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Nutrition and obesity care in multidisciplinary primary care settings in Ontario, Canada: Short duration of visits and complex health problems perceived as barriers

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ABSTRACT

Nutrition care in the primary care setting is integral in obesity management, but there is a substantial gap between patients who would benefit from this service and those receiving it. This study provides an in-depth understanding of how relatively new multidisciplinary primary care settings may be affecting nutrition care practices of family physicians and nurse practitioners. This qualitative comparative case study sought to assess nutrition care practices in three different types of multidisciplinary clinics (2 Family Health Teams, 3 Community Health Centers, 1 Nurse Practitioner-Led Clinic) in Ontario, Canada. Individual semi-structured interviews were conducted with nurse practitioners (n = 13) and family physicians (n = 7) in fall 2017. Data analysis was conducted using NVivo Software. The integrated approach was used for elucidating codes and themes. Findings suggest that suboptimal duration of medical visits and increasing prevalence of complex patients were reported by most participants and were perceived as barriers for addressing nutrition and obesity. However, improved nutrition care was fostered through Electronic Medical Records, primary care providers' positive attitude towards nutrition and cost-free dietitian services at point of access. Site-specific challenges, such as duration of medical visits, incentive programs, access to dietitians on site, and continued professional development could enhance nutritional care for weight management in these multidisciplinary primary care settings.

1. Introduction

Obesity is a multifactorial condition and an important health issue as it contributes to a wide variety of chronic diseases and can have negative consequences on quality of life, mental well-being, and health care costs (Senate Canada, 2016). Obesity is a prevalent nutrition-related disease in the world, surpassing under nutrition (Tanumihardjo et al., 2007; WHO, 2018). Lifestyle interventions are the first line of treatment for patients with overweight and obesity (Brauer et al., 2015). The primary health care setting is seen as the ideal place to address obesity (Campbell-Scherer and Sharma, 2016).

In this study, nutrition care refers to any practice conducted by the primary care provider that aims to improve the dietary behaviours of their patients (Ball et al., 2014). Despite recommendations for addressing lifestyle interventions such as diet, many patients who would benefit from nutrition counseling do not receive it (Wynn et al., 2010; Brown et al., 2007). Barriers for providing nutrition care include lack of access to and the added cost of dietitian services (Padwal et al., 2011; Wynn et al., 2010), physicians' payment models – specifically the fee for service model (Hogg et al., 2009; Devlin and Sarma, 2008; Gosden et al., 2000), short medical visits (Wynn et al., 2010; Muldoon et al., 2010), suboptimal use of Electronic Medical Records (EMRs) and under diagnosis of obesity (Baer et al., 2013). Other barriers are comprised of individual Primary Care Providers' (PCP) negative attitude towards nutrition and lack of knowledge in nutrition for obesity management (Martin et al., 2014; Wynn et al., 2010; Forman-Hoffman et al., 2006).

Most of these studies, however, were conducted in non-team based settings. The primary health care reform in Canada aimed to address the barriers aforementioned by shifting towards multidisciplinary primary care settings (Government of Canada, 2007). Additionally, the implementation of EMRs was another aspect that was perceived as important to improving interprofessional collaboration (Hutchison et al., 2011). These multidisciplinary primary care settings include Nurse Practitioner-Led Clinics (NPLCs), Family Health Teams (FHTs),

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and Community Health Centers (CHCs). These clinics have different governance and funding models (Hutchison et al., 2011). This study aimed to acknowledge some of these differences which include: physician remuneration schemes and incentives, duration of medical visits across these different types of primary care settings and the variety of programs offered on site.

In light of the importance of addressing obesity in the primary care setting, the relatively new emergence of team-based primary care settings and the differences in their structure, we sought to understand how the team-based nature of these various multidisciplinary clinical settings affect nutrition care practices of family physicians and nurse practitioners.

2. Methods

A comparative case study approach was adopted where the unit of analysis was the various types of practices. Two FHTs, three CHCs, and one NPLC were purposively selected to vary to elucidate the factors that are contributing to FPs and NPs practices. These health care settings have an important aspect in common, which is the team-based nature of their clinical practice but differ in other aspects (i.e., remuneration schemes of primary care providers, duration of medical visits, types of classes/groups offered to patients and the populations they serve). As suggested by Miles and Huberman (1994), a tightly bound research design was used to allow for comparison across sites. This was achieved by using theory to develop a well-defined research purpose and scope, having a selective set of research questions and utilizing specific sampling and analysis techniques.

Data were collected through site-specific websites and individual semi-structured interviews. Site-specific websites were gathered and analyzed to identify the programs offered at each site, the variety of health professionals present at each site, as well as other pertinent information that bounded the cases (Table 1). Prior to data collection, ethics approval was obtained from the University of Ottawa Research Ethics Board (file number: 06-16-07). Each interview began by the interviewer (SA) asking the same questions in the same manner to allow for comparability across sites (Patton, 2002). The interview protocol was pilot tested with 2 FPs and 2 NPs and was refined based on the data collected and feedback provided by the participants. Data from the pilot study were not included in this study but this exercise informed the study's inclusion criteria which were: 1) the PCP had to be working at the primary care setting for at least 6 months and 2) had to provide care predominantly to adult patients. Individual interviews were conducted with a total of 20 participants from which, 13 were NPs and seven were FPs (Table 2). Participant recruitment ceased when data saturation was reached (Charmaz, 2006).

Table 2
Demographic characteristics of participants.

Characteristics	FHT (n)	CHC (n)	NPLC (n)
Profession			
FP	3	3	1
NP	3	3	7
Self-identified gender			
Female	4	4	8
Male	2	2	0
Experience in the profession (years)			
≤5	2	2	2
6–15	3	1	5
16–25	1	0	1
≥26	0	3	0
Experience in the organization (years)			
≤1	1	1	0
2–5	3	2	3
6–10	2	0	5
≥11	0	3	0

Using NVivo software (QSR International Pty Ltd. Version 11) to aid the analysis, a thematic analysis approach was used for coding the data. Using an integrated approach, deductive themes from the literature were applied and inductive codes emerged from the data (Braun and Clarke, 2006). Deductive themes were identified in the literature review and research questions, whereas inductive themes emerged from the data (Table 3). Researchers conducted the analysis independently. As recommended by Braun and Clarke (2006), the transcripts were first read in their entirety to get a sense of the data as a whole. The first step resulted in an initial set of descriptive codes, which were refined and grouped into themes.

A within-case analysis was conducted for each of the three sites, which resulted in three different write-ups (one for each case). The cross-case analysis consisted of a pattern matching activity where similarities and differences between each type of setting were made clearer (Yin, 2003). Salient quotes are highlighted in the results section along with the range of number of years each participant has been practicing in their profession. The criteria established by Lincoln and Guba (1985) were applied to ensure trustworthiness. Credibility was

Table 1
Characteristics of each type of participants' practices in Ontario, Canada.

Characteristics	Family health teams	Community health centres	Nurse practitioner-led clinics
Health professions on the team	Varied based on location but most are composed of family physicians, nurse practitioners, registered nurses, social workers, and dietitians.	Varied based on location but most are composed of family physicians, nurse practitioners, registered nurses, social workers, and dietitians.	Predominantly NPs with FPs consulted based on a need basis, nurses, social workers, and dietitians.
Accountability	Ministry of Health and Long Term Care	Local Health Integration Networks	Ministry of Health and Long Term Care
Clinical programs and services	Vary based on local health and community needs but most sites include programs for diabetes, hypertension, smoking, and weight management (Healthy You) and more.	Specific to local communities' health care needs in order to address social and environmental issues. They offer many health promotion programs including cooking classes for different age groups, hypertension, diabetes, parent-baby drop ins and more.	Most sites include programs for diabetes, weight management, hypertension, seniors and more.
Dietitian on site	Yes	Yes	Yes
Dietitian services covered	Yes	Yes	Yes
Remuneration schemes	FP (capitation + bonuses) NP (salary)	FP (salary) NP (salary)	FP (Fee-for-service) NP (salary)
Electronic Medical Records	Yes	Yes	Yes
Duration of medical visits	Vary based on clinics but for the ones included in the study, FP visits were 15 min and NP visits were 20 min.	Vary based on clinics but for the ones included in the study, visits ranged from 20 to 40 min (based on patients' medical condition)	Vary based on clinics but for the one included in the study, FP visits were 15 min and NP visits were 30 min.

Information collected from site-specific websites and the Association of Ontario Health Centres (Canada) website: https://www.aohc.org/.

Table 3
Overview of deductive and inductive themes and subthemes.

Deductive	Inductive
Attitude towards nutrition for weight management	Positive attitude towards nutrition for weight management
Lack of knowledge and perceived skills in nutrition for weight management	Suboptimal knowledge and skills in nutrition to assess patients who would benefit from nutrition counseling
Access to dietitian services	Effects of having a dietitian on site – Improved dietitian referrals due to accessible and cost-free dietitian services on site – Allowed for initiating nutrition discussion with patients – Improved access to an evidence-based resource in nutrition
Use of Electronic Medical Records	Electronic Medical Records – Were used to the fullest – Increased dietetic referrals through visual aids and reminders – Improved continuity in the delivery of care
Lack of time is a barrier for managing obesity and addressing nutrition	Duration of medical visits – Varied across sites – Improved preventive services for some PCPs – Longer medical visits do not necessarily improve preventive services due to increasing prevalence of patients with multiple comorbidities
Remuneration schemes of FPs – Fee-for-service model hindered chronic disease prevention and management – "Lack of remuneration" was an important barrier in the literature for addressing weight and nutrition.	Remuneration schemes of PCPs influenced their practices – Some FPs believed that if weight management was perceived as important, there should be structures in place to allow that to happen (i.e., incentives). – FPs and NPs who were paid a salary did not believe that remuneration schemes had an influence on their clinical practice.

achieved through investigator triangulation and pilot testing the interview protocol. Thick descriptions of the units of analysis provided in this study can allow readers to decide whether these findings can be transferred to another setting. Confirmability of findings was established by investigator triangulation and reflexivity.

3. Results

3.1. Attitude towards the role of nutrition in weight management

Irrespective of the clinical setting, all participants agreed that nutrition assessment is important when addressing weight management. However, PCPs mentioned that there many health conditions that need to be addressed in the medical visit and that nutrition is not always a priority. One participant stood out from the sample, as they strongly believed that a higher importance should be placed on nutrition and weight status:

> "There are so many other things in primary care that are paramount that not everyone is thinking of weight and nutrition as really important things to assess but it should really be another vital sign because it's so important. People can gain weight and it can increase their risk for other diseases in a short amount of time." NPLC, NP – Participant 2 (6-15 years in profession)

Knowledge and perceived skills in nutrition for weight management.

Participants felt that they had inadequate knowledge and skills in nutrition. Some believed that they would be more inclined to bring up the topic if they had more knowledge, as it would facilitate the assessment of patients' need of consulting a dietitian. Some PCPs expressed an interest in learning more while others believed that this task should be given to another health professional.

> "We don't have training in nutrition and I can't even remember how many lectures I got on nutrition. It is just not part of the curriculum. ... But the biggest barrier is that we don't have enough training in medical school and residency to talk about nutrition in an informed way." FHT, FP – Participant 10 (6-15 years in profession)

> "I think I have a basic understanding of nutrition but they didn't cover it in depth." FHT, NP – Participant 11 (< 5 years in profession)

3.2. Effects of having a dietitian on site

3.2.1. Theme 1: accessible and cost-free dietetic referrals

The proximity of the dietitian on site and cost-free service enabled PCPs to refer patients when warranted. Having a dietitian on site also seemed to have a positive influence on care as it enabled FPs and NPs to delegate the topic of nutrition to the dietitian as he/she would have more time to complete the nutrition care process with the patient.

> "It's one of the first thing we think of if we see that a patient has an issue with weight or nutrition because it's so easy for them to get in so it's an automatic that we would refer." FHT, NP – Participant 12 (< 5 years in profession)

> "What is also good is that they have time because there is no way that we can spend five to ten minutes to talk about nutrition because there is so much to cover." FHT, FP – Participant 10 (6-15 years in profession)

It seemed that the free dietetic services in all of these team-based clinics had a substantial impact on nutrition care practices in terms of dietetic referrals of FPs and NPs for patients with obesity.

> "I think 90 percent of my patients wouldn't go if they had to pay for it (session with a dietitian)." NPLC, NP – Participant 5 (6-15 years in profession)

> "I guess if I was in solo practice, I would probably ramp up my skills in terms of counselling around nutrition. If dietitians are covered then I would definitely make a referral if the patient can pay for them." CHC, FP – Participant 22 (6-15 years in profession)

3.2.2. Theme 2: allows for nutrition discussion with PCP

Interestingly, the increased accessibility to dietitians seemed to increase the likelihood that the PCP will bring up the topic of nutrition in terms of weight management. Most PCPs felt that having a dietitian on site allowed them to provide the patient with a referral should they need further nutrition counseling.

"I think it's definitely more accessible for the patient and I think because they are more accessible, I tend to bring up the topic of nutrition more because I know something can be done about it." CHC, FP – Participant 21 (< 5 years in profession)

3.2.3. Theme 3: evidence-based resource

All participants, regardless of the primary care setting, felt that even if they did not refer a patient to a dietitian, they could still benefit from the dietitian's expertise.

"So for us it's not only about referring patients but also being able to consult for various nutrition issues and conditions." NPLC, FP – Participant 9 (15-25 years in profession)

Participants also noted the contribution of RDs to monthly clinical meetings, especially when they assist patients with complex medical needs; these served as a time for continuous learning and information exchange regarding new processes at the clinic.

"We have clinical meetings and talk about different clinical issues and so there is that so she (RD) can help us with our knowledge which is great."

NPLC, NP – Participant 1 (6-15 years in profession)

3.3. Electronic Medical Records

3.3.1. Theme 1: increased dietetic referrals

Most participants, regardless of where they practiced, thought that EMRs had a positive impact on their nutrition care practices. EMRs seemed to increase dietetic referrals by providing a visual trend of the patient's weight history, which made it easier for the PCP to identify if the patient has been gaining significant weight over the years.

"It's also nice for weights and blood work because it is all on there so you can see the trends. This will prompt me to address the topic of nutrition and refer if needed." NPLC, NP – Participant 1 (6-15 years in profession)

In addition to the visual trends of objective health measures, some clinics had a flagging system in the EMRs that prompted PCPs to bring up the subject of weight management when the patient's BMI was 30.0 kg/m^2 or higher.

"When the height and weight are put in the system, it automatically calculates the BMI and if it is over 30, the EMR flags us to talk about it. Sometimes I will click it away if I do not have time but it does facilitate the process and increases referrals." FHT, FP – Participant 10 (6–15 years in profession)

3.3.2. Theme 2: improved continuity in the delivery of care

EMRs seemed to improve care in many other ways such as allowing all health care professionals to be on the same page as to what is discussed with the patient about goals of care and improving message reinforcement. Electronic Medical Records seemed to be an important enabler for reinforcing healthy eating advice.

"If we're all telling people the same thing but it's coming from different angles or explanations, whether it's weight loss or cutting down drinking or smoking or any kind of change, I think it really helps to hear it from everybody." CHC, NP – Participant 18 (> 25 years in profession)

3.4. Duration of visits

The duration of medical visits were reported to be the shortest in FHTs (15 min) and longer in NPLCs (30 min) and CHCs (40 min). Time seemed to be an important constraint for those in FHTs. Even if the topic of nutrition was warranted, most PCPs were unable to address it because of competing demands and other priorities.

"Time is the biggest issue. I rarely have a patient coming in for weight management alone. Weight is almost a side effect or contributing factor for whatever they came in for. So if they come in for diabetes, we talk about nutrition and weight in the context of diabetes." FHT, FP – Participant 10 (6 – 15 years in profession)

Some NPs working in NPLCs felt that their 30-min medical visits had a positive impact on health promotion practices, such as bringing up the topic of nutrition as part of weight management.

"We have 30-minute appointments so it gives me extra time to go over things if I need to go into detail." NPLC, NP – Participant 1 (6 – 15 years in profession)

As for CHCs, although they offered the longest medical visits, participants expressed that most of the patients they saw were from low-socioeconomic backgrounds and had multiple medical conditions or more pressing issues to discuss than nutrition.

"Most patients come in with three or four issues and some are maybe more pressing than talking about their cholesterol or sugars getting worse. Sometimes they talk about depression or they have other stressors that they are more concerned about than nutrition… If they were already diagnosed with diabetes then nutrition would be more of a priority." CHC, FP Participant 21 (< 5 years in profession)

This suggests that although longer medical visits increase the chance of bringing up the topic of nutrition, it may not always be possible due to the increase in patients' medical complexity. This was especially the case in CHCs where PCPs reported seeing many patients with multimorbidities.

3.5. Family physicians' and nurse practitioners' remuneration schemes

In the Canadian context, NPs are paid a salary regardless of their work site. As such, they did not elaborate on the effect of payment models on nutrition care. For FPs, payment models seemed to have an effect on nutrition care.

"I work four hours a week in a fee for service model and have I ever talked about weight management? Very rare because it is designed for more acute conditions and because it is not incentivized. … In the FHT we have regular diabetes sessions. In this setting we get incentivized to see diabetic patients every 3 months and we talk about weight then." FHT, FP – Participant 10 (6-15 years in profession)

A primary care provider working in a CHC where they are paid a salary had a different view.

"Here I can practice the way I was trained to in medical school rather than focus on money. We also don't get incentivized for seeing diabetic patients." CHC, FP – Participant 17 (> 25 years in profession)

Some participants believed that if weight management was perceived as important, there should be structures in place in order to facilitate that care. This spoke to the organizational structure of the primary care setting and how it affected practices of PCPs.

"If you're incentivized to do weight management and have diabetes visits you're more likely to do it. Anyone who is diabetic will get offered the four times a year visit where there are special fee codes where you get additional money on top of normal billings and for a lot of physicians they will see those patients in that context more often." FHT, FP – Participant 10 (6 – 15 years in profession)

4. Discussion

Our comparative approach enabled us to highlight similarities and differences of three types of multidisciplinary primary care settings and their effect on FPs' and NPs' nutrition care practices. All participants agreed or strongly agreed that nutrition is important to address weight management with their clients. Some of the reasons for the suboptimal implementation of current guidelines included lack of knowledge in nutrition in relation to weight management. Participants felt that adequate nutrition knowledge was important in order to feel comfortable bringing up the subject of nutrition and assess if further nutrition counseling was warranted. This finding aligns with previous studies (Crowley et al., 2016; Martin et al., 2014). By emphasizing nutrition education in the nursing and medical curriculum, it may be possible to achieve common nutrition competencies across all health professionals, which could in turn, improve inter-disciplinary collaboration and nutrition care (Kris-Etherton et al., 2014).

Access to free-of cost dietitian services had a positive effect in all types of primary care settings. Some participants believed that having a dietitian on site increased their knowledge in nutrition, as was found in another study (Crustolo et al., 2005). The most notable finding is that FPs and NPs were more likely to bring up the subject of nutrition during medical visits because they knew they had an accessible referral option if needed. Other studies also found suboptimal use of dietetic referrals due to lack of accessibility (Claridge et al., 2014; Wynn et al., 2010).

In contrast to findings from another study (Bronder et al., 2015), the utilization of EMRs improved nutrition care practices for obesity management. EMRs included a standardized dietetic referral template that was fast and easy to complete, a visual of weight and lab work trends, and a flagging system that reminded PCPs to bring up the topic of nutrition when BMI is higher than 30.0 kg/m^2. The use of EMRs is perceived to have a positive impact on continuity in the delivery of care and message reinforcement as all health professionals have easy access to chart notes. Our findings confirm what others have demonstrated about the positive effects of EMRs on clinical practice (King et al., 2014; Friedberg et al., 2009).

The duration of medical visits was a constraining factor in all of these primary care settings for addressing nutrition. In all health care settings, PCPs reported that patients were now coming in with multiple chronic conditions, which pushed aside the topic of nutrition in terms of prevention and management of obesity. In Ontario, Canada, the prevalence of adults with multimorbidities has been steadily increasing from 17.4% in 2003 to 24.3% in 2009 and mostly affecting people who are less educated and with lower incomes (Pefoyo et al., 2015; Roberts et al., 2015; Stewart et al., 2013).

Another factor that was considered in this study was the remuneration scheme as it is a recurrent theme in studies evaluating health promotion practices of FPs (Hogg et al., 2009; Gosden et al., 2000). Some FPs believed that lack of incentives hindered nutrition care practices. In contrast, incentives did not seem to have an impact on FPs and NPs who were paid salaries and did not receive bonuses for preventive care.

5. Strengths and limitations

This study provides some important insights on how factors previously outlined in non-team-based settings as barriers, are affecting practice in relatively new multidisciplinary primary care settings. However, this study could have benefited from additional methods of data collection to allow for data triangulation. Although we analyzed data from site-specific websites and semi-structured interviews, these methods of data collection were collecting different types of data. We have addressed this limitation by including multiple researchers in the data analysis process, which allowed multiple researchers to examine the data from various angles.

6. Conclusion

The shift towards multidisciplinary primary care settings has mitigated many barriers to nutrition care. Certain benefits of these primary care settings were the presence of various health professionals and the use of EMRs that allowed for referrals and continuity in the delivery of care. Primary care settings with similar characteristics of those included in this study may use these findings to address factors that are hindering nutrition care practices of primary care providers. Future studies exploring patients' perception regarding the health promotion services they receive would be of interest when aspiring to provide patient-centered care.

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Conflicts of interest

None.

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