

CANADIAN FOUNDATION FOR DIETETIC RESEARCH

CFDR Research Showcase: June 6th and 7th, 2019

Through the support of Dietitians of Canada (DC) and the Canadian Foundation for Dietetic Research (CFDR), the 2019 Research Showcase at the DC Conference represented a wide variety of practice-based nutrition research projects in Canada.

The 2019 Research Showcase consisted of several new elements this year. Early Bird abstracts were considered for either oral or oral ePoster sessions. New this year was the presentation of 11 Early Bird abstracts as 'Lightning Rounds' within the regular conference sessions. The remaining 27 Early Bird abstracts were presented as 3 concurrent oral ePoster sessions on June 6th, 2019; authors presented their research in 2-3 minutes plus 2 minutes for questions, using their ePosters. The Late Breaking abstracts were all considered for ePosters that were attended by authors on June 7th, 2019. All ePosters were on display throughout the conference.

This research event would not have been possible without the commitment and dedication of many people. On behalf of DC and CFDR, we extend a special thank you to members of our abstract review committees.

Early Bird Committee: Susan Campisi (University of Toronto); Elaine Cawadias (Retired); Andrea Glenn (St. Francis Xavier University); Brenda Hartman (Brescia College, Western University) Mahsa Jessri (University of Ottawa); Jessica Liefers (University of Alberta).

Late Breaking Committee: Laurie Drozdowski (University of Alberta), Laura Forbes (University of Guelph), Joann Herridge (Hospital for Sick Children), Grace Lee (Toronto General Hospital), Lee Rysdale (Northern Ontario School of Medicine), Shelley Vanderhout (University of Toronto), Sarah Woodruff Atkinson (University of Windsor).

We are also grateful to the moderators of the Oral ePoster sessions: Barb Anderson (Acadian University); Jane Bellman (Dietitians of Canada); Brenda Hartman (Brescia College, Western University); Jessica Liefers (University of Alberta); Dawna Royall (Dietitians of Canada); and Lee Rysdale (Northern Ontario School of Medicine). Thanks are also extended to Susan Caswell (University of Waterloo) for her assistance with the ePoster sessions.

Finally, a special thank you to Gareth Willows Tribe and Michelle Naraine at CFDR for their assistance and support throughout the review process.

We enjoyed interacting with authors throughout the Research Showcase process.

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Vulnerable Groups and their Nutritional Needs

Creating a knowledge translation comic book to improve the nutritional health of queer men

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Purpose: A health knowledge translation comic book focused on body image for theGBTQ (gay, bisexual, trans, and queer) community was created. The project aimed to address the lack of nutrition-related health information forGBTQ men and to work towards improving their health and well-being by disrupting dominant body ideals.

Summary of Content: An anthology featuring 38 comic strips from various artists was produced. Comics focused on the social construction of bodies, fat stigma, masculinities, eating disorders, and the need for community support.

Systematic Approach: The work followed an arts-based methodological approach to create a comic anthology based on evidence-based literature and personal experiences from theGBTQ community. Comic book artists were recruited globally. Artists were asked to draw on their own personal experiences to create a comic strip regarding how society and culture influence body image and their health. One contributing artist was commissioned to illustrate nutritional health inserts for the comic based on a summary of peer-reviewed literature. The final book was printed and given toGBTQ health centres across Canada.

Conclusions: An arts-based approach was an innovative approach to create an evidence-based knowledge translation comic that addresses nutrition-related health concerns for marginalized communities and to address the lack of representation forGBTQ men within a heteronormative dietetic profession. **Recommendations:** It is recommended that dietitians use arts-based approaches as knowledge translation strategies. The use of arts-based approaches can lead to a broader sense of what counts as knowledge and may influence the way nutritional health evidence is communicated and used within communities.

Significance to the Field of Dietetics: Dietetic professionals are encouraged to consider the role of heteronormativity in dietetic practices and to challenge gender and sexual body norms that create nutrition-related health concerns.

Funded by: CIHR Institute of Gender and Health

Assessment of the Quality of Dietary Protein Consumed by Older Adults Residing in Manitoba Long term Care Homes

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Introduction: Dietary protein supplies amino acids (AA) that are necessary for overall health. While current estimates of protein intake in North America provide evidence that protein needs, in general, are being met, two important caveats should be considered: 1) current estimates of protein intake are based on crude protein, and not corrected for protein quality; and, 2) sub-groups of the population may be at risk for inadequacy. These considerations are particularly relevant to older adults, especially when one considers that new estimates of protein requirements position higher RDA values for seniors (1.2 g/kg/d of high-quality protein).

Objective: To assess the quality of protein consumed by older adults residing in long-term care (LTC).

Methods: Using data derived from Making the Most of Mealtimes (M3) study, a multi-centre, cross-sectional study of food intake and its determinants in older adults living in Manitoba LTC facilities (n=117), the intake of quality-corrected protein was assessed, using the following assumptions: a) correction for quality used the PD-corrected AAS (PDCAAS) approach, assuming a generic 0.8 digestibility coefficient against food intake data; and, b) quality was corrected for each meal occasion.

Results: When uncorrected for quality, 35% of older adults in LTC were below the Estimated Average Requirement for protein. This increased substantially to 71% below the requirement when quality correction factors were applied.

Conclusions: Many residents in LTC are not meeting their quality corrected protein requirements. Future research should investigate practical methods for assessing protein quality in a complex foodscape, including the use of digestibility coefficients derived from in vitro assays.

Significance to the Field of Dietetics: Residents living in LTC homes are at an increased risk of inadequate protein intake and quality of protein is an issue. Strategies to achieve high-quality protein intakes should be emphasized in menu planning.

Funded by: Canadian Institutes of Health Research

Yukon Hospitals- Serving Traditional Foods Together with Community Partners Poster

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Purpose: To interview patients and partners involved or impacted by Yukon Hospitals Traditional Food Program (TFP) and use their stories to create art in the form of a character poster. The purpose of the poster is to highlight key partners and sample resources required for a TFP and foster curiosity, pride and reconciliation among Yukoners and other Canadians. A web-based poster with resource links is now available to the public for education purposes at: <https://yukonhospitals.ca/yukon-hospital-corporation/traditional-food-program>

Process: Informal interviews were completed during the fall of 2018 with Conservation Officer Services, Environmental Health Services, outfitters, resident hunters, local butcher, and Yukon Hospitals First Nations Health Programs, Food Services and patients. Questions focused on the role of traditional food in their personal and/or professional role. Informal notes and photos were gathered and were given to a local artist to interpret the stories through a commissioned art piece.

Supporting Information and Conclusions: The poster was finalized in December 2018. Overall, project participants shared common beliefs about Yukon Hospitals Traditional Food program including: Shared understanding that Traditional Food is important and is part of First Nations culture Shared respect for wild game, hunting, harvesting, processing, producing and serving traditional food The residents of the Yukon appear to have fostered a strong culture centered on the value of traditional food its important in many aspects of Yukoners lives from feeding patients to sustaining wild life for hunting.

Recommendations and Significance to the Field of Dietetics: Healthcare facilities who serve indigenous populations have an obligation to remove barriers to health, healing and culture. Using art can be an effective tool to facilitate reconciliation and foster pride between patients and community partners.

Funded by: Yukon Hospitals

Nutritional status of Anabaptist Women in Southwestern Ontario

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Introduction: The Old Order Amish and Mennonite communities, who use horse-and-buggy transportation, are two of the most conservative Anabaptist groups in rural Southwestern Ontario. Traditional attire limits sun exposure, as women wear head coverings and long sleeve dresses with full skirts. Health care professionals have expressed concerns about the nutritional status for women of childbearing age.

Objective: To determine the nutritional status, particularly vitamin D, folate, vitamin B₁₂, and iron, by assessing dietary intake (3-day records, ESHA analysis) and lab values in this descriptive study.

Results: Fifty-one women (18 pregnant) (55% OOA) (31±6 years) were recruited; nutrient intake from food and biochemical analyses are available for 48 and 46 women, respectively. Serum 25(OH) vitamin D was low (<75 nmol/L) for 63% of women. Vitamin D intake was 3±1 mcg/day with 100% of intakes <EAR (10 mcg/day). Milk and alternatives servings were 2.1±1.4/day (2/day recommended); most (80%) consumed farm milk with no added vitamin D. Three pregnant women had hemoglobin less than reference values for their childbearing status; none had low (<5 ug/L) ferritin. Iron intake was 15±4 mg/day (RDA, 18-27 mg/day); 7 of the pregnant women had iron intake < EAR (22 mg/day). Most women (90%) had high (>2500 nmol/L) red blood cell folate. Food folate intake was 335±136 mcg/day (RDA, 400-600 ug/day); 90% took folate-containing prenatal supplements. Serum vitamin B₁₂ was high (>652 pmol/L) for 10 and low (<138 pmol/L) for one woman. Vitamin B₁₂ intake was 4.9±4 mcg/day (RDA, 2.4-2.6 mcg/day).

Conclusion: Of the nutrients evaluated, vitamin D is the only one for real concern due to the low intake and insufficient status assessed.

Significance to Dietetic Practice: The results of this study will be used to inform practices related to routine laboratory testing, nutritional assessment and education, and recommendations for supplementation, particularly for vitamin D.

Funded by: Canadian Foundation for Dietetic Research

Professional Standards and Skills

Learning to lead: A pilot study on dietitians' reflections on critical experiences that required leadership

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Introduction: New competency areas create opportunities to explore how current curricula may meet requirements and identify learning gaps that must be addressed through curricular redesign or development. It is anticipated that there will be new performance indicators related to leadership for dietitians in Canada; however, few studies have explored experiences of dietitians in leadership.

Objective: To determine what experiences, both positive and negative, dietitians experience early in their careers that require leadership skills.

Methods: The participants (n=17) were all dietitians recruited through purposive sampling. The selection criteria included dietitians who demonstrated leadership or worked in a leadership capacity and affiliated with a university nutrition program. Semi-structured interviews conducted by the researcher, each < 30 minutes, were based on a Critical Incident Technique interview guide. The researcher transcribed the interviews verbatim and thematic analysis was conducted by two researchers to inductively elucidate code and generate themes.

Results: Themes were compared to the LEADS Leadership Framework. Situations where dietitians used their leadership skills early in their careers were in a managerial capacity or as part of an interprofessional team. Situations were coded as positive (desirable) or negative (undesirable) experiences towards leadership skill development. Positive experiences were related to advocating for oneself or others or experiencing personal/professional growth. Negative experiences were related to communication challenges among interprofessional team members, gender dynamics, and lack of recognition of the dietetics profession. All participants thought leadership skills can be taught in undergraduate curriculum.

Conclusion: Developing leadership skills essential for entry-level dietitians requires an introduction to key concepts through academic and internship experiences. To improve our understanding of how dietitians function as part of a health system, it becomes essential to understand their workforce experiences.

Significance to the Field of Dietetics: To increase the ability of entry-level dietitians to use leadership skills in workforce situations they might encounter.

Understanding Eating Behaviour during Illness

When the path falls away: How five women learned to live well with food hypersensitivities

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Dawson Creek, BC

Introduction: Among adults the prevalence of food allergies and intolerances, also known as food hypersensitivities (FHSs), is on the rise. Health care providers (HCPs), including dietitians, lack training in the diagnosis and management of FHSs. Increasing HCPs competencies can start with an understanding of the problem from the perspective of those who live with FHSs.

Objective: The purpose of this research was to give voice to the experience of those living with FHSs and ask how they learned to live well with this condition.

Methods: A narrative inquiry approach was used. Five women were recruited through posters advertising the study in a rural northern city in British Columbia. Participants were between 34 and 49 and perceived themselves as living well with FHSs. Data collection included an information gathering questionnaire, individual semi-structured interviews, and a drawing which participants illustrated to assist storytelling. Interviews were audio-recorded and transcribed verbatim. Thematic analysis was conducted on the transcriptions. Participants reviewed themes and provided feedback on interpretation of data.

Results: The onset of FHSs brought uncertainty into the lives of participants. They moved towards wellbeing through self-directed, experimental, and transformative learning. Additionally, participants wellbeing was supported by the context of their lives, in particular, determinants of health like education and social support. Main barriers to wellbeing included anxiety and food insecurity.

Conclusions: Participants expressed a desire for person-centred health care to be heard by HCP, and have access to FHS specialists including dietitians, mental health professionals, pharmacists, and physician specialists.

Significance to the Field of Dietetics: HCPs, including dietitians, would benefit from professional development activities which focus on: (a) the diagnosis, treatment, and management of FHSs; (b) knowledge of adult learning processes; and, (c) person-centred care including the social determinants of health and interprofessional collaboration.

Food Security

Dietitian advocacy issues over the past 25 years: survey results

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Introduction: Dietitians have advocated in many areas to influence decisions of political, economic, and social systems and institutions. Review of the recent history of advocacy in the profession may inform the methods and potential success of current and future advocacy efforts.

Objective: The objectives were: 1) to identify which groups/interest groups in the profession have done most advocacy work and 2) on what topics, over the past 25 years.

Methods: Data on advocacy topics were analyzed from a larger project, involving a survey and interviews of dietitians, conducted in Summer 2018. The purpose of the larger project was to gauge overall interest, format preferences, possible topics and key informants, for a proposed history of the profession. The project was approved by the University of Guelph Research Ethics Board. The 2018 online bilingual survey (Qualtrics) consisted of questions on topics and subtopics of interest. Follow-up telephone interviews confirmed survey results and identified additional issues, topics, and possible key informants. Survey data were analyzed for frequencies, and additional comments and interviews were content analyzed.

Results: Of 359 survey responses, 319 were in English, and 40 in French and 51 interviews were completed. 50% of respondents were 38 years old or younger. Among the 8 topics of most interest, 50% identified Government advocacy and programs and 57% Branding and increasing public awareness of the profession needed review. Advocacy was mentioned in the work of Dietitians in public health and Dietitians in health promotion and community practice, with food security as a core interest endorsed by 26% and 31% of all respondents, respectively.

Conclusion and Significance to Dietetics: Food security has been a prominent ongoing advocacy issue over the past 25 years. It is relevant to current efforts to see what was done in the past, to improve the success of current efforts.

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Assessing food security and perceived health among Memorial University students

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Introduction: The prevalence of student food insecurity at Memorial University of Newfoundland (MUN) is high (39.9%) compared to the surrounding general population (8.1% in 2012).

Objective: Our study explored the relationship between food security status and perceived health among MUN students.

Methods: We collected data using an online survey distributed to returning MUN students in the Fall 2016 semester, who were registered at a MUN campus in St. Johns, NL. The survey was circulated through e-mails, posters, and social media. We used Statistic Canada's Household Food Security Survey Module (HFSSM) to assess food security and we asked participants to rate their physical health, mental health, and stress level using validated questions from the Canadian Community Health Survey. We also collected demographic information. We used logistic regression to compare health ratings between students of different food security levels.

Results: A total of 967 students met our inclusion criteria. Of these, 39.9% were considered food insecure, with 28.2% experiencing moderate food insecurity, and 11.7% experiencing severe food insecurity. After controlling for significant predictors, students who were moderately or severely food insecure were 1.72 (95% CI = 1.20-2.48) and 2.81 (1.79-4.42) times as likely to rate their physical health as fair or poor than food secure students, and 1.66 (95% CI = 1.22-2.27) and 4.23 (95% CI = 2.71-6.60) times as likely to rate their mental health as fair or poor than food secure students, respectively.

Conclusions: Our findings suggest that food security levels of MUN students are closely related to perceived physical and mental health. Lower food security levels were associated with poorer self-reported physical and mental health.

Significance to the Field of Dietetics: Dietitians working with the university student population should screen for food security and dietitians working in public policy should consider the challenges of food insecurity among this population.

Food Insecurity During Pregnancy in Canada

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Introduction: Despite programs to support low-income pregnant women in Canada, little is known about food insecurity during this critical period of development. As evidence from the US and UK suggests food insecurity compromises maternal health, investigation into this experience in Canada is needed.

Objectives: Amongst pregnant women in Canada, to characterize the relationship between household-economic circumstances and food insecurity; and to identify associations between food insecurity during pregnancy and measures of health.

Methods: The 2005-2014 Canadian Community Health Surveys were used to determine the food insecurity status of pregnant adults (secure, moderately insecure, moderate-severely insecure). A multinomial multivariable logistic regression model was used to determine the relationship between household-economic circumstances and food insecurity status, adjusting for age, indigeneity, education, geographic region and survey year. Additional multivariable logistic regression models were used to compare measures of health by food insecurity status adjusting for age, indigeneity, education, and survey year.

Results: 12.6% of the sample of pregnant women experienced food insecurity. Odds of experiencing food insecurity was greatest in the lowest household income quintile vs the highest (marginal insecurity aOR:13.1, 95%CI:5.3,32.6; moderate-severe insecurity aOR:5.8, 95%CI:1.8,18.9). Odds of moderate-severe food insecurity was lower amongst women without children (aOR:0.7, 95%CI:0.5,1.0); and higher amongst women reliant on social assistance (aOR:3.9, 95%CI:1.8,8.6) and those renting their dwelling (aOR:2.9 95%CI:1.8,4.5). Moderate-severe food insecurity was associated with poorer mental health (aOR:3.8, 95%CI:1.5,9.5), higher life stress (aOR:2.9, 95%CI:1.9,4.4), mood disorders (aOR:5.0 95%CI:2.9,8.8) and anxiety disorders (aOR:3.3, 95%CI:1.9,5.7).

Conclusions: Food insecurity during pregnancy is independently associated with household-economic factors and poorer mental health. Further studies on policies supporting low-income women are needed to prevent food insecurity during a critical period of development.

Significance to the Field of Dietetics: Dietitians play a role in advocating for effective policies to address food insecurity. Professionals working with food-insecure pregnant women should be mindful of poorer mental health amongst their clients when providing intervention.

Funded by: Canadian Institutes of Health Research and Joanna & Brian Lawson Centre for Child Nutrition

Food Content, Selection and Safety

Potassium, phosphorus and sodium content of commercially available soups: Implications for patients with chronic kidney disease

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Introduction: Patients with chronic kidney disease (CKD) should limit dietary intake of sodium (Na), phosphorus (P), and potassium (K) as high intakes are associated with increased morbidity. These minerals are frequently added to soup as food additives. Although their presence is indicated in the ingredient list, P and K content may not always be present on the Nutrition fact table (NFT), making it difficult for patients to choose appropriate foods.

Objectives: 1) Examine the impact of additives on the amounts of Na, P and K indicated on NFT of commercial soup products.; and, 2) Compare the chemically analyzed K content in soups with and without K-additives.

Methods: Data on ingredient lists and NFT were collected from a convenience sample of all canned and boxed soups, including both generic and brand name products at three major grocery stores in Ottawa (n=126). A subset of soups with K-additives (n=11), matched with similar soup types without K-additives (n=11), were analyzed for K content by AOAC official method.

Results: Soups with Na-additives (95%) had significantly more Na indicated on NFT compared to soups without Na-additives (661±173 vs 41±24 mg/g, p <0.001). Soups with P-additives (21%) had no P content on NFT. Only half of soups with K-additives (27%) listed K content on NFT, which was similar to soups without K-additives. However, chemically analyzed soups with K-additives, had significantly more K vs those without K-additives (641±74 vs 269±35 mg/g, p<0.001).

Conclusion: Soups with Na-additives may have sixteen times more Na than soups without. K content of soups may be high and cannot be inferred from the presence of K-additives on product label.

Significance to the Field of Dietetics: Patients with CKD should be wary of consuming commercial soups given high Na content, and frequently missing K and P content on NFT. Findings support the eventual inclusion of K content on the NFT.

Funded by: University of Ottawa

Clinical Research (Including Outcomes of Intervention)

The Baby-Led Weaning Method in a Canadian Setting; a Focus on Mealtime Behaviors and Food Acceptance

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Introduction: Baby-Led Weaning (BLW) is an alternative weaning method that proposes to let children feed themselves starting at six months of age with suitable solid finger foods. BLW is now very popular among Canadian families; however, no study to date has addressed the behavioural and dietary impacts of this method in a Canadian setting.

Objective: The aim of the study was to determine if BLW influences the acquisition of healthy eating behaviours and children's food acceptance.

Methods: In this study, 82 children aged 10-14 months were recruited from the National Capital Region and Montreal regions. Half (n = 41) of the children followed the traditional weaning method, while the others (n = 41) were introduced to solid foods through the BLW principles.

Results: Compared to the conventional feeding method, BLW leads to a significantly better satiety-responsiveness score (13.1 ± 3.0 vs. 12.1 ± 3.0 , $p = 0.005$) and a slower eating speed score (11.1 ± 2.8 vs. 10.2 ± 2.9 , $p = 0.04$), respectively. No significant differences were observed between the two groups in terms of food acceptance. Parental pressure was found to be significantly associated with the consumption of dairy products, grain products and meat and alternatives ($p < 0.05$).

Conclusion: BLW may promote listening to internal signals of satiety and help regulate food intake.

Significance to the Field of Dietetics: Despite baby-led weaning being a hot topic in the field of pediatric nutrition in Canada, very little is known about it. Gaining knowledge about this alternative feeding method will help health practitioners better educate their patients.

The effect of peer support on knowledge and self-efficacy in weight management: a prospective clinical trial in a mental health setting

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Purpose: Obesity is common in people with mental illness. Strategies to promote lifestyle modification may include education, peer support, and frequent follow up. This study evaluated the effect of group peer support on weight, Confidence and Conviction (C&C), diet quality and health-related quality of life (QOL) in a mental health setting.

Methods: Fourteen participants [aged 51.7 +/- 12.2 years; 10 females] who were unable to achieve and maintain 5% weight loss were recruited from a metabolic clinic at a mental health care facility. Inclusion and exclusion criteria are specified in the protocol. Weight, C&C, Dietary Screener Questionnaire (DSQ), and the Short Form Survey Instrument (SF-36) were collected at baseline, 3, 6, and 12 months. Clients attended a 12-month program that included education, action planning, and peer support.

Results: While confidence was below the cut-off that predicts successful behaviour change at baseline, scores trended up throughout. Weight did not change significantly. Sixty percent of scores were outside of normative ranges for health related QOL at baseline. DSQ showed mean daily sugar intakes trended down throughout. High conviction score and low sugar intake were associated with each other.

Conclusions: Increased confidence did not result in weight loss. Changes in confidence began to show an association with sugar intake at six and 12 months, suggesting that the intervention takes about six months to increase confidence adequately to result in a reduction in sugar intake.

Significance to Dietetics: Group peer support for mental health clients with metabolic conditions may produce minor improvements in sugar intake and transient changes to health-related quality of life but is not superior to traditional weight management counselling provided to clients one-on-one. However, group peer support was also not an inferior intervention and could be considered to increase the number of clients served in healthcare settings with limited RD time.

Funded by: Ontario Shores 2016 Inter-Professional Clinical Trials Research Seed Grant

Patient Services

Effect of a protected mealtime pilot on energy and protein intake in a Canadian hospital

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Introduction: In Canada, approximately 45% of hospitalized patients are moderately or severely malnourished upon admission. The protected mealtime policy was designed to protect mealtimes from unnecessary and avoidable interruptions, providing an environment conducive to eating.

Objective: This pilot study aimed to provide preliminary results for the effect this policy has on patient energy and protein intake.

Methods: One-group pre-post observation design conducted on an adult inpatient unit at a hospital in Toronto, Ontario. Pre and post-observations included the frequency and type of interruptions, type of interrupter, and patient energy and protein intake at each meal. Demographic, diet, and disease related information was collected for each participant.

Results: The average number and length of interruptions decreased in the post-observation period by 46.6% (0.7 interruptions per meal) and 25.2% (3 minutes per meal). Energy and protein consumption increased by 5.4% or 91.1 kcal (381.1kJ) and 7.2% or 4.6 grams per day. The most frequent types of interruptions observed were bedside procedure/vitals (20.1%, 48 interruptions) and interruptions of a neighbouring patient in the same room (22.1%, 27 interruptions).

Conclusions: The implementation of a protected mealtime policy decreased the average number and length of interruptions patients experienced and increased the average length of mealtime assistance provided to patients. Energy and protein consumption showed a slight increase during the post-observation period when the protected mealtime policy was implemented.

Significance to the Field of Dietetics: A protected mealtime policy may be an effective policy to address malnutrition among hospitalized Canadian adults. Further studies are warranted in Canada to determine the effects and feasibility of this policy implementation.

Funded by: Brescia University College and Compass Group Canada

Perceived influence: The role of health professionals on patients' lifestyle behaviours

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Introduction: Health professionals (HPs) working in primary care play a critical role in counselling patients to make diet-related behaviour changes. However, little research has been conducted on how HPs perceive to influence patients' lifestyle behaviours.

Objectives: To understand how HPs perceive to influence patients dietary behaviours. **Methods:** Semi-structured interviews were conducted with 33 HPs (7 family physicians [MD], 13 nurse practitioners [NP], and 13 dietitians [RD]) in multidisciplinary healthcare settings. Interviews were audio-recorded and transcribed verbatim. Thematic analysis was used to inductively elucidate Themes and subthemes.

Results: Themes: 1) Degree of influence; 2) strategies to support patients in changing their lifestyle behaviours; and, 3) practitioners' role. Most HPs believed to have a positive influence on patients' lifestyle behaviours. However, many acknowledged there are uncontrollable factors influencing dietary behaviours. MDs reported having influence on patients' lifestyle behaviours. NPs and RDs reported using strategies like motivational interviewing. HPs employed various strategies to support patients in changing lifestyle behaviours including leading by example, motivational interviewing, and helping patients set realistic goals. HPs main role seemed to include identification and discussion of barriers to lifestyle changes.

Conclusion: Most HPs perceived to have a positive influence on patients' lifestyle behaviours. HPs acknowledged external factors hindering changes in dietary behaviours and discussed various support strategies. Strategies included discussing barriers and using motivational interviewing. Although uncontrollable factors and barriers, like unexpected life events or readiness for change, may affect patients' success to change lifestyle behaviours, HPs perceived to have an important role in discussing these barriers, while providing individualized care.

Significance to the field of dietetics: Understanding how HPs perceive their ability to influence patients' dietary changes will influence their decision to initiate counseling. Our findings indicated most HPs perceived to have a positive influence on patients while highlighting barriers encountered and strategies to address them.

Funding by: University of Ottawa's Telfer School of Management

Improving Patient Dining Satisfaction: Positively Changing the Perception of Hospital Food

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Purpose: Implement a new food service dining model for long-stay patients in the acute care environment with a variety of quality nutritional and delicious choices that enhance the patient dining experience.

Summary Content: This project provides the results of implementing a variety driven two-week menu cycle, cook serve method with same day bedside meal selections.

Systematic Approach Used: The new food service model was implemented (n=100) with patients on rehabilitation units at an acute care facility in Burlington, ON. Pre and post tray waste audits and patient satisfaction surveys were conducted with patients to evaluate current baseline status of the patient dining experience to compare to the new model. Baseline model was a one-week menu cycle, fresh steam-cooked food system with same day bedside meal selections.

Conclusions: Eight indicators measured around patient satisfaction. Overall meal satisfaction increased by 16%. All days of menu cycle around patient tray waste was collected. Average daily tray waste decreased by 15%. The performance measurements reflect that the new food service model is successful in enhancing the patient dining experience as evident by increased patient satisfaction and meal consumption.

Recommendations: Providing menu cycles longer than one week and providing patients with a variety of flavourful choices as close as possible to mealtimes should be best practice for improved meal consumption, decreased waste, and increased overall patient satisfaction.

Significance to the Field of Dietetics: Patient dining is complex with multiple allergy and diet orders. Taking a culinary approach that mirrors nutrition and flavor is key to create menus that are flavourful and meet diet restrictions. This project provides insight on how to apply these principles and implement a new food service model in healthcare that directly applies patient needs and experiences.

Funded by: Compass Group Canada

Professional Development

Understanding the need and interest to develop clinical dietitian business competencies

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Introduction: Clinical dietitians are increasingly challenged to demonstrate value in their contributions to patient outcomes and cost-effective solutions. Business acumen could be a valuable asset, yet may be an underdeveloped skill in direct patient care settings. Education or opportunities to develop business competencies may be limited. **Objectives:** To understand clinical dietitians need for and interest in developing business competencies.

Methods: A 19-question online survey was administered to registered dietitians (RDs) providing direct patient care, recruited via convenience sample from a national database. The survey questions queried participants practice, perceived comfort and use of business competencies, and interest and need for education. Content and face validity were assessed through pilot testing and expert consultation. Descriptive analyses were conducted.

Results: Of 1259 potential participants, 192 surveys were completed (15% response rate). Respondents practice settings included acute care in-patient (77), long-term care (43), ambulatory care (40), primary care (18), and rehab/other (14). The majority worked full-time (70%, 134), were 30-49 years of age (64%, 123), and practicing for > 11 years (66%, 127). Over half of respondents (53%, 101) had no formal business education/training; of those that did, most had taken undergraduate business electives (65/91). One-third indicated they use business skills in practice at least monthly (70), with advocacy for resources to improve patient care a frequent theme. Respondents rated their business skill competency and comfort from advanced/proficient (16%, 32), developing (43%, 82) to limited/no experience (41%, 78). The majority of respondents (71%, 136) expressed interest in business education tailored for RDs.

Conclusions: This survey demonstrates a need for and interest in developing business acumen among clinical dietitians.

Significance to the Field of Dietetics: These results have implications for the field of dietetics if we want to cultivate RDs who can successfully advocate for the profession and the services provided to patients, clients and communities.

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Dietetic Practice and Education

Implementing Subjective Global Assessment as a Routine Part of Dietitian Nutrition Assessments in a Multi-Site Health Care Organization

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Purpose: Subjective global assessment (SGA) is the gold standard for diagnosing malnutrition. In October 2017, SGA was implemented as a routine part of dietitian assessments in acute care at Providence Health Care (PHC). Implementation and use of SGA ensures consistent identification and diagnosis of malnutrition by PHC dietitians.

Systematic Approach: A knowledge translation approach was used. Knowledge, skill and environmental barriers were assessed and addressed through pre-training readings, a group workshop, hands-on training with a dietitian experienced in SGA and modification of nutrition assessment forms. Peer champions were used to train dietetics students and additional staff. Regular group experience sharing and discussions were used to further facilitate uptake and address unforeseen challenges. Evaluation of use was completed pre and post training, nine and twelve months after implementation using surveys and chart audits.

Summary: Forty-one dietitians participated in an SGA workshop with 21 receiving additional hands on-on training. Prior to the workshop, 75% of dietitians surveyed indicated they were somewhat knowledgeable or knowledgeable about SGA but only 8% were routinely using SGA in their practice. After hands-on training, 100% of dietitians surveyed indicated they were somewhat knowledgeable or knowledgeable about SGA and were somewhat likely or likely to incorporate SGA into their practice. One year after implementation, chart audits showed that dietitians in acute care were using SGA in 63% of the time.

Conclusions: One year after implementation, use of SGA is a more routine part of dietitian practice at PHC.

Recommendations: Knowledge, skill and environmental barriers must be identified and addressed for SGA to be successfully incorporated into practice. Peer champions can help with ongoing training needs. It is important to ensure a consistent approach is used through regular group experience sharing and discussion.

Significance to the Field of Dietetics: Our learnings will be of benefit to those organizations that are in the earlier stages of SGA implementation.

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Creating a community of practice around diet in primary care: Learnings from The CHANGE Program

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Purpose: To report on the development of a community of practice (CoP) for registered dietitians (RDs) providing personalized diet intervention to patients with Metabolic syndrome (MetS).

Process or Summary of Content: The CHANGE Program is a team-based program aimed at reducing cardiometabolic risk through individualized diet and exercise sessions over 12 months. Each patient is assessed, followed weekly for 12 weeks and then monthly for 9 months by a RD and an Exercise Specialist while the Family MD reviews progress every 3 months. The need to address common challenges and learnings through a CoP for RDs was identified.

Systematic approach used: Since March 2017, nine RDs from twelve Family Health Teams (FHTs) have joined the CHANGE Program. Preliminary evaluation of 262 patients shows that at 3 months, 31% patients have improvements in MetS components, 17% have reversal of MetS and the average increase in Mediterranean Diet Score is 2.7 points. The experiences at each FHT have been variable, given their need to adapt the program delivery to their local settings, hence a CoP was created by Metabolic Syndrome Canada for RDs. Learnings from this group include more effective ways to run group classes, maintain patient engagement, and to ease the burden of ongoing program evaluation for MetS outcomes. Multiple resources, including short instructional videos, have been developed in a toolkit format to support individual RD practice style and differing teams.

Conclusions: Creating a CoP of CHANGE RDs has been effective in adapting an intensive 12-month diet intervention program for differing organizations.

Recommendations: Implementation of evidence-based diet interventions into real life settings should be accompanied by creation of CoPs for RDs.

Significance to the Field of Dietetics: CoPs for RDs are an effective method of peer learning and support in new programs and types of services. Central coordination and some funding are desirable to support effective CoP development.

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Inter-Cultural Food Bridging Society - Understanding the North American Food Culture

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Purpose: The number of international students enrolling in Canadian universities continues to grow. Understanding the diversity in dietary cultures is essential to enhance learning and living experiences in Canada. The Intercultural Food Bridging Society (ICFBS), a start-up society, was established to provide opportunities for international students at Mount Saint Vincent University (MSVU) to engage with Canadian food culture.

Process: Food tours and learning activities are organized to support the learning needs of international students. Canadian students are encouraged to attend since learning experiences can inform cultural literacy for all students. Examples of ICFBS events include a fair-trade coffee tour, a harvest workshop, dining with seniors at a retirement home, a local food and drink tour, a healthy cooking class with a dietitian, and a local grocery store tour.

Systematic Approach Used: The Ecological Perspective approach and Logic Model have been adopted by ICFBS to plan each activity. Reflection is key in exploring learning aspects of all activities. Faculty advisors, fund raising activities and community partnerships support the society.

Conclusion: ICFBS is an innovative and reciprocal platform of learning, networking and cultural exchange for students and faculty that enhances the connection between international and Canadian students. The greater MSVU community has been positively influenced in unexpected ways.

Recommendations: Universities with nutrition programs can include the ICFBS framework to support the unique needs of international students while increasing cultural competency for all students.

Significance to the Field of Dietetics: ICFBS builds a bridge between Canadian and international food cultures in an academic setting to equip young professions entering this field with cultural competency. Strengthening cultural understandings and competency amongst students may translate into a professional practice that will better serve the diverse Canadian population.

Piloting the Critical Nutrition Counselling course at Acadia University

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Purpose: The Critical Nutrition Counselling course offered the opportunity for students to envision the roles in nutrition counselling through a critical social theory lens.

Summary: The course was discussion-based with students and professor as co-learners. Students developed facilitation skills by leading discussions about *When Things Fall Apart: Heart Advice for Difficult Times* and *Close to the Bone: Life-threatening Illness as a Soul Journey*. Conceptual frameworks framing discussions were the Organizational Framework for Exploring Nutrition Narratives, Value of Nutrition Education, Collaborative Client-Centred Nutrition Education, and the Symptom Management Grid. Learning activities involved developing a list of truths about counselling, student presentations/ facilitated discussions on term projects on any aspect of nutrition counselling, interviewing community volunteers who were living with conditions requiring food/eating modifications, and facilitating a culinary therapy event.

Approach: Students submitted three papers; a reflection on developing the truths document, a term project written report, and a summative paper reflecting on weekly journal entries and the relevance of critical social theory and the truths to nutrition counselling.

Conclusions: Students had multiple opportunities to reflect on the complexities of clients lived experiences, their nutrition counselling needs/wants, and the complexity of dietitians' nutrition counselling roles integrating client-centredness, active listening to witness and respect nutritional narratives, and compassion.

Recommendations: The course will be re-offered; inquiries are welcome from colleagues interested in this pedagogical approach.

Significance to Dietetics: The course activities and learnings challenge the dominant view of behaviour change as the desired outcome of nutrition counselling. Dietitians have the privilege to enter into the lives of people when they are experiencing profoundly challenging life events. Rather than behaviour change, students learned about coping strategies involving individual and family experiences of eating, and to invite conversations about meanings of eating with changed health status as the basis of nutrition advice and support.

Strengthening public health nutrition practice: Findings from a situational assessment to inform system-wide capacity building in Ontario

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Introduction: Public Health Ontario (PHO), a provincial organization that provides scientific and technical guidance to the public health field, has identified healthy eating and food environments as a priority area. In Ontario, 35 public health units (PHUs) are tasked with implementing the Ontario Public Health Standards, which recommend promoting healthy eating behaviours using evidence-informed practices.

Objective: Conduct a situational assessment to understand the current state of public health nutrition (PHN) practice in Ontario and identify provincial-wide priorities for scientific and technical support from PHO.

Methods: A qualitative descriptive study was conducted with 21 semi-structured key informant interviews (n=51 participants) and three visits to PHUs (July-December 2018). Participants (PHN dietitians/practitioners, managers/directors, medical officers of health, researchers, and other stakeholders) were purposively recruited through snowball sampling. Notes from interviews and visits were analyzed concurrently with data generation using content analysis.

Results: Five themes were generated: (1) *Current PHN Practice* was defined as broad and complex, transitioning towards upstream interventions, collaborative, and coordinated through a voluntary provincial NGO (Ontario Dietitians in Public Health) within a decentralized provincial public health system. (2) *Data/Evidence* were reportedly not available, accessible, and/or applicable to PHN needs. (3) *Guidance* for PHN practice was present, absent, and sometimes contradictory depending on the topic (e.g. nutrition guidelines exist for school but not recreation). (4) *Resources/Capacity* for PHN varied across PHUs although were reportedly insufficient overall. (5) Participants perceived opportunities to improve the *Understanding of Nutrition Expertise in Public Health* by others (colleagues, PHU leadership, governments, NGOs).

Conclusion: PHN practitioners experience several challenges related to the complexity of PHN, limited data/evidence, mixed guidance, limited resources/capacity, and misperceptions.

Significance to the Field of Dietetics: Findings will inform useful province-wide scientific and technical support. With the field, PHO will prioritize needs for action to build capacity for public health dietitians to be leaders in promoting health.

Community-based Nutritional Care

Identifying barriers to dysphagia assessment in primary care a Canadian survey of primary care dietitians

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Introduction: Dysphagia or difficulty swallowing affects nearly 35% of older adults in the community and is a significant risk factor for malnutrition, aspiration and respiratory infections. Early intervention is important to minimize these risks. Yet, little is known about the dysphagia assessment practices of dietitians in the Canadian primary care setting.

Objectives: To learn more about dysphagia assessment practices of dietitians working in primary care in Canada.

Methods: A 17-question, on-line survey of dysphagia identification and assessment practices was developed with content and face validity confirmed through survey pilot and expert consultation. Registered dietitians practicing direct nutrition care in the primary care setting were invited to participate through Dietitians of Canada networks, newsletter advertisements and consenting provincial dietetic colleges. Descriptive statistics were used to analyze the survey.

Results: Of the 70 surveys completed, only 8% (6/70) reported clinical swallowing assessments were completed by the dietitian. The two most common barriers were lack of competency/skills required to complete a clinical swallowing assessment (47/70) and not enough personnel/resources (18/70). Approximately 27% were either not sure or did not believe clinical swallowing assessments fell within their scope of practice. Over 70% (51/70) reported needing hands on dysphagia assessment training.

Conclusions: Dysphagia is prevalent in the primary care setting. Access to timely clinical swallowing assessments by dietitians could help expedite intervention and help minimize the consequences of unmanaged dysphagia. However, lack of competency/skills required to complete dysphagia assessments and uncertainty about dietitian scope of practice for dysphagia were commonly cited barriers to successful dysphagia assessment.

Significance to the Field of Dietetics: The high percentage of dietitians who felt they lacked the skill to conduct a clinical dysphagia assessment is concerning. It appears additional training and education is needed to enable primary care dietitians to develop competency in dysphagia assessment and management.

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Determinants of Food Choice, Dietary Intake

One-Carbon Metabolism Nutrient Intakes among Canadian Women of Childbearing Years: Findings from the 2015 Canadian Community Health Survey Nutrition

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Introduction: Adequate intake of one-carbon (1-C) nutrients are vital for normal fetal development. Since many pregnancies are unplanned, maintenance of optimal nutritional status during childbearing years is essential for positive pregnancy outcomes. Currently, limited research exists which examines 1-C intakes among Canadian woman of childbearing years (WCBY).

Objectives: The purpose of this study was to determine dietary intakes and major dietary sources of 1-C nutrients in Canadian WCBY.

Methods: Nationally representative dietary data from 24-h recalls collected in the Canadian Community Health Survey Nutrition 2015 were analyzed to determine intake and food sources of folate, choline, vitamin B₆ and vitamin B₁₂ among non-pregnant and non-lactating Canadian women aged 18-44years old (n=2429). Percent contributions were estimated for all food sources contributing to intake of each nutrient.

Results: Among WCBY, mean intake was above the Estimated Average Requirement (EAR) for Vitamins B₁₂, B₆ and folate with intakes of $3.7 \pm 0.2 \mu\text{g}$, $1.5 \pm 0.03 \text{ mg}$ and $523 \pm 11.9 / \mu\text{g DFE}$ respectively. Mean choline intake ($243 \pm 5.5 \text{ mg}$) fell below the Adequate Intake (AI). Grain products were the highest contributors to folate intake (42%), while fruits and vegetables were the highest contributors to Vitamin B₆ intake (34%). Eggs and dairy were the highest contributors to B₁₂ (49%) and choline (30%) intake.

Conclusions: Our findings suggest that a large portion of Canadian WCBY are meeting current nutrient recommendations for folate, vitamin B₆ and B₁₂. Food sources for choline are primarily animal in origin but the majority of women are not meeting the AI for choline. Given the importance of choline in pregnancy, strategies are needed to improve intake.

Significance to the Field of Dietetics: Dietitians need to focus not only on folate consumption in WCBY but choline as well. Top food sources of choline should be considered as a strategy to improve dietary intake among women.

Tracking Nutrition Trends 2018

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Introduction: Tracking Nutrition Trends (TNT) is the longest-standing Canadian nutrition-tracking survey.

Objectives: 1) to investigate self-reported knowledge, attitudes and behaviours of the adult Canadian population with respect to food and nutrition; and, 2) to gather information on the importance of emerging factors in food choices and eating behaviours for the 2018 survey.

Methods: Participants (1500 Canadians) completed an online survey in August 2018; data were weighted to match the Canadian population by region, age, and sex.

Results: Canadians perceive their own health, eating habits and food knowledge positively; 79% rate their overall health and eating habits as good to excellent. Fewer than half of Canadians follow specific eating habits and patterns; for example, only 16% followed Canadas Food Guide. Although Canadians view sources such as governments, family physicians, dietitians, etc. as credible, they are most likely to use other sources for information on food and nutrition. When eating out, most Canadians are looking for food and nutrition information. When reading food labels, food choices of 75% of Canadians are guided by the best-before date. Taste continues to be the most important factor when choosing what foods to eat, followed by nutrition and cost. A variety of factors positively influence food choices. When selecting foods, Canadians are positively influenced by food as a source of protein (79%), food as a source of fibre (74%), and foods low in sugar (72%). Canadians also place high importance on previous experience with a product, where the product is produced, and if a product is free from pesticides, additives, hormones, and preservatives.

Significance to Dietetics : The TNT report provides insight for developing communications on the role of food and nutrition in health, formulating health and nutrition policy, directing further nutrition research projects and making decisions on the development and marketing of food products.

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Nudging food bank clients towards healthier food choices

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Introduction: Nudge strategies are environmental cues designed to influence individual behaviour and have been applied to encourage healthier food choices. They make products more visible, accessible and appealing and can involve varying levels of human and financial resource intensity.

Objective: To evaluate the effectiveness of low and high resource intensive nudge strategies to increase healthy food selection in an Ottawa food bank.

Methods: Staff offer foods to clients in a routine order in the food bank. During intervention, the offering order, appearance and/or appeal of three foods was altered using nudge strategies. Two low resource intensive methods (carrots and canned legumes) and one high resource intensive method (brown rice) were studied during a 2-week baseline and 2-week intervention period. Carrots were moved to an attractive display with a healthy choice sign. Canned legumes were offered twice, once early in the offer order and again in the usual place in the offer order. Brown rice was offered twice, once as part of a recipe bundle and again in its usual offer order. Data on the number of food bank visits, food items selected and qualitative burdens and challenges were collected.

Results: The proportion of visits where an item was selected increased significantly for canned legumes (27% to 36%) and brown rice recipe bundles (16% to 48%). No significant change was detected for carrots. Recipe bundles had financial and human resource costs but resources were minimal for both canned legumes and carrots.

Conclusions: Low and high resource intensive nudge strategies increase the selection of healthy foods in a food bank setting. The choice of which foods to nudge may be important.

Significance to the Field of Dietetics: These findings highlight opportunities for dietitians when designing interventions that focus on changing the environment to influence healthy food choices for a priority population.

Education, Training and Counselling

A Recipe for Nutrition Competent Physicians

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Purpose: Culinary Medicine Labs (CMLs) formally integrate lifestyle approaches into medical school curricula to increase nutrition competence of graduates and encourage healthy habits, which can translate to improved patient care and health outcomes. A multi-prong approach was used to demonstrate a need for mandatory, integrated CML curriculum at the Northern Ontario School of Medicine (NOSM).

Process: Two focus groups with first year medical students (2016-17) showed a need for practical sessions on nutrition, healthy eating, food preparation and meal planning. In 2017-18 and 2018-19, four and twelve CMLs were piloted respectively with research ethics waivers from Laurentian and Lakehead Universities. Each session involved up to 12 self-selected students; individual evaluations assessed learning and confidence related to nutrition, food skills, and nutrition competence as future physicians. A 16-item needs assessment using Qualtrics was conducted prior to the first CML in September 2018. An environmental scan (Fall 2018) informed draft curriculum which was validated by three medical students (Years 1, 2 and 3 respectively). Nutrition gaps were highlighted through proposals, meetings, and invited presentations.

Systematic approach used: Multiple data sources (focus groups, needs assessment, environmental scan) plus targeted implementation, evaluation and content validation informed a comprehensive, integrated CML curriculum that supports numerous accreditation requirements including self-care. Advocacy and promotion demonstrated high interest and need for mandatory integration.

Conclusions: This experiential interprofessional learning model provides new concepts and strategies around nutrition care for medical students. Twelve hours of instructional activities via six CMLs have been aligned with NOSMs Year 1 medical curriculum; implementation planned for 2019-20.

Recommendations: The medical culture needs to recognize the role of nutrition in medical education as well as self-care. Food and nutrition content should be woven into the entire curriculum.

Significance to the Field of Dietetics: The CML model can enhance medical nutrition curriculum and the roles of RDs in medical education.

Dysphagia Friendly Cooking Series for caregivers of people with dementia associated dysphagia

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Introduction: Dysphagia is common in people with cognitive impairment, sometimes resulting in malnutrition, dehydration, pneumonia, choking, hospitalization and/or death. Safe foods are often bland and unappetizing; caregivers are not properly taught how to prepare safe foods that are appetizing and nutritious. Literature indicates that short cooking programs can increase confidence in performance, food literacy and knowledge for creating healthier meals. Combining education with demonstration is recommended. We ran a series of dysphagia friendly cooking classes that included dysphagia education, related nutritional issues and the IDDSI framework. We shared validated recipes previously developed by our team and tested in a research kitchen.

Objectives: Caregivers participating in dysphagia cooking classes will: 1) increase knowledge about dementia, dysphagia and IDDSI; and, 2) increase confidence and skills for preparing modified textures

Methods: Qualitative study with REB approval from Baycrest. Participants attended 4 cooking classes showcasing cooking videos of validated dysphagia friendly recipes. Participants tasted the foods and discussed textures. Live education was provided regarding dysphagia and enhancing dining experiences. IDDSI standards were reviewed and highlighted for easier recipe reproduction and so other appropriate foods could be prepared confidently at home.

Evaluation: Knowledge and confidence surveys administered pre-, post- and 7 weeks post classes. Each subject was their own control. Results Positive trends were noted for increased confidence in preparing food and liquids and knowledge of the IDDSI framework.

Conclusions: A cooking series pairing filmed validated dysphagia friendly recipes with live education and tasting can increase knowledge and confidence of caregivers.

Significance to Dietetics: Increases accuracy and comprehension for safe food/liquid preparation by providing knowledge and confidence to prepare safe, healthy and appropriate meals, prevent unplanned weight loss and promote home cooking for people with dysphagia Assists design of nutritional therapy to address dysphagia and related nutritional complications Increases public awareness about IDDSI.

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Wellness and Public Health

Adopting sustainable menu practices: Outer context influences

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Introduction: In Canada, there is growing interest for food sustainability, with many initiatives aiming to improve human and planetary health. Sustainability initiatives are also seen in healthcare institutions, where foodservices can adopt sustainable menu practices (SMPs). As little is known about the feasibility of adopting SMPs in Quebec healthcare institutions, understanding these institutions outer context is important.

Objectives: As part of a larger study evaluating the feasibility of SMPs in healthcare institutions, this presentation aims to identify the external influences that stimulate or discourage a foodservice managers decision to adopt SMPs.

Methods: This qualitative phenomenological research is carried out in partnership with Nourish, a national initiative on food in healthcare. Using purposeful sampling, 17 foodservice managers across 10 regions of Quebec were recruited to participate in an audio-recorded semi-structured interview. The diffusion of innovations framework was used to structure the questionnaire for data collection and the codebook for analysis. This framework explains the determinants in which an innovation (SMPs) spreads through a social system (healthcare organizations); thus can illustrate possible influences on the decision to adopt SMPs in healthcare foodservices.

Results: Foodservice managers are faced with many external influences in SMP adoption. Political directives, such as the presence of provincial laws mandating food procurement contract awarding and the absence of ministerial laws requiring adherence to sustainability guidelines can negatively impact adoption. Public opinion on sustainability and food habit evolution across generations can also affect the foodservice managers decision-making process. Other influences include food industries and the existence of municipal services.

Conclusions: While foodservice managers ultimately take the decision to adopt SMPs, this choice can be partially determined by the organization's outer context.

Significance to the Field of Dietetics: Food sustainability is part of the evolving field of dietetics. As foodservice managers are often dietitians, their ability to identify external sources of influence is crucial for SMP adoption.

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Undergraduate Education and Dietetic Internship

Early experiences of incorporating a course-based first-year research experience (FYRE) into an undergraduate nutrition and dietetics program

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Purpose: To describe early experiences incorporating a course-based first-year research experience (FYRE) into an undergraduate nutrition/dietetics program.

Process: Although research-based courses and experiences are components of Canadian dietetic training, they are often incorporated in upper program years. FYREs (where students conduct activities of the research arc: question; investigate; share) have been successfully used in other disciplines (e.g., agriculture, geography); their use and impact in dietetic education are not widely reported or known.

Systematic Approach Used: In fall 2018, a FYRE was incorporated as part of a first-year dietetics professional practice course. In groups of three or four, students drafted a research question on the practices or attitudes of a nutrition topic in the university community, and then wrote three to five survey questions to investigate their question. Survey questions from all groups were compiled, mounted online, and following ethics approval, members of the university community were recruited to complete the class survey. Students then analyzed their data (descriptive statistics), and presented their findings in a research poster. Students received feedback at various checkpoints during the term, and faculty received support from university departments (e.g., undergraduate research, teaching & learning, ethics). To evaluate the student experience, an end-of-term questionnaire with both closed- and open-ended questions was administered.

Conclusions: Results from student questionnaires suggest they found this experience valuable (e.g., enhanced understanding of research; improved research skills) and engaging. Suggestions were provided for future iterations (e.g., more assistance with data analysis).

Recommendations: Plans are in place to use student feedback to refine the experience and to continue offering this FYRE. Although FYREs require careful planning, they appear to be a valuable learning experience.

Significance to the Field of Dietetics: FYREs may help to develop interest and curiosity of future dietitians in research and could prepare and motivate more dietitians to conduct research.

Nutrition and Health Education

Using Food Models to Enhance Sugar Awareness among Older Adolescents: Evaluation of a brief nutrition education intervention

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Introduction: Poor dietary habits among adolescents, specifically the high amount of added sugar consumed are a public health concern. Nutrition education that provides opportunities for hands-on learning is one potential solution.

Objective: We aimed to evaluate the impact of a 2-day food model-based interactive nutrition education intervention on adolescents' sugar awareness; knowledge, intentions, self-efficacy, and behavior.

Methods: 203 students (74.3% female), mean age 15.9 years (SD 1.0 yrs) from 6 schools in British Columbia participated (April-May 2018). Classes were assigned to intervention (n=8) or control (n=8). Intervention students received two 75-minute interactive 2-dimensional food model sessions that included: sugar content in food and beverages, recommendations for added sugar and food group servings in a healthy diet, as well as participating in self-assessment. A questionnaire to assess knowledge, intentions to limit sugar, self-efficacy (label reading), and behavior (frequency of limiting sugar and label reading) was completed before and immediately after the intervention.

Results: Adolescents short-term knowledge of added sugar in food and beverages, sugar recommendations and food group servings in a healthy diet all improved significantly after intervention ($F=104.9$, $p=.001$). Intention to consume less added sugar ($F=4.93$, $p=.03$) and self-efficacy for label reading ($F=14.94$, $p=.001$) also increased significantly. Frequency of limiting sugar in their diet ($F=0.19$, $p=.67$) and of label reading ($F=3.42$, $p=.07$) did not differ significantly.

Conclusions: This study showed that a brief interactive food model-based nutrition education intervention had an immediate impact on adolescents' sugar related awareness, self-efficacy and intentions to change but not on the frequency of limiting sugar and label reading behaviors.

Significance to the Field of Dietetics: 2-dimensional food models are an affordable and easy-to-use interactive visual aid suitable for nutrition education with adolescents in the school environment. Further research assessing their impact over time and on sugar consumption is needed.

Disordered eating behaviors and sedentary lifestyle prevention program for Mexican adolescents

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Background: Adolescents are the age group at the highest risk of developing disordered eating behaviors (DEB) due to the physical and psychological challenges they face. Mexican adolescents engage in less physical activity (PA) than what is considered desirable. According to the World Health Organization, levels of physical inactivity are rising worldwide, increasing the prevalence of non-communicable diseases (NCD) such as obesity, one of Mexico's main public health problems.

Objective: To evaluate the effects of a universal prevention program for disordered eating behaviors (DEB) and sedentary lifestyle for Mexican adolescents. **Methods:** This was a quasi-experimental field study with repeated measures (pre-test, post-test, 6-and 12-month follow-up). Participants were 527 adolescents (240 females, 287 males) aged 15 to 19 at two private high schools in Hidalgo, Mexico. One school was allocated to the experimental group (49.5%) and the other to the control group (50.5%). Both females and males were given the Mexican Brief Questionnaire for Disordered Eating Behaviors and the short form of the International Physical Activity Questionnaire. In addition, male respondents answered the Mexico version of the Drive for Muscularity Scale (DMS).

Results: After a year, repeated-measures analyses of variance showed a significant reduction in the mean DEB scores in the experimental group ($p=0.029$). Mean DMS scores in males in the experimental group decreased significantly over time ($p < 0.001$). The PA frequency and duration did not show a significant increase over time in the experimental group.

Conclusions: Overall, the implementation of the program had positive effects on the adolescents.

Significance to the Field of Dietetics: The program decreases DEB; in males reduces behaviors associated with the aim of gaining muscle mass. All these behaviors have an impact on the nutritional status of individuals, as a result of alterations in the quality and quantity of food intake. Also, it promotes the performance of healthy PA to prevent NCD.

Development and evaluation of an interactive online education platform to facilitate dietary change in pediatric inflammatory bowel disease

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Introduction: The effectiveness of the Crohns Disease Exclusion Diet (CDED) as a treatment for pediatric Crohns disease (CD) is currently being investigated. Feedback from previous use of the CDED in an Israeli sample indicated additional support was needed during the intervention. The CDED Study Canada provided an opportunity to address this feedback, tailor the education-based intervention to the Canadian sample and embed education evaluation into the CDED Study Canada.

Objectives: To develop and evaluate a client-centered education platform for use in dietary intervention implementation in pediatric CD.

Methods: Existing nutrition education materials were adapted, and additional education materials were created, including an online platform (website) which housed all patient education materials. The intervention was 12 weeks and included in-person sessions (Weeks 0 and 6) and the online platform. Participants (aged 4 to 18 years; n = 5) were recruited from Group 1 (intervention) of the CDED Study Canada. Participant satisfaction, knowledge uptake, and knowledge transfer (behaviour change) was assessed using a mixed-form questionnaire administered online pre- education (Week 0) and at Weeks 1, 6, 9, and 12. Knowledge transfer was also assessed using three-day diet records.

Results: All satisfaction questionnaire responses were positive except one. Mean knowledge scores increased significantly from pre-education (62.22 ± 10.18 ; $p = 0.049$) to Week 1 (98.33 ± 3.34 ; $p = 0.026$), Week 6 (97.33 ± 3.65), and Week 9 (97.78 ± 3.85 ; $p = 0.023$). Good knowledge transfer was observed throughout the intervention, as almost all foods in the three-day diet records met CDED guidelines.

Conclusion: The results suggest that a tailored, online education platform is an effective way to provide nutrition education to pediatric CD patients.

Significance to the Field of Dietetics: If the CDED is found to be an effective treatment for pediatric CD, the education framework could assist with future CDED implementation.

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Dietary Assessment

Added and Free Sugars Intake in the Canadian Diet and Changes Over the Past Decade

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Introduction: Consumption of sugars has been shown to be either stable or decreasing in both absolute (grams/d) and relative (% energy intake) terms globally. However, data on current consumption trends of added and free sugars in Canada is lacking.

Objectives: The purpose of this study was to assess the current consumption of added and free sugars in Canadians and to assess changes over the past decade.

Methods: Dietary intake data reported by Statistics Canada from the 2015 Canadian Community Healthy Survey (CCHS) were compared to CCHS 2004. Added sugars were estimated by combining food categories that contain sugars added to foods and beverages. Free sugars were estimated by combining added sugars with sugars in fruit juices. Annual food availability data (adjusted for losses) from Statistics Canada were analyzed for added sugars by summing the availability of “sugars and syrups” with the availability of “soft drinks” (as a proxy for high fructose corn syrup).

Results: In 2015, estimated added sugars consumption represented 10.5%, 11.4% and 9.0% of energy intake for children aged 2-8y, 9-18y and adults 19y and older, respectively, and free sugars contributed 13.5%, 13.6% and 10.2% of energy for these age groups, respectively. When comparing 2015 intakes to 2004, intake of estimated added and free sugars increased slightly for children (1.4% and 0.4%, respectively), decreased slightly (-0.3% and - 0.6%, respectively) for adolescents, and for adults, added sugars increased slightly by 0.2% and free sugars decreased slightly by -0.3%. The availability data on added sugars over the past decade demonstrate a slight declining trend (-1.0% 2015 vs 2004).

Conclusions: Dietary intake data from CCHS 2015 compared to 2004 indicate no overall great change in estimated consumption of added and free sugars among Canadian children and adults over the past decade, while availability data demonstrates a slight declining trend of added sugars over the past decade.

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Morgan Medal Presentation

Investigating Antihypertensive, Angiotensin-I Converting Enzyme (ACE)-Inhibitory Activity of Soldier Bean Protein Hydrolysates

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Purpose: Hypertension is a chronic condition that affects 7.2 million Canadians, yet it can be managed and modified through dietary interventions. Although several research studies have shown that red lentils, chickpeas, and lima beans contain bioactive peptides with Angiotensin-I Converting Enzyme (ACE)-inhibitory properties, to date no studies have been conducted to determine the antihypertensive abilities of Nova Scotian soldier bean (SB) proteins. The aim of this study is to determine if trypsin hydrolysis of SB proteins would generate peptides with ACE inhibitory activity.

Methods: SB protein isolates were hydrolyzed with the enzyme trypsin. Two different enzyme: substrate (E:S) ratios were used (1:100 and 1:250) and the degree of hydrolysis was determined by a 2,4,6-Trinitrobenzenesulfonic acid (TNBS) assay. In addition, ACE-inhibitory activity was measured using the hippuryl-His-Leu (HHL) substrate method. For these studies, a commercial pea protein, Propulse™, was used as a control.

Results: It was demonstrated that SB peptides possess ACE-inhibitory properties. When hydrolyzed in a 1:100 E:S solution, SB peptide concentrations of 0.25 µg/mL yielded 53% inhibitory activity. In a 1:250 E:S ratio, SB peptides exhibited inhibitory values of 53% and 60% in 0.5 µg/mL and 5 µg/mL concentrations, respectively. For the control, Propulse™, over 50% ACE-inhibitory activity was only observed at a peptide concentration of 5µg/mL when an E:S ratio of 1:250 was used.

Conclusions: Although preliminary, the findings from this study provide an important first step in establishing evidence to further investigate Nova Scotian SB as potential candidates for antihypertensive activity. Dietetic research that continues to examine the antihypertensive abilities of pulses offers the potential to provide supportive evidence for dietary interventions used to combat the prevalence of hypertension in Canadian adults.

Other

Evaluation of a Media Training Workshop for nutrition and foods students and professionals in Halifax, Nova Scotia

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Introduction: Nutrition and foods trainees and professionals have identified a need for formal communication and media training at the undergraduate and graduate level to ensure they feel confident engaging with media. A one-day Applied Human Nutrition Media Training Workshop (AHN MTW) was developed at Mount Saint Vincent University, in Halifax, Nova Scotia, for nutrition students and professionals, to provide attendee's with audio-visual media training.

Objectives: The objectives were to: 1) collect demographic information on AHN MTW attendees, 2) capture attendees' experience of the AHN MTW, and 3) evaluate interest in further programming.

Methods: A standardized, mixed-form questionnaire was developed and self-administered immediately to attendees after the workshop and eight months later in person or via LimeSurvey. Data were analyzed using descriptive statistics.

Results: Twenty-nine participants completed the questionnaire immediately post-workshop and six completed it at follow-up. Workshop attendance was divided into morning, afternoon, and all day. Attendees stated that they were motivated to attend the workshop in order to learn media skills for dietetic practice and to gain confidence in public speaking. All attendees said they learned something new at the workshop and planned to use these learned skills in future media opportunities such as TV/radio interviews. The one-day workshop was described as: exceptional (9/29), excellent (7/29), very good (3/29), and good (1/29) by twenty-nine attendees. Data collected during follow-up showed that attendees used their learned media skills in interviews and media content development.

Conclusion: Attendees' demographic information and experience of the workshop were captured. Attendees expressed interest in attending future workshops and specific areas of interest were identified. Evaluation data will be used to develop future training opportunities.

Significance to the Field of Dietetics: One-day workshops rooted in experiential learning, may be an effective approach to media knowledge and skill development for nutrition students and professionals.

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Responsive Feeding Practices During the Early Years

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Introduction: Responsive feeding refers to a reciprocal relationship between an infant or child and his or her caregiver that is characterized by the child communicating feelings of hunger and satiety, followed by a response from the caregiver. Healthy feeding behaviours, including responsive feeding practices, strengthen self-efficacy, self-regulation and emotional management throughout a child's development. Early years centres (EYCs) often follow healthy eating guidelines that encourage responsive feeding principles as part of promoting a healthy relationship with food; however, the extent to which these are adopted and understood is unclear.

Objective: The objective of this research was to understand responsive feeding practices in the home environment and in EYCs on Prince Edward Island (PEI).

Methods: A mixture of one-on-one interviews and focus groups were conducted with 27 participants including 13 EYC directors, 4 early childhood educators, 3 cooks, and 7 parents. Inductive thematic analysis of transcripts and field notes was conducted.

Results: Many EYCs provide an environment that encourages responsive feeding practices such as predictable meal routines, family-style meal service and caregiver engagement during meal times. However, factors related to cues to hunger and satiety, self-regulation, and positive role modelling were practiced less often and described as more challenging for both parents and EYCs.

Conclusions: Responsive feeding practices appear straightforward yet establishing and sustaining them can be difficult. Complex factors related to family, culture, social, and economics can undermine the confidence caregivers and parents have in maintaining these important feeding practices.

Significance to the Field of Dietetics: Despite the complex factors associated with responsive feeding practices, dietitians are well positioned to engage with early childhood educators and parents to promote a life-long healthy relationship with food.

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