

# Challenges in Meeting Diabetes Nutrition Recommendations in an Elderly Population

## Summary

This article discusses the findings of a research study that examined the accessibility and availability of food items in the diet plans of low-income, elderly people with type 2 diabetes, living in the City of Edmonton. The findings serve to outline some of the challenges faced by the elderly in following a diabetes diet, particularly those with low income who may experience food insecurity.

## Key Terms

**Food Insecurity** - A person experiences food insecurity when they cannot obtain the food they need (to reduce or eliminate hunger) because of financial constraints (low income).

**Food Availability** - the presence of food items in stores.

**Food Accessibility** - the ease of obtaining food items in stores.

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This article discusses the findings of a study that examined the accessibility and availability of food items in the diet plans of low-income, elderly people with type 2 diabetes, living in the City of Edmonton.

The purpose was to investigate the relationship between food security, accessibility to appropriate food and diet adequacy, as defined by the Canadian Diabetes Association (CDA) nutrition therapy guidelines.



## Food Insecurity Related to Diabetes Management

Availability of foods is defined as the presence of food items in stores, while accessibility is the ease of obtaining these items (Farley et al, 2009). Limited availability or accessibility to foods specified for a diabetes diet may be barriers to adherence to nutrition recommendations.

These barriers may be higher for low-income elderly people. For example, a low-income elderly person may be reliant on public transportation to get to food stores, or may not be able to afford certain foods. Plus, in some cases, they may not have access to larger supermarkets with a good variety of foods.

In Edmonton, so-called food deserts (areas lacking grocery stores) have been identified (Smoyer-Tomic, Spence, & Amrhein, 2006). Diet quality is negatively affected by the distance to the nearest grocery store (Morland, Wing, Diez Roux, & Poole, 2002). Moreover, perceived cost is a predictor of diet compliance (Monsivais, Mclain, & Drewnowski, 2010).

In Alberta, 10.7% of households reported moderate to severe food insecurity in 2004 (Health Canada, 2007). Food insecurity is associated with higher prevalence of chronic disease, including diabetes.

Being food insecure creates a conflict between basic survival and effective diabetes management. Effective diabetes management requires enough income to maintain a high quality diet, purchase blood glucose testing supplies and pay for other items needed to meet health objectives.

## Research Methods for this Study

Participants were recruited from retirement homes where residents are eligible for rent subsidies based on their income. Each participant completed a questionnaire regarding their perceptions of food accessibility and availability. Participants also completed an assessment of all food and drink consumed in the past 24 hours, a socio-demographic questionnaire and a food security questionnaire (Health Canada, 2007).

Diet quality was computed using the Healthy Eating Index-Canada system, modified to account for the CDA recommendations and the recommendations for senior citizens included in *Eating Well with Canada's Food Guide*.

## Results

### Participant characteristics

All participants were type 2 diabetes patients with an average age of 71 years and average duration of diabetes of 17 years. The majority (65%) had a household income of less than \$21,000 annually.

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### Food Accessibility and Availability

Half of the participants owned and drove a vehicle, while the average distance to a grocery store was less than 4 kilometres, suggesting that physical accessibility to appropriate food was not an issue for most. However, more than half reported spending more money on fruits and vegetables than before their diagnosis. The majority of people reported they could obtain the foods needed for their diabetes diet at a local grocery store.

Knowledge is also a component of accessibility. When asked what resources they consulted to determine what they should eat, only 50% said they received advice from a dietitian. Perhaps as a consequence, only 65% reported being advised to follow *Eating Well with Canada's Food Guide*.

Participants' knowledge of other dietary or nutritional recommendations was even lower; about half reported that they had received advice to avoid high fat foods, while 40% had been advised to eat high fibre foods and only 12% were told to eat low glycemic index foods.

### Diet Quality and Food Security

Diet quality was scored out of a maximum of 100, with the average for this group being 66. All participants were rated as "Needs Improvement" or "Poor".

The number of servings of fruits and vegetables, grains, and milk products were all low compared with the recommendations in *Eating Well with Canada's Food Guide* (see Figure 1).


The diet quality score was not related to food accessibility variables, such as mode of transportation or distance from the grocery store. The majority of participants (70%) rated themselves as food secure but the remaining 30% were severely food insecure.

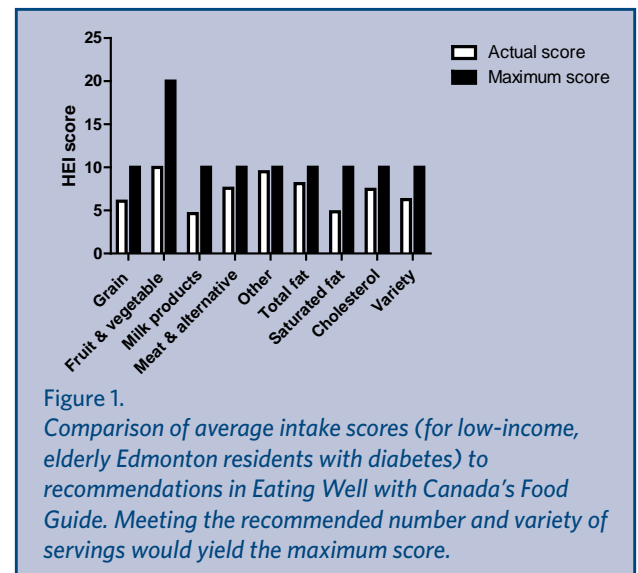
Curiously, the food insecure group reported higher intake of grains and meat and alternatives than the food secure group, but intakes of other food groups were not affected.

### Conclusions

In this study, we found that the low-income, elderly persons with diabetes had generally poor diet quality, despite reasonable accessibility and availability of food.

However, diet quality was not associated with food security status. This may have been because we purposely selected participants with low income. Alternatively, people who experience food insecurity may plan food purchases more carefully.

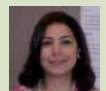
Lack of access to knowledge of diabetes nutrition recommendations, such as those regarding low glycemic index foods, may decrease dietary adherence. Furthermore, many participants had not received dietary advice from a dietitian. These findings point to the need for recurring diabetes education and greater access to dietitians. 



### About the Authors

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### About the Organization

The authors of this article are associated with the PANDA Research Project. For more information about the project, visit [www.ales.ualberta.ca/afns/Research/PANDAResearchProject.aspx](http://www.ales.ualberta.ca/afns/Research/PANDAResearchProject.aspx).

