Friends and family also sent home leftovers, so seniors had additional meals throughout the week. The presence of social interaction with family and friends can influence food choice and food access.²⁷ The social aspect of sharing food is important for seniors.

Theme 4: Physical Changes Associated With Aging Influence Food Access And Intake

As seniors aged, physical changes and other health issues developed such as altered taste and smell, sleep changes, and chronic conditions. Some seniors had physical limitations that affected their cooking ability, although most still cooked. One participant used a walker and stated, “It’s hard to stand and cook, but I open my cupboard door and put one foot up.” For

some, physical limitations caused a decline in cooking and eating balanced meals, and for others, chronic conditions affected their overall dietary intake.

In addition to health issues, sensory perception changed with age and may have affected the variety of food that seniors consumed. Many reported observing a change in taste (especially for meat) with age, but only a few noticed a change in their ability to perceive smells. Sensory changes may cause fluctuations in appetite. While these changes may often be overlooked, they can place seniors at increased nutritional risk with age.²⁸ Few researchers have focused on the association between food access and physical changes with aging.^{28,29} Future research should investigate seniors' food access and financial security.

Sleep is another factor that may be associated with dietary intake. Seniors reported disturbed sleeping patterns because of needing to use the bathroom, not being tired because of low physical activity levels during the day, and being uncomfortable because of physical pain (back aches, muscle pain/cramps). Disturbed sleep appeared to contribute to overall eating patterns because snacking occurred when they got up. One participant discussed her sleeping pattern as, "maybe 8 hours or so. I get up a lot during the night to go to the bathroom. Sometimes I eat some cold cereal, thinking I can go to sleep better then." Sleep patterns have been tied to the development of chronic diseases such as diabetes, coronary heart disease, and high blood pressure.³⁰ More research is needed to assess to what extent these associations are true.

Declines in cognitive function are commonly associated with aging. Many participants had vivid memories of childhood and other experiences, but small details or clarity of a situation were lost. Taking time to collect coupons, but forgetting to take them to the store was a common problem. Not only is memory loss frustrating, but research has shown it can increase the

likelihood of insomnia, further contributing to the effects of inadequate sleep and chronic disease.²⁷

Theme 5: Social Influences Play A Role In Decision Making

Social influence appeared to impact eating behaviors of seniors by getting them to eat balanced meals at the senior center or out with family rather than rely on quick, easy meals of lower nutritional value (cereal, toast, etc.) alone in their rooms. If family extended an offer to get together, participants said they would accept the offer regardless of the food or restaurant, which suggests how important social interactions are for seniors. Researchers have found that seniors living alone were at higher risk of losing interest in food.²⁷

Seniors used congregate dining for meals as well as activities such as games, lectures, parties, and other social gatherings. Little research has been done to connect food habits and seniors' social interactions. Furthermore, living in enriched environments with opportunities for social interaction can provide seniors with improved health outcomes, justifying that social interaction may be correlated to longevity.³⁰

This study is not without limitations. Females tend to live longer than males, which is likely why the study population was largely female.³¹ Because of study locations, the sample was primarily NonHispanic White (91%), although this is similar to state demographics. More research is needed oversampling minority seniors. They may be at even greater risk of food insecurity than the general population; previous research with low-income younger minority adults found higher rates of food insecurity.³² Thus, these findings are tentative and need confirmation with a more diverse sample. This project was designed to focus on community-dwelling seniors, so data regarding individuals with physical limitations are limited.

CONCLUSIONS AND IMPLICATIONS

Research on food security and food access among seniors is limited. Yet, the baby boom cohort in America continues to grow as individuals are living longer than in the past. This study found the environmental constructs of food access and food security were of utmost importance in seniors' consumption patterns. While County 2 participants reported more food insecurity with 34% of them having low or very low food security, 13.4% of County 1 participants also fell into these categories. These rates are too high; County 2's rates are 2.5 times higher than that found in American households in 2014.²⁴ Both SNAP and congregate dining offer food assistance, but SNAP usage was considered unacceptable by some because of the negative stigma attached to the program or because they lacked program knowledge about income criteria.

More effort needs to be made to educate seniors about SNAP. Education, along with breaking down the age-old barrier of negative stigma connected to this program may allow them to feel comfortable enough to try using the program. Furthermore, future research should include more minority older adults to gain insight into how food insecurity affects their food choices.

Physical changes that occur with age also influenced the way many seniors accessed food. Most seniors had limited incomes and were therefore, using traditional strategies such as coupons to save money. Seniors also relied on the alternative food system, using sources such as gardening, reciprocity, and family assistance. Research should try to identify how much the alternative food system adds to dietary intake of seniors.

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