

CANADIAN FOUNDATION FOR DIETETIC RESEARCH

CFDR Research Showcase: Early Bird Abstracts

Given the pandemic challenges we experienced over the last year, the 2021 Dietitians of Canada (DC) National Conference from May-June brought our dietetic community together from all across Canada and the world. This year the Canadian Foundation for Dietetic Research (CFDR) showcased another successful event with novel, relevant, timely research projects via the OnAIR Virtual Event Portal. Twenty-four research abstracts were submitted and reviewed by the Early Bird Abstract Review Committee. It was exciting to have research from different nutrition and dietetic practice areas represented. Thanks for all of the abstract submissions!

Eight Early Bird abstracts were presented as Lightning Rounds during the virtual DC National Conference and were very well-received. The remaining 16 abstracts were displayed as posters for the duration of the conference with a live 7-minute presentation opportunity from the poster gallery on May 19, 2021. All of the Early Bird abstracts are published in this issue of the Canadian Journal of Dietetic Practice and Research and are also featured on the [CFDR website](#). These abstracts represent a wide variety of practice-based nutrition research projects in Canada.

The Early Bird abstract research event would not have been possible without the commitment and dedication of many supportive individuals. On behalf of DC and CFDR, we extend a special thank you to members of our abstract review committee: Susan Campisi (University of Toronto); Pauline Darling (University of Ottawa); Andrea Glenn (St. Francis Xavier University); Mahsa Jessri (University of British Columbia); Grace Lee (University Health Network), Jessica Lieffers (University of Saskatchewan); Shelley Vanderhout (University of Toronto).

A sincere thank you to all of the moderators, the DC Conference team and Izabella Bachmanek for their support with the Lightning Round presentations over the course of the DC virtual conference.

Please consider submitting an abstract next year for the CFDR Research Showcase at the 2022 DC National Conference in Saskatoon, SK.

Wishing all of you a wonderful Fall!

Warm regards,

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Chair, 2021 Early Bird Committee
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Director of the Dietetics Program
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Dietetic Practice and Education

What's your change work? Mine is eating and digestive ableism and gut privilege

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Purpose: My purpose was to articulate what my change work is/has been and to invite colleagues to identify theirs to facilitate networking/collaborating to advance social change in dietetics.

Process or summary: I recently attended a webinar, *The Power of Connections Across Generations*, hosted by the Nova Scotia (NS) Network for Social Change. Three panelists of different generations spoke about their work combatting racism in NS. Each speaker used the phrase, “When I am involved in this change work...”. Their phrasing got me thinking about what my change work has been/is and how I would label it.

Systematic approach: I have kept a reflections-on-work journal for over 30 years. In reviewing some of these journals, I recognized a uniting theme of raising awareness about the challenges families experience when, owing to illness/injury/aging, a loved one can no longer eat, digest or enjoy food, and how I have incorporated this awareness in teaching, research, and nutrition counselling/education practice.

Conclusions: It was challenging to articulate my change work. I eventually arrived at the phrase ‘working to reveal eating and digestive ableism and gut privilege’. These words reflect my efforts to raise awareness about assumptions imbedded in much of nutrition education, food skilling advice, and teaching resources that everyone has a healthy and functional gut and enjoys food preparation/eating.

Recommendations: Dietitians/others involved in nutrition and food skilling education are recommended to become aware of when they use eating-related ableism and gut privilege in their work. Recognizing how eating and digesting are highly varied will lead to development of nutrition messaging that has a wider relevance for multiple audiences. Second, to facilitate networking, I encourage colleagues to find words to describe their change work.

Significance: Finding words to describe one’s change work can create conditions where dietitians embrace the value of working toward social change, where this work is supported by dietetic associations that includes creating opportunities for dietitians to rally around/network related to their change work, in addition to networking re: areas of practice or types of health conditions.

Employment and education experience of dietetic graduates from 2015-2020

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Introduction: Canadian dietetic educators have been calling for workforce planning and reporting. Information on career paths and program satisfaction of dietetic graduates can identify trends and emerging practice areas, support recruitment, enhance education, training and continuing education programs, and inform advocacy.

Objectives: Graduates qualified to write the Canadian Dietetic Registration Exam or be licenced by the Ordre professionnel des diététistes du Québec from 2015-2020 were surveyed to describe: 1) employment paths; 2) their first and current dietitian positions; 3) satisfaction with dietetic education and training; and, 4) perceived impacts of COVID-19 on employment.

Methods: A web-based survey was developed, piloted in 2019, updated to reflect national programming, the impact of COVID-19, and translated into French. Respondents were recruited via Canadian training programs, social media, and Dietitians of Canada newsletters from June-October 2020. Data were analyzed using descriptive statistics.

Results: Of the 624 respondents, 76% were employed as dietitians at the time of the survey and most (75%) had obtained employment as a dietitian within 12 months following training completion. The top roles for first dietitian positions were acute care hospital/in-patient (36%), long-term care (15%), and health care teams (11%). In addition, 26% had secondary dietitian positions with a different employer. The average length of first dietitian positions was 14 months; however, 29% changed primary positions within the first 12 months following dietetic training. In total, 71% were satisfied/very satisfied with their academic and practicum training. Areas with lower satisfaction included cultural competence and financial management. Most respondents felt they had knowledge and skills (89%) and opportunity (78%) to advance their dietetic career. COVID-19 affected the employment search of 34% and current employment of 44% of respondents.

Conclusions: Survey results indicate a positive outlook for new dietitian graduates. However, COVID-19 profoundly affected many recent graduates. While graduates expressed overall satisfaction with their dietetic training, more in-depth training in cultural competence and financial/business skills would be valued.

Significance: The findings have importance for recent graduates, students considering entering dietetics, educators and employers. Data from this survey provides opportunity for comparison between regions and may serve as a baseline for future surveys.

Funded by: Dietitians of Canada

Development of an online nutrition labelling course

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Introduction: In 2016, the Food and Drug Regulations were amended to make improvements to the Nutrition Facts table and the list of ingredients. Health Canada developed an online course to teach health professionals and educators about the updated nutrition labelling information. Research has suggested that quantitative methods of evaluating courses in the form of closed end rating does not provide the full user experience; discussion groups can encourage student interactions that reveal issues not addressed in online evaluations and promote discussion of practical solutions.

Objectives: The aim of this research was to engage in extensive user experience testing to facilitate course improvements before launch and to ensure that the course met the needs of the target audience.

Methods: Health professionals (e.g., dietitians) and educators were recruited through professional associations and networks from across Canada. Discussion groups collected in-depth qualitative feedback on each module and suggestions for client activities. Descriptive statistical analysis and thematic analysis were used to interpret the data. We conducted five discussion groups (n = 21), three were in person and two were virtual.

Results: The main themes from the discussion groups were content and structure. Participants especially appreciated the course organization, variations in the interactivity, module specific quizzes, and client activity resources. They also provided input on improving the clarity of complex content, condensing lengthy modules or pages, including additional topics of interest, and adding a certificate of completion. Suggestions regarding client activity resources included adding objectives up-front, using alternative product examples, and creating a summary handout for clients.

Conclusions: Participant feedback was integrated in the final version of the online nutrition labelling course, which is planned to be launched in Spring 2021. This research illustrates the importance of user experience testing during online course development to ensure its usefulness for the target audience.

Significance: The comprehensive range of feedback for this course, including testing with a diverse audience, provides a product that has direct application to the needs of health professionals and educators, specifically dietitians.

Funded by: Health Canada

A social media campaign in Saskatchewan to enhance food security during the COVID-19 pandemic

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Introduction: The COVID-19 pandemic has presented many food security challenges. Eat Well Saskatchewan (EWS), a free dietitian contact service in Saskatchewan, implemented a 16-week social media campaign (#eatwellcovid19) using a storytelling approach. This campaign allowed Saskatchewan residents to share their experiences on how they coped with food insecurity challenges during COVID-19 with others.

Objectives: To describe implementation and evaluation of #eatwellcovid19 using social media analytics and qualitative interviews of campaign followers.

Methods: EWS encouraged Saskatchewan residents to submit personal stories that demonstrated their own coping strategies in dealing with food security challenges during COVID-19. Each week, 1-3 stories were featured on EWS social media platforms (Facebook, Twitter, Instagram), along with social media posts featuring related evidence-based nutrition information. Social media metrics and semi-structured qualitative interviews of campaign followers were used to evaluate campaign impact. The interviews were analyzed using content analysis and NVivo.

Results: EWS received 75 stories from Saskatchewan residents and 42 were featured on social media. Stories were on various topics (e.g., traditional food skills, gardening). On Facebook, the campaign reached 100,571 people, left 128,818 impressions and 9,575 engaged with posts. On Instagram, the campaign reached 11,310 people, and made 14,145 impressions. On Twitter, the campaign made 15,199 impressions and received 424 engagements. All EWS social media platforms saw an increase in followers during the campaign; Instagram's growth was the largest (+30%). Not including campaign posters promoted with paid advertising, featured story submission posts made the largest impact on all platforms (except Twitter), followed by supplemental content related to featured stories. Interview participants (n=20) appreciated the positive, local and reliable content and stated the storytelling format helped them to feel connected to their community during social isolation.

Conclusions: Storytelling appeared to be a successful approach for this campaign. Residents appreciated hearing local stories to help deal with food security concerns experienced during the pandemic.

Significance: Social media health promotion campaigns are gaining popularity and have potential to reach large audiences and counteract nutrition misinformation. Storytelling is an approach dietitians could use when designing similar campaigns.

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Développement d'une grille d'observation des compétences en collaboration interprofessionnelle pour simulations en santé

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Introduction: La collaboration interprofessionnelle (CIP) implique deux ou plusieurs professions travaillant ensemble, afin d'améliorer la qualité et sécurité des soins grâce à la coordination des rôles et d'expertises. L'apprentissage et l'évaluation des compétences en CIP durant la formation des professionnels de la santé sont fondamentaux à l'approche centrée sur le patient. D'ailleurs, la collaboration fait partie des 7 domaines de compétences intégrées du Partenariat pour la formation et la pratique en nutrition (PFPN, 2020).

Objectif: Développer une grille d'observation standardisée en français permettant l'évaluation des indicateurs de compétences (IC) en CIP d'étudiants de disciplines de la santé lors de simulations interprofessionnelles.

Méthodes: Une recension des écrits sur les IC en CIP et les outils permettant de les évaluer a été effectuée dans les bases de données Medline, PsychInfo, Embase, CINAHL et Scopus. Un total de 2726 articles furent identifiés, dont 127 retenus et révisés. Les IC de 18 articles ont été extraits. Les outils d'évaluation utilisés dans diverses institutions universitaires et collégiales ont également été identifiés par sondage électronique. Les IC furent compilés par consultation de documents pour l'enseignement et la pratique de plusieurs organismes d'agréments professionnels, puis reformulés et regroupés dans une grille par trois chercheurs. La grille fut révisée par sept experts de diverses disciplines et institutions qui ont proposé des modifications et approuvé le contenu lors d'un groupe de discussion semi-dirigé.

Résultats: Une grille d'observation comprenant 37 IC et permettant l'évaluation des compétences en CIP lors d'activités simulées a été développée et révisée par des experts. La grille est divisée en 6 catégories de compétences intégrées, soit: clarification des rôles (7 IC), soins centrés sur le/la bénéficiaire ou son représentant (5 IC), communication interprofessionnelle (6 IC), fonctionnement de l'équipe (7 IC), leadership collaboratif ou partagé (6 IC) et résolution de conflits interprofessionnels (6 IC).

Conclusion: Une grille d'observation francophone standardisée permettant l'évaluation des IC en CIP lors de simulations interprofessionnelles a été développée.

Importance: La grille en CIP supporte l'amélioration de la formation des professionnels de la santé quant aux compétences nécessaires au fonctionnement d'une équipe interprofessionnelle visant l'offre de soins de haute qualité et sécuritaires

Funded by: Consortium national de formation en santé (CNFS) – Volet Université d'Ottawa

Community-based Nutritional Care

Malnutrition in older home care clients referred to dietitians: A descriptive study

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Introduction: Malnutrition is generally under-recognized in older adults. Limited data exists on nutrition risk and malnutrition of older home care clients referred to dietitians.

Objectives: The objectives are to determine the prevalence of malnutrition and nutrition risk among those referred to the home care dietitians and describe clients' clinical characteristics.

Methods: We conducted a descriptive study of completed dietitian referrals for malnutrition and nutrition risk for home care clients 65 years and older received from home care professionals between May 1 to October 31, 2020. Demographics, referral reason, and clients' clinical characteristics were collected and analyzed using descriptive statistics. Referred clients were identified malnourished, at nutrition risk or not at nutrition risk based on clinical symptoms using the Global Leadership Initiative on Malnutrition (GLIM) criteria.

Results: Home care dietitians received a total of 476 home care referrals, of which 205 (43%) were 65 and over. For clients 65 and older, 98 were referred for signs and symptoms suggestive of nutrition risk (e.g., weight loss, cachexia, poor intake, and poor appetite). An additional 64 clients referred for other reasons were identified during dietitian assessment, for a total of 159 (78%) clients with nutrition risk or malnutrition. Of the 159 clients with nutrition risk or malnutrition: 54% (n=110/205) were identified with malnutrition, 24% (n=49/205) at nutrition risk, while 22% (n=46/205) were not found to be at risk. Age of referrals ranged from 65 to 102 years (mean age = 82, SD = 8.3), with 54.9% identified as females. Mean Body Mass Index (BMI) was 22.9 Kg/m² and 45% of referred clients were underweight (BMI<22). Fifty-six percent (n=90) of referred clients experienced significant weight loss and 68.5% (n=111) reported reduced food intake in the previous two weeks.

Conclusions: Malnutrition is an important concern for home care clients. Seventy eight percent were found at nutrition risk and 54% were found to have malnutrition. Our study provides evidence that malnutrition is prevalent among this population and supports the need for early identification of nutrition risk in home care clients.

Significance: This study provides baseline data for developing and evaluating future interventions to increase malnutrition awareness in the Home Care Program.

Determinants of Food Choice, Dietary Intake

Strategies to improve hydration practices in residential care during COVID-19

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Introduction: Older adults residing in residential care are at an increased risk for dehydration due to physiological changes related to aging (changes to body composition, decreased thirst sensation and kidney function), disease condition (medication use), and increased dependence on others (functional ability, access to fluid). A variety of hydration techniques are used in residential care, but there is no consensus on how to maintain hydration. Infection control measures aimed at limiting the spread of COVID-19 in residential care amplified the need for creative ways to ensure that residents are consuming adequate food and fluids. Effective practices that are also feasible during infectious outbreaks are needed.

Objectives: To examine the perspectives of experts and providers in residential care on challenges and potential strategies to improve hydration practices during COVID-19.

Methods: Twenty-seven research/academic experts (67%) and providers (33%) in residential care from Canada (78%) and outside of Canada (22% UK, US, & Germany) participated in an audio-recorded three-hour virtual discussion about hydration practices before and during COVID-19. The participants were from a variety of disciplines: nutrition (45%); nursing (19%); speech-language pathology (11%); administration (11%); food service (7%); and other (7%). Qualitative content analysis was conducted.

Results: COVID-19 hydration-related challenges and potential solutions to mitigate them were identified and categorized into three levels: resident (e.g., reduced access to beverages due to COVID-19 restrictions, apathy); staff (e.g., limited staff, decreased beverage offerings, new staff and role changes, changes in hydration assessment); and home-related (e.g., changes in beverage availability, drinking cups, routines for social events/volunteer assistance and physical distancing in dining areas). Some potential strategies to mitigate the problems included: trolley beverage service between meals; physically distanced interactions; offerings of fluids at every contact by all staff; and, physically distanced events that encourage fluid intake.

Conclusions: COVID-19 has impacted hydration practices in residential care at the resident, staff, and home levels.

Significance: Creative strategies involving an interdisciplinary team approach are needed to change hydration practices during a pandemic to ensure resident fluid needs are being met in residential care.

Funded by: University of Waterloo International Research Development Program, with matching funds from Adelphi University (startup funds for ANM), and University of California at Los Angeles (JM).

A contradicting reality – unhealthy food environments in publicly funded facilities that support wellness

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Introduction: The impact of food environments (FEs) on eating behaviours is gaining recognition as population health outcomes continue to deteriorate. As a preferred gathering place, FEs in public recreation facilities (PRFs) have been of particular interest as they have a priority to support wellness. Some jurisdictions have described the food and beverage options available as unhealthy and unsupportive of health, which contradicts this priority. One study found that children and youth involved in sports consumed more calories, fast food and sugary beverages than those who do not.

Objective: To characterize the current state of food environments in Saskatchewan (SK) public recreation facilities (PRFs).

Methods: We used a convergent/parallel mixed methods study design. The quantitative component included Nutrition Environment Measures Survey–Restaurant reduced item (rNEMS-R) and Nutrition Environment Measures Survey-Vending (NEMS-V) observational audits to determine the healthfulness of food and beverage options in concessions and vending (Study I), and the qualitative component included semi structured telephone interviews to examine barriers, facilitators and future opportunities in SK (Study II).

Results: Quantitative results confirmed that only 5% of concession main dishes were defined as healthy. As well, 80% of packaged food and beverage products in concessions, and 84% in vending, were defined as *Offer Least Often* (Saskatchewan Nutrition Standards, 2018). Qualitatively, barriers far exceeded facilitators for healthy eating. Some key barriers included a lack of policy, guidelines, resources, capacity, funding, infrastructure, incentives, direction, availability and promotion of healthier options as well as economic risk. In turn, several future opportunities emerged, which relate to the aforementioned barriers, such as the need for policy, guidelines, incentives and direction. In addition, there is a need for healthy food access and promotion, stakeholder engagement and knowledge exchange platforms.

Conclusion: Food and beverages are frequently available through concessions and vending in SK PRFs, and the options available are less healthy and unsupportive of health. Even though there appears to be organization readiness to change, several barriers exist that are prohibiting change.

Significance: Population health outcomes continue to deteriorate. There is a need to focus efforts upstream to address influential factors, such as policy and environmental factors, where people work, learn and play, so healthy choices are easier choices.

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Socialization, COVID-19 and hydration in residential care; potential for dehydration?

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Introduction: Older adults living in residential care are at increased risk for dehydration due to factors at the resident, staff, and home level. Prior research indicates that social drinking opportunities may influence fluid intake. The COVID-19 pandemic has highlighted the relevance of social interactions to hydration. Restrictions intended to limit the spread of the virus have led to increased resident isolation, which may have increased the risk for dehydration. To date, there is limited examination for the potential effects of decreased socialization of residents on their hydration.

Objective: To identify the potential impact of restrictions on socialization arising from COVID-19 on hydration.

Methods: Experts (researchers n=18, providers n=9) participated in a knowledge exchange meeting to provide their insights into the potential impact of COVID-19 restrictions in residential care on social interactions and hydration. Zoom technology with audio recording was used; meeting notes and audio recordings were transcribed for qualitative content analysis. The majority were from Canada (78%), and although multiple disciplines were represented, the two most common groups were dietitians (44.4%) and nursing (18.5%).

Results: Participants shared that restrictions related to COVID-19 infection control procedures have reduced resident access to social programs and activities, volunteer/family visiting, and affected staff roles and activities, which resulted in fewer care touch points with residents during the day. Specifically, pandemic procedures caused compressed staff schedules - a barrier to resident-centred care practices -leading to less frequent beverage offerings, reminders, and inquiries regarding drink preferences. Physical distancing in the home environment has decreased opportunities for communal dining and social events, which would normally encourage fluid intake in non-outbreak situations. Rules around physical distancing decreased family visitations, further reducing opportunities for social drinking or the consumption of special drinks brought in by family.

Conclusions: COVID-19 restrictions have brought changes to the frequency of care touch points and opportunities for residents to socially engage, resulting in decreased opportunities for drink offers from staff and social drinking.

Significance: Incorporating opportunities for socialization and social interactions in hydration interventions can promote fluid intake in LTC residents.

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An assessment of snack consumption by Canadian soldiers training in the Arctic

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Introduction: Canadian Armed Forces (CAF) soldiers have elevated energy needs given their physical activity, especially when training in the Arctic. Often during trainings/deployments, combat rations are given to soldiers when fresh-feeding is not possible. These pre-packaged meals provide a daily total of ~4800kcal. Light Meal Combat rations (LMCs) are snacks occasionally offered by CAF in addition to main meal rations and provide an additional 1000kcal/d. They include multiple snacks: beef jerky, trail mix, fruit bars, sport drink, coffee, etc. Additionally, a common practice for soldiers in training/deployment is to bring snacks from home with them.

Objective: To assess consumption of snacks by CAF soldiers training in the Arctic.

Methods: CAF soldiers who trained in the Arctic (2015-2018) were invited to participate in an online bilingual survey questionnaire sent via SurveyMonkey. It included questions related to intake of snacks (LMCs and/or brought from home), and feedback on 13 acceptability factors using a 7-level Likert scale (*1-Very unacceptable to 7-Very acceptable*), and comment boxes. Results are presented as mean±standard deviation.

Results: Forty-eight soldiers participated; 29 (60%) reported consuming LMCs and 34 (71%) brought food from home (e.g., granola/energy/protein bars, candy, trail mix, coffee, instant soup/broth). In total, 43 (90%) consumed snacks. The three highest scores of LMC acceptability were weight (5.8±1.2), ease of preparation (5.3±1.5), and preparation time (5.3±1.5). LMCs were eaten sporadically throughout the day, reflecting their purpose as snacks between meals (26% eaten between 12-3:59am; 23% between 1-3:59pm; 30% between 7-9:59pm). Fifteen participants provided comments. Many talked specifically about the jerky and fruit bar being good snack options, but were always frozen making them difficult to consume, even more so on-the-move. Others wanted a greater variety of snacks. When asked why they brought home food, some indicated it was for added energy.

Conclusion: The majority of soldiers consumed snacks (LMCs and snacks from home) throughout the day, likely providing extra energy to help reach their elevated nutritional needs in the Arctic.

Significance: These preliminary findings emphasize the importance of providing soldiers with energy-dense snacks in addition to meals. Snack options and suitability could be optimized to be easily consumed in the Arctic.

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Vulnerable Groups and their Nutritional Needs

Transitioning tradition: the potential for online culinary workshops for children aged 9-11 years old

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Purpose: The objective of this pilot project was to determine whether an online culinary workshop for children aged 9-11 years old would be feasible and effective at meeting specific goals related to enhancing nutrition knowledge, food skills, attitudes and behaviors, food choices, and food security. The project was run through a Montréal-based food bank which hosted in-person educational culinary workshops for kids, called *Boîte à Lunch*, prior to COVID-19.

Summary: A total of 18 families recruited from a community day camp in Notre-Dame-de-Grâce, QC participated in 1-3 workshops. Free meal kits, containing all necessary ingredients and missing equipment, were prepared and distributed. Participants joined the facilitation team via Zoom™ for the workshops.

Systematic approach: The program was carefully planned before implementation, taking into consideration factors such as ability, support and accessibility. Ensuring that families had the equipment necessary to cook (pans, tools, etc.) and connect virtually (computer/phone, reliable internet access, etc.) as well as the capacity to use the platform was important. Support from the facilitation team was available to help if necessary. Pre- and post-surveys were administered to parents, and children were asked questions during sessions either verbally or with polls.

Conclusions: Overall the 90-minute workshops were successful and enjoyable, as assessed by participant retention and a rating of 4.5/5 (90%) for enjoyability in the post-survey. Positive directions of change were noted for parental perceptions of their child's cooking skills (+41.6% for basic abilities), attitudes and behaviors (+27.8% for helping in the kitchen) and food choices (+6% for eating vegetables). Further research is warranted to determine the impact of similar programs.

Recommendations: It is imperative to assess the baseline abilities and accessibilities of families including, but not limited to, internet access, food skills, and motivation to participate. Given the feasibility and apparent effectiveness of programs such as this one, initiatives that direct their efforts towards supporting families in participating should be upheld through community subsidization and endorsement.

Significance: Online workshops have the potential to broaden the reach of successful education programs, which may benefit children and their families in meaningful ways.

Funded by: CST Inspired Minds Learning Project

Nutritional Assessment and Therapy

Promising interventions for increasing dried bean consumption: consensus results

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Introduction: Although Canada is a leading grower of dried beans and the Canada's Food Guide (2019) emphasizes eating more plant-based protein, the consumption of dried beans is low in Canada. Multiphase optimization methods have been suggested as a way to determine the most effective components of complex interventions to change health habits, including eating habits.

Objectives: The focus of this preliminary work was to identify promising marketing and health education strategies for promoting dried beans, based on the opinions of a group of experts from agri-food industries, academia and health promotion.

Methods: A one-day consensus process using nominal group and ranking methods was conducted among 14 stakeholders and researchers experienced in nutrition and marketing strategies and product development. The stakeholders represented Ontario Bean Growers, Pulse Canada, Agriculture and Agri-Food Canada, food science, food marketing, public health and human health nutrition, registered dietitians, Guelph Community Health Centre, Guelph Food Research Centre, and Guelph Family Health Study. The process was facilitated by a professional moderator. The stakeholders were asked to generate ideas to answer the question, "What are some potential interventions to increase dried bean consumption?" These ideas were then discussed and categorized into common themes. The group was then asked, "if we could only trial five of these strategies in the next year, which ones are most promising?" Individuals selected his/her top 5 and the overall results further discussed until a consensus of the top ranked interventions was reached.

Results: Among top ranked interventions were meal kits, promotional activities such as coupons, reward programs to incentivize purchases, incorporating dried beans into individual's diet by introducing convenient products and broadened cooking skills, and improving social media platforms for sharing experience and stories.

Conclusions: The consensus meeting results pointed to several promising strategies to increase dried bean consumption in the Canadian population based on the known barriers from previous consumer research.

Significance: The top selected interventions were used in the next phase of this project, which involved testing various combinations of the interventions for feasibility in a 3-week pilot study among 16 subjects. Results will inform development of a fully powered intervention study.

Funded by: Ontario Bean Growers and the Agricultural Adaptation Council.

Nutrition and Health Education

Nutrition and tooth decay in children: a qualitative study of caregiver experiences and perspectives

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Introduction: Tooth decay is the most common chronic disease in children. Many factors can cause tooth decay including oral hygiene (brushing, flossing) and diet. Foods can be labeled as: cariogenic (promotes tooth decay; e.g., sugary foods) and cariostatic (inhibits tooth decay; e.g., milk, cheese). Cariogenic foods that are consumed frequently are especially harmful. To date, there is little known about caregiver perspectives regarding nutrition and tooth decay.

Objectives: To investigate caregivers' perspectives related to the role of nutrition in tooth decay in children.

Methods: Parents/caregivers of Saskatchewan children ≤12 years diagnosed with tooth decay in the past 2 years were recruited using community-based advertising (e.g., online advertisements) to complete a semi-structured interview. All interviews (in-person; telephone) were audio-recorded and transcribed. Data were managed using NVIVO software and analyzed using Interpretive Description methods.

Results: A total of 21 caregivers (17 females; 4 males) participated in interviews ranging from 22-71 mins. Variable eating behaviors were found in children, but a high consumption of sugary foods/beverages especially during breakfast, snacks and at bedtime was reported. During treatment of children's tooth decay, most caregivers did not receive any explanation for their child's tooth decay and limited/no advice on future prevention, especially related to nutrition. No caregivers were referred to or consulted a dietitian regarding tooth decay, and a few received relevant advice from oral health care providers. Caregivers indicated they would welcome increased dietitian involvement, new policies towards food labeling, and more education from professionals in different settings (e.g., parent groups).

Conclusions: Caregivers reported receiving little/no information about nutrition and tooth decay, and none received dietitian assistance on this topic. They wanted to learn more about nutrition to decrease the risk of tooth decay. More information on nutrition and tooth decay needs to be spread throughout the community using diverse channels.

Significance: Nutrition and tooth decay is an emerging practice area for dietitians. Dietitians have an important role in working collaboratively with other health professionals to decrease the burden of tooth decay. Caregivers' suggestions can help to guide development of nutrition interventions to prevent tooth decay.

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What is the effect of sleep quality on diet quality in postpartum women?

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Introduction: The postpartum period is a demanding period in women's lives where disrupted sleep may increase the risk of postpartum weight retention, which predisposes them to future health problems. Poor sleep can result in poor quality food choices, such as foods high in fat and saturated fat, and low in fiber.

Objective: The aim of this study was to compare diet quality parameters of postpartum women with good *versus* poor sleep quality.

Methods: The 3-day food intake records of 95 postpartum women (<12 months postpartum) were analyzed using ESHA Food Processor to assess diet quality parameters (daily macronutrient and fiber intake, compared to dietary recommendations). Participants were classified as “good” (score <6) or “poor” (score ≥6) sleepers based on their Pittsburgh Sleep Quality Index Score. Independent sample t-tests were used to assess differences in dietary parameters between groups.

Results: Women were 32.6±4.0 years old (mean±standard deviation) and their pre-pregnancy body mass index was 24.1±4.5 kg/m². There was no difference in diet quality parameters between good (n=26) and poor sleepers (n=69). However, the percentage of energy intake from fat and saturated fat for all women (n=95) were high at 36.0±6.8% and 13.1±4.8% respectively. Fifty-four percent of women (n=51) had a percent of energy intake from fat above the Acceptable Macronutrient Distribution Range (AMDR, 20-35%). Moreover, 77.9% of women (n=74) had a percent of energy intake from saturated fat above Health Canada's recommendation (<10%). Furthermore, only 26.3% of women (n=25) met the adequate intake (AI) recommendation for fiber. The average fiber intake was 11.5±4.3 g/1000kcal/d, compared to the AI of 14 g/1000kcal/d. However, their percent energy intake from carbohydrates and proteins were within AMDRs (48.9±7.5% within 45-65% and 16.4±3.3% within 10-35%, respectively).

Conclusions: Although no difference was found in diet quality parameters evaluated between participating postpartum women with good *versus* poor sleep, they would benefit from education about selection of foods low in fat and saturated fat and rich in fiber.

Significance: Our results suggest that nutrition education would be beneficial for postpartum women in order to help them meet nutrient intake recommendations for optimal health.

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Does sleep quality influence eating patterns in postpartum women?

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Introduction: Evidence suggests an association exists between poor sleep, increased frequency of food craving and poor diet quality. Postpartum women need to adjust their sleep pattern to the circadian rhythm of their offspring, which may affect their eating pattern and overall health.

Objective: The aim of this study was to assess the differences in eating patterns of postpartum women with good versus poor sleep quality.

Methodology: Eighty-seven postpartum women with an average age of 32.57 ± 4.01 years were recruited at 25.78 ± 13.17 weeks postpartum. We compared eating pattern parameters (number of daily eating occasions, as well as timing of energy intake) using 3-day food intake records. The 3-day food records were analyzed by ESHA Food Processor to estimate the daily energy intake. Participants were classified based on sleep status (good *versus* poor sleepers according to Pittsburgh Sleep Quality Index Scores). Comparison between groups (good *versus* poor sleepers) and times of the day (morning, afternoon, night) were done using independent samples t-tests to evaluate the daily eating occasions, energy intake and % of energy intake. Results are presented as means \pm standard deviations.

Results: Of the 87 participants, 23 were good sleepers and 64 poor sleepers. There was no difference in eating patterns between good sleepers and poor sleepers. Participants had on average 5.56 ± 1.02 eating occasions per day, including 2.63 ± 0.96 snacks. The average energy intake distribution of all postpartum women was $25.24 \pm 7.02\%$ in the morning, $33.74 \pm 7.87\%$ in the afternoon and $40.31 \pm 8.74\%$ in the evening/night. The average energy intake during the evening was significantly higher than that in the morning (579.8 ± 204.3 versus 935.7 ± 329.0 kcal, $p < 0.001$).

Conclusions: The majority of participating women had poor sleep in postpartum and consumed a significant proportion of their total energy intake in the evening. Future studies should assess quality of evening/night food choices of postpartum women.

Significance: Dietitians and health professionals assisting postpartum women should keep in mind the sleep quality of postpartum women and their timing of eating when assisting them with advice about healthy eating.

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Clinical Research (Including Outcomes of Interventions)

Do healthy dietary interventions improve pediatric depressive symptoms? A systematic review and meta-analysis

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Introduction: There exists a limited body of conflicting literature related to pediatric nutritional interventions and depression. Dietary recommendations have been proposed as a way of impacting current and future mental health.

Objective This meta-analysis aims to determine the efficacy of child and adolescent dietary interventions on depression.

Methods: Systematic searches in electronic databases and grey literature were conducted. After screening 6,725 citations, 17 studies were included in this systematic review. Quality assessment was performed using the Cochrane risk of bias tool and the Joanna Briggs Institute Critical Appraisal Tool for Quasi-Experimental Studies. A meta-analysis of Hedges' *g* values was calculated using the Hartung-Knapp-Sidik-Jonkman method. Publication bias was assessed with funnel plots and the Egger's test.

Results: The results of the meta-analysis of the RCTs (*k*=7) demonstrated a non-significant effect of dietary interventions (*g*=0.12 [95%CI: -0.19; 0.87] *p*=0.374) while the results of the pre-post intervention studies (*k*=9) demonstrated a small significant effect favoring dietary intervention for reducing depression (*g* = -0.45[95%CI: -0.64; -0.27] *p*= 0.001). Publication bias was not detected by Egger's test or by funnel plot asymmetry.

Conclusions: The current meta-analysis demonstrates that 'healthy' dietary interventions among children or adolescents in the community have little impact on non-clinical depression.

Significance: Further confusion will persist until more well-designed studies in pediatric nutritional psychiatry research focusing on depression are conducted.

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Dietary Assessment

Intakes of nutrients and food categories in Canadian children across levels of sugars intake

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Introduction: Dietary recommendations to reduce intake of sugars may influence the choices of sugars-containing foods and thus affect the intake of important sources of key micronutrients.

Objective: The objective of the study was to compare the intakes of nutrients and food sources stratified by different intakes of sugars in Canadian children.

Methods: The first-day 24-h dietary recalls from children (aged 2-8 years, n = 1,896) in the 2015 Canadian Community Health Survey-Nutrition Public Use Microdata File were used to compare intakes of nutrients and food categories across quintiles of total sugars [by %energy (%E)], after adjusting for misreporting and covariates.

Results: Canadian children consumed an average of 25.8 %E as total sugars (12.6 %E as free sugars and 9.5 %E as added sugars). Those with the lowest total sugars intakes (Q1) and those representing the median range of total sugars intakes (Q3) had greater intakes of protein, healthy fats, saturated fat, cholesterol, niacin, folate, zinc and sodium and lower vitamin C, while Q1 also had higher thiamin and lower potassium, compared to those with the highest intake (Q5). Compared to both Q1 and Q3, Q5 had greater intakes of confectionary and fruit juice. Those in Q3 generally had similar intakes compared to Q1, except Q1 had higher protein, some healthy fats and niacin, while Q3 had higher vitamin C, potassium, and riboflavin, which may principally reflect the higher intakes of fruit, unsweetened milks and yogurt in Q3. There was no difference in dietary fibre intakes across quintiles.

Conclusions: In Canadian children 2-8 y, the mean intake of total sugars was 25.8 %E, with about one third from added sugars (9.5 %E), and slightly less than half from free sugars (12.6 %E). Canadian children with lower intakes of sugars generally had greater intakes of multiple nutrients compared to those with the highest intakes, reflecting higher intakes of confectionary in the latter. Fewer differences were observed between those with the lowest intakes and those with intakes representing the median, where the latter had lower levels of protein, some healthy fats and niacin, but greater intake of vitamin C, potassium and riboflavin, reflecting the greater intakes of fruits, unsweetened milks and yogurts.

Significance: Strategies to reduce free sugars intake in children with high sugars intakes should be explored. Overall nutrient intake should be considered when making food choices to aim for an overall balanced diet including intakes of key nutrients in children.

Funded by: Mitacs

Wellness and Public Health

Is there an association between diet quality and weight status of black children from African and Caribbean descent families living in Ottawa?

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Introduction: The easy access and low cost of ready-to-eat and prepackaged foods, also known as ultra-processed products (UPP), have contributed to the consumption of diets of poorer quality. UPP are high in salt, sugar and saturated fats in addition to containing additives not usually found in conventional kitchens. Scientific evidence also suggests that the consumption of UPP increases the risk of developing chronic disease such as obesity. In Canada, more than half of children's daily energy intake comes from UPP.

Objective: To assess the association between black children's diet quality and their weight status.

Methods: Between 2014-2015, 203 Black mothers of African and Caribbean descent and their 6-to-12 years old child living in Ottawa were recruited. Children's food intake was assessed with a 24-hour dietary recall. Diet quality was evaluated using the contribution of UPP to their daily energy intake using the NOVA food classification system, which classifies foods into four categories: unprocessed or minimally processed foods, processed culinary ingredients, processed foods, and UPP. The International Obesity Task Force references were used to determine children's weight status. Weight status were classified into two categories: underweight/normal weight and overweight/obesity. T-tests were performed in SPSS to assess the association between children's proportion of energy intake from the NOVA categories and their weight status.

Results: Nearly 38% of participating children had overweight/obesity. Children consumed about 58% of their daily energy intake from UPP. Children's weight status was not significantly associated with children's contribution of unprocessed or minimally processed foods, processed culinary ingredients, processed foods or UPP.

Conclusion: These results suggest that weight status was not associated with the diet quality of black children participating in this study. Longitudinal studies should assess the impact of such high consumption of UPP on children's nutritional health in the long term.

Significance: Dietitians working with this population should keep promoting a healthy diet rich in fresh and minimally processed foods, which could help prevent overweight and obesity.

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School Nutrition

School Information System: A bridge between decision makers, stakeholders and schools for healthy school environments

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Purpose: A unique and user-friendly self-diagnosis web-based platform that provides information to schools, stakeholders and decision-makers regarding the school food environment has been set up by researchers from the University of Sherbrooke, Laval University and University of Montréal.

Process: Each school is invited to complete online questionnaires about the school food environment. For each completed questionnaire, the respondent and school's principal receive an automated personalized report including the strengths and areas for improvement as well as practical suggestions related to the theme being evaluated (main food service's offer at lunchtime and meal context). Stakeholders are thus able to target the changes to be prioritized in their schools. The data compiled by the School Information System (SIS) also provides a global portrait of Quebec school environments that can serve as a scientific basis for the authorities responsible for developing relevant and effective food policies and projects.

Systematic approach: A structured partnership of university researchers and various actors and stakeholders in the school environment, situated at the local, regional, and provincial levels, allow to develop the SIS in accordance with the concerns, needs and priorities of the Quebec school network.

Conclusions: The SIS is being implemented in the Quebec school environment, facilitating the creation and monitoring of a healthy school food environment, with the support of an interdisciplinary and intersectoral partnership.

Recommendations: It is recommended to develop bridges between dietitians and researchers from other provinces to improve, adapt and deploy the SIS in relation with provincial and territorial orientations. This collaboration would make it possible to establish the portrait of the Canadian school food offer to guide future comprehensive prevention actions.

Significance: The SIS provides dietitians with the tool they need to support schools, in accordance with their needs and the challenges diagnosed, in the implementation of orientations and policies as well as in the implementation of interventions promoting a healthy food environment. This tool also facilitates the assessment of the implemented interventions by measuring the evolution of these environments.

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Other

Employment of Ontario and Saskatchewan graduates (2014-9) with First Nations, Inuit and Métis (FNIM) governance or health facilities.

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Introduction: Current integrated competencies for dietetic education and practice (2013) encompass foundational knowledge of cultural competence; however, graduates may not be specifically prepared for work with Indigenous peoples.

Objectives: Using a broader survey of dietetic graduates from Ontario (ON) and Saskatchewan (SK) (2014-9), we aimed to describe initial employment, specific to FNIM governance or health facilities, and relevant perceptions of preparation.

Methods: A pre-tested survey was mounted on SurveyMonkey® from June-September 2019 and completed by 314 graduates from ON (n = 261) and SK (n = 53).

Results: The employer for their first primary position as a dietitian, was identified as FNIM governance or health facility by n = 22 (10% of question respondents; 64% from SK; 1 who identified as Indigenous). This was the top employer category for first primary dietetic positions in SK. Position locations were in ON (6), SK (11), Alberta (2), Quebec (1) and other (1); 2 in remote/northern locations. Fourteen jobs were full-time (6 being full-time permanent), exceeding relative employment security across all first positions. Principal roles were in community health (n = 14), family health teams (n = 7) or home care (n = 1). By the time of surveillance, 3 graduates remained working for FNIM sector employers and 4 held current positions with provincial governments. While most respondents had high satisfaction with their education and training and felt prepared for their employment, some gaps arose. Feedback included, "Content on First Nations would have been helpful" and "I would like every student to have an entire placement where they focus on Indigenous Health."

Conclusions: The FNIM governance and health facilities sector employs many recent graduates, especially in SK. Additionally, these jobs are relatively secure. Nevertheless, some recent graduates, most Caucasian, expressed desire for more Indigenous cultural education.

Significance: Dietetic education/training needs to explicitly address Indigenous cultural competence to better prepare graduate for contemporary work opportunities.

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A timeline of Canadian dietetic history: the changes in dietetics and business and industry in the past quarter-century

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Introduction: Since the last recorded history of dietetics in 1993, business and industry dietetics has grown tremendously; therefore, it is critical to document dietetic business and industry history, as well as the practice area's contributions to dietetics in Canada.

Objectives: The objectives were to develop a timeline and record significant contributions and perspectives of dietitians in business and industry.

Methods: The initial development of the definition and timeline for dietitians in business and industry (dietitians with a primary focus in business and industry, including entrepreneurial dietitians and dietitians working for private companies in marketing, sales, advising, foodservice, nutraceuticals, or executive positions) was conducted through a literature review. Twenty-one key informant dietitians across Canada were contacted; 13 were interviewed using a semi structured interview format and the timeline as a basis for discussion. Interviews were audiotaped, transcribed, and coded for descriptive themes using thematic analysis; three researchers coded to ensure inter-rater reliability.

Results: The key informants were involved in various business and industry positions, including food service, food retail, business agriculture, food production, and nutrition communications. The key informants described working in business and industry for 7-44 years (mean [SD]: 22 [12.4]) in several provinces across Canada. Through thematic analysis, six meta-themes were derived from the interviews, including unique roles, career motivators, progression, external barriers, internal barriers, and significance of contributions. Dietitians had versatile roles in business and industry and were motivated to join the practice area for several reasons, including rewarding opportunities. Dietitians in business and industry experience numerous external and internal challenges, including a lack of recognition of the dietetic role in business and industry and a significant learning curve. Dietitians in business and industry emphasized a need for support for the practice area.

Conclusions: The versatile roles, career motivators, and significant challenges of business and industry dietitians were recorded. The contributions of business and industry dietetics to the profession were documented.

Significance: The recorded history of dietetics for this project will be disseminated through an online timeline resource available to the public and dietetic professionals to highlight business and industry dietitians and their contributions.

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Comparison of the nutrient contribution of the EAT-Lancet diet to Canadian nutrient recommendations

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Introduction: In 2019, the EAT-Lancet Commission on Food, Planet and Health assessed approaches to minimize impacts on the environment. They proposed “The Planetary Health Diet” which is modeled on four energy-balanced dietary patterns: flexitarian, pescatarian, vegetarian and vegan. The nutrient contributions of these dietary patterns were evaluated using a single nutrient target value based on an average recommended level. It is important to determine how these dietary patterns align with Canadian recommendations for essential nutrients.

Objectives: To compare nutrient contributions of the four proposed dietary patterns, as assessed by the EAT-Lancet Commission, with current Canadian recommended nutrient intakes based on Recommended Dietary Allowances (RDAs) by life-stage and gender.

Methods: The most recent RDAs, based on the recommendations from the National Institutes of Health, were compared to the nutrient analysis carried out by the EAT-Lancet Commission. RDAs for individuals 9 years and older, as well as for pregnancy and lactation, were considered.

Results: The EAT-Lancet Commission’s analysis indicated that all 4 dietary patterns do not meet their recommended target nutrient value for riboflavin. The vegetarian and vegan diets do not meet their target for vitamin B₁₂ and the vegan diet does not meet their target of 520mg per day for calcium. When compared to the RDAs, these aforementioned nutrients, as well as iron, zinc and vitamin A, do not meet the recommendations. For example, calcium ranged from 489mg (vegan) to 660mg (pescatarian) which is well below the RDAs for all life-stage and gender groups. Iron and zinc were also below RDAs, especially for the vegetarian and vegan dietary patterns. For individuals following these dietary patterns, the RDAs for iron and zinc are 1.8 and 1.5 times higher respectively, due to the lower bioavailability of these nutrients in plant-based foods.

Conclusions: The dietary patterns proposed by the EAT-Lancet Commission do not meet the RDAs for several key nutrients, namely calcium, iron, zinc, riboflavin, vitamin A and vitamin B₁₂ across many life-stage and gender groups. Calcium is of particular concern as there is currently widespread calcium inadequacy in Canada.

Significance: Nutrition is an important consideration when selecting and proposing dietary patterns and a key factor for defining a sustainable healthy diet.

Funded by: No funding is associated with this project which was part of a dietetic internship carried out at Dairy Farmers of Canada.

Creating an interactive timeline of Canadian dietetic history: media dietetics

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Introduction: The history of dietetic practice was most recently recorded in the 1993 publication, *Canadian Dietitians: Making a Difference*. At this time, the role of dietitians working in traditional media (television, radio, newspaper etc.) was emerging. Additionally, social networking websites were non-existent until years following this book's publication. Thus, historical record in this area of practice is lacking and documentation is required.

Objectives: To develop a timeline and conduct key informant interviews to describe the historical experience of dietitians working in traditional and social media from a Canadian perspective since 1993.

Methods: A draft timeline of media dietetics was created based on a literature review and descriptions of key media initiatives provided by informants. Eleven key informants completed semi-structured audio-taped telephone interviews, using the draft timeline as a starting point. Recordings were transcribed and coded by six research team members for descriptive and interpretive content using thematic analysis. A social ecologic framework was used to organize themes.

Results: Interviewees worked in 9 provinces while involved in the media including Ontario (n=7), Manitoba (n=4), Quebec (n=3), British Columbia (n=2), Nova Scotia (n=2), Saskatchewan (n=2), New Brunswick (n=1), Alberta (n=1) and Prince Edward Island (n=1). They reported 6-41 years of dietetic work experience in the media (mean: 22.2 years). Five main meta-themes emerged from the interviews. (1) Media involvement and the expansion from traditional to social media; (2) advances associated with using media in dietetic practice; (3) challenges associated with using media in dietetic practice; (4) media dietetics emerging through DC initiatives and advocacy; and, (5) implications of COVID-19 on the role of media dietitians.

Conclusions: Media dietitians play a key role in educating the public and act as trusted and credible sources of nutrition information. Over the past quarter-century, through advances in technology and the development of the internet, Canadian media dietetics has evolved dramatically.

Significance: These findings will be used to inform dietitians and students about the history of the profession. A better understanding of dietetic practice in the media can also guide future developments and increase public awareness of the work that dietitians do.

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Changes to consulting dietetics in Canada

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Introduction: Dietetics in Canada has greatly evolved since 1993 when a book describing Canadian dietetic history, *Canadian Dietitians: Making a Difference*, was published, suggesting a need for an update.

Objectives: The purpose of the current research is to collect and document the history of dietetics since 1993 on the topic of consulting, defined as dietitians working in individual or group private practice counselling.

Methods: Ten consulting dietitians from across Canada were interviewed. A draft timeline of key events was developed as a starting point for discussion. Interview transcripts were coded for descriptive and interpretive content. Inter rater reliability was ensured through discussion and comparison between three researchers.

Results: The Consulting Dietitians Network of Dietitians of Canada, previously the Consulting Dietitians of Ontario, is thought to be the first consulting dietetic network in Canada, established in the early 1980s. Five meta-themes emerged from the data: (1) challenges of consulting dietetics; (2) promoting the profession; (3) influence of COVID-19 on consulting dietetics; (4) flexibility and variety in consulting dietetics; and, (5) ability to provide a high level of care. Consulting dietitians promote themselves and the profession by advertising their services and through involvement in various forms of media. They are able to engage in a variety of different projects due to the flexibility provided by working in private practice. Additionally, counselling in the private sector allows consulting dietitians to support their patients on an individualized basis, often with short wait times and without a referral.

Conclusions: Since its inception, consulting dietetics has continued to grow into the relatively popular dietetic career choice it is today. Despite immense progress, there are still many challenges in the consulting dietetic profession including financial challenges, isolation, and competition between consulting dietitians and with unregulated nutrition professionals.

Significance: The results of this study have many relevant implications including identifying areas in which consulting dietetics have helped advance the field of dietetics, areas for improvement and key events that shaped the field. The online timeline produced from this project will be available to dietitians and the public to access and learn about the history of consulting dietetics.

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