

The Dog Ate My Homework

An Examination of Food and Nutrition Literacy in Newfoundland and Labrador with Policy Recommendations

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Abstract. To achieve individual and population health goals in Newfoundland and Labrador, people must have the capacity to take an active role in their nutritional health and wellbeing and to advocate for social, cultural, environmental, economic and political changes that promote nutritional health and wellbeing in their own lives and for others. This capacity is dependent on food and nutrition literacy. This article defines food and nutrition literacy and examines the need for education initiatives to better promote these literacies in Newfoundland and Labrador. It argues that current initiatives do not address all attributes of these literacies and are therefore unable to effectively achieve health promotion outcomes. It is recommended that cross-curricular food and nutrition education, developed by registered dietitians, be introduced into primary and secondary school curricula to correct for this gap in health promotion.

Introduction

Food and nutrition literacy are key determinants of nutritional health and wellbeing, and their promotion is necessary to achieve population health outcomes. Despite their importance, food and nutrition literacy have only recently been defined. These definitions have exposed a weakness in current food and nutrition education initiatives. While most education initiatives aim to improve food and nutrition literacy focus on functional literacy, they neglect interactive and critical literacy. These latter attributes are necessary for individuals and groups to take an active role in their personal nutritional health and wellbeing and to advocate for social, cultural, environmental, economic and political change that promotes nutritional health and wellbeing in their own, and others', lives. This paper examines these new definitions and the need for improved education initiatives to promote all attributes of food and nutrition literacy. It is recommended to integrate food and nutrition education throughout primary and secondary curricula, and that this integration is led by experts in food and nutrition to promote nutritional health and wellbeing through education in Newfoundland and Labrador.

Definitions

Food literacy is “the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan in order to navigate, engage, and participate within a complex food system” (Cullen et al., 2015: 143). It combines knowledge concerning the effect of food on personal health and wellbeing, the food system from production to access to waste, and the broad context of the food system including social, cultural, environmental, economic and political factors. This conceptual knowledge is combined with procedural knowledge (skills) required to make decisions and take actions that support the achievement of personal health and a sustainable food system while considering these

factors. Being food literate thus allows individuals to not only access, select and prepare foods that promote their health and wellbeing, but to also become active participants in the food system.

In addition to the conceptual and procedural knowledge regarding food, food literacy includes the opportunities and motivation to apply or use this knowledge (Block et al., 2011). Food literacy, therefore, is influenced by cognitive, socioeconomic and environmental factors which can either promote or deter the ability – and desire – to act. This suggests that there are two sides to food literacy: the knowledge and skills of the individual; and the ability for social, cultural, environmental, economic and political factors to facilitate the individual's decisions and actions based on knowledge and skills. Suppose an individual was diagnosed with Type 2 diabetes and set a goal to improve meal balance by eating more whole vegetables and fruits. Food access, for example, could either deter or promote the achievement of this goal. If whole vegetables and fruits were not affordable or the quality was unacceptable, this could discourage the individual from acting on their motivation despite their knowledge of the importance of meal balance and of how to purchase and prepare these foods. In this case, food literacy is reduced. On the other hand, a program to improve access to whole vegetables and fruits could improve food literacy by increasing access to, and opportunity for choosing these foods.

Like food literacy, nutrition literacy is also dually influenced by individual and contextual factors. Nutrition literacy is defined as “the ability to access, understand, evaluate and communicate [nutrition-related] information as a way to promote, maintain and improve health in a variety of settings across the life-course” (Rootman and Gordon-El-Bihbey, 2008). It comprises three levels of knowledge and skills: functional, interactive, and critical (Nutbeam, 2000). Functional nutrition literacy is basic nutrition knowledge and skills, such as how to read a nutrition facts table on a food product. Interactive nutrition literacy is the personal skills necessary for independent decision-making, goal-setting, and applying functional nutrition literacy in life contexts. Critical nutrition literacy is understanding the social determinants of nutritional health and advocating for change in these determinants.

There is little difference between food literacy and nutrition literacy. Both involve conceptual and procedural knowledge regarding food and skills required to apply this knowledge in life contexts. Additionally, both literacies include a broader understanding of – and the skills needed to advocate for change in – food systems and the determinants of nutritional health. While food literacy relates to food and food systems, nutrition literacy relates to the impact of food on health more specifically. However, nutrition literacy relies on food literacy to facilitate positive nutrition outcomes. Thus, these are not separate concepts but rather attributes of each other.

The Key Attributes of Food Literacy released in 2017 by Public Health Ontario's Locally Driven Collaborative Project (LDCP) for Measuring Food Literacy in Public Health (Table 1) (LDCP Healthy Eating Team, 2017) reflects the interconnectedness of food and nutrition literacy. Note that the attributes comprise the conceptual and procedural knowledge specific to both food and nutrition literacy, and the interactive and critical attributes that are common to both literacies.

Food Literacy Attribute	Description
Food knowledge	To know the variety of foods within all food groups. To know where food comes from and what is in it. To make an informed decision on food choices including what is available locally.
Nutrition knowledge	To understand the nutrients in food and how these can affect health and wellbeing.
Food and nutrition language	To understand commonly used words to describe characteristics of nutrition in food and preparation of food.
Food skills	To be able to prepare meals throughout the life span using basic skills like chopping, measuring, reading recipes, and being food safe.
Nutrition literacy	To be able to distinguish between credible and false nutrition information. Knowing how to find reliable nutrition information and how to make sense of it.
Food and nutrition self-efficacy	To believe in one's ability to apply food and nutrition-related knowledge to make healthy choices in a complex food environment.
Cooking self-efficacy	To have confidence in one's ability to use cooking equipment and prepare tasty meals with available food.
Food attitude	To understand one's attitude towards food and trying new foods. Having the desire to choose and prepare healthy and safe foods to enjoy at all times.
Food and other systems	To have an understanding of how the broader food system and society as a whole impacts an individual's decisions about food and how an individual's food choices impact the broader food system.
Social determinants of health	To understand the social and environmental conditions that can result in inequities in health status which can impact the capacity to make decisions about food and cooking.
Dietary behaviour	To be able to apply knowledge and skills to make healthy food choices.

Collaborative Project Healthy Eating Team. 2017. *Key Attributes of Food Literacy*. Toronto: Public Health Ontario.

The Newfoundland and Labrador Context

Food- and nutrition-related health problems are a concern in Newfoundland and Labrador (NL). Data from the 2015 Canadian Community Health Survey (CCHS) reveals that 10.5 percent and 24.6 percent of the adult population have diabetes and hypertension, respectively (Statistics Canada, 2017). These rates are considerably higher than the Canadian average of 6.9 percent and 16.9 percent, respectively. Food and nutrition have a key role in both the prevention and management of these chronic diseases (Bacon et al., 2016; Dworatzek et al., 2013). For example, consuming a diet high in whole vegetable and fruits is effective at both preventing and managing

these diseases (Bazzano and Israel, 2005). However, only 24.6 percent of the NL population consumes five or more servings of vegetables and fruit a day (Statistics Canada, 2017). Food and nutrition literacy, therefore, have a clear role in improving health outcomes through diet. Not only can food and nutrition literacy increase the knowledge, skills, and motivation needed to plan and prepare a healthy diet, but the interactive and critical attributes can help the population to address contextual factors that may be limiting the opportunities to follow a healthy diet.

In the last decade, Newfoundland and Labrador has developed several wellness strategies which support and fund the development and expansion of food and nutrition initiatives in the province, the broadest of which is the Provincial Wellness Plan. Introduced in 2006, this plan guides most other initiatives which address wellness in the province – including the promotion of healthy eating (Government of NL, 2006a). Among the members of the Provincial Wellness Advisory Council that developed the plan are representatives from the Departments of Education and Early Childhood Development (DEECD) and of Seniors, Wellness and Social Development, and the provincial school districts and the teachers' associations. One of the plan's goals is to improve both food access and residents' nutrition knowledge and skills by developing partnerships, encouraging collaboration, and strengthening existing wellness initiatives. Partnerships, such as the Regional Wellness Coalitions, can develop initiatives that are appropriate for regions and their communities. Also, by providing funding for both existing and proposed healthy eating initiatives, such programs can continue to improve food access, nutrition knowledge and skills and, ultimately, promote healthy eating.

As part of the Wellness Plan, the Provincial Food and Nutrition Framework and Action Plan was created to develop and expand wellness initiatives that specifically promote healthy eating (Government of NL, 2006b). The purpose of the Food and Nutrition Framework is similar to that of the Wellness Plan, except that it focuses solely on healthy eating as opposed to wellness as a whole. The Provincial Wellness Advisory Council was also responsible for the development of this framework, but with greater representation from registered dietitians in the regional health authorities. Like the Wellness Plan, one of the strategies of this framework is encouraging the development and expansion of nutrition education and skill-development programs. The plan identifies three priority groups for any supported initiatives: school-aged children, preschool-aged children, and seniors. Among the proposed actions targeting school-aged children is to work with the DEECD and the regional school districts to ensure that students are offered food and nutrition education, including practical training in addition to food and nutrition theory. Thus, the Wellness Advisory Council believes in the importance of food and nutrition education and is interested in establishing a curriculum in schools. However, many of the Council's actions have focused more specifically on equitable access to food, as opposed to food and nutrition education (Department of Seniors, Wellness, and Social Development, 2014).

In the fall of 2016, the provincial government released its vision for sustainability and growth in *The Way Forward* (Government of NL, 2016). This policy-guiding document steps back from the strategies and fixed-outcomes that guided the development of the Provincial Wellness Plan and the Provincial Food and Nutrition Framework and Action Plan. The previous strategy system was fragmented, with government departments working in silos and attempting to achieve outcomes for complex problems – such as population health – without the collaboration and sharing of diverse perspectives, expertise, and resources. Health, however, is a wicked problem – that is, it is interconnected with other problems, such as employment, education and food access (which themselves are interconnected with other problems) – and therefore requires a team with diverse perspectives and resources to solve. Thus, despite actions funded and led by the provincial

government and guided by these now-defunct strategies, the anticipated outcomes are yet to be achieved.

The Way Forward instead guides policy by encouraging collaboration and horizontal decision-making to tackle wicked problems (Government of NL, 2016). Of note is the commitment that the Government of NL has made to adopt a Health-in-All-Policies (HiAP) approach (action 1.29) which would widen the focus to the social determinants of health to improve health outcomes. The Government of NL has also committed to engaging schools to create settings that support healthy living and learning by supporting the use of the Healthy School Planner tool (action 2.16). Schools will be encouraged to assess their current school health and wellness environment using this tool, and can receive provincial funding to action initiatives identified through the assessment. The Healthy School Planner tool helps each school assemble a team of relevant stakeholders to explore healthy eating (among other topics) in the school and develop a plan to address any identified gaps (Pan-Canadian Joint Consortium for School Health, 2017). Each school has discretion in developing its plan based on identified gaps and evidence-based strategies to address those gaps, and would be supported by the provincial government to carry through. Depending on the gaps identified, actions could occur not just within individual schools but at the school district level – particularly if multiple schools identified similar gaps. With the implementation of The Way Forward, the Government of NL, school districts and schools are in a position to implement strategies to promote healthy eating in the province. Given the burden of food- and nutrition-related health problems in NL, such strategies are highly in demand.

The Need for Food and Nutrition Literacy Education

A HiAP approach encourages policy developers, irrespective of their sector of governance, to consider health outcomes when developing, implementing, and evaluating policies. If the Government of NL does adopt this approach, policies surrounding the development and implementation of school curricula should consider the health outcomes of students. The origins of HiAP are found in the fundamental principles of health promotion. The Public Health Agency of Canada and the World Health Organization (WHO) define health promotion as enabling people to take control over their health through individual behaviour change, social contexts, and environmental interventions (WHO, 1986). Both healthy public policies and health literacy are outcomes of health promotion activities, which include social mobilization, advocacy, and education (Nutbeam, 2000). It should, therefore, be inferred that food and nutrition education initiatives can promote food and nutrition literacy as well as food- and nutrition-related healthy public policy. Moreover, food and nutrition literacy can further promote healthy public policy, given that these literacies include social mobilization and advocacy skills – two actions which, in addition to education, lead to health promotion outcomes. Thus, food and nutrition education should be priorities of the Government of NL to promote their HiAP approach and achieve health outcomes.

Nutrition education is “any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviours conducive to health and wellbeing and delivered through multiple venues, involving activities at the individual, institutional, community and policy levels” (Contento, 2011: 14). However, many nutrition education programs place their focus squarely on individual behaviour change and, as a result, see limited success (Eyles and Mhurchu, 2012; Nutbeam, 2000; Wood and Gillis, 2015). If nutrition education is to promote health in

Newfoundland and Labrador successfully, it must address social and environmental factors in addition to individual behaviours. Educating the public to be self-motivated to seek nutrition information, evaluate it appropriately, and independently work toward nutrition goals, as well as empowering Canadians to initiate social change to address the social determinants of nutritional health, is crucial to health promotion.

As discussed, the definitions of food and nutrition literacy are relatively new, and there are few assessment tools which accurately capture the full scope of the concepts. Thus, there is minimal evidence of the level of food and nutrition literacy among Canadians, let alone the NL population. One estimate suggests that 60 percent of Canadian adults have poor health literacy based on the Adult Literacy and Life Skills (ALLS) survey (Rootman and Gordon-El-Bihbey, 2008). The survey measures prose literacy, document literacy, numeracy, and problem-solving based on the respondent's ability to read and use printed health information (Canadian Council on Learning, 2008). Despite the similarities between health and nutrition literacy (the main difference being that latter focuses specifically on *nutrition*-related health information), it is unclear whether a similar proportion of Canadians would have similar rates of *nutrition* literacy. Moreover, the ALLS survey only captures functional health literacy, omitting the interactive and critical attributes that are integral to overall nutrition literacy and its subsequent health outcomes. Most assessment tools are limited in this way and, although new tools have been developed to measure health and nutrition literacy more comprehensively, these tools are not well validated and their use in research is limited (Chinn and McCarthy, 2013; Diamond, 2007; Ishikawa et al., 2008).

Like nutrition literacy, food literacy research is limited and tends to focus on single attributes rather than the complete concept. For example, several studies have explored cooking skills – one of the key attributes of food literacy – and the evidence suggests that Canadians lack the cooking skills necessary to promote their nutritional health and wellbeing (Murray et al., 2016; Simmons, 2002; Slater and Mudryj, 2016). Data from the Rapid Response on Food Skills component of the 2013 Canadian Community Health Survey estimates that 63 percent of Canadians are comfortable preparing meals from basic ingredients (Slater and Mudryj, 2016). There is no indication, however, whether these meals fit within a healthy (that is, adequate, moderate, balanced, and varied) diet. It is possible that these cooking skills are limited to preparing less nutritious, energy-dense foods. Another study which explored the cooking practices of university students reported that students are knowledgeable about what their eating habits should be in terms of nutrition, but are unable to follow through due to lack of resources (for example, money and kitchen facilities) and appropriate cooking skills (Murray et al., 2016). There appears to be a shift toward learning only a limited variety of cooking skills, which is indicative of poor food literacy and further evidenced by several key informant interviews with adolescents and their families in British Columbia (Simmons, 2002). This study determined that adolescents learn skills by passively observing their parents, whereas adults take a self-directed learning approach – especially when circumstances dictate, such as moving out for the first time. Evidently, cooking skills are not formally taught and there is no guarantee that the skills they are learning – either passively or through necessity – enable healthy eating.

Other studies which have investigated cooking skills similarly suggest that a lack of cooking skills is a common barrier to healthy eating. Surveys of self-reported cooking skills based on confidence in performing specific cooking methods (for example, grilling), preparing specific foods (for example, pulses) and preparing dishes varying in degree of complexity (for example, spaghetti using sauce from a jar versus preparing sauce from scratch) are common. Overall, people tend to be confident in a few (for example, microwaving, grilling) but not all cooking methods and

confidence tends to decrease as complexity increases (Adams et al., 2015; Byrd-Bredbenner, 2004; Caraher et al., 1999; Vanderkooy, 2010). When respondents are stratified by age, it becomes evident that younger respondents report less confidence in their cooking skills (Adams et al., 2015; Byrd-Bredbenner, 2004; Vanderkooy, 2010; Winkler and Turrell, 2010). While younger generations may be in the process of learning cooking skills while gaining their independence from their families, this may also suggest that cooking is no longer a priority skill to learn. In 2010, only 30 percent of Manitoban adolescents enrolled in food and nutrition education courses and, while this number is increasing, there is evidence to suggest that the curriculum for these courses is not adapting to the rapidly changing foodscape because educators undervalue these programs (Slater, 2013).

While food and nutrition literacy are not well researched, there is evidence suggesting that there is a gap between the literacy of the NL population and the level needed for the province to achieve health outcomes. Action must, therefore, be taken to ensure that the population receives the education to become food and nutrition literate. Moreover, this education must combine the functional, interactive, and critical attributes of these literacies, as functional literacy is not enough to achieve health outcomes (Heijmans et al., 2015).

The following sections offer two recommendations to promote food and nutrition literacy in NL. They address the functional, interactive, and critical literacies required by the public to achieve personal health outcomes and take part in a bottom-up approach to affect change in social, cultural, environmental, economic and political determinants of health as they relate to food and nutrition.

Recommendation 1: Revise primary and secondary school curriculum to include cross-curricular food and nutrition education

Currently, the NL curriculum for Kindergarten to Grade 12, developed by the DEECD, offers formal food and nutrition education through the intermediate Home Economics course. This course allots 18 hours of food and nutrition education to achieve three learning objectives: “To understand the importance of a nutritious diet in health and development”; “To learn basic safety and sanitation practices related to food preparation”; and “To apply appropriate organizational skills and food preparation techniques in preparing recipes from the four food groups” (DEECD, 2002: 217). While these objectives are essential for functional food and nutrition literacy, they neglect to promote either interactive or, in particular, critical literacy. For this course to promote all attributes of food and nutrition literacy, the course content would need significant revisions. To inform these changes, curriculum developers could reference the school health education curricula used by other provinces, as many of these curricula do include a focus on interactive and critical *health* literacy (Lu and McLean, 2011). Developing such a course, however, would require considerable time and resources to bring all stakeholders to the table. Moreover, the revised course should be mandatory for all, thereby reaching all students in NL.

If a revised food and nutrition module was to be developed, effectively promoting all of the knowledge and skills necessary to become food and nutrition literate will require further measures. The key attributes of these concepts cannot be mastered through 18 hours of education. It is therefore recommended that food and nutrition literacy attributes be taught through cross-curricular education at all grade levels. Cross-curricular teaching involves “a curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience” (Jacobs, 1989: 8). By this definition, cross-

curricular food and nutrition education could, for example, be taught in geography while discussing rural and urban communities. Food access could be used to illustrate differences between communities while also raising the topic of the social determinants of nutritional health and be an opportunity to discuss ways to advocate for health equity. Such cross-curricular food and nutrition education has been shown to positively influence health outcomes, such as vegetable and fruit consumption among primary students, suggesting the effectiveness of this approach to educate and facilitate behaviour change (Dudley et al., 2015). By integrating food and nutrition education into established courses, all attributes of food and nutrition literacy may be promoted and ultimately lead to improved health outcomes.

Recommendation 2: Have registered dietitians be involved in the development of cross-curricular food and nutrition education

Registered dietitians (RDs) are regulated professionals who must complete an undergraduate degree in a nutrition program accredited by Dietitians of Canada (DC) as well as a practice-based internship in the field of dietetics. The term “dietitian” is protected in Canada and may only be used by those who have met these requirements and have registered with a provincial governing body. The national RD scope of practice states that “the practice of dietetics and nutrition means the translation and application of the scientific knowledge of foods and human nutrition towards the attainment, maintenance, and promotion of the health of individuals, groups, and the community” (DC, 2000: 1). RDs specialize in addressing the nutritional needs of people with complex health problems as well as the promotion of healthy eating behaviours among individuals and groups to promote overall health. Therefore, not only do RDs practice in patient care settings, they work in community, organizational and political settings to promote healthy eating behaviours through education and by advocating for social, cultural, environmental, economic and political change. RDs are the experts in food and nutrition, and it is within their scope of practice to use this expertise to promote health outcomes, such as through cross-curricular food and nutrition education. Therefore, RDs should be keenly involved in the development of a revised curriculum to ensure that current evidence provides the foundation for this curriculum to effectively promote food and nutrition literacy.

Conclusion

Revising the current primary and secondary curricula in NL to include cross-curricular food and nutrition education is recommended to promote nutritional health and wellbeing through food and nutrition literacy. All attributes of food and nutrition literacy are necessary to enable and motivate the population to make healthy behaviour changes. RDs are the experts in food and nutrition and how best to promote behaviour change that leads to nutritional health and wellbeing in populations through a consideration of social, cultural, environmental, economic and political factors. Given this comprehensive expertise, RDs should be involved in the development of a curriculum that effectively promotes all attributes of food and nutrition literacy. By providing all students in NL with the opportunity to gain the knowledge and skills necessary to be food and nutrition literate, students will be better able to take an active role in their personal nutritional health and wellbeing and to advocate for social, cultural, environmental, economic and political change that promotes nutritional health and wellbeing in their own lives and for others.

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