

FSGN 2100 Healthy Aging

Assignment #2:

Nutritional Risk in Older Adults – An Ecological Perspective

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Date: April 2, 2013

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Nutritional Risk in Older Adults – An Ecological Perspective

Aging is associated with changes in nutritional needs for energy, protein and other nutrients. As a result of declines in lean body mass and reduced physical activity levels, caloric requirements decrease in old age (Payette & Shatenstein, 2005). There is also a concomitant increase in certain micronutrient requirements in older adults due to physiological changes such as reduced nutrient absorption (Paulionis, 2008). However, a significant proportion of older adults aged 65 and over are unable to follow the dietary guidelines, placing them at nutritional risk that can contribute to frailty, functional limitations, muscle atrophy, metabolic abnormalities, and impaired immunity - conditions that can drastically affect morbidity and mortality rates (Paulionis, 2008; Payette & Shatenstein, 2005).

Due to a multitude of biological changes that influence the health status and functional abilities in older adults, food intake and appetite usually decreases with age. This in turn leads to a reduction in essential nutrient intakes to below recommended levels, making older adults vulnerable to malnutrition (Payette & Shatenstein, 2005). Dietary intakes and nutritional status can also be influenced by social determinants of health such as income, education, culture, gender, geography, the physical, social, and economic environment (Raine, 2005). Using the ecological model, the factors contributing to nutritional risk will be examined at the individual, relational, community and society levels, in order to demonstrate the complexity of the interactions between older individuals and the environments that impact their health and nutritional status. By examining nutritional risk from an ecological perspective, strategies and solutions can be aimed not just at individuals, but also targeted towards community, society and governmental policies.

Individual

In old age, the body's regulation of satiety and thirst are disrupted which impair food and fluid intake and place older adults at risk of nutrition-related diseases and dehydration (Paulionis, 2008). Food intake is also affected by a wide range of acquired factors related to old age, including sensory

loss, difficulty with swallowing and dentition, psychiatric conditions such as depression and dementia, polypharmacy and deteriorating manual dexterity due to conditions such as arthritis (Paulionis, 2008). Reduced food intake has commonly been linked to deficiencies in micronutrients such as calcium, zinc, iron, and B vitamins, as well as insufficient protein intake (Bernstein & Munoz, 2012). Dehydration is also a form of malnutrition and tends to occur most frequently in those over the age of 85 or in institutionalized older adults (Bernstein & Munoz, 2012). Factors such as pain from making trips to the toilet, fear of incontinence, or difficulty swallowing fluids can deter older adults from consuming liquids. However, the consequences of dehydration can be serious and range from constipation and fecal impaction to cognitive impairment and death (Bernstein & Munoz, 2012).

Disability is another significant contributor to reduced nutritional status as it can limit an individual's ability to perform activities of daily living (ADLs), including shopping and cooking. In a recent study, 42% of those over the age of 65 reported functional limitations, with greater proportions being women and individuals living in poverty (Bernstein & Munoz, 2012).

In addition to medical and health issues, food preferences may also affect nutritional status, such as preferences for high fat foods, traditional foods in some cultures or ethnic groups, and food aversions (Raine, 2005). Older adults may find restrictive diets with little variety unacceptable, which can contribute to malnutrition (Bernstein & Munoz, 2012). Food intake and nutritional status are also associated with awareness and knowledge of health and nutrition in older adults (McIntosh, Kubena, Walker, Smith, & Landmann, 1990; Shatenstein, Nadon, & Ferland, 2004). However, some findings suggest that in older adults, grocery purchases are more related to chewing abilities and socioeconomic status than dietary knowledge (Brennan & Singh, 2011).

Relational

As Raine explains, there is “a strong social dimension to food and eating” (Raine, 2005). It is therefore not surprising that loneliness is a factor that can lead to nutritional deficiencies (Payette &

Shatenstein, 2005). For instance, a pilot study found that elderly persons experienced improved nutritional status and depressive symptoms when the Meals-on-Wheels delivery volunteer provided company during their meals (Suda, Marske, Flaherty, Zdrodowski, & Morley, 2001). A more recent study examining the fruit and vegetable intake of Canadian elderly found a significant positive correlation between marital status and servings of fruit and vegetables. Widowhood, especially in men, is linked to poorer nutritional status (Hughes, Bennett, & Hetherington, 2004; Shahar, Schultz, Shahar, & Wing, 2001), likely due to reduced appetite and enjoyment of food, insufficient cooking skills, and low motivation for improving eating habits. With approximately 29% of non-institutionalized older adults living alone according to a US study, the above findings indicate that living arrangements can be considered a determinant of nutritional status (Bernstein & Munoz, 2012).

Caregivers and family members play a critical role in the nutritional status of the care recipient as they may be engaged in shopping, meal preparation, and feeding of an elder, or administering enteral nutrition (Bernstein & Munoz, 2012). Studies show that older adults, particularly those in nursing homes, require nutritional support and encouragement by carers (Nieuwenhuizen, Weenen, Rigby, & Hetherington, 2010). Caregivers may require specialized training for specific diseases, in order to gain the skills required to modify the diet or make decisions about nutritional supplements (Bernstein & Munoz, 2012). A recent study also found that intake of three or more medications (polypharmacy) could adversely affect vitamin status in older adults (Fabian, Bogner, Kicking, Wagner, & Elmadfa, 2011). This finding further exemplifies the importance of knowledgeable caregivers or family members who can monitor medication use and promote regular nutritional screening.

Community

Education through community programs is an integral component of dietary habits and nutritional status. A recent study of frail elderly persons identified lack of nutrition knowledge as the greatest barrier to the implementation of proper nutritional care (Leslie, 2011). Effective nutrition

education can provide older adults with the knowledge needed to link consumption of a food to its health benefits, and enable them to apply their skills in choosing a healthy product (Paulionis, 2008). Such health promotion initiatives aiming at primary prevention of disease receive limited funding, thus, nutrition education events only reach individuals within a specific geographical radius (Paulionis, 2008). Education should also be aimed at those caring for older adults as the success of a nutritional intervention is dependent on the competency and training of care staff (Leslie, 2011). For instance, registered dietitians can work alongside community services to raise awareness about the importance of nutrition for the caregiver and care recipient and help direct older adults to appropriate resources.

The availability of supermarkets offering healthy foods at affordable prices and their accessibility to older adults living in seniors' homes or at home is an important factor in food choices and nutritional status. Often large grocery stores are located near major transportation routes and require access to a vehicle (Raine, 2005). Older adults, particularly women, report difficulties with public transportation (Dupuis, Weiss, & Wolfson, 2007), a challenge which may be further compounded by neighbourhood walkability concerns and lack of insightful urban planning, thereby deterring older adults from leaving home (Grant, Edwards, Sveistrup, Andrew, & Egan, 2010). Given that the majority of older adults living alone are women, and more women than men experience functional disabilities (Bernstein & Munoz, 2012), there is a need for dietitians and social support workers to implement programs to ensure that those who prefer to continue living independently can do so and maintain optimal nutritional health. The age-friendly community initiative will also allow for promotion of healthy and active lifestyles (Public Health Agency of Canada, 2012), which will directly and indirectly benefit nutritional status among older adults.

Implementation of community services such as *Bringing Nutrition Screening to Seniors*, have demonstrated the benefits of preventative measures for screening of nutritional risk (Dietitians of Canada & Keller, 2003). Seniors with nutritional problems can be referred to services such as assisted

shopping, community dining, Meals-on-Wheels, or nutrition counselling with a dietician in order to prevent further health declines and address nutritional needs (Dieticians of Canada & Keller, 2003).

Community initiatives that provide access to nutritious and affordable foods by involving farmers, city council, and large food corporations such as the Toronto Food Policy Council (Raine, 2005), may be a strategy for addressing the economic aspects of nutritional status in older adults. While institutionalization of food banks in Canada provides regular food access for low income individuals and helps alleviate food insecurity, the nutritional intake of some food bank users was not well-balanced according to Canada's Food Guide (Jacobs Starkey & Kuhnlein, 2000). A community intervention that showed some promise of improving the nutritional status of low-income seniors in the United States is the Veggie Mobile, a van serving low-income neighbourhoods selling fruits and vegetables at lower prices than grocery stores (Abusabha, Namjoshi, & Klein, 2011). However, given the low level of awareness and access to community social services among low-income older adults, it would be imperative to target their social networks and health care providers to ensure that such services reach those in need (Tindale et al., 2011).

Society

While lifestyle factors and the physical environment discussed above are an important determinant of nutritional status, eating habits are socially constructed and thus are closely tied in with the social and economic environment (Raine, 2005). A number of socio-economic factors including environmental determinants and public policies impact the nutritional status of older adults. A recent survey of Canadian elderly (aged 65 and older) found a significant association between patterns of fruit and vegetable (F&V) intake and socio-demographic factors such as gender, household income, and province of residency (Riediger & Moghadasian, 2008). The results showed that women were more likely than men to consume adequate amounts of F&V; that income and highest education level were positively associated with F&V intake; and that there were provincial differences in F&V consumption

(Riediger & Moghadasian, 2008). Given that the fruit and vegetable food group is critical for the prevention of age-related chronic diseases such as type 2 diabetes, cancer, and cardiovascular disease, these findings warrant implementation of strategies to target the growing elderly population.

In Canada, “the most important barrier to healthy eating is inadequate income” (Power, 2005), which affects seniors among others. Income appears to have a significant role in access to food and the affordability of healthy foods, but also as a determinant of where older adults live and what foods are readily available in a given neighbourhood. For example, food service operations such as fast food restaurants offering less healthy food options are ubiquitous in disadvantaged neighbourhoods (Riediger & Moghadasian, 2008). Culture and consumption of traditional foods are also linked to dietary intake and health, as has been demonstrated among Chinese Canadians, Nova Scotian Africans, and the Inuit in Nunavut (Beagan & Chapman, 2012; Hopping et al., 2010; Kwok, Mann, Wong, & Blum, 2009). Additionally, geographical isolation among elderly living at home increases nutritional risk (Payette & Shatenstein, 2005), likely due to social isolation and reduced social functioning, with people of African and Hispanic descent faring worse than Caucasians according to a recent study (Baernholdt, Yan, Hinton, Rose, & Mattos, 2012).

Healthy public policies are critical for guiding food choices and eating habits. Food fortification policies have recently drawn attention as a viable strategy for enhancing the nutritional status of older adults (Leslie, 2011; Paulionis, 2008). For instance, milk, soy beverage, and orange juice can all be important sources of calcium and vitamin D, offering a greater variety of food sources where micronutrients can be obtained, however the successful implementation of fortified foods and supplements require education (Paulionis, 2008). New food developments targeting the nutritional needs of older adults must aim to make familiar foods more palatable and accessible (Paulionis, 2008). Governments have a challenging task at hand due to the competitive and profit-driven food economy. The complexity arises due to the diverse food interests of stakeholders including farmers,

manufacturers, retailers, consumers, health professionals, educators, and scientists (Paulionis, 2008). Canada's Food Guide to Healthy Eating and guidelines and regulations on food labelling or making health claims on food packages are examples of nutrition policies aimed at promoting the health of Canadians. Canada's social safety net that allows for redistribution of wealth and taxation policies that subsidize the cost of nutrient-dense foods can both influence food pricing structures and encourage the purchase of such healthy foods, particularly by lower income segments of society such as the elderly (Raine, 2005).

Finally, an indirect influence on the nutritional status of older adults is their vulnerability to food-borne illnesses which can worsen pre-existing health conditions and increase the risk of dehydration and nutrient deficiencies (Strohbehn, Gilmore, & Sneed, 2004). Thus, the government's role in setting strict food standard policies in nursing homes and food service establishments is critical to the nutritional status of older adults (Public Health Agency of Canada, 2013).

Conclusions

It is important to recognize that malnutrition and poor nutritional status among older adults is linked to increased morbidity and mortality. Older adults are particularly vulnerable to malnutrition due to deteriorating health and functional status that affect the sensory system, mobility, memory, digestive functions, as well as the ability to live and function independently. It is clear that food and dietary choices are influenced by individual and collective factors at the relational, community and society level. Hence, strategies aimed at improving the health and nutrition of older adults require an understanding of the ecological levels and how they intersect and interact with each other. Increased investment in research, nutrition and health education and screening, combined with social services and policies, are necessary to promote healthy eating among older adults. Implementation of such action strategies will be critical for reducing the burden of illness in this growing segment of the Canadian population and improve the quality of life among older adults.

References

- Abusabha, R., Namjoshi, D., & Klein, A. (2011). Increasing access and affordability of produce improves perceived consumption of vegetables in low-income seniors. *J Am Diet Assoc*, *111*(10), 1549-1555. doi: 10.1016/j.jada.2011.07.003
- Baernholdt, M., Yan, G., Hinton, I., Rose, K., & Mattos, M. (2012). Quality of life in rural and urban adults 65 years and older: findings from the national health and nutrition examination survey. *J Rural Health*, *28*(4), 339-347. doi: 10.1111/j.1748-0361.2011.00403.x
- Beagan, B. L., & Chapman, G. E. (2012). Meanings of food, eating and health among African Nova Scotians: 'certain things aren't meant for Black folk'. *Ethn Health*, *17*(5), 513-529. doi: 10.1080/13557858.2012.661844
- Bernstein, M., & Munoz, N. (2012). Position of the Academy of Nutrition and Dietetics: food and nutrition for older adults: promoting health and wellness. *J Acad Nutr Diet*, *112*(8), 1255-1277. doi: 10.1016/j.jand.2012.06.015
- Brennan, D. S., & Singh, K. A. (2011). Grocery purchasing among older adults by chewing ability, dietary knowledge and socio-economic status. *Public Health Nutr*, *14*(7), 1279-1284. doi: 10.1017/S1368980010002508
- Dieticians of Canada, & Keller, H.H. (2003). *Bringing nutrition screening to seniors: Community implementation guide*. Guelph, ON. Retrieved from http://www.drheatherkeller.com/wp-content/uploads/2011/09/BNSS_Final_IG_en.pdf
- Dupuis, J., Weiss, D. R., & Wolfson, C. (2007). Gender and transportation access among community-dwelling seniors. *Can J Aging*, *26*(2), 149-158.
- Fabian, E., Bogner, M., Kicking, A., Wagner, K. H., & Elmadfa, I. (2011). Intake of medication and vitamin status in the elderly. *Ann Nutr Metab*, *58*(2), 118-125. doi: 10.1159/000327351
- Grant, T. L., Edwards, N., Sveistrup, H., Andrew, C., & Egan, M. (2010). Neighborhood walkability: older people's perspectives from four neighborhoods in Ottawa, Canada. *J Aging Phys Act*, *18*(3), 293-312.
- Hopping, B. N., Mead, E., Erber, E., Sheehy, C., Roache, C., & Sharma, S. (2010). Dietary adequacy of Inuit in the Canadian Arctic. *J Hum Nutr Diet*, *23 Suppl 1*, 27-34. doi: 10.1111/j.1365-277X.2010.01099.x
- Hughes, G., Bennett, K. M., & Hetherington, M. M. (2004). Old and alone: barriers to healthy eating in older men living on their own. *Appetite*, *43*(3), 269-276. doi: 10.1016/j.appet.2004.06.002
- Jacobs Starkey, L., & Kuhnlein, H. V. (2000). Montreal Food Bank Users' Intakes Compared With Recommendations of Canada's Food Guide to Healthy Eating. *Can J Diet Pract Res*, *61*(2), 73-75.

- Kwok, S., Mann, L., Wong, K., & Blum, I. (2009). Dietary habits and health beliefs of Chinese Canadians. *Can J Diet Pract Res*, 70(2), 73-80.
- Leslie, W. S. (2011). Improving the dietary intake of frail older people. *Proc Nutr Soc*, 70(2), 263-267. doi: 10.1017/S0029665111000036
- McIntosh, W. A., Kubena, K. S., Walker, J., Smith, D., & Landmann, W. A. (1990). The relationship between beliefs about nutrition and dietary practices of the elderly. *J Am Diet Assoc*, 90(5), 671-676.
- Nieuwenhuizen, W. F., Weenen, H., Rigby, P., & Hetherington, M. M. (2010, Apr). Older adults and patients in need of nutritional support: review of current treatment options and factors influencing nutritional intake. *Clin Nutr*, 29, 160-169. doi: 10.1016/j.clnu.2009.09.003
- Paulionis, L. (2008). The changing face of food and nutrition in Canada and the United States: opportunities and challenges for older adults. *J Nutr Elder*, 27(3-4), 277-295. doi:10.1080/01639360802261979
- Payette, H., & Shatenstein, B. (2005). Determinants of healthy eating in community-dwelling elderly people. *Can J Public Health*, 96 Suppl 3, S27-31, S30-25.
- Power, E. M. (2005). Determinants of healthy eating among low-income Canadians. *Can J Public Health*, 96 Suppl 3, S37-42, S42-38.
- Public Health Agency of Canada. (2012). *Age-friendly communities in Canada: Community implementation guide and toolbox*. Ottawa, ON. Retrieved from <http://www.phac-aspc.gc.ca/seniors-aines/publications/public/afc-caa/guide/index-eng.php>
- Public Health Agency of Canada. (2013). *Food safety*. Ottawa, ON. Retrieved from <http://www.phac-aspc.gc.ca/fs-sa/index-eng.php>
- Raine, K. D. (2005). Determinants of healthy eating in Canada: an overview and synthesis. *Can J Public Health*, 96 Suppl 3, S8-14, S18-15.
- Riediger, N. D., & Moghadasian, M. H. (2008). Patterns of fruit and vegetable consumption and the influence of sex, age and socio-demographic factors among Canadian elderly. *J Am Coll Nutr*, 27(2), 306-313.
- Shahar, D. R., Schultz, R., Shahar, A., & Wing, R. R. (2001). The effect of widowhood on weight change, dietary intake, and eating behavior in the elderly population. *J Aging Health*, 13(2), 189-199.
- Shatenstein, B., Nadon, S., & Ferland, G. (2004). Determinants of diet quality among Quebecers aged 55-74. *J Nutr Health Aging*, 8(2), 83-91.

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Strohbehn, C. H., Gilmore, S. A., & Sneed, J. (2004). Food safety practices and HACCP implementation: perceptions of registered dietitians and dietary managers. *J Am Diet Assoc*, *104*(11), 1692-1699. doi: 10.1016/j.jada.2004.08.029

Suda, Y., Marske, C. E., Flaherty, J. H., Zdrodowski, K., & Morley, J. E. (2001). Examining the effect of intervention to nutritional problems of the elderly living in an inner city area: a pilot project. *J Nutr Health Aging*, *5*(2), 118-123.

Tindale, J., Denton, M., Ploeg, J., Lillie, J., Hutchison, B., Brazil, K., et al. (2011). Social determinants of older adults' awareness of community support services in Hamilton, Ontario. *Health Soc Care Community*, *19*(6), 661-672. doi: 10.1111/j.1365-2524.2011.01013.x