

**Examining the Practice Approaches Used by Registered Dietitians in Canada When
Working with Higher Weight Adults**

by

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Thesis Examination Information

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An oral defense of this thesis took place on [June 23, 2022](#) in front of the following examining committee:

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The above committee determined that the thesis is acceptable in form and content and that a satisfactory knowledge of the field covered by the thesis was demonstrated by the candidate during an oral examination. A signed copy of the Certificate of Approval is available from the School of Graduate and Postdoctoral Studies.

Abstract

A cross-sectional, national, online survey of Canadian Registered Dietitians (RDs) was conducted to explore the various practice approaches used when working with higher weight adults. Specifically examined was the use of non-weight focused approaches (NWFAs), and the barriers and facilitators for implementation. NWFAs deemphasize the importance of body weight with respect to adults' nutrition and health. A comprehensive literature search identified only one study, conducted in Australia, that examined the diverse approaches regarding weight used by RDs. Other studies have examined RDs' use of single practice approaches. There were no studies that explored the implementation of NWFAs in Canada or nationally. Overall, this thesis presents research that demonstrates that NWFAs are the dominant practice approach being used by Canadian RDs when working with higher weight adults. It also identifies the key barriers and facilitators that RDs experience when implementing NWFAs into practice, across a spectrum of readiness to implement NWFAs.

Keywords: Implementation; Practice Approaches; Weight Stigma; Registered Dietitian; Weight inclusive; Canada

Author's Declaration

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The research work in this thesis that was performed in compliance with the regulations of Research Ethics Board/Animal Care Committee under **REB Certificate number #16078**.



Kori Lichtfuss

Statement of Contributions

I was responsible for writing each section of this thesis, data analysis, and synthesizing the results. The study was designed by myself and with the guidance of my thesis supervisor, Dr. JoAnne Arcand. My colleagues provided support during the data analysis where needed.

I hereby certify that I am the sole author of this thesis and that no part has been submitted for publication or is published. I have used standard referencing practices to acknowledge ideas, research techniques and/or other materials that belong to others. I am the sole author of the creative works and/or inventive knowledge described in this thesis.

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LIST OF ABBREVIATIONS AND SYMBOLS

BMI	Body mass index
CAOCPGs	Canadian Adult Obesity Clinical Practice Guidelines
CFIR	Consolidated Framework for Implementation Research
CPGs	Clinical practice guidelines
HAES®	Health At Every Size®
IE	Intuitive Eating
NWFAs	Non-weight focused approaches
PDEP	Partnership for Dietetic Education and Practice
RDs	Registered Dietitians

Chapter 1. Introduction

Obesity is a national and global public health priority based on its correlation with many chronic diseases, and relationship with a substantive health care and economic burden (Statistics Canada, 2018; World Health Organization, 2000). In clinical settings, Registered Dietitians (RDs) are health professionals who provide individualized medical nutrition therapy to improve, manage, or prevent health outcomes (Brown, Clarke, & Stoklossaiii, 2020). The 2020 Canadian Adulthood Obesity Clinical Practice Guidelines (CAOCPGs) highlighted the important role of RDs in obesity management and include a chapter on recommended medical nutrition therapies to be implemented in the nutrition care process with obese individuals (Wharton et al., 2020). It is important to note that there are varying perspectives of using the language of obesity, and for the purpose of this thesis when used it is to refer to how obesity is defined within weight-focused approaches and does not reflect the author's beliefs. The CAOCPGs recommend 14 medical nutrition therapies, which comprise those focused on promoting weight loss (i.e., weight-focused) and those that do not focus on weight loss (i.e., non-weight focused approaches) (Brown et al., 2020).

Traditionally, RDs have used weight-focused approaches that include nutrition interventions for obesity management via intentional weight loss strategies that include dietary restriction and increased energy expenditure to create a caloric deficit (Brown et al., 2020). Research findings suggest that weight loss is correlated with reduced all-cause mortality, cardiovascular mortality, and cancer mortality (Ma et al., 2017). Despite the copious research suggesting the efficacy of weight loss in improving health outcomes, no method to induce and sustainably maintain weight loss has been found. What is more, a weight-focused approach has been found to perpetuate

weight stigma (Brown et al., 2020; Hall & Kahan, 2018; McEvedy, Sullivan-Mort, McLean, Pascoe, & Paxton, 2017) and contribute to weight cycling deleterious health effects (Zou et al., 2021).

Anecdotal observation suggests that RDs are increasingly adopting non-weight focused approaches (NWFAs), but the proportion of RDs doing so and how they are implementing NWFAs in practice is unknown. Research is important to examine if a paradigm change in dietetics is occurring given the important impacts such a shift may have for various aspects of the profession, including dietetic education, practice, professional development, credentialing, and regulation. NWFAs do not promote weight loss as a means to improve health. Rather, NWFAs assume that variation in body size and shape, like any other phenotypic feature (i.e., height), is a normal feature of human difference (Tylka et al., 2014). NWFAs are often, though not always, rooted in a social justice orientation to practice that prioritizes access to food, housing and income and incorporates social and structural determinants into healthcare (Alberga, McLaren, Russell-Mayhew, & von Ranson, 2018). NWFAs generally focus on improving diet quality and promoting joyful movement through health behaviour changes (Clifford et al., 2015). The literature supporting NWFAs is in its infancy. However, there is a growing body of evidence that suggests that, regardless of weight loss, NWFAs are associated with improved health outcomes and may decrease weight-based discrimination and weight stigma (Tylka et al., 2014).

Given that a paradigm change may be underway in dietetics, understanding if and to what extent RDs are using traditional weight-focused approaches or increasingly popular NWFAs is valuable in informing more relevant clinical practice guidelines (CPGs) that support RDs' effective practice. As well, there is virtually no understanding on the factors that influence RDs'

to learn about and adopt NWFAs. Moreover, it is unclear how RDs understand and practice using NWFAs versus traditional approaches, which leaves little insight on which to base education, training, and professional development that may be needed to ensure RDs are providing high quality, safe, ethical, and competent care that does not exacerbate the weight stigma that many higher weight adults already face. This research aims to address this gap in knowledge by describing the practice approaches used by RDs when working with higher weight adults, and to understand the barriers and facilitators of RDs implementing NWFAs in Canada.

Chapter 2. Background

2.1 Obesity as a public health problem

There are multiple definitions of obesity. One definition relies on the Body Mass Index (BMI), defined by a BMI greater than or equal to 30 kg/m² (Government of Canada, 2016). However, a more recent definition of obesity described in the 2020 CAOC PGs defines as, "...a chronic, progressive and relapsing disease, characterized by the presence of abnormal or excess adiposity that impairs health and social wellbeing" (Rueda-Clausen & Sharma, 2020, p. 1). Health risk is also marked by the distribution of body fat, predominantly by a higher waist circumference (Canadian Task Force on Preventative Health Care, 2012). This perspective positions obesity as a chronic disease defined by diagnostic criteria, not simply as a condition of having excess body fat (Wharton et al., 2020). Obesity has also been recognized as a chronic disease by The Canadian Medical Association (2015), the World Obesity Federation (Bray, Kim, & Wilding, 2017) and the World Health Organization (2000). This revised definition that identifies obesity as a chronic disease, recognizes the growing evidence that having "excess" body weight alone does not necessarily cause ill health. In part, this definition supports the growing evidence that focusing on body weight alone is inappropriate (Hunger, Smith, & Tomiyama, 2020). Alternative perspectives are based on studies suggesting that mortality rates among obese persons match that of normal weight persons, and the lowest mortality rate is observed among overweight persons (Flegal, Kit, Orpana, & Graubard, 2013). In contrast, some individuals do not recognize obesity as a word, with the view that the term is oppressive, rooted in racism, and perpetuates fat phobia and weight stigma. Instead, these individuals may use the terms "a person with a larger body size", "a person with a higher weight" or "a person who is fat" (Meadows & Daniélsdóttir, 2016). This concept may inform the approach that some RDs

and other health care providers take when working with clients with higher weights. Clinical practice approaches that shift away from a weight focus, as well as how to address health beyond clinical intervention, will be explored later.

Obesity is considered a public health priority in Canada and globally (Health Canada, 2022a; World Health Organization, 2000, 2004, 2021). In Canada 27% of adults over the age of 18 years old, 27% are obese in Canada and 36% are overweight (Statistics Canada, 2018; World Health Organization, 2000) and the prevalence of obesity has increased over the latter decades of the 20th century with little significant change since 2000 (Statistics Canada, 2018). In some observational studies, obesity is associated with increased morbidity and mortality, but only for highest obesity categories (BMI >35 kg/m²) (Flegal et al., 2013). Obesity in adulthood is also associated with numerous chronic conditions such as type 2 diabetes, cancer, cardiovascular diseases, asthma, gallbladder disease, osteoarthritis and chronic back pain (Guh et al., 2009). The most recent analysis conducted suggests that between 2000 and 2008, obesity cost the Canadian health care system \$3.9 billion (Health Canada, 2011). The estimated cost of obesity is associated with the costs incurred by modifiable behavioural risk factors, such as physical inactivity, is estimated to have cost \$9.3 million CAD (Krueger, Koot, & Andres, 2017) and unhealthy eating to be \$13.8 billion CAD (Forouzanfar et al., 2016; Lieffers, Ekwaru, Ohinmaa, & Veugelers, 2018). Concern about the economic and health impact of obesity has contributed to the growing number of weight-focused initiatives.

2.2 Risk factors for higher weights

A range of physiological factors are thought to contribute to higher body weights in complex ways that go beyond the relatively reductive focus on caloric intake versus energy

expenditure. For example, weight may increase as a result of metabolic dysfunction, such as with the hormones that regulate satiety or adipokines, which are adipose tissue-derived cytokines that are involved in the physiologic regulation of food intake (i.e., leptin) (Considine et al., 1996; Sumithran et al., 2011; Zhang & Ren, 2016). Insulin resistance is also associated with increased adiposity (Garvey & Mechanick, 2020). Weight has also been associated with genetic predisposition and gene-environment relationships (genetic background influences how people behave) that appear to increase with age (Grant, 2014). Medication-induced weight gain may also contribute to obesity as antipsychotics, antidepressants, antihyperglycemics, antihypertensives and corticosteroids have all been associated with weight gain (Wharton, Raiber, Serodio, Lee, & Christensen, 2018). A change in environments may increase weight, such as availability of convenient, cheap and low nutritive food (Sturm & An, 2014). Hence, the energy imbalance explanation does not account for the myriad influences that are now recognized as having a significant impact on an individual's weight. What is more, by overlooking the numerous factors that influence individuals' body weight, but that are outside of an individual's control, the energy balance explanation unfairly medicalizes and blames individuals for having a higher body weight (Khan, Tarrant, Weston, Shah, & Farrow, 2018; Thearle, Pannacciulli, Bonfiglio, Pacak, & Krakoff, 2013).

Additional behavioural factors have also been identified as contributing to higher body weights, as well as to the negative health outcomes often ascribed to higher body weight. In other words, some research indicates that there are various factors that confound the association between higher body weight and negative health outcomes, for example, higher diet quality (e.g., eating less processed foods and more fresh fruits and vegetables) is inversely correlated with obesity, central adiposity, and weight gain (Schlesinger et al., 2019). Those who consume a diet

rich in whole grains, fruit and vegetables, and lower in sugar-sweetened beverages are less likely to be higher weight (Jessri, Ng, & L'Abbé, 2017; Schlesinger et al., 2019). Nevertheless, there are numerous additional factors that contribute to how one accesses a higher quality diet.

The social determinants of health are the economic and social factors that influence the broader determinants of health (e.g., education, literacy, and healthy behaviours), that contribute to negative health outcomes correlated with a higher body weight (Health Canada, 2020). Access to healthy foods and the socio-economic status that enables access are interdependent factors, but may also independently impact upon body weight and health outcomes. Jang & Baek (2018) found that healthier dietary behaviours, such as eating fruits and vegetables and smaller meals, increased with higher education and socioeconomic status. Furthermore, Otero et al (2018) suggest that food choices are shaped by socio-economic factors and the social determinants of the food system based on what the food system produces and offers. Other socio-economic factors include how many incomes are in the household, as single female headed households are among the greatest risk for food insecurity (Tarasuk V, 2020). Ethnic and racial disparities are correlated with higher body mass as is observed in the rates of obesity often reported among Indigenous Canadians (Cyr & Riediger, 2021; Kolaheer, Sadeghirad, Corriveau, & Sharma, 2017; Krueger & Reither, 2015). Additionally, studies that used regression models that show age, sex, race, income, education, immigration and location all independently impact weight (Rodd & Sharma, 2017). Other social conditions that are associated with higher body weights include living in high crime areas, unsafe sidewalks, sedentary work environments, and less access to sports facilities and affordably priced produce (Abbott et al., 2014; Powell-Wiley et al., 2017). Finally, the intersection of other axes of oppression and privilege with body weight (i.e., weight stigma and thin privilege) further complicates the impact of body weight on health, and

thus underscores the need for practice approaches that address the impact of social determinants on health outcomes (Himmelstein, Puhl, & Quinn, 2017; Pause, 2014). The dual impact of intersecting forms of oppression on body weight and health was demonstrated by Drewnowski et al (2009) who show that individuals who experienced two or more forms of inequity had significantly higher rates of obesity. In summary, the social determinants that lead to health disparities are a major public health concern (Ailshire & House, 2012; Nutter et al., 2016) and must be considered when intervening to support individuals with higher body weights.

2.3 Nutrition Guidelines and Recommendations

Health care providers working in clinical settings, including RDs, are encouraged to follow CPGs. CPGs are evidence-based recommendations that guide clinicians' treatment and management of patients and their clinical circumstance (Institute of Medicine, 2011). The CAOCPGs includes a chapter on medical nutrition therapy to address obesity (Wharton et al., 2020). The CAOCPGs and the Canadian Task Force on Preventative Health Care both support weight loss, a weight loss of 5-7% and 5% of body weight respectively, through individualized nutrition plans (Canadian Task Force on Preventative Health Care, 2012; Diabetes Canada, 2018; Wharton et al., 2020). Included in the medical nutrition therapy chapter are dietary approaches, such as nutrition interventions that focus on individualizing eating patterns, improving food quality, and building a healthy relationship with food to reduce the risk for chronic diseases (Brown et al., 2020). These guidelines, and others, recommend dietary patterns, including the Mediterranean, low glycemic index, and Dietary Approaches to Stop Hypertension (DASH) diets, as those that lead to weight loss and improved overall health (Brown et al., 2020; Kashem, Al Sayah, Tawiah, Ohinmaa, & Johnson, 2019; Kucharska et al., 2018; Ma et al., 2017). The

CAOCPGs support the use of NWFAs , non-diet approaches, which are approaches that do not use weight as a goal to achieve better health and are used as a means to reduce weight stigma among RDs as well as internalized by clients (Brown et al., 2020). Weight-focused approaches focus on changing individual behaviours to produce intentional weight loss and are listed as medical nutrition therapies in the CAOCPGs (e.g., caloric restriction, and intensive lifestyle programs) (Brown et al., 2020; Dietitians of Canada, 2019b).

Other CPGs make recommendations that are similar to the CAOCPGs. For example, the Academy of Nutrition and Dietetics have also generated a set of Adult Weight Management CPGs for screening, nutrition assessment, intervention as well as nutrition monitoring and evaluation (Academy of Nutrition and Dietetics, 2021). The CPGs for diabetes management issued by Diabetes Canada (2018) recommend a weight loss of 5-10% for overweight and obese individuals as a means to lower their risk of cardiovascular disease, diabetes, and other chronic diseases (Wing et al., 2011). The most recent Health Canada Dietary Guidelines recommend focusing on nutritious foods and beverages, importance of food skills and the creation of supportive environments to promote healthy eating, a change from the 2012 focus on the macronutrient distribution of diets to follow the Acceptable Macronutrient Distribution Ranges for fat, protein and carbohydrate, 25-35%, 10-30% and 45-65% respectively to reduce the risk of chronic disease (Health Canada, 2012, 2022b). Although there are CPGs to guide how RDs practice when working with higher weight adults, there currently is little literature to describe how RDs are actually practicing or how they view their role and practices towards weight management.

As noted above, clinicians are encouraged to adopt and implement CPGs because they are based in research evidence. However, clinicians also rely on their clinical experience, interpretation of the evidence on which CPGs are based, and their patients' clinical and social circumstances to inform their approach to practice. In that context, there is an emerging spectrum of care provided by RDs to higher weight adults that ranges from weight-focused approaches wherein weight loss is of central concern to non-weight focused wherein body weight is of little to no importance (Chapman et al., 2005). This reflects recent CPGs and position statements from Dietitians of Canada that describe RDs as taking two identifiable approaches: weight-focused and NWFAs (Dietitians of Canada, 2019b; Nutter et al., 2016).

2.4 Traditional, weight-focused approaches to manage weight

A weight-focused approach to intentional weight loss is informed by the view that weight is a modifiable risk factor that can be changed through individual behaviour change (Dietitians of Canada, 2019b). The goal of a weight-focused approach is thus to counsel adults in behaviour modification, namely reducing caloric intake and increasing energy expenditure, to induce weight loss (Dietitians of Canada, 2019b; Tylka et al., 2014). Other terms used for weight-focused approaches include weight centric, weight normative, weight loss, healthy weight (Dietitians of Canada, 2019b), flexible, small-changes, lifestyle approaches (Chapman et al., 2005; Dowding, Ash, & Shakespeare-Finch, 2011; Zinn, Schofield, & Hopkins, 2013), or general dietary advice (MacDonald-Wicks et al., 2015).

A weight-focused approach is recommended based on the literature suggesting that weight reduction decreases the risk of all-cause mortality, cardiovascular mortality, and cancer

mortality (Ma et al., 2017). Secondary health outcomes of weight loss interventions include lowering total cholesterol, LDL-C, systolic and diastolic blood pressure and fasting glucose levels (Peirson, Fitzpatrick-Lewis, & Ali, 2014). Much of these health improvements are correlated with an approximate 5% reduction in body weight, but the way in which the impact of the health behaviour changes used to induce weight loss may confound this correlation, and the strength of this correlation within different BMI categories is unknown (Stevens, Truesdale, McClain, & Cai, 2006).

The factors that influence implementation of weight-focused NWFAs by RDs in clinical practice is understudied. Moreover, what minimal literature that exists on this topic was published in the early 2000s, and since that time scientific evidence, CPGs recommendations, awareness of weight bias, and the popularity of NWFAs have changed considerably. What is known, is that the lifestyle-focused behavioural modifications recommended by those using weight-focused approaches vary, including caloric restriction (Hankey, Eley, Leslie, Hunter, & Lean, 2004), anthropometric measurement tracking (Hankey et al., 2004; Zinn et al., 2013), portion control (MacDonald-Wicks et al., 2015), in comparison to an all foods fit approach, or all foods in moderation (Chapman et al., 2005). In contrast, a qualitative study (n = 104) by Marchessault et al (2007) found that some RDs believe that centering weight loss as a priority among higher weight client prevents or reduces clients' complacency about their health. RDs report the preferred strategies for weight management differ within the scientific community, among other dietitians and between client goals versus RDs goals (Chapman et al., 2005). Given that this data is from early 2000s and there have been updated guidelines released, it would be worth exploring to see if these practices are still current.

2.5 Non-weight focused approaches

NWFAs consider body weight, like other phenotypic characteristics such as height and hair colour, to be a normal part of human variation, and not an indicator of health risk, which means that weight loss is neither a goal of intervention nor an indication of improved health (Tylka et al., 2014). NWFAs generally focus on health behaviour changes, specifically improvements in nutrition and movement (Clifford et al., 2015). NWFAs are also referred to as non-weight centric, health-centred, non-diet, weight inclusive, weight neutral, non-weight centric, critical dietetics, Intuitive Eating (IE), mindful eating and the Health at Every Size® (HAES®) principles (Dietitians of Canada, 2019b; Willer, Hannan-Jones, & Strodl, 2019). Although NWFAs are gaining in popularity, there is no current literature available describing what practice approaches Canadian RDs are using or the proportion of RDs using NWFAs approaches.

NWFAs were first implemented in the 1960s as a way to redress the societal discrimination of fat individuals that contributed to weight-based discrimination and health inequities (Marchessault, Thiele, Armit, Chapman, & et al., 2007). Today, NWFAs are included among the medical nutrition therapies in the CAOC PGs. Unfortunately, there are no studies that have evaluated the benefits of NWFAs on morbidity and mortality. However, there is a growing body of evidence that indicates that NWFAs are associated with improved health outcomes, regardless if weight loss occurred (Eguchi, Iso, Tanabe, Yatsuya, & Tamakoshi, 2014; Goel et al., 2011; Lee, Blair, & Jackson, 1999; Matheson, King, & Everett, 2012). Marchessault et al (2007) identified that RDs who use non-dietary approaches do not focus on weight loss or restrict caloric intake or portions, but rather encourage supportive lifestyle changes, build a

healthier relationship with food, and also use size acceptance. A cross-sectional study (Fortin et al., 2014) of 1,718 individuals who met the criteria of healthy lifestyle habits, including fruit and vegetable intake, physical activity, and alcohol consumption, showed an inverse relationship between unhealthy lifestyle factors with multimorbidity. Fortin et al's results show that with each increase in the number of unhealthy lifestyle behaviours, individuals' likelihood of multiple comorbidities also increased, demonstrating that disease risk is impacted by health behaviours regardless of weight change (Fortin et al., 2014).

In addition to these findings, other research indicates that weight regain which has been found to meet or exceed initial weight loss for the majority of research participants (Tomiya, Ahlstrom, & Mann, 2013), has an independent negative impact on health outcomes. The repeated reduction and regain of weight that is often observed among study populations is referred to as weight cycling. More specifically, weight cycling is the response to dieting in an effort to lose weight, followed by the cycle of regain and repeated attempts to lose weight (Oh et al., 2018). The average number of weight cycles in a lifetime by those who have tried to lose weight is 7.82 cycles (Quinn, Puhl, & Reinka, 2020). Weight cycling has been associated with adverse health outcomes, including depression (Oh et al., 2018; Quinn et al., 2020). Two thirds of RDs held the belief that most who lose weight would eventually regain and 80-90% recognized the health consequences of weight cycling (Barr, Yarker, Levy-Milne, & Chapman, 2004). Caloric restricted diets can produce weight loss in the short-term but are difficult to maintain for the long term as a result of compensatory mechanisms that promote hunger, which contribute to weight cycling (Brown et al., 2020; Quinn et al., 2020). Focusing on weight loss can contribute to weight cycling and the associated health consequences.

Another unintended consequence of weight-focused approaches is the impact that weight loss interventions have on psychological health and well-being, including weight stigma and bias (Jung, Luck-Sikorski, Wiemers, & Riedel-Heller, 2015). Weight stigma is defined as “the labelling and stereotyping of individuals based on their body weight, shape or size, stemming from negative social attitudes (weight bias)” (Dietitians of Canada, 2019b). Weight bias is defined as the “negative attitudes and behaviours against an individual based on their (usually heavier) body weight” (Nutter et al., 2016). Weight bias is linked to anxiety, depression, disordered eating behaviours, metabolic syndrome, high cortisol levels, systemic inflammation and non-adherence to medication (Papadopoulos & Brennan, 2015; Pearl et al., 2017; Sikorski, Luppia, Luck, & Riedel-Heller, 2015). Health care costs attributed to higher weights may actually reflect costs to care for those who have experienced deleterious health effects of weight bias. Employment (e.g., lack of promotions), physical health (e.g., reduced physical activity), mental health (e.g., depression and binge eating), and other societal costs (e.g., diminished interpersonal relationships) overlap the health care costs of higher weights and weight stigma (Singh, Russell-Mayhew, Ranson, & McLaren, 2019). By reducing weight bias in the health care system, it likely would reduce costs related to higher weights such as delayed medical treatment (Durso et al., 2012; Fettichand & Chen, 2012). The new CAOC PGs describe and list ways to reduce weight stigma and the need to move beyond the BMI when providing patient care (Brown et al., 2020; Wharton et al., 2020). Non-diet approaches, or NWFAs, are also named as a practice approach in the CAOC PGs that may decrease weight stigma as it provides individual care across all weight spectrums (Brown et al., 2020).

In addition, within NWFAs, a more socially just approach to dietetics exists. Although there is not currently a consistent definition for socially just dietetic practice or a framework to guide what socially just dietetic clinical practice, but common themes look like understanding how colonialism has shaped food and food systems and centering marginalized people (Brady, 2020; Coveney, 2019). Income disparities as well as racial and gender inequities, threats to international and national peace, the impacts of climate change have worsened in recent years (Coveney & Booth, 2019). Social justice advancements through advocacy related to dietetic practice are necessary to understand how inequities are experienced, as they are not experienced equally, to ensure health and well-being is accessible to all (Coveney & Booth, 2019). The Integrated Competencies for Dietetic Education and Practice recommends that social justice should be part of the core knowledge and skills for dietetic training and education (Brady, 2020; Partnership for Dietetic Education and Practice, 2013). What is unknown is whether RDs identify with social justice practices as a practice approach in dietetics, and if so, how would they describe such approach.

In dietetic practice, there is no clear definition of what constitutes NWFAs. However, based on available descriptions what is known is that NWFAs explore diet quality and accept body diversity without the pursuit of weight loss to minimize the impact of weight stigma (Tylka et al., 2014; Willer et al., 2019). For some, NWFAs also comprise efforts to redress healthism, the unnecessary medicalization and moralization of health, and weight-based discrimination (Tylka et al., 2014). NWFAs does not recognize the classification of obesity as a chronic disease as rooted in healthism, and that is seen to unnecessarily medicalize, and thereby further marginalize, larger bodies.

Due to a paucity of research, it is unclear how RDs who use NWFAs understand obesity, or if and to what extent they use obesity to describe and/or conceptualize the meaning of body weight. Some who use NWFAs reject the medicalization of obesity, and rather understand the medicalization of obesity to be socially constructed and political, and rooted in societal ideals that are interconnected with sexist, racist, and classist perspectives of bodies, body weight, and health (Mitchinson, McPhail, & Ellison, 2016). Some of the clinical techniques used as part of a NWFAs include Intuitive Eating (i.e., a set of principles such as finding joyful movement), meal planning techniques, shopping and cooking skills, joyful and nutritious eating information, recognizing internal cues of hunger and fullness, encourage food awareness journaling, self-esteem and self-acceptance guidance (Schaefer & Zullo, 2017). It is unknown how many RDs who use NWFAs utilize these practice techniques and which practice techniques differentiate from other practice approaches.

Although the literature for NWFAs is emerging, the positive impact that NWFAs has been found to have on mortality and health outcomes suggests that this is a promising approach in RDs' clinical practice (Dugmore, Winten, Niven, & Bauer, 2019). Nevertheless, what is also missing from the literature is how RDs who report using NWFAs learn about these and what factors support their implementation of these practice approaches. Future studies are needed to fill gaps in knowledge regarding how, when, why, and to what extent RDs use weight-focused versus NWFAs to offer solutions. Such research is important to understanding how RDs interpret and implement various CPGs. Such research is also important to increasing the use of NWFAs, which is important in light of research indicating that weight-focused approaches may increase weight stigma, health care avoidance, and weight cycling, but not necessarily improved health outcomes.

2.6 Approaches Used by Registered Dietitians When Working with Higher Weight Adults

In Canada, in order to practice as RDs, one must complete a degree from an accredited food and nutrition undergraduate program, as well complete a period of practicum training (Coveney, 2019; Cuddy, 2012). Once the requirements have been met, licensure exams must be written in order to practice as licensed RDs with a regulatory body for each province and territory (Cuddy, 2012). Not only is dietetic practice rooted in a weight-focused approach, dietetic education is centred in a reductionist construct, weight-centric paradigm of health, biomedical model that often is referred to as nutritionism (Bessey, Brady, Lordly, & Leighteizer, 2021; Sharp, 2012). Nutritionism prioritizes nutrients and food components to help with physiological changes over a whole foods approach (Sharp, 2012). It is no surprise that weight stigma exists in dietetic education, as well as the pressure to conform to the thin and healthy eating ideals of the profession (Bessey et al., 2021).

Understanding the characteristics of NWFAs, exploring what influences RDs' choice of practice approach, including RDs' individual characteristics, are also unknown. Currently, only one paper has examined this topic. Willer et al (2019) classified 317 Australian RDs based on their practice approach. Willer found that 18.3% of respondents were weight neutral (a type of NWFAs), 30.3% were weight centric, and the rest were classified as a mixed approach, these findings were based on how Willer conceptualized and defined these practice approaches. Yet, 36.9% could correctly identify the practice goals of a weight-neutral approach in this same study (Willer et al., 2019). However, Willer et al's study was limited in that RDs were classified into various practice approaches based on their self-reported practice preferences and attitudes, and not on their actual use of strategies and techniques that may be associated with each approach in

practice. Moreover, this study has limited generalizability to the Canadian context since it included only RDs in Australia (Willer et al., 2019). Most other papers on this topic describe attitudes, knowledge, and behaviours without clearly classifying each approach, or specifying the strategies that RDs may actually use in practice when working with higher weight adults.

Additionally, there are RDs who identify not solely with a weight-focused approach. Some RDs prefer an “all foods fits” in moderation philosophy (Chapman et al., 2005; Hankey et al., 2004; Marchessault et al., 2007) and use measurements including BMI and waist circumference for tracking weight changes (Hankey et al., 2004). Australian RDs largely report using a mixed approach, 81% use both the Australian food guide and portion control (MacDonald-Wicks et al., 2015), which was higher than Willer’s study of 51.4% used a mixed approach (Willer et al., 2019). Many RDs report using a mixture of traditional/restrictive (e.g., practices that promoted weight loss such as caloric restriction) versus non-restrictive (e.g., weight inclusive approach such as Intuitive Eating, principles that encourage honouring hunger and fullness cues and promote non-dieting) practices, stating they use mostly non-restrictive eating practices (Schaefer & Zullo, 2017). In Canada, there are some elements of congruency between recommendations from Canada’s Food Guide and the behavioural goals RDs use to focus on eating healthier for adults seeking weight management that include eating more fruit and vegetables, lowering fat intake, and meal regularity (Chapman et al., 2005; Schaefer & Zullo, 2017). Canadian RDs appear to follow Canada’s Food Guide, although the use of the updated 2019 version is not reflected in current literature (Barr et al., 2004). Additionally, 90% of Canadian RDs believed emphasizing healthy eating should be prioritized over caloric reduction, yet more than half used calorie restriction as a strategy to reduce client’s weight (Barr et al., 2004). There is no recent data on the techniques used in practice, such as assessment,

dietary approaches recommended, or counselling techniques, and whether this varies depending on practice approach.

2.7 Factors influencing how dietitians practice when working with higher weight adults

It is important to understand what drives RDs to adopt certain practice approaches. Understanding these drivers have implications for dietetic education, training, and professional development, entry-to-practice competencies, and licensure exams that assess entry-to-practice competence. Understanding the barriers and facilitators to practicing in new ways using NWFAs is important as well, because such understanding may help to leverage resources and update dietetic curriculum to enable RDs in their practice, as well to help predict RDs behaviour and intention (Straus, Tetroe, & Graham, 2013). As well, it is important to sustain innovations in practice, so if there is an approach that helps to diminish weight stigma, RDs would need to be aware of the factors that influence how to implement it successfully. There are various factors that influence how RDs practice including external and internal factors which will be discussed in more detail below (Damschroder et al., 2009).

2.7.1. External factors

There are different ways RDs are practicing with higher weight adults in terms of the importance of intentional weight loss in practice that are influenced by policies and clinical practice guidelines (Brown et al., 2020). In 2019, Health Canada released a revised version of Canada's Food Guide. The 2019 Food Guide presented a substantially different message than the 2007 Food Guide which focused on prescriptive serving and portions sizes based on age and

gender categories, in favour of messages that may be seen to be more aligned with NWFAs, such as mindfulness and highlighting the harms of fad and weight-loss diets (Government of Canada, 2019). Likewise, the member platform Practice-based Evidence in Nutrition released a “Weight Stigma Background” in which the evidence for NWFAs is discussed in depth (Dietitians of Canada, 2019b). With the release of the “Joint international consensus statement for ending stigma of obesity” that was endorsed by Dietitians of Canada and Obesity Canada (Rubino et al., 2020) these policies are contributing to a foundation for a potential paradigm shift. Other examples of NWFAs in advocacy initiatives are occurring at Vancouver Coastal Health and the Ontario Dietitians in Public Health. Given that there has been a shift in policy, whether these changes are now reflected in how RDs are practicing has not been examined. The uptake of these policies and guidelines are dependent on the uptake of new ways of practicing, as well as the abandonment of previously and heavily entrenched approaches. RDs report they are inadequately prepared with knowledge or skills of how to practice from a socially just approach since traditional approaches are more focused on weight loss methods (Brady, 2020; Brown et al., 2020). Although there are external factors that influence and RDs practice approach, it is unknown where RDs learn about NWFAs and what impacts an RDs’ preparedness to practice this approach.

2.7.2. Internal factors: Perceptions of the Importance of Weight Loss

In general, health care professionals that refer to RDs, as well as RDs themselves, have perceptions of what RDs’ roles are in providing health care services broadly, but also more specifically in weight management. Some health professionals understand RDs’ roles to be the “weight manager” and may make weight loss referrals based on that assumption. A systematic review of 297 studies of family physicians’ referrals of patients for obesity management in

primary care found that many believe that obesity should be managed, and that RDs' services should be utilized therein (Aboueid, Pouliot, Bourgeault, & Giroux, 2018). Nearly half of the clients living with obesity, as conceptualized in this study, were referred to a nutrition expert for obesity management (Aboueid et al., 2018). RDs viewed as supports for obesity is supported by another systematic review of 45 hospitals where 22.3% of obese patients received a referral to a dietitian because of their obesity (Eglseer & Bauer, 2020). Therefore, RDs may choose to, or be required to, implement weight focused approaches based on expectation from patients and/or other members of the health care team.

How RDs perceives the importance of weight loss may impact the type of approaches they use in practice, although to what extent is unknown as no studies have explored the factors of implementing NWFAs. Many RDs, but not all, see their role as an important influence for weight loss via nutrition education and health behaviour modification recommendations (Mitchell, Ball, Ross, Barnes, & Williams, 2017). In a cross-sectional survey of 514 Canadian RDs, Barr et al. (2004) found 75% of RDs believe they are the best trained to manage obesity compared to other health professionals. In an Australian study of RDs, 35% believed weight loss counselling was the most helpful approach (Willer et al., 2019). Zinn et al (2013) found 92% of RDs in New Zealand use weight tracking with scales, 81% use tape measures and 32% used clothing measurement changes. Among RDs in Scotland, 45% agree overweight patients can survive on 800 – 1,200 calories per day without losing weight, which micronutrient deficiencies or malnutrition may be a concern for some at this caloric level (Hankey et al., 2004). There is some research regarding RDs' perspectives when working with higher weight adults. Only 25% of RDs believe “an obese, fit adult has the same risk of heart disease as a lean, fit adult” (Barr et al., 2004). RDs specifically have their own attitudes about weight loss and higher weight adults.

Whether or not these perspectives align with current CPGs is unknown, as well as where RDs learn about these practices that shape their perspectives of higher weight adults is also unknown. Among RDs, there is the attitude that people are individually responsible for their weight (Harvey, Summerbell, Kirk, & Hill, 2002) and that all adults who are overweight or obese should receive weight loss advice (Barr et al., 2004; Hankey et al., 2004). In a study looking at RDs' attitudes of their own weight, negative attitudes surfaced more among RDs who thought they were overweight (McArthur & Ross, 1997). RDs feel the pressure to be role models for weight management as 48% agree they should have a lower BMI (Barr et al., 2004). RDs exhibited an ambivalent attitude toward adults who were overweight (McArthur & Ross, 1997). RDs see their role in providing weight-focused counselling, yet their knowledge, attitudes and practices as mentioned above of what consists of a weight-focused approach are diverse (Barr et al., 2004; Schaefer & Zullo, 2017). Similarly there is a knowledge gap of what alternative approaches to weight-focused approaches are which could also serve as a barrier to implementation, but this has not been explored in the literature (Willer et al., 2019). Although it is known RDs support weight loss, it is unknown what techniques are used with adults to support this recommendation. The importance of weight loss seems to vary depending on the RDs' perspective and may be shaped internally by other influences such as expectations from other health professionals.

2.8 Summary

Perspectives that obesity is a public health priority are based on the high economic costs on the Canadian healthcare system and that higher weights are associated with health risks. Currently, there is no sustainable method to reduce weight and improve health for the long term (Brown et al., 2020). Minimizing weight stigma to reduce unintended consequences of weight-focused approaches has contributed to newer definitions of obesity and the utilization of medical

nutrition therapies that are non-weight focused. However, the literature to help disseminate and share NWFAs is not well developed, and clear practice guidelines for NWFAs are non-existent. At the practice level, there is little understanding of the extent to which RDs view weight loss and what approaches and techniques they are using in their practice when working with higher weight adults. In Canada, some literature on this topic has been generated but it is from the early 2000s and the current proportion of RDs practicing NWFAs is unknown. As well, what influences the adoption of one practice approach over another has not been studied and therefore, the application/selection of approaches used by RDs in client situations remains unclear. Furthermore, sources of education and professional development opportunities related to NWFAs has also not been elucidated, as traditionally undergraduate curriculum emphasizes weight-focused approaches. The research conducted in this thesis aims to address these knowledge gaps of NWFAs, to inform dietetic education, professional policies and position statements, and clinical practice guidelines so that they may reflect the current scientific literature and support contemporary dietetic practice.

Chapter 3. Objectives

3.1 Overall objective

The overall objective of this study is to describe the various body weight practice approaches that RDs who are licensed to practice in Canada use when working with higher weight adults, and to understand the factors barriers and drivers that inform RDs' adoption and implementation of NWFAs.

3.2 Objective 1

Describe the different practice approaches Canadian RDs use when working with higher weight adults. Specifically:

- a) Describe the proportion of dietitians who practice using one of five practice approaches, which are distinguished based on the degree to which they are weight- versus non-weight-focused, when working with higher weight adults,
- b) To determine dietitians' past training, overall perceptions of the importance of weight loss, definitions of obesity and practice techniques used when working with these adults.
- c) To determine strategies used in practice related to nutrition assessment, dietary recommendations and counselling techniques across the different practice approaches.

I hypothesize RDs have not have much exposure to NWFAs in their dietetic training and have relied on continuing education as the main source of exposure. I also hypothesize how RDs self-classify will elucidate trends with certain practice techniques that are specific for each practice approach, as well as some similarities. I also hypothesize that the practice techniques used by RDs are likely more similar than different but their overall philosophy is what differs.

3.3 Objective 2

To describe the factors that influence RDs to adopt and implement NWFAs when working with higher weight adults. Specifically:

- a.) To explore the barriers, facilitators, opportunities and challenges to the adoption and implementation of NWFAs in counselling higher weight adults, guided by the Consolidated Framework Implementation Research (CFIR).
- b.) To explore the domains of the CFIR: intervention characteristics, inner setting, outer setting, and characteristics of individuals as it relates to the barriers of implementing NWFAs for RDs working with higher weight adults.

Hypotheses

I hypothesize that those who have implemented NWFAs have had more supports available to them, or sought out supports, to learn about and implement NWFAs in their practice with higher-weight adults. I also hypothesize that they likely received some exposure to NWFAs to practice in their own professional development and undergraduate training.

These research objectives are presented separately in Chapter Four (Objective 1) and Chapter Five (Objective 2).

Chapter 4: Examining the use of non-weight focused approaches used by Registered Dietitians in Canada

Study 1 Abstract

Background: Non-weight focused approaches (NWFAs) are counselling approaches that may be used by clinicians when working with higher weight adults. These approaches emphasize overall nutrition and movement and deemphasize weight loss, with a view of alleviating weight stigma that is routinely experienced by these adults when seeking health care. NWFAs are non-diet approaches which are recommended in the Canadian Adult Obesity Clinical Practice Guidelines (CAOCPGs), and Registered Dietitians (RDs) are increasingly adopting them in practice. The extent to which RDs focus on weight, how they counsel higher weight adults, to which practice approaches they use across a spectrum of practice approaches and how they define obesity is unknown.

Objectives: This study surveyed Canadian RDs who counsel higher weight adults to assess the practice approaches they use, as well to understand the importance of weight, and how they define obesity. There were five diverging practice approaches that were described: solely weight-focused; moderately weight-focused; combination (fluctuating between weight-focused/weight inclusive); weight inclusive and; weight liberated.

Methods: Participants (n=383; 95% women, 82% white) were recruited using social media and professional listservs (e.g., Dietitians of Canada, regulatory Dietetic Colleges). A cross-sectional, online national survey of RDs currently working in Canada with higher weight adults.

Descriptive analysis, Fisher's exact test was used to assess any differences between practices approaches using R Studio.

Results: Overall, 45.4% of participants used NWFAs (weight inclusive and weight liberated), 40.5% fluctuated between weight-focused/weight inclusive, and 14.1% used weight-focused approaches (weight-focused and moderately weight-focused). Many participants (63%) agreed that weight loss was not important for higher weight adults; however, 80.9% of participants received no formal training of NWFAs. Over 60% of those who used weight-focused approaches defined obesity as a complex and progressive disease, characterized by abnormal, excessive body fat (adiposity) that impairs health; whereas <40% and <15% of those who used weight inclusive and weight liberated practice approaches did so, respectively. The most common guidelines used by participants who used weight-focused approaches were the Obesity Canada guidelines (weight-focused, 100%; moderately weight-focused, 75%). However, those who used NWFAs followed Health At Every Size® principles (weight inclusive, 82%; weight liberated, 91%) and Intuitive Eating guidelines (weight inclusive 87%; weight liberated, 94%).

Conclusion: More research is needed to understand NWFAs in clinical practice and to inform NWFAs in dietetic education in an effort to eliminate weight stigma and provide inclusive access to care. (Funding: Internal).

4.1 Background

Among Canadian adults, 26.8% have obesity (body mass index [BMI] ≥ 30 kg/m²) and 36.3% are overweight (BMI of 25 -29.9 kg/m²) (Statistics Canada, 2006). Obesity has recently been described as a chronic disease in the CAOCPGs and an updated definition of obesity highlights it as a disease with one diagnostic criteria related to excess body fat that impairs health, and not as a condition of having excess body fat (Wharton et al., 2020). This definition is supported by other health bodies and organizations (Bray et al., 2017; Canadian Medical Association, 2015; World Health Organization, 2000). Medical nutrition therapy, alongside lifestyle, medical and surgical interventions are recommended to address obesity (Wharton et al., 2020). Among dietary approaches to address obesity, the CAOCPGs recommend fourteen medical nutrition therapies and advise health care providers to choose the dietary pattern and/or food-based approach that best supports the client (Obesity Canada, 2020). There are others who reject using the language of obesity and describing obesity as a chronic condition (Dugmore et al., 2019). However, among Registered Dietitians (RDs) there are diverging approaches and perspectives on how to best treat higher weight adults (Dietitians of Canada, 2019b; Nutter et al., 2016), which impacts the specific medical nutrition therapy intervention strategies used in clinical practice (Willer et al., 2019).

Traditionally, dietary counselling for higher weight adults has focused on caloric restriction and physical activity to induce a negative energy deficit and promote weight loss (Brown et al., 2020). Traditional diet counselling is supported by the principle that weight loss will lead to improved health (Dietitians of Canada, 2019b; Willer et al., 2019). However, more recent data highlight a myriad of influences that impact an individual's weight, beyond the

calorie and activity choices of the individual (Hruby & Hu, 2015). Unfortunately, traditional approaches to weight management place an individual's behaviours at the centre of their obesity, which contributes to weight stigma at both the individual and societal level (Khan et al., 2018; Thearle et al., 2013). Weight stigma adversely impacts health, resulting in varying degrees of psychological harm including shame, anxiety, depression and suicidal ideation (Ramos Salas, Forhan, Caulfield, Sharma, & Raine, 2019). Weight stigma also contributes to the avoidance of health promoting behaviours, which impacts the health of higher weight individuals (Papadopoulos & Brennan, 2015; Wharton et al., 2020). In addition to the potential adverse mental health impacts of weight stigma, there is also recognition that dietary approaches prioritizing weight loss do not consistently yield sustainable, long-term weight loss, nor improved health outcomes (Hunger et al., 2020).

To address the challenges of weight-focused practices, the use of NWFAs among RDs have emerged. NWFAs are also considered “non-diet” approaches, as described in the CAOCPGs, and they are a recommended form of medical nutrition therapy (Brown et al., 2020). NWFAs emphasize overall nutrition and movement and deemphasize weight loss, with a view to redressing weight stigma that is routinely experienced by higher weight adults when seeking health care (Tylka et al., 2014; Willer et al., 2019). There is a growing body of evidence showing that NWFAs are associated with reduced morbidity independent of weight loss (Eguchi et al., 2014; Goel et al., 2011; Lee et al., 1999; Matheson et al., 2012). However, the degree to which NWFAs are used by RDs in Canada is largely unknown, which is relevant given a seemingly increase in popularity of NWFAs, and shifts in CPGs and policy (Dietitians of Canada, 2019a, 2019b). Additionally, global data on the application of NWFAs in practice are limited, and how they may differ in their implementation compared to traditional weight-focused approaches, with

only one study from Australia examining the diverse approaches regarding weight that are used by RDs, and other studies simply providing a narrow focus on a single practice approach in isolation (Barr et al., 2004; MacDonald-Wicks et al., 2015; Schaefer & Zullo, 2017; Willer et al., 2019). Complicating matters further is the diverse terminology aligned with NWFAs and the lack of comprehensive definitions to define NWFAs. Yet, little research has been conducted to elucidate the various ways in which RDs practice across the spectrum of a weight focus (Willer et al., 2019). Therefore, the objectives of this study were to describe how Canadian RDs currently work with higher weight adults, including determining the practice approaches RDs use in relation to their emphasis on weight loss during counselling, characterizing the perceptions of RDs surrounding the importance of weight loss, how they define obesity in their practice, and identifying counselling techniques and dietary recommendations used.

4.2 Methods

4.2.1 *Study design and participants*

A cross-sectional survey was administered to RDs in Canada (Appendix A). The survey questionnaire was developed, reviewed for face and content validity by subject experts, and then piloted tested. The survey was disseminated nationally between May and July 2021. It was administered online using QualtricsXM (Provo, Utah). To be included in the study, participants had to be English speaking since the survey was only offered in English, were an RD with a Canadian regulatory body, practiced dietetics in Canada, and provided counselling to higher weight adults in an out-patient setting. Practicum students, dietetic students, and retired RDs were excluded. This study was approved by the Ontario Tech University Research Ethics Board (File #16078, see Appendix D).

4.2.2 Development of the Practice Approach Classifications Use in the Survey

The research team took a deliberate, consultative approach to classify and define the diverging spectrum of practice approaches used by RDs when working with higher weight adults. Initially, the research team reviewed the literature and developed an initial set of practice approach classifications and definitions (Dietitians of Canada, 2019b; Willer et al., 2019). Care was taken to ensure non-judgemental, neutral language that did not use weight-focused or NWFAs language (e.g., the language higher weight adult was used instead of obesity or BMI, as obesity or BMI language would likely produce response bias among respondents using either approach). Next, RDs who used varying practice weight-related approaches in their practices and nutrition scientists with experience in survey development (n=10), reviewed the classifications, participated in an informal focus group and provided insights into the proposed classifications. The classifications were later updated to reflect the feedback, re-reviewed by the experts, and further modified in an iterative fashion until consensus was reached. Table 1 presents the final set of descriptive criteria used to classify the five different approaches assessed in this study. During survey administration, the five approaches were labelled as A through E alongside a detailed description of the approach, to minimize any bias that could be introduced based on classification name when participants self-classified their practice approach. In this study, the use of the term “weight-focused” approaches refers to both solely weight-focused and moderately weight-focused practice approaches and “NWFAs” refers to both weight inclusive and weight liberated practice approaches. A content analysis was done for participants self-assigned labels to their selected practice approach through open ended responses.

Table 1. Definitions of the Practice Approaches Assessed*

	Description
a) Solely Weight-focused	<ul style="list-style-type: none"> - Body weight is an important indicator of health status and is usually measured at each visit. - Ways of eating promote weight loss, sometimes regardless of body size. - Counselling focuses on calorie reduction (“calories in/calories out”), and possibly diet quality and eating patterns.
b) Moderately weight-focused	<ul style="list-style-type: none"> - Body weight is usually viewed as an important indicator of health status and is usually measured at each visit. - Obesity is viewed as a risk factor for disease or as a chronic disease itself. - Usually includes weight loss as an outcome. - Counselling focuses on calorie reduction, and possibly diet quality and eating patterns.
c) Combination	<ul style="list-style-type: none"> - Fluctuate between weight-focused and weight inclusive within practice. - Body weight is usually not an important indicator of health status. - Recognizes that obesity is a chronic disease. - Usually does not focus on weight change or loss as an outcome. - Counselling focuses on diet quality and eating patterns.
d) Weight inclusive	<ul style="list-style-type: none"> - Weight is not a measured outcome or an outcome to be achieved. - Obesity is not discussed as a factor contributing to chronic disease. Obesity may not be recognized as a term. - Discusses weight with adults out of client interest, but understands weight as a normal part of body diversity. - Counselling focuses on diet quality and eating patterns.
e) Weight liberated	<ul style="list-style-type: none"> - Weight is not a measured outcome or an outcome to be achieved. - Obesity is not recognized as a term. - Discusses weight with adults out of client interest but understands weight as a normal part of body diversity. - Does not take a healthism approach (healthism is the preoccupation with personal health as the primary focus of well-being, usually obtained through modifying lifestyle behaviours). - Recognizes that diet is an outcome of inequity and social justice and advocates for and/or works upstream to deconstruct systemic inequity issues.

*Participants were blinded to the approach name, by referring to the approaches A-E, to reduce the potential for a biased classification.

4.2.3 Questionnaire Validation

Between Summer-Fall 2020, the survey questionnaire was developed (see Appendix A). The same group of clinical dietitians and nutrition scientists who reviewed the practice classifications, also validated the overall questionnaire for face and content validity (n=10). Experts completed an informal face and content validity survey that was developed by adapting sixteen questions from Simon and White's survey (Simon, 2016), and included open-ended comments and ratings on 5-point Likert scale (i.e., 1= strongly disagree, 3= neither agree nor disagree, 5= strongly agree). Questions explored multiple components of survey development including whether the survey questions were direct, ambiguous, leading, relevant, and necessary. Changes were made to the survey based on the feedback obtained. In May 2021, the same reviewers pilot tested the online survey and provided additional feedback on the acceptability of the online format of the questionnaire. The research team also ensured the data produced was free of errors and would produce useable data.

The final survey questionnaire included a set of demographic questions (n=11); a question asking the participant to classify themselves into one of five practice approaches used when working with higher weight adults (n=1); questions to determine dietitians' overall perceptions of the importance of weight loss (n=1); definitions of obesity (n=1); a set of "select all that apply" for questions related to practice techniques used when conducting nutrition assessments and counselling adults, and which dietary recommendations were most commonly applied (n=47). The survey also included questions about the implementation of NWFAs in clinical practice (n=12); however, this data is presented in Chapter 5.

4.2.4 *Participants recruitment*

Purposive sampling was used to recruit participants by circulating a survey invitation via email distribution lists of RDs and via advertisements posted to dietetic professional social media groups (e.g., Facebook). The email distribution lists were operated by national and regional dietetic professional organizations such as Dietitians of Canada, Dietitians of Canada practice-based member networks (e.g., Consulting RDs; Diabetes, Obesity and Cardiovascular networks), Obesity Canada, Dietetic College membership lists in five provinces, and other independently operated lists (e.g., Gerry's list). Participants were encouraged to share the survey link to maximize snowball sampling in case others were not members of the targeted platforms. To incentivize participation, participants were offered the opportunity to enter a draw to win one of ten \$75 Amazon gift cards. A minimum sample size of 230 participants were needed to make inferences, based on data from Willer et al (2019) where 18.3% of RDs used weight neutral practice approaches, and considering an alpha level of 0.05 and a power at 80%.

4.2.5 *Analysis*

Data was cleaned and analyzed using descriptive statistics in RStudio. There were 855 survey responses, 472 responses excluded as they were systematically identified as bots by cross referencing the province stated and validating with GPS coordinates using Google maps (any responses outside of Canada was assumed to be from bots). There were no incomplete surveys, defined as <5% questions unanswered. The final sample included 383 responses. Frequencies and percentages were calculated for categorical variables. Between group characteristics were

analyzed with chi-square tests for categorical variables, with the Fishers' exact test for when cell counts were <5. For Table 3, we compared "Yes" versus "No" responses for each variable. A p-value <0.05 was considered statistically significant.

4.3 Results

Participants were 94.8% women with 82.2% self-identifying as white (Table 2, see Appendix B for expanded race variables). One third of participants were from the provinces Ontario or Alberta and had been practicing as an RD between 0-5 years. Approximately half of participants practiced in primary care (50.9%), and 54.3% practiced in urban geographic settings.

Table 2. Participant demographic characteristics

	All (n = 383)	Practice Approaches				P Value*
		Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	
Gender						
Woman	363 (94.8)	2 (0.6)	45 (12.4)	149 (41.0)	139 (38.3)	28 (7.7)
Man	11 (2.9)	1 (9.1)	5 (45.5)	3 (27.3)	2 (18.2)	0 (0.0)
Non-binary	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Prefer not to answer	8 (2.0)	0 (0.0)	1 (12.5)	3 (37.5)	1 (12.5)	2 (25.0)
Race						
White e.g., European	315 (82.2)	1 (0.3)	38 (12.1)	126 (40.0)	124 (39.4)	26 (8.3)
East Asian e.g. Chinese, Korean	29 (7.6)	0 (0.0)	3 (10.3)	13 (44.8)	10 (34.5)	3 (10.3)
Other e.g. Middle Eastern, Latin American, Indigenous	27 (7.0)	1 (3.7)	6 (22.2)	11 (40.7)	6 (22.2)	3 (11.1)
South/southeast Asian	12 (3.1)	1 (8.3)	4 (33.3)	5 (41.7)	2 (16.7)	0 (0.0)
Province & Territories [†]						

	Practice Approaches						P Value*
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	Weight Liberated (n = 32)	
Ontario	154 (40.2)	1 (0.6)	17 (11.0)	63 (41.0)	60 (39.0)	13 (8.4)	0.037
Alberta	120 (31.3)	1 (0.8)	25 (20.8)	53 (44.2)	34 (28.3)	7 (5.8)	
British Columbia	35 (9.1)	0 (0.0)	2 (5.7)	11 (31.4)	19 (54.3)	3 (8.6)	
Saskatchewan	17 (4.4)	0 (0.0)	0 (0.0)	8 (47.1)	9 (53.0)	0 (0.0)	
Quebec	14 (3.7)	0 (0.0)	2 (14.3)	1 (7.1)	6 (42.9)	5 (35.7)	
Manitoba	14 (3.7)	0 (0.0)	3 (21.4)	5 (35.7)	4 (28.6)	2 (14.3)	
New Brunswick	12 (3.1)	1 (8.3)	1 (8.3)	7 (58.3)	2 (16.7)	1 (8.3)	
Nova Scotia	9 (2.3)	0 (0.0)	1 (11.1)	4 (44.4)	3 (33.3)	1 (11.1)	
Newfoundland and Labrador	4 (1.0)	0 (0.0)	0 (0.0)	2 (50.0)	2 (50.0)	0 (0.0)	
Prince Edward Island	3 (0.8)	0 (0.0)	0 (0.0)	1 (33.3)	2 (66.7)	0 (0.0)	
Northwest Territories	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	
Years of practice as an RD							
0-5 years	120 (31.3)	2 (1.7)	15 (12.5)	43 (35.8)	48 (40.0)	12 (10.0)	0.973

	Practice Approaches					P Value*
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	
6-10 years	86 (22.5)	0 (0.0)	11 (12.8)	37 (43.0)	32 (37.2)	6 (7.0)
11-15 years	76 (19.8)	1 (1.3)	9 (11.8)	32 (42.1)	26 (34.2)	8 (10.5)
16-20 years	48 (12.5)	0 (0.0)	6 (12.5)	21 (44.0)	19 (39.6)	2 (4.2)
>20 years	53 (13.8)	0 (0.0)	10 (18.9)	22 (41.5)	17 (32.1)	4 (7.5)
Highest Level of Education						
Bachelor's	274 (71.5)	2 (0.7)	41 (15.0)	105 (38.3)	100 (36.5)	26 (9.5)
Master's	96 (25.0)	1 (1.0)	9 (9.4)	43 (44.8)	39 (40.6)	4 (4.2)
Other	13 (3.4)	0 (0.0)	1 (7.7)	7 (53.8)	3 (23.1)	2 (15.4)
Primary area of practice						
Primary Care	195 (50.9)	0 (0.0)	17 (8.7)	76 (39.0)	81 (41.5)	21 (10.8)
Out-patient	126 (32.9)	3 (2.4)	26 (20.6)	55 (43.7)	40 (31.7)	2 (1.6)
Other	62 (16.2)	0 (0.0)	8 (12.9)	24 (38.7)	21 (33.9)	9 (14.5)
Type of community						
Urban	208 (54.3)	2 (1.0)	35 (16.8)	73 (35.1)	78 (37.5)	20 (9.6)
						0.192

	Practice Approaches						P Value*
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	Weight Liberated (n = 32)	
Suburban	90 (23.5)	1 (1.1)	7 (7.8)	49 (54.4)	30 (33.3)	3 (3.3)	
Rural	65 (17.0)	0 (0.0)	7 (10.8)	26 (40.0)	26 (40.0)	6 (9.2)	
Remote	4 (1.0)	0 (0.0)	0 (0.0)	2 (50.0)	2 (50.0)	0 (0.0)	
Do not work in a single community	16 (4.2)	0 (0.0)	2 (12.5)	5 (31.3)	6 (37.5)	3 (18.8)	

Categorical data is presented as frequency (n) and percent (%). *The Fisher's exact test was used to assess any differences between practices approaches. †There were no responses from participants from Nunavut or the Yukon Territories

4.3.1 Practice Approaches

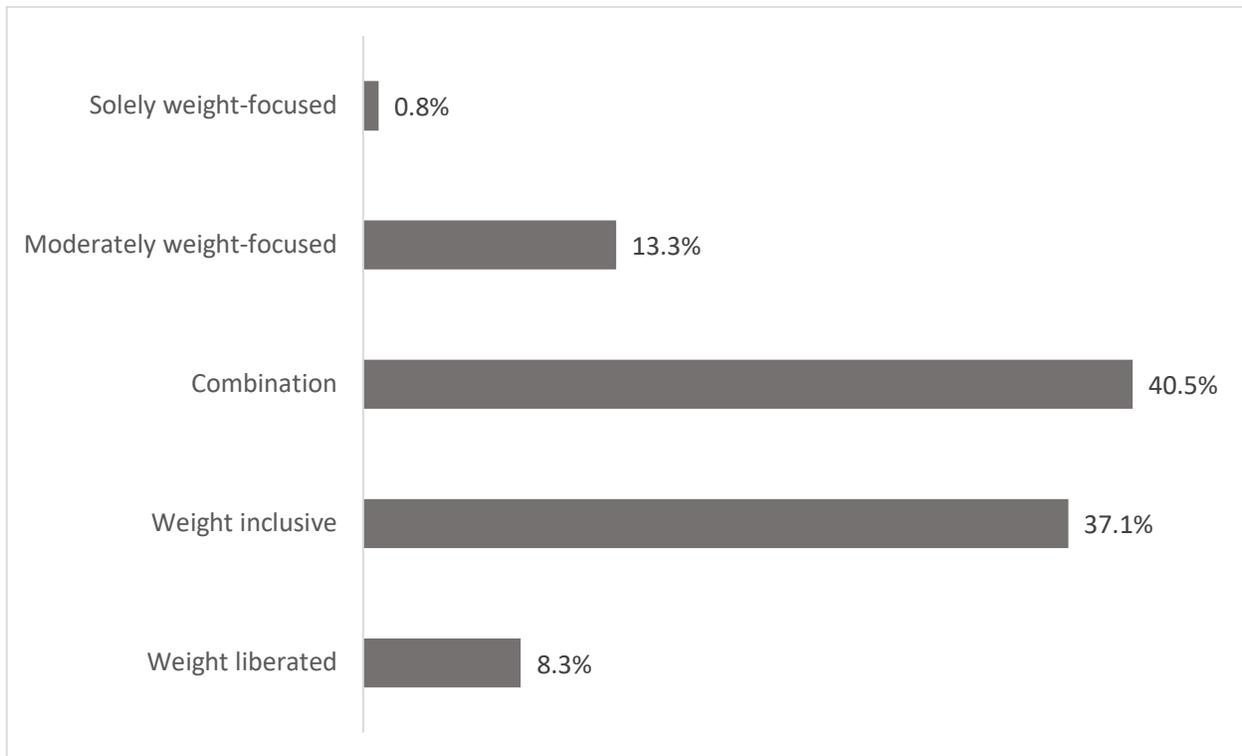
Overall, 45.4% of participants used NWFAs (37.1% weight inclusive, and 8.3% weight liberated), 40.5% use a combination of approaches (those that fluctuate between weight-focused and weight inclusive practice approaches), and 14.1% used weight-focused approaches (0.8% solely weight-focused and 13.3% moderately weight-focused) (Figure 1). Table 3 outlines the labels participants self-assigned to their selected practice approach.

Table 3. Labels that participants assigned to the practice approaches used when working with higher weight clients, by practice approach classification

Approach	n (%)	Labels participants assigned to their selected practice approach ^a
Solely weight-focused	3 (0.8%)	Patient-led
Moderately weight-focused	51 (13.3%)	Patient/client-centred, lifestyle and behaviour focused individualized dietary behaviours, flexible, health-centred, goal-focused, inclusive, supportive and directive, weight-management
Combination	155 (40.5%)	Non-diet, patient/client-centred, health-focused, behaviour-focused, weight neutral, HAES informed, weight inclusive informed, intuitive eating informed, modifying weight, non-weight focused, best weight, obesity management
Weight inclusive	142 (37.1%)	healthism, weight inclusive, normalized eating, anti-diet, HAES, client/patient-focused, inclusive, intuitive eating, non-judgmental, non-diet, strength-based, self-compassion, eating skills, body liberation, humanist, body diversity, mindful eating
Weight Liberated	32 (8.3%)	Weight inclusive, non-diet, fat-positive, HAES, social justice oriented, anti-oppressive, trauma informed, patient/client-focused, values based, well-being focused, body diversity, lived experience, anti-diet

^aData based on a content analysis of open ended questions
HAES = Health At Every Size®

Figure 1: Practice Approaches used by Registered Dietitians when working with higher weight adults



Among male respondents, a higher proportion used weight-focused approaches (54.6%) compared to NWFAs (18.2%, $p < 0.001$); whereas women were more likely to use NWFAs (46.0%), compared to weight-focused approaches (13.0%, $p < 0.001$) (Table 2). Additionally those who used NWFAs more likely worked in primary care (52.3%). Of those who ascribed to weight-focused approaches, more participants were from Alberta (21.6%) and worked in an out-patient setting (23.0%). Overall, 88% of participants agreed their current practice reflected their preferred practice either most of the time or all of the time.

Those who used weight-focused practice approaches were more likely to select the definitions of obesity: “a complex and progressive chronic disease” (solely weight-focused

66.7%, moderately weight-focused 62.7%), “characterized by abnormal, excessive body fat (adiposity) that impairs health” (solely weight-focused 66.7%, moderately weight-focused 70.6%). Those who used a combination of practice approaches most commonly “characterized by abnormal, excessive body fat” and “a complex and progressive chronic disease” (68.4%). Many who practiced using a weight inclusive and weight liberated approaches did not recognize or use obesity language definition (46.5% and 87.5%, respectively) (Table 4).

Table 4. Definitions of Obesity by Practice Approach

	All (n = 383)	Practice Approaches					P Value*
		Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	Weight Liberated (n = 32)	
A complex and progressive chronic disease	194 (50.7)	2 (66.7)	32 (62.7)	106 (68.4)	52 (36.6)	2 (6.2)	<0.001
Characterized by abnormal, excessive body fat (adiposity) that impairs health	186 (48.6)	2 (66.7)	36 (70.6)	89 (57.4)	55 (38.7)	4 (12.5)	
Body Mass Index [BMI] > 30kg/m ²	104 (27.2)	2 (66.7)	24 (47.0)	45 (29.0)	30 (21.1)	3 (9.4)	
I do not recognize or use this language	102 (26.6)	0 (0.0)	0 (0.0)	8 (5.2)	66 (46.5)	28 (87.5)	

*The Fisher's exact test was used to assess any differences between practices approaches.

4.3.2 *Overall practice techniques used when working with higher weight adults*

The highest proportion of participants who felt they practiced their preferred practice approach most or all the time was those who used weight liberated approaches (100%), followed by 90.9% for weight inclusive, 85.2% for combination, 82.3% for moderately weight-focused and 100% for solely weight-focused ($p=0.007$). Table 5 summarizes the counselling characteristics overall and across each of the five practice approaches, including recommended dietary approaches, nutrition assessment procedures and counselling techniques used when working with higher weight adults. Overall, when conducting dietary assessment most participants reported monitoring general health behaviours (95.8%), as well as metabolic parameters such as lipid profile or blood glucose (95.6%), and mental health status 94.0%), and social health (91.4%). Overall, a high proportion of practitioners recommended similar dietary approaches such as increasing fruits and vegetables (95.0%), whole grains (88.3%), and pulses (85.6%). Fewer participants overall recommended replacing saturated/trans fats with unsaturated fats (64.2%) and the use of specific dietary patterns such as the Mediterranean diet (55.1%), Canada's Food Guide (53.8%), a low-glycemic diet (41.8%) or the DASH diet (33.4%). Overall, the most common techniques used in counselling were principles of mindful eating (88.0%), prioritize adults clients' lived experiences (79.4%), discussions with adult clients about the structural barriers to their being/feeling healthy or wellness (75.5%), Intuitive Eating principles (70.8%), compassion-informed counselling strategies (65.3%), and Health At Every Size® principles (64.8%). In contrast, the least common techniques used were recommending weight loss (5.2%) and keeping a food diary (3.9%).

Table 5. Nutrition assessment, recommended dietary approaches and counselling techniques used, by practice approach

Assessment	Practice Approaches					P value ^a	
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight- focused (n = 51)	Combination (n = 155)	Weight inclusive (n = 142)		Weight liberated (n = 32)
Assessment							
Monitor health behaviours (e.g., diet and exercise) as an indicator of changed health risk	367 (95.8)	3 (100.0)	49 (96.1)	150 (96.8)	138 (97.0)	27 (84.4)	0.048
Assess metabolic parameters (lipid profile, blood glucose, liver enzymes, vitamin and mineral status, etc.)	366 (95.6)	3 (100.0)	48 (94.1)	150 (96.8)	137 (96.5)	28 (87.5)	0.194
Assess mental health status (e.g., depression, addition, eating disorders, etc.)	360 (94.0)	3 (100.0)	47 (92.2)	145 (93.5)	134 (94.4)	31 (96.9)	0.860
Assess social health (e.g., social support, connection to care givers, living conditions, etc.)	350 (91.4)	3 (100.0)	41 (80.4)	146 (94.2)	130 (91.5)	30 (93.8)	0.075
Assess financial health by collecting economic information, including food security	314 (82.0)	3 (100.0)	41 (80.4)	129 (83.2)	111 (78.2)	30 (93.8)	0.275
Assess mechanical health (e.g., back pain, osteoarthritis, sleep apnea, GERD, etc.)	308 (80.4)	2 (66.7)	39 (76.5)	121 (78.1)	117 (82.4)	29 (90.6)	0.341
Weights clients	150 (39.2)	3 (100)	43 (84.3)	71 (45.8)	28 (19.7)	5 (15.6)	<0.001
Calculate Body Mass Index (BMI) to assess health risk	142 (37.1)	2 (66.7)	41 (80.4)	71 (45.8)	26 (18.3)	2 (6.3)	<0.001
Measure body composition	32 (8.4)	0 (0.0)	8 (15.7)	17 (11.0)	7 (4.9)	0 (0.0)	0.042
Other	52 (13.6)	0 (0.0)	5 (9.8)	17 (11.0)	21 (14.8)	9 (28.1)	0.130
Dietary Approaches Recommended							
Increasing fruits and vegetables	364 (95.0)	3 (100.0)	46 (90.2)	151 (97.4)	138 (97.2)	26 (81.3)	0.014
Increasing intake of whole grains	338 (88.3)	3 (100.0)	40 (78.4)	141 (91.0)	130 (91.5)	24 (75.0)	<0.001
Increasing dietary variety	333 (86.9)	3 (100.0)	39 (76.5)	135 (87.1)	127 (89.4)	29 (90.6)	0.215
Increasing intake of pulses (e.g. beans, peas, chickpeas, lentils)	328 (85.6)	2 (66.7)	35 (68.6)	141 (91.0)	125 (88.0)	25 (78.1)	<0.001
Doing more physical activity	317 (82.8)	3 (100.0)	46 (90.2)	133 (85.8)	113 (79.6)	22 (68.8)	0.130
Types of alternative foods for snacking	269 (70.2)	3 (100.0)	42 (11.0)	123 (32.1)	89 (23.2)	12 (3.1)	<0.001

Practice Approaches							
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight- focused (n = 51)	Combination (n = 155)	Weight inclusive (n = 142)	Weight liberated (n = 32)	P value ^a
Replacing saturated/trans fats with unsaturated fats	246 (64.2)	3 (100.0)	25 (49.0)	113 (72.9)	89 (62.7)	16 (50.0)	0.004
The Mediterranean dietary pattern	211 (55.1)	1 (33.3)	27 (52.9)	89 (57.4)	85 (59.9)	9 (28.1)	0.963
Provide advice using Canada's Food Guide	206 (53.8)	1 (33.3)	23 (45.1)	89 (57.4)	81 (57.0)	12 (37.5)	0.018
The low-glycemic index dietary pattern	160 (41.8)	2 (66.7)	17 (33.3)	79 (51.0)	55 (38.7)	7 (21.9)	0.405
The Dietary Approaches to Stop Hypertension (DASH)	128 (33.4)	0 (0.0)	17 (33.3)	58 (37.4)	46 (32.4)	7 (21.9)	0.476
Modifying specific macronutrients e.g., low carbohydrate, high protein, high fat	112 (29.2)	2 (66.7)	26 (51.0)	49 (31.6)	32 (22.5)	3 (9.4)	0.077
Intake of certain foods to reduce calories	95 (24.8)	3 (100.0)	32 (62.7)	45 (29.0)	14 (9.9)	1 (3.1)	<0.001
Eating fewer calories	50 (13.1)	2 (66.7)	25 (49.0)	21 (13.5)	2 (1.4)	0 (0.0)	<0.001
Reducing total fat intake	49 (12.8)	2 (66.7)	17 (33.3)	21 (13.5)	8 (5.6)	1 (3.1)	0.003
The vegetarian dietary pattern	46 (12.0)	0 (0.0)	6 (11.8)	18 (11.6)	19 (13.4)	3 (9.4)	0.006
Time-limited feeding, i.e., intermittent fasting	23 (6.0)	0 (0.0)	8 (15.7)	12 (7.7)	3 (2.1)	0 (0.0)	0.157
The Nordic dietary pattern	9 (2.3)	0 (0.0)	2 (3.9)	2 (1.3)	4 (2.8)	1 (3.1)	0.004
A ketogenic diet	6 (1.6)	0 (0.0)	3 (5.9)	2 (1.3)	1 (0.7)	0 (0.0)	<0.001
Other	69 (18.0)	0 (0.0)	5 (9.8)	19 (12.3)	31 (21.8)	14 (43.8)	<0.001
Techniques							
Draw on the techniques of mindful eating	337 (88.0)	2 (66.7)	44 (86.3)	136 (87.7)	127 (89.4)	28 (87.5)	0.649
Recognize clients' lived experiences impact their lives in ways that are often hidden to providers	304 (79.4)	2 (66.7)	32 (62.7)	115 (74.2)	124 (87.3)	31 (96.9)	<0.001
Discuss with clients the structural barriers to their being/feeling healthy or well	289 (75.5)	2 (66.7)	38 (74.5)	113 (72.9)	108 (76.1)	28 (87.5)	0.433
Draw on the principles of Intuitive Eating	271 (70.8)	0 (0.0)	15 (29.4)	102 (65.8)	124 (87.3)	30 (93.8)	<0.001
Use principles of compassion-informed counselling strategies	250 (65.3)	3 (100.0)	31 (60.8)	92 (59.4)	96 (67.6)	28 (88.0)	0.015
Draw on the principles of Health At Every Size®	248 (64.8)	1 (33.3)	13 (25.5)	84 (54.2)	121 (85.2)	29 (90.6)	<0.001
Recommend keeping a hunger awareness diary	239 (62.4)	1 (33.3)	25 (49.0)	98 (63.2)	93 (65.5)	22 (68.8)	0.192

Practice Approaches							
	All (n = 383)	Solely Weight- focused (n = 3)	Moderately Weight- focused (n = 51)	Combination (n = 155)	Weight inclusive (n = 142)	Weight liberated (n = 32)	P value ^a
Recommend that clients do not weigh themselves	206 (53.8)	0 (0.0)	14 (27.5)	81 (52.3)	84 (59.2)	27 (84.4)	<0.001
Use principles of culturally-safe care	192 (50.1)	1 (33.3)	12 (23.5)	83 (53.5)	72 (50.7)	24 (75.0)	<0.001
Recommend keeping a food intake diary	183 (47.8)	3 (100.0)	37 (72.5)	93 (60.0)	45 (31.7)	5 (15.6)	<0.001
Use principles of harm reduction counselling strategies	162 (42.3)	0 (0.0)	15 (29.4)	59 (38.1)	63 (44.4)	25 (78.1)	<0.001
Recommend eating smaller, more frequent meals	136 (35.5)	1 (33.3)	25 (49.0)	68 (43.9)	39 (27.0)	3 (9.4)	<0.001
Use principles of trauma-informed counselling strategies	121 (31.6)	0 (0.0)	9 (17.6)	42 (27.1)	48 (33.8)	22 (68.8)	<0.001
Draw on equity-seeking clients' experiences of oppression	93 (24.3)	0 (0.0)	5 (9.8)	28 (18.1)	36 (25.4)	24 (75.0)	<0.001
Recommend limiting snacking	81 (21.1)	2 (66.7)	25 (49.0)	43 (27.7)	10 (7.0)	1 (3.1)	<0.001
Recommend weight loss	20 (5.2)	2 (66.7)	12 (23.5)	6 (3.9)	0 (0.0)	0 (0.0)	<0.001
Recommend keeping a weight diary	15 (3.9)	1 (33.3)	11 (21.6)	3 (1.9)	0 (0.0)	0 (0.0)	<0.001
Recommend using commercial weight loss products	1 (0.3)	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.219
Other	26 (6.8)	0 (0.0)	3 (5.9)	9 (5.8)	10 (7.0)	4 (12.5)	0.635

^aFisher's Exact Test for Count Data with stimulated p-value (based on 2000 replicates). [†]Comparing "Yes" versus "No" responses for each variable.

4.3.3 *Characteristics of Solely Weight-focused and Moderately Weight-Focused Approaches*

Participants who practiced using solely weight-focused approaches rated intentional weight loss as being important or very important (100%), higher than those who used moderately weight-focused approaches (66.6%) and other practice approaches ($p < 0.001$). There were several practice characteristics that were more commonly observed among participants who used weight-focused approaches (Table 5). All participants who used weight-focused approaches were significantly more likely to recommend types of alternative foods for snacking and replacing saturated/trans fats with unsaturated fats (100%, $p = 0.004$); and were more likely to weigh adult clients (solely weight-focused 100%, moderately weight-focused 84.3%, $p < 0.001$), calculate BMI (solely weight-focused 66.7%, moderately weight-focused 80.4%, $p < 0.001$), and recommend foods to reduce calories (solely weight-focused 100%, moderately weight-focused 62.7%, $p < 0.001$) compared to the other approaches. A higher proportion of weight-focused participants also recommended keeping a food intake diary (solely weight-focused 100%, moderately weight-focused 72.5%, $p < 0.001$), limiting snacking (solely weight-focused 66.7%, moderately weight-focused 49.0%, $p < 0.001$), and weight loss (solely weight-focused 66.7%, moderately weight-focused 23.5%, $p < 0.001$) compared to the other practice approaches.

4.3.4 *Characteristics of Combination Approaches*

Participants who practiced using a combination approach fluctuated between weight-focused and weight inclusive approaches were significantly less likely to find intentional weight loss important compared to the other practice approaches (6.5%, $p < 0.001$). These participants were significantly more likely to recommend increasing the intake of pulses (91.0%, $p < 0.001$)

and the use of Canada's Food Guide (57.4%, $p=0.018$) when compared to the other practice approaches. In contrast, these participants were significantly less likely to recommend eating fewer calories (13.5%, $p<0.001$), reducing total fat intake (13.5%, $p=0.003$), weight loss (3.9%, $p<0.001$), and keeping a weight diary (1.9%, $p<0.001$) when compared to the other practice approaches.

4.3.5 Characteristics of Weight Inclusive Approaches

Those practicing with weight inclusive approaches were more likely to recognize that the lived experience of adult clients' impacts their lives in ways that are often hidden to health care providers (87.3%, $p<0.001$); draw on principles of Intuitive Eating (87.3%, $p<0.001$); draw on principles of Health At Every Size® (85.2%, $p<0.001$) when compared to other approaches. Intentional weight loss was not important to many participants who used weight inclusive approaches (83.1%, $p<0.001$) when compared to the other practice approaches.

A fair number of those who used weight inclusive approaches weigh adult clients (19.7%, $p<0.001$), even though the majority recommend adult clients do not weight themselves (59.2%, $p<0.001$) or recommend weight loss (0.0%, $p<0.001$) when compared to other practice approaches. Additionally, the majority of those who practiced weight inclusive approaches monitor health behaviours (e.g., diet and exercise) as an indicator of changed health risk (97.0%, $p=0.048$), assess metabolic parameters (e.g., lipid profile, blood glucose, liver enzymes, vitamin and mineral status) (96.5%, $p=NS$) and assess mental health status (e.g., depression, addiction, eating disorders) (94.4%, $p=NS$) when compared to other approaches.

4.3.6 *Characteristics of Weight Liberated Approaches*

Participants practicing with weight liberated approaches were more likely to acknowledge the impact of lived experiences of adult clients' in ways that are often hidden to providers (96.9%, $p < 0.001$); draw on principles of Intuitive Eating (93.8%, $p < 0.001$); draw on principles of Health At Every Size® (90.6%, $p < 0.001$); and recommend that adult clients do not weigh themselves (84.4%, $p < 0.001$). These participants more often used principles of culturally-safe care (75.0%, $p < 0.001$), harm reduction counselling strategies (78.1%, $p < 0.001$), trauma-informed counselling strategies (68.8%, $p < 0.001$) and draw on equity-seeking adult clients' experiences of oppression (75.0%, $p < 0.001$) when compared to other practice approaches. The value of intentional weight loss was not important to most weight liberated approaches (80.0%, $p < 0.001$) when compared to other practice approaches.

Those practicing with weight liberated approaches, the majority monitor health behaviours (e.g., diet and exercise) as an indicator of changed health risk (84.4%, $p = 0.048$), assess metabolic parameters (e.g., lipid profile, blood glucose, liver enzymes, vitamin and mineral status) (87.5%, $p = \text{NS}$) and assess mental health status (e.g., depression, addiction, eating disorders) (96.9%, $p = \text{NS}$) when compared to other approaches. Additionally, there were more of those who used a weight liberated approaches that assess financial health by collecting economic information, including food security (93.8%, $p = \text{NS}$) when compared to other approaches. Interestingly there were 43.8% of those who practiced weight liberated approaches that selected that there are other dietary approaches they used that were not listed in the survey ($p < 0.001$) when compared to other approaches.

4.3.7 *Education and Training for Non-weight Focused Approaches*

Overall, 80.9% of participants had not received formal education on NWFAs, which did not significantly differ across the practice approaches: 66.7% of solely weight-focused participants, 70.6% of moderately weight-focused, 83.9% of combination, 81.0% of weight inclusive, and 84.4% of weight liberated ($p=NS$). The most common mode of professional development related to NWFAs RDs undertook were Craving Change (41.8%)(Craving Change, 2022), Certified Diabetes Educator (31.3%)(Canadian Diabetes Educator Certification Board, 2022), Dietitians of Canada & Obesity Canada – Obesity Learning Retreat (11.2%)(Obesity Canada, 2022), Balanced View BC (6.8%) (Balanced View, 2022), SCOPE certification (World Obesity Foundation) (6.5%) (World Obesity, 2022), Learning from Equity seeking groups or individuals holding diverse identities/experiences (6.0%) and Body Image Training with Marci Evans (5.5%) (Marci RD Nutrition, 2022).

4.4 Discussion

Almost half of RDs sampled identified the practice approaches used were NWFAs, and a little less used a combination of weight-focused and weight inclusive approaches. Not surprisingly weight loss, and the recommendation of foods and dietary behaviours associated with weight loss, were more common among weight-focused and moderately weight-focused approaches. It is no surprise also, that practices that focused less on weight and its importance were more commonly utilized by NWFAs. This is the first Canadian study, and among the first globally, to characterize the different practice approaches used among RDs when working with higher weight adults, resulting in highly novel data on the use of NWFAs. Additionally, where

past research has asked RDs about their attitudes and beliefs about weight loss and obesity management, this study further assessed practice techniques and strategies used in clinical practice, assessing these by practice type. This study contributes novel data since there are no known studies or policy documents that formally define NWFAs or compare the practice approaches among weight-focused and NWFAs. This data supports the acceptance of diversity in practice, emphasizes the need to develop learning and professional development opportunities related to NWFAs and highlights the necessity for acceptance of alternative approaches to obesity management (Schaefer & Zullo, 2017; Willer et al., 2019).

This study found that in Canada 45.5% of RDs used NWFAs, which is much higher than Willer et al (2019) who found that only 18.3% RDs in Australia used these approaches (weight-neutral). In a 2004 national survey of Canadian RDs, most believed that healthy eating habits should be emphasized over calorie reduction; however, this study did not inquire about the perceived importance of weight loss (Barr et al., 2004). In the current study, the majority who used weight-focused approaches recommended weight loss, but the vast majority of those using other practice approaches did not commonly recommend weight loss to adult clients. This may be because of the CPGs, such as the CAOCPGs and the support received from Dietitians of Canada's signing the Joint International Consensus Statement are committed to ending weight stigma by reducing the focus on weight-based messages (Rubino et al., 2020). These shifting paradigms to practice can likely be explained by the data that weight stigma increases social isolation, depression, disordered eating, cortisol levels, non-adherence to medications and metabolic syndrome (Decker, Thurston, & Kamody, 2018; Papadopoulos & Brennan, 2015; Pearl et al., 2017; Ramos Salas et al., 2019; Sikorski et al., 2015). Newer approaches to

behavioural lifestyle changes that are more clinically effective for changing health behaviours and that use weight stigma reducing strategies are needed (Booth, Prevost, Wright, & Gulliford, 2014; Brown et al., 2020; Dietitians of Canada, 2019b). Similar to the data in this study, others have described NWFAs' practice techniques, instead of focusing on caloric restriction and cognitive restraint, focus on hunger, satiety, cravings, appetite, promote eating behaviours and diet quality, exercise and fitness behaviours, and non-weight centric goals (Brown et al., 2020; Clifford et al., 2015; Ulian et al., 2018). Our study supports that a shift has occurred as the majority of RDs identified with NWFAs.

This study is among the first studies to explore the diversity of NWFAs on a large scale, as NWFAs have typically been studied using qualitative inquiry (Brady, 2020; Brady & L'Heureux, 2021). In particular, this study offers novel data on the practice characteristics of RDs who take a weight liberated approach, knowledge which has been bound by its traditional definition, which is an RD who strongly uses justice enhancing practices that acknowledge social determinants of health and health inequities (Brady, 2020). In 2013, the Canadian Integrated Competencies for Dietetic Education and Practice requires social justice, diversity and equity be a part of dietetic education and training (Partnership for Dietetic Education and Practice, 2013). Unfortunately, currently no guidelines exist that consistently define socially-just dietetic practice and advocacy and the majority of participants from a 2017 Canadian study of RDs agreed that their knowledge and skill-based content is minimal related to social justice (Brady, 2020). Similar to our study results showing that the majority have shifted from weight-focused messaging, others have encouraged the dietetic profession to reconsider the dominant discourse that promotes weight loss by pathologizing body sizes and that contributes to weight stigma

(Bessey & Lordly, 2020). Expanding the social justice lens of nutrition into practice will help RDs feel better equipped to reduce weight stigma (Brady, 2020).

Our sample included a large proportion of participants who identified as Caucasian women, which is reflective of the overall demographics of the dietetic profession in Canada (Delbridge, Jovanovski, Skues, & Belski, 2022; Dietitians of Canada, 2011). Data from the 2016 Accreditation Council for Education in Nutrition and Dietetics showed in dietetics education programs, 69.3% of students were Caucasian and 5.5% were Black (non-Hispanic) (Eat Right Pro, 2016). Caucasian undergraduates in nutrition programs, compared to non-Caucasian, are four times more likely to become a dietitian in Canada (Dietitians of Canada, 2011; Riediger et al., 2019). This is problematic from a social justice and equity standpoint. Diversity in dietetics is needed to be reflective of the population so as to not limit cultural dynamics, as well hinder the ability to understand cultural dynamics (Delbridge et al., 2022). The meaning of NWFAs approaches and definitions will rely on the personal interpretation of RDs which is influenced by an RDs' lived experience (Willer et al., 2019). As Marchessault et al (2007) discussed that understanding about the utilization of NWFAs by RDs, they must also reflect on and diversify their approaches with higher weight adults. Further education is needed to support the continued evolution of these approaches.

This study also found that most participants had no formal education on NWFAs, yet a large proportion utilized this approach. The lack of formal education/training and standardized guidelines for the implementation of NWFAs has implications for the quality of practice. Without training, RDs may subjectively interpret NWFAs and base their practice on their perceptions, and thus not effectively utilize NWFAs with their adult clients. Our data partially supported this claim, as up to 43% of participants who used NWFA reported implementing an

“other” dietary recommendation outside of Canadian health eating policy or the CAOC PGs. This is supported by other studies, where RDs had positive attitudes towards common techniques used with NWFAs, such as Intuitive Eating, but felt they did not have sufficient education to use these techniques in practice (Schaefer & Zullo, 2017). This is further supported by a study of RDs in Canada who were not satisfied by the training for obesity management and counselling training in their university training (Barr et al., 2004). Overall, this data calls for action in improving dietetic training programs to better prepare RDs to implement, or at least have knowledge of, a diverse range of practice approaches, beyond weight-focused approaches. This could be achieved in the short-term by including NWFAs as a standard component in dietetic curriculum and as a core competency in clinical rotations. This may require a long-term comprehensive process that reforms the competency guidelines and curricular requirements for dietetic programs by hiring faculty with diverse and inclusive experiences, as well as professional associations to provide professional development for already practicing RDs. Given that there is no currently consistent definitions of NWFAs, the development of a fluid clinical care pathway that outlines NWFAs for RDs and how best to implement them is necessary. By keeping these fluid and malleable definitions it allows for NWFAs to continue to evolve as newer research becomes available. Providing more education of NWFAs would be beneficial, but more research and resources are needed to help guide educators on the most effective method to implement.

4.4.1 Limitations

This study contributes highly novel data related to the use of a spectrum of practice approaches among Canadian RDs, however there are limitations to consider. This study included a higher proportion of participants from Ontario and Alberta which may limit the generalizability

of the findings since dietetic education, cultural dynamics and public health contexts vary across the Canadian provinces and territories. However, this distribution of respondents is expected as these are provinces have higher populations in Canada. Although recruitment through social media may introduce sampling bias, the survey was also distributed to all members of regulatory dietetic colleges in five provinces, and to distribution lists of universities, which allowed the survey invitation to be distributed to RDs who could not be reached on social media.

Additionally, the survey was only available in English. Although English is the language spoken by the majority of Canadians, solely French speaking Canadians RDs would have been excluded. The COVID-19 pandemic may also have impacted sampling in this study because some RDs were too busy and had limited access to email as they were redeployed to COVID-relief in non-clinical nutrition areas. Yet, in order to maximize recruitment and response rate, and reach RDs who may have been out of the office, the tailored Dillman's design method was followed and circulated survey invitation reminders every few weeks (Dillman, 2000; Dillman, Smyth, & Christian, 2009). Finally, a previous study observed the poor knowledge of weight inclusive practice goals among RDs, which could contribute to participants incorrectly identifying with a practice approach if they are unfamiliar with the terms and definitions (Willer et al., 2019). However, the practice approaches in the present study were labelled A-E so that participants had to read and identify which the practice approach descriptions and choose the one that most reflected their practice, which limited any potential response bias.

4.5 Conclusion

This is one of the first Canadian studies to examine how RDs are implementing the CAOCPGs, and it surprisingly found that almost half of RDs currently use NWFAs in practice,

with half solely using NWFAs. This is one of the first studies to create and examine such extensive definitions of practice related to working with higher weight adults, beyond RDs' personal attitudes and beliefs about weight and weight loss. It is essential to support an evolved dietetic practice that does not perpetuate the adverse impact of weight stigma, towards one that more positively supports the wellbeing of higher weight adults.

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Chapter 5: Barriers and facilitators experienced by Canadian Registered Dietitians when implementing non-weight focused practice approaches

Study 2 Abstract

Background: Registered Dietitians (RDs) often use non-weight focused practice approaches (NWFAs) to aid higher weight adults in reaching health-related goals, but not to intentionally reduce their weight. NWFAs approaches deemphasize the importance of weight loss with a view to reducing client's internalized weight stigma and supporting adult clients' long-term, sustainable health behaviour changes. RDs follow Clinical Practice Guidelines (CPGs) as an evidence summary of what nutrition recommendations to make depending on client's needs, and non-diet approaches are listed as a type of NWFAs in the Canadian Adult Obesity CPGs (CAOCPGs) (Institute of Medicine, 2011; Wharton et al., 2020). but it is unknown what the barriers and facilitators for RDs to implement NWFAs in practice, as well as the stages of readiness for implementing NWFAs.

Objectives: To describe the barriers and facilitators experienced by RDs related to the implementation of NWFAs in clinical practice across a spectrum of implementation. The differences in barriers and facilitators were determined across a range of implementation from 'not yet implemented' NWFAs (e.g., solely weight-focused, moderately weight-focused approaches), to 'partially implemented' (e.g., combination of approaches), to 'fully implemented' NWFAs (e.g., weight inclusive and weight liberated approaches).

Methods: A cross-sectional, national, online survey of Canadian RDs who work with higher weight adults. The survey was deductively developed and validated following the Consolidated

Framework for Implementation Research (CFIR) to assess factors across four domains: intervention characteristics (e.g., strength of literature of the intervention); inner settings (i.e., workplace setting); outer settings (e.g., external organization or professional association); RDs individual characteristics (e.g., confidence or skills). Barriers and facilitators were rated on a likert scale of 1-5, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

Results: Overall 383 participants (82% white; 95% women) were surveyed. Barriers related to intervention characteristics of NWFAs were rated fairly low or neutral across the spectrum of implementation. Many participants had implemented NWFAs >6 months (53.1%), or were curious to learn more about implementing NWFAs (16.2%). Inner setting barriers were rated higher among RDs who had not yet implemented NWFAs (mean response and median and [Interquartile range] for solely weight-focused = 4[1.0], moderately weight-focused = 3[2.0], $p < 0.001$) and competing priorities (mean response = 3, $p < 0.001$). The most common barriers reported were related to outer settings, which included: adult clients wanting to lose weight (median response across all implementation spectrum 3 or 4, $P < 0.001$); and the influence of CPGs (median response across spectrum of implementation [except weight liberated], 3 or 4, $P < 0.001$). Individuals barriers reported by those who had not yet implemented NWFAs, included lack of knowledge, skills, and/or confidence. Facilitators were rated with higher agreeance across all implementation stages (median response = 4 or 5). The highest rated facilitators supporting RDs implementing of NWFAs included: CPGs; scientific publications and educational materials; Dietitians of Canada support; undergraduate/practicum training.

Conclusion: More education for RDs and within the health care system of NWFAs is needed to overcome the barriers related to the implementation of NWFAs in an effort to improve the quality and safety of client care of Canadians.

5.1 Background

Obesity has been considered a public health priority (World Health Organization, 2021), but it is important to note that others reject the use of this language or framing obesity as a chronic condition (Dugmore et al., 2019). Registered Dietitians (RDs) often receive referrals from other health professionals to help higher weight adult clients lose weight, especially in outpatient and private practice settings (Aboueid et al., 2018; Mitchell et al., 2017). The Canadian Adult Obesity Clinical Practice Guidelines (CAOCPGs) recommend a spectrum of medical nutrition therapies to support weight loss for higher weight adult clients. Among those recommended therapies are non-diet approaches, also known as non-weight focused approaches (NWFAs), that do not include intentional weight loss as a goal of nutrition care. Rather than focus on caloric restriction and weight loss, NWFAs encourage overall diet quality, positive relationships with food, and movement (Brown et al., 2020; Tylka et al., 2014; Willer et al., 2019). NWFAs have been shown to improve health, independent of weight loss, and to reduce the adverse health and psychological impacts of weight stigma, which has been correlated with higher cortisol levels, systemic inflammation, anxiety, depression, disordered eating behaviours, and medication nonadherence, as well as weight cycling (Dugmore et al., 2019; Papadopoulos & Brennan, 2015; Pearl et al., 2017; Sikorski et al., 2015; Ulian et al., 2018).

The use of NWFAs when working with higher weight adults is gaining popularity among RDs (Ulian et al., 2018), as described in Chapter 4. However, the implementation of innovations, such as NWFAs, within the healthcare system is a complex process that is impacted by individual, contextual, procedural, and external factors. The implementation of an innovation is particularly fraught when it challenges longstanding practices and beliefs of health care providers

and client, such as the importance of weight loss (Straus et al., 2013). Understanding the barriers and facilitators that influence RDs' implementation of NWFAs as a health innovation is important to support practice approaches that may improve the quality and safety of client care, and that may support RDs in following through on recommended approaches to practice. Understanding the factors impacting implementation can also aid institutions and professional organizations to address barriers to implementation and facilitate strategies to drive the use of NWFAs in practice (Findlay et al., 2020; Straus et al., 2013).

Unfortunately, little is known about the barriers and facilitators RDs experience when implementing NWFAs, and how these may be experienced differently among RDs who use NWFAs in practices compared to those who do not use NWFAs, across various practice settings and patient populations. The objective of this study was to describe the barriers and facilitators related to RDs' adoption and implementation of NWFAs when working with higher weight adults among a cross-section of RDs at various stages of implementation.

5.2 Methods

5.2.1 Study design and Participants

A cross-sectional national survey (see survey in Appendix A) was administered online between May and July 2021 (Qualtrics^{XM}, Provo, Utah). Participants were included if they were an RD working in Canada, were licenced by a provincial dietetic regulatory body, and worked in an out-patient setting with higher weight adults. Practicum students, dietetic students, and retired RDs were excluded. The Ontario Tech University Research Ethics Board (File #16078, Appendix D) cleared this study.

5.2.2 Practice Approach Classification Variables

An important first step in examining the barriers and facilitators to implementing NWFAs, was to clearly categorize the diverging spectrum of philosophies, strategies, and techniques that RDs use when working with higher weight adults. Five categories were developed by the research team listed below. The categories were validated by nutrition scientists with survey development experience and by clinical RDs who practiced using varying approaches (n=10). The classifications were modified in an iterative fashion until consensus was reached. The final categories and definitions were as follows:

- **Solely weight-focused approach:** Client body weight is measured as an indicator of health status, and weight loss is usually promoted through caloric restriction. Not actively implementing NWFAs.
- **Moderately weight-focused approach:** Obesity is considered a chronic disease, although not usually measured as an indicator of health status on its own. Weight loss is usually recommended through caloric restriction and may focus on diet quality and eating patterns. Not actively implementing NWFAs.
- **Combination approach:** Fluctuates between weight-focused and weight inclusive and concentrates on eating patterns and diet quality. Obesity is considered a chronic disease, but body weight is not considered as a sole indicator of health status. May be partially implementing NWFAs.
- **Weight inclusive approach:** Weight is usually not measured nor is it an indicator of health status as obesity is usually not considered a chronic condition, but recognizes

weight is part of normal body diversity. Focuses on diet quality and eating patterns. Likely have implemented NWFAs.

- **Weight liberated approach:** Weight is usually not measured nor is it an indicator of health status as obesity is usually not considered a chronic condition, but recognizes weight is part of normal body diversity. Diet quality and eating patterns are viewed as an outcome of inequity and social justice. Likely have implemented NWFAs.

The differences in barriers and facilitators were determined across a range of implementation from ‘had not yet implemented NWFAs’ (e.g., solely weight-focused, moderately weight-focused approaches), to ‘partially implemented’ (e.g., combination of approaches), to ‘fully implemented NWFAs’ (e.g., weight inclusive and weight liberated approaches).

5.2.3 Theoretical Model Used to Assess Implementation

There are many factors that influence the implementation and adoption of practice approaches within health care settings, including among professional groups such as RDs. The CFIR outlines four domains (Table 1), each comprising validated constructs to guide the evaluation of implementation (Damschroder et al., 2009). Barriers and facilitators to implementing NWFAs were examined across the four domains, each of which comprised a number of indicators summarized in Table 1.

Table 1: Number of Questions Asked in Survey by CFIR Domain and Indicators

CFIR Domain	Indicators	Questions
Intervention characteristics	Complexity of the intervention; the source of intervention development; evidence strength and quality; relative advantage; adaptability; trialability; complexity; design quality; and associated costs	7
Outer setting	Clinical practice guidelines, professional associations, client perceptions, external policies and organizations	7
Inner setting	Workplace environment or culture (primary health care, hospital, or community organization)	4
Characteristics of the individual	Self-efficacy, confidence, skills, individual stage of change	7

5.2.4 Questionnaire Validation

Face and content validity of the questionnaire were assessed by the same group of clinical dietitians and nutrition scientists who validated the practice approach classifications (described above, n=10). Feedback from those involved in the validation process was used to revise the survey. Prior to study initiation, the same assessors pilot tested and provided additional feedback regarding the online format of the questionnaire. Included in the final survey questionnaire (see Appendix A) were demographic questions (n=11), a classification question for practice approach used when working with higher weight adult clients (n=1), and a 5-point likert scale about the barriers to implementing NWFAs (n=4), facilitators that support implementing NWFAs (n=12), as well as an open field text box to offer additional insights if any barriers and facilitators were missed (n=1). The survey also included questions about the perceptions of the importance of weight loss, definitions of obesity, techniques used when conducting nutrition assessments and counselling adult clients, in addition to which dietary recommendations were used by NWFAs in clinical practice, which has been presented elsewhere (Chapter 4).

5.2.5 Participant recruitment

Participants were recruited via email distribution lists of RDs and via advertisements posted to dietetic professional social media groups. National and regional dietetic professional organizations email lists, such as Dietitians of Canada (global email list and practice-based networks), Obesity Canada, Dietetic College membership lists in five provinces, and other independently operated lists, were also contacted. A minimum sample size of 230 was calculated to make inferences per data from Willer et al (2019) who reported that 18.3% of RDs were identified as weight neutral practice approaches (or NWFAs) at an alpha level of 0.05 and a power at 80%. To encourage participation, participants were offered one entry into a draw to win one of ten \$75 Amazon gift cards. To maximize snowball sampling, and to capture those who are not members of the aforementioned platforms, participants were encouraged to share the survey link among their professional networks.

5.2.6 Data Analysis

Data were cleaned and analyzed using categorical and continuous descriptive statistics (frequencies and proportions for categorical data; mean, standard deviation, median, and interquartile range for continuous data). Of the 855 survey responses, 472 responses were excluded after they were systematically identified as bots. GPS coordinates using Google maps were cross referenced with provinces and territories and any outside of Canada were assumed to be bots and were removed from the analysis. There were no incomplete surveys (<5% questions unanswered). A 5-point Likert scale was used to rate the barriers and facilitators to implementing

NWFAs (i.e., 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). Kruskal-Wallis was used to test between group differences in the barriers and facilitators to implementation, based on the varying spectrum of implementation of NWFAs: implemented, to partially implemented and to not yet implemented (Laerd Statistics). Between group differences in readiness to implement were assessed using chi-square tests with the Fishers' exact test. A p-value of 0.01 statistical was considered statistically significant to account for the multiple comparisons. Data were analyzed using RStudio.

5.3 Results

There were 383 respondents included in the analysis, of which 94.8% identified as woman and 82.2% identified as white (Appendix B). Approximately half of participants worked in primary care (50.9%) and in urban geographic settings (54.3%), and one third had practiced as an RD between 0-5 years (31.3%) (See Table 2). The highest level of education attained by a majority of participants was a Bachelor's (71.5%).

Table 2. Participant demographic characteristics

	All (n = 383)	Practice Approaches				P Value*	
		Solely Weight- focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)		Weight Liberated (n = 32)
Gender							
Woman	363 (94.8)	2 (0.6)	45 (12.4)	149 (41.0)	139 (38.3)	28 (7.7)	<0.001
Man	11 (2.9)	1 (9.1)	5 (45.5)	3 (27.3)	2 (18.2)	0 (0.0)	
Non-binary	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	
Prefer not to answer	8 (2.0)	0 (0.0)	1 (12.5)	3 (37.5)	1 (12.5)	2 (25.0)	
Race							
White e.g., European	315 (82.2)	1 (0.3)	38 (12.1)	126 (40.0)	124 (39.4)	26 (8.3)	0.061
East Asian e.g. Chinese, Korean	29 (7.6)	0 (0.0)	3 (10.3)	13 (44.8)	10 (34.5)	3 (10.3)	
Other e.g. Middle Eastern, Latin American, Indigenous	27 (7.0)	1 (3.7)	6 (22.2)	11 (40.7)	6 (22.2)	3 (11.1)	
South/southeast Asian	12 (3.1)	1 (8.3)	4 (33.3)	5 (41.7)	2 (16.7)	0 (0.0)	
Years of practice as an RD							
0-5	120 (31.3)	2 (1.7)	15 (12.5)	43 (35.8)	48 (40.0)	12 (10.0)	0.973

	Practice Approaches				P Value*	
	All (n = 383)	Solely Weight-focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)		Weight Inclusive (n = 142)
6-10	86 (22.5)	0 (0.0)	11 (12.8)	37 (43.0)	32 (37.2)	6 (7.0)
11-15	76 (19.8)	1 (1.3)	9 (11.8)	32 (42.1)	26 (34.2)	8 (10.5)
16-20	48 (12.5)	0 (0.0)	6 (12.5)	21 (44.0)	19 (39.6)	2 (4.2)
>20	53 (13.8)	0 (0.0)	10 (18.9)	22 (41.5)	17 (32.1)	4 (7.5)
Highest Level of Education						
Bachelor's	274 (71.5)	2 (0.7)	41 (15.0)	105 (38.3)	100 (36.5)	26 (9.5)
Master's	96 (25.0)	1 (1.0)	9 (9.4)	43 (44.8)	39 (40.6)	4 (4.2)
Other	13 (3.4)	0 (0.0)	1 (7.7)	7 (53.8)	3 (23.1)	2 (15.4)
Primary area of practice						
Primary Care	195 (50.9)	0 (0.0)	17 (8.7)	76 (39.0)	81 (41.5)	21 (10.8)
Out-patient	126 (32.9)	3 (2.4)	26 (20.6)	55 (43.7)	40 (31.7)	2 (1.6)
Other	62 (16.2)	0 (0.0)	8 (12.9)	24 (38.7)	21 (33.9)	9 (14.5)
Type of community						
Urban	208 (54.3)	2 (1.0)	35 (16.8)	73 (35.1)	78 (37.5)	20 (9.6)

	Practice Approaches					P Value*
	All (n = 383)	Solely Weight-focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	
Suburban	90 (23.5)	1 (1.1)	7 (7.8)	49 (54.4)	30 (33.3)	3 (3.3)
Rural	65 (17.0)	0 (0.0)	7 (10.8)	26 (40.0)	26 (40.0)	6 (9.2)
Remote	4 (1.0)	0 (0.0)	0 (0.0)	2 (50.0)	2 (50.0)	0 (0.0)
Do not work in a single community	16 (4.2)	0 (0.0)	2 (12.5)	5 (31.3)	6 (37.5)	3 (18.8)

Categorical data is presented as frequency (n) and percent (%). *The Fisher's exact test was used to assess any differences between practices approaches. Solely and moderately weight-focused are represented as those who are not currently implementing non-weight focused approaches (NWFAs), combination may be partially implementing NWFAs and weight inclusive and weight liberated have implemented NWFAs.

Overall, 53.1% of respondents had implemented some form of NWFAs in their practice for longer than 6 months, of which 71.1% of those who used weight inclusive approaches, 81.2% who used weight liberated approaches, and another 44.8% of those who had partially implemented NWFAs (Table 3). The remaining 15.7% had not yet implemented NWFAs in their practice but were learning about ways to implement (21.6% moderately weight-focused practice approaches and 23.4% combination of practice approaches). Whereas only 13.4% of those who had partially implemented NWFAs had done so for greater than 6 months. All (100.0%) of the solely weight-focused respondents, and just less than half (49%) of the moderately weight-focused respondents who had not yet implemented NWFAs were curious about implementing NWFAs. Overall, less than 2% of all participants were not interested in implementing NWFAs across all practice approaches.

Table 3. Readiness to Implementing Non-Weight Focused Approaches

	Practice Approaches					P value*
	All (n = 382)	Solely Weight-focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	
I have practiced from a non-weight focused approach for more than 6 months.	203 (53.1)	0 (0.0)	7 (13.7)	69 (44.8)	101 (71.1)	26 (81.2)
I am curious about implementing non-weight focused approaches into my practice but have not yet taken steps to do so.	62 (16.2)	3 (100.0)	25 (49.0)	30 (19.5)	3 (2.1)	1 (3.1)
I am learning about and planning ways to implement non-weight focused approaches into my practice but have not done so yet.	60 (15.7)	0 (0.0)	11 (21.6)	36 (23.4)	12 (8.5)	1 (3.1)
I have practiced from a non-weight focused approach for 6 months or less.	51 (13.4)	0 (0.0)	3 (5.9)	18 (11.7)	26 (18.3)	4 (12.5)
I am not interested in implementing non-weight focused approaches in my practice at this time.	6 (1.6)	0 (0.0)	5 (9.8)	1 (0.6)	0 (0.0)	0 (0.0)

5.3.1 Barriers to implementing non-weight focused approaches

Table 4 summarizes the barriers for implementing NWFAs in practice by each domain of the CFIR (see Appendix C for figures). Results are displayed below as median [interquartile range].

Table 4. Barriers to Implementing Non-Weight Focused Approaches by Domain

	Practice Approaches												P value*		
	Solely Weight-focused (n = 3)			Moderately Weight Focused (n = 51)			Combination (n = 155)			Weight Inclusive (n = 142)				Weight Liberated (n = 32)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median		Mean	Median
1.) Intervention characteristics															
1.a.) There is insufficient evidence demonstrating that non-weight focused approaches improve health outcomes.	3.33±0.58	3 (0.5)	3.12±0.95	3 (1.5)	2.51±1.00	2 (1.0)	1.90±1.16	2 (1.0)	1.59±1.13	1 (1.0)	1.59±1.13	1 (1.0)	1.59±1.13	1 (1.0)	p<0.001
1.b.) Adopting non-weight focused approaches in my practice would require me to change my practice philosophy.	3±0.00	3 (0.0)	3.55±1.01	4 (1.0)	2.59±1.03	2 (1.5)	1.96±1.02	2 (1.8)	1.38±0.75	1 (0.25)	1.38±0.75	1 (0.25)	1.38±0.75	1 (0.25)	p<0.001
1.c.) It would take too much time to implement non-weight focused approaches into my practice.	2.67±0.58	3 (0.5)	2.47±0.92	2 (1.0)	1.88±0.71	2 (1.0)	1.53±0.68	1 (1.0)	1.25±0.57	1 (0.0)	1.25±0.57	1 (0.0)	1.25±0.57	1 (0.0)	p<0.001
1.d.) It would take too much effort to implement non-weight focused approaches into my practice.	2.67±0.58	3 (0.5)	2.33±0.82	3 (1.0)	1.88±0.76	2 (1.0)	1.56±0.66	2 (1.0)	1.25±0.57	1 (0.0)	1.25±0.57	1 (0.0)	1.25±0.57	1 (0.0)	p<0.001
1.e.) Non-weight focused approaches are not within the scope of dietetic practice.	2.67±0.58	3 (0.5)	1.92±0.84	2 (1.0)	1.57±0.74	1 (1.0)	1.17±0.38	1 (0.0)	1.28±0.81	1 (0.0)	1.28±0.81	1 (0.0)	1.28±0.81	1 (0.0)	p<0.001
1.f.) Non-weight focused approaches are not ethical.	2.67±0.58	3 (0.5)	2.04±0.92	2 (2.0)	1.54±0.61	1 (1.0)	1.18±0.42	1 (0.0)	1.16±0.45	1 (0.0)	1.16±0.45	1 (0.0)	1.16±0.45	1 (0.0)	p<0.001
1.g.) I do not support non-weight focused approaches.	2.67±0.58	3 (0.5)	2.10±0.88	2 (1.5)	1.60±0.72	1 (1.0)	1.15±0.38	1 (0.0)	1.13±0.42	1 (0.0)	1.13±0.42	1 (0.0)	1.13±0.42	1 (0.0)	p<0.001
2.) Outer Settings															
2.a.) Non-weight focused approaches are difficult to use because clients usually want to focus on weight as an outcome.	3.33±1.15	4 (1.0)	3.67±1.01	4 (1.0)	3.89±0.84	4 (0.0)	3.46±1.06	4 (1.0)	3.03±1.03	3 (2.0)	3.03±1.03	3 (2.0)	3.03±1.03	3 (2.0)	p<0.001
2.b.) My workplace setting discourages the use of non-weight focused approaches in my practice.	2.33±0.58	2 (0.5)	2.75±1.06	2 (2.0)	2.65±1.07	3 (1.0)	2.49±1.12	2 (1.0)	2.09±1.33	1.5 (2.0)	2.09±1.33	1.5 (2.0)	2.09±1.33	1.5 (2.0)	p=0.047
2.c.) Non-weight focused approaches are difficult to use when clients are told to lose weight by other health professionals.	3.67±0.58	4 (0.5)	4.08±0.82	4 (1.0)	4.33±0.79	4 (1.0)	4.21±0.93	4 (1.0)	4.03±0.78	4 (1.0)	4.03±0.78	4 (1.0)	4.03±0.78	4 (1.0)	p=0.021
2.d.) Clinical practice guidelines influence the approach I take with	4.33±0.58	4 (0.5)	3.90±0.81	4 (1.0)	3.68±0.77	4 (1.0)	2.98±1.00	3 (2.0)	2.34±1.00	2 (1.25)	2.34±1.00	2 (1.25)	2.34±1.00	2 (1.25)	p<0.001

Practice Approaches

	Solely Weight-focused (n = 3)	Moderately Weight Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	Weight Liberated (n = 32)	P value*					
2.f.) My dietetic college does not support the use of NWFAs.	2.33±0.58	2 (0.5)	2.55±0.67	3 (1.0)	2.26±0.75	2 (1.0)	2.32±0.89	2 (1.0)	2.72±1.20	3 (1.0)	p=0.088
2.g.) NWFAs are difficult to use when clients are told to lose weight as a condition of accessing life enhancing services (e.g., knee surgery).	4.00±1.00	4 (1.0)	4.31±0.91	5 (1.0)	4.37±0.81	5 (1.0)	4.38±0.81	5 (1.0)	4.09±0.73	4 (1.0)	p=0.152
3.) Inner Settings											
3.a.) Colleagues within my workplace do not support NWFAs.	2.67±0.58	3 (0.5)	3.02±0.88	3 (2.0)	2.83±1.02	3 (2.0)	3.06±1.15	3 (2.0)	2.63±1.41	3 (3.0)	p=0.252
3.b.) NWFAs do not fit well within the treatment approaches for my practice area.	4.00±1.00	4 (1.0)	3.16±0.99	3 (2.0)	2.46±0.92	2 (1.0)	2.15±1.01	2 (2.0)	1.94±1.23	1 (2.0)	p<0.001
3.c.) I am unable to access funds for professional development learn about how to implement NWFAs.	3.33±0.58	3 (0.5)	3.02±0.91	3 (2.0)	2.42±1.09	3 (2.0)	1.83±1.19	3 (2.0)	1.31±1.20	2 (2.0)	p=0.002
3.d.) There are more important priorities than adopting a NWFAs.	3.33±0.58	3 (0.5)	3.02±0.95	3 (2.0)	2.42±0.88	2 (1.0)	1.83±0.68	2 (1.0)	1.31±0.59	1 (0.25)	p<0.001
4. Individual Characteristics											
4.a.) I do not have sufficient knowledge to implement NWFAs in my practice.	3.67±0.58	4 (0.5)	3.06±1.05	3 (2.0)	2.67±0.97	2 (1.0)	2.07±0.87	2 (0.0)	1.66±0.75	1 (1.0)	p<0.001
4.b.) I do not have sufficient skills to implement NWFAs in my practice.	2.67±0.58	3 (0.5)	3.12±1.05	3 (2.0)	2.67±0.99	2 (2.0)	2.18±0.97	2 (1.0)	1.63±0.71	2 (1.0)	p<0.001
4.c.) I look to other opinion leaders before adopting new approaches.	3.00±1.00	3 (1.0)	3.25±1.02	4 (2.0)	3.06±0.96	3 (2.0)	2.96±1.10	3 (2.0)	2.72±1.30	3 (2.25)	p=0.342
4.d.) I only adopt new approaches when they become the status quo.	2.67±0.58	3 (0.5)	2.43±0.88	2 (1.0)	2.22±0.69	2 (1.0)	1.96±0.70	2 (0.0)	1.59±0.71	1.5 (1.0)	p<0.001
4.e.) I do not feel confident trying NWFAs in my practice.	3.00±0.00	3 (0.0)	2.65±0.82	2 (1.0)	2.34±0.93	2 (1.0)	1.85±0.83	2 (1.0)	1.34±0.55	1 (1.0)	p<0.001

Practice Approaches

	Solely Weight-focused (n = 3)	Moderately Focused (n = 51)	Combination (n = 155)	Weight Inclusive (n = 142)	Weight Liberated (n = 32)	P value*
4.f.) My own experience with controlling my weight influences my practice approach with higher weight clients.	2 (1.0)	2.57±1.06	2 (1.5)	2.43±1.19	2.06±1.34	p=0.107
4.g.) My own personal body image is negative.	1 (0.5)	2.04±0.77	2 (0.0)	2.23±1.00	1.97±1.00	p=0.147

*p-value calculated using Kruskal-Wallis rank sum test (a significant finding was considered for 0.01 to account for multiple comparisons); Numbers appear as

SD – Standard deviation ± IQR – Interquartile range

Scale strongly disagree=1, disagree=2, neutral=3, agree=4, strongly agree=5

NWFA = non-weight focused practice approaches

Solely and moderately weight-focused are represented as those who are not currently implementing NWFAs, combination may be partially implementing NWFAs and weight inclusive and weight liberated have implemented NWFAs.

Implementation Barriers Related to Intervention Characteristics. There were statistically significant differences among respondents across the varying degrees of implementation ($p < 0.001$) on all seven indicators associated with the implementation barriers domain, which comprises barriers related to characteristics of NWFAs interventions themselves (e.g., strength and quality of the literature, relative advantage, etc.). Those who had not yet implemented NWFAs rated intervention-related barriers significantly greater than those who had implemented NWFAs. However, all intervention-related barriers were rated fairly low as barriers to implementing NWFAs (median response = 2) or neutrally (median response = 3) by participants, except for the barrier related to “need to change practice philosophy” (median response 4 [IQR=1.0]). As expected, participants who had already implemented NWFAs did not report intervention characteristics to be a barrier, with most responses rated with a median of 1.

Implementation Barriers Related to Outer Settings. There were seven indicators related to barriers associated with the outer setting domain. Based on the median ratings, several outer setting factors presented as barriers to implementing NWFAs regardless of whether or not a participant had already implemented NWFAs. Based on the weight of the ratings, the greatest barrier to implementing NWFAs reported by respondents across the spectrum of implementation was adult clients’ prior encounters with other health professionals who told them to lose weight, sometimes as a condition of accessing life enhancing services (e.g. knee surgery) (overall median response = 4 across all practice approaches, $p = NS$). For those who had not yet implemented NWFAs, CPGs were a barrier to implementation (median response = 4 [1.0] for both solely and

moderately weight-focused), compared to those who had implemented NWFAs (median response for weight inclusive = 3 [3.0], weight liberated = 2 [1.25]) ($p < 0.001$).

Implementation Barriers Related to Inner Settings. Three of the four questions that assessed the inner setting domain—NWFAs fit with practice area, access to funds for professional development and competing priorities—were statistically significant across the spectrum of implementation of NWFAs. All groups of participants had a median rating of 3 related to support obtained from workplace colleagues in implementing NWFAs ($p = \text{NS}$). Despite most potential inner setting barriers being statistically significant, these barriers were rated fairly low (median = 1 or 2) or neutral (median = 3), with the exception of “NWFAs do not fit well within treatment approaches for my practice area” by participants who had not yet implemented NWFAs (median response for solely weight-focused = 4 [1.0], moderately weight-focused = 3 [2.0], $p < 0.001$).

Implementation Barriers Related to Characteristics of Individuals. Of the seven questions assessing barriers related to characteristics of individuals, four were statistically significant across the varying degrees of implementation of NWFAs ($p < 0.001$). As expected, barriers related to individuals’ characteristics were not highly rated among those who had implemented NWFAs into practice, median responses ranging from 1 – 2 for most barriers. Compared to those already using NWFAs, those who had not yet implemented NWFAs rated knowledge, skills, maintaining the status quo, and their own confidence as barriers to implementing NWFAs.

5.3.2 Facilitators to implementing non-weight focused approaches

Table 5 summarizes responses related to twelve potential facilitators that may drive the adoption and implementation of NWFAs (see Appendix C for figures). Overall, facilitators were highly rated by participants (median response = 4 or 5). Nevertheless, there were statistically significant differences in responses across the range implementation for all potential facilitators ($p < 0.001$). Facilitators were more highly rated among those who had already implemented NWFAs in practice.

Table 5. Facilitators to Implementing Non-Weight Focused Approaches by Domain

	Practice Approaches												P value*		
	Solely Weight-focused (n = 3)			Moderately Weight Focused (n = 51)			Combination (n = 155)			Weight Inclusive (n = 142)				Weight Liberated (n = 32)	
	Mean	Median		Mean	Median		Mean	Median		Mean	Median			Mean	Median
a) Including non-weight focused approaches in undergraduate training programs.	3.67±0.58	4 (0.5)		3.96±0.94	4 (1.0)		4.35±0.60	4 (1.0)		4.75±0.54	5 (0.0)		4.91±0.39	5 (0.0)	p<0.001
b) Including non-weight focused approaches in practicum/internship training programs.	3.67±0.58	4 (0.5)		3.96±0.87	4 (0.0)		4.38±0.60	4 (1.0)		4.73±0.54	5 (0.0)		4.91±0.39	5 (0.0)	p<0.001
c) Having a clinical care pathway to guide best practices for non-weight focused approaches.	4.00±0.00	4 (0.0)		4.27±0.70	4 (1.0)		4.44±0.59	4 (1.0)		4.70±0.60	5 (0.0)		4.69±0.69	5 (0.0)	p<0.001
d) Having a mentor to guide me.	3.33±1.15	4 (1.0)		3.65±1.00	4 (1.0)		3.93±0.84	4 (0.5)		4.21±0.85	4 (1.0)		4.47±0.72	5 (1.0)	p<0.001
e) Having more non-weight focused educational materials for my clients.	4.00±0.00	4 (0.0)		4.04±0.82	4 (0.5)		4.40±0.57	4 (1.0)		4.63±0.62	5 (1.0)		4.69±0.59	5 (0.25)	p<0.001
f) Including non-weight focused approaches in clinical practice guidelines.	4.00±0.00	4 (0.0)		4.26±0.69	4 (1.0)		4.48±0.56	5 (1.0)		4.75±0.54	5 (0.0)		4.78±0.55	5 (0.0)	p<0.001
g) Having the support of Dietitians of Canada for non-weight focused approaches.	3.00±1.00	3 (1.0)		3.86±0.92	4 (1.0)		3.98±0.94	4 (2.0)		4.37±0.91	5 (1.0)		4.69±0.64	5 (0.0)	p<0.001
h) Having more time to dedicate to implementing new ways of practicing.	3.33±1.15	4 (1.0)		3.82±0.84	4 (0.0)		3.92±0.80	4 (1.0)		4.09±0.94	4 (1.0)		4.13±0.91	4 (2.0)	p=0.059
i) Having access to financial resources for non-weight focused professional development opportunities.	4.00±0.00	4 (0.0)		3.69±0.97	4 (1.0)		3.90±0.89	4 (1.0)		4.23±0.81	4 (1.0)		4.31±0.93	5 (1.25)	p<0.001
j) Having a community of RDs to share and learn with.	3.67±0.58	4 (0.5)		3.78±0.88	4 (0.5)		4.14±0.65	4 (1.0)		4.40±0.68	4 (1.0)		4.69±0.54	5 (1.0)	p<0.001
k) Access to journal publications/up to date literature and research.	4.33±0.58	4 (0.5)		4.02±0.74	4 (0.0)		4.21±0.70	4 (1.0)		4.46±0.64	5 (1.0)		4.75±0.51	5 (0.0)	p<0.001
l) Access to non-weight focused journal publications, such as Critical Dietetics.	4.33±0.58	4 (0.5)		4.08±0.74	4 (0.5)		4.15±0.75	4 (1.0)		4.43±0.70	5 (1.0)		4.84±0.45	5 (0.0)	p<0.001

*p-value calculated using Kruskal-Wallis rank sum test (a significant finding was considered for 0.01 to account for multiple comparisons); Numbers appear as SD – Standard deviation ± IQR – Interquartile range
Scale strongly disagree=1, disagree=2, neutral=3, agree=4, strongly agree=5
NWFA = non-weight focused practice approaches
Solely and moderately weight-focused are represented as those who are not currently implementing NWFAs, combination may be partially implementing NWFAs and weight inclusive and weight liberated have implemented NWFAs.

5.4 Discussion

This was the first known study that explored the barriers and facilitators to implementing NWFAs among RDs working with higher weight adults. Our results identified a multitude of factors that inhibit the use of NWFAs in practice, as well as drivers that may support adoption and implementation. A strength of this study is that it used the CFIR as a guiding theoretical framework to comprehensively explore, in an ecological manner, the multi-level influences on NWFAs implementation. Additionally, data has been captured on a broad spectrum of RDs with varying degrees of implementation. The results comprise highly novel data that may be applied by health and educational institutions, as well as individual health care providers, to support the implementation of NWFAs.

5.4.1 Characteristics of the Intervention as a Barrier to Implementation

This study found that the NWFAs intervention characteristics were not a highly rated barrier to implementation of NWFAs, aside from changing practice philosophy among those who have not yet implemented NWFAs. It is surprising that intervention characteristics overall were not a barrier, since RDs have been polarized regarding the safety, efficacy, and evidence-base of NWFAs, which has led to discord among those who support NWFAs and those whose practice aligns with dietetics' traditional focus on weight loss. Some RDs have expressed fear of being outcast for using NWFAs and some RDs have left the profession as a result (Gingras, 2006; Penney & Kirk, 2015). Yet, very few (1.6%) RDs indicated they were not interested in implementing NWFAs. Other barriers may be stronger factors for implementing NWFAs since intervention characteristics were not highly rated barriers.

5.4.2 External (inner/outer) Barriers to Implementation

There were several external (inner and outer setting) barriers to implementation that included available CPGs, societal desires, and workplace influences. Our study showed that CPGs were only a highly rated barrier among those who had not yet implemented NWFAs. This reflects the diversity of CPGs available and their focus on weight, including CPGs for dyslipidemia, diabetes, hypertension which all have recommendations about weight reduction (Canadian Task Force on Preventative Health Care, 2012; Diabetes Canada, 2018). This challenge is highlighted when many participants noted that it is often difficult to implement NWFAs because adult clients were told to lose weight by other health professionals. In contrast, the Canadian CAOCPGs could be considered a leader by their inclusion NWFAs as one approach to consider when working with higher weight clients (Wharton et al., 2020). The addition of NWFA as part of CPGs represents major progress in having these commonly used approaches recognized by the broader health community; however, continued efforts and advocacy is needed. For example, recently, the Academy of Nutrition and Dietetics released a draft of their Medical Nutrition Therapy Interventions for Adult Overweight and Obesity Treatment guidelines and did not consider NWFAs. This led to numerous members raising concerns about weight bias, fat phobia and other issues, and the draft guidelines were removed eventually from the Academy's website (Academy of Nutrition and Dietetics, 2022). Physicians also have an important and influential impact on client behaviour change (Pool et al., 2014), but also can perpetuate weight stigma unknowingly (Alberga et al., 2016). This study also identified that when patients are asked to lose weight to access medical treatments it poses a major barrier to using NWFAs. Other health professionals who prescribe weight loss may likely compound the

traditional clinical dogma that weight loss improves health outcomes influence, supporting society's drive for thinness (Dugmore et al., 2019; Rose, Poynter, Anderson, Noar, & Conigliaro, 2013). Work is needed to shift and broaden perspectives within the medical system, including in medical schools and other health professional training progress, to make these individuals aware of the recent CPGs and the spectrum of approaches that can be used to support patients and to reduce weight stigma (Chapter 4).

Another external barrier that is often a perceived limitation of NWFAs is the lack of measurable metrics to assess effectiveness of implementing NWFAs and may appear subjective if not well defined (Ulian et al., 2018). Disease management programs, such as diabetes programs, can also influence barriers to implementing NWFAs. Anthropometric measurements, such as weight, are often used to define disease status and substantiate the need for funding and to allocate resources (Penney & Kirk, 2015). Weight may also be used as an indicator of programming success as part of program reviews and evaluations (Smith, 2017). Given that other health professionals, CPGs and other external barriers influence the implementation of NWFAs, it is important to equip RDs who want to implement NWFAs on how to overcome these barriers.

Various aspects of the internal workplace setting also were also key barriers to implementing NWFAs. In the current study, RDs reported that NWFAs often did not fit within the treatment practices, and there were other competing priorities that presented barriers to their implementation. It can take usually 9-12 months to implement a new innovation in health care (Reinhardt, Hietschold, & Spyridonidis, 2014). Hence, it is important to assess the change agents who will enable the implementation as they will facilitate and provide clear guidance within the environment (Reinhardt et al., 2014; Rogers, 1983). Once an RD decides to adopt an innovation,

reinforcement and support are needed at multiple levels within the RD's organization (Harvey & Kitson, 2016). To implement NWFAs into an already busy clinical workflow, RDs need to consider the many stakeholders impacted, such as clients, coworkers and other health care providers involved in the client's circle of care. Introducing NWFAs may also require the RD to find the time to support practice change, which includes updating clinical documents and client learning materials, and communicating these changes to other health professionals to ensure that adult clients receive consistent messages across the health care team (Chapman, Sellaeg, Levy-Milne, & Barr, 2007). In contrast, the current study also found that RDs desire mentors and clinical care pathways to help drive the implementation of NWFAs. As such, involving a multidisciplinary implementation team within an organization to support implementation processes, including the identification and correction of implementation "pain points" after implementation, is critical to supporting and sustaining implementation (Young, Hickman, Campbell, & Wilkinson, 2021). Additionally, having departmental and organizational leadership is beneficial to invest in research and knowledge translation. In order to enable implementation of NWFAs in busy clinical settings that have competing priorities, allowing dedicated work time to implement new practices and training will facilitate the development of credible opinion leaders (Young et al., 2021). Planning around internal factors that influence implementation of NWFAs will help to make sense of the organization's system and how to structure the implementation of NWFAs within those systems (Young et al., 2021).

5.4.3 Characteristics of Individuals as Barriers to Implementation

It is important to consider that the characteristics of RDs may be a barrier to the implementation of NWFAs. The current study found that RDs lacked knowledge, skills, and confidence to implement NWFAs which may impede their willingness and capacity to move away from weight-focused approach towards use of a NWFAs paradigm in practice. This data is supported by Young et al who found that RDs' lack the skills, experience, and confidence in implementation science in practice, emphasizing the importance of education and training specific to NWFAs implementation (Young et al., 2021; Young et al., 2020). There was high agreement in our study that RDs who want to implement NWFAs need education, support from regulatory bodies, access to NWFAs' resources, and mentorship. In a qualitative study comparing the execution of nutrition practices, mentorship was reported to be a key enabler to implementation (Chapman et al., 2007). Learners appreciated the interactivity between the mentor and the trainee (Chapman et al., 2007). Taken together, our data and the literature suggest that more coordinated efforts from RD leaders in NWFAs, professional associations and dietetic educators are all necessary in developing RD capacity and supporting the implementation of NWFAs, via formal training and mentoring networks, to enhance RDs knowledge, skills, and confidence and ultimately the use of NWFAs in practice.

5.4.4 Limitations

Although this was the first study to provide novel data of the barriers and facilitators to implementing NWFAs, there are some limitations that should be discussed. This study had a higher number of participants from Ontario and Alberta, although these provinces have higher

population, it may impact the generalizability of the findings. Sampling bias may have resulted from the use of social media for recruitment; however, this was counterbalanced by sending invitations to dietetic colleges and dietetic university distribution lists to reach those who may not be on social media. The survey was only offered in English, so French speaking Canadians would have been excluded, although English is the language spoken by the majority of Canadians. Though some RDs may not have had access to their emails or social media as they may have been redeployed for COVID-19 relief, we did try to recruit over a 2-month period to allow RDs the opportunity to participate. Future research will be important to expand what is known about how barriers and facilitators influenced the implementation of NWFAs as well as how barriers and facilitators interact. This study may not have captured all of the barriers and facilitators for implementing NWFAs, or how they may interact with each other; however, this is the first study to do so and the data offers a foundation for in future research in this area. The use of qualitative methodologies may help to more deeply explore the emerging concepts uncovered in this study.

5.5 Conclusions

This is the first study to explore the barriers and facilitators of implementing NWFAs for RDs in Canada. Those who had not implemented NWFAs were likely curious to learn more about NWFAs and not opposed to them. The main domains that were barriers included the external influences of other health professionals and guidelines, and individual characteristics that related to knowledge, skills and confidence. This study provides an important benchmark on

how to implement NWFAs effectively to ensure safe, evidence-based practice that is sustainable and effective at improving health outcomes of Canadians.

Chapter 6: Discussion & Conclusions

The widespread desire for thinness and focus on weight loss has resulted in a 72-billion-dollar weight loss industry in the United States (Delbridge et al., 2022; Marketdata LLC, 2019) as well as countless dollars and other resources spent on weight-focused health research. Weight loss is rarely sustainable and may increase cardiometabolic risk (Ge, 2020; Montani, Schutz, & Dulloo, 2015). However, the health behaviours often used to induce weight loss do produce short and long-term health benefits, irrespective of weight changes (Dugmore et al., 2019).

Additionally, the weight-focused diet and health research industries contribute to weight stigma which increases the risk of diabetes and depression, and decreases self-esteem and quality of health care (Alberga et al., 2018; Obesity Canada, 2020; Wu & Berry, 2018). NWFAs have emerged to redress the harms of weight-focused dieting, and are being implemented in policies and CPGs, and promoted by organizations such as The Academy for Eating Disorders and National Eating Disorder Association (News Wise, 2009). Interestingly, Canada appears to be the first to include NWFAs in CPGs, with the Academy of Nutrition and Dietetics following closely behind by currently revising their guidelines to remove triggering language and to be considerate of weight bias (Academy of Nutrition and Dietetics, 2022). Anecdotal observations suggested that RDs were increasingly following suit and implementing NWFAs in their practice.

Prior to this research it was unknown how RDs approach weight in their practice and what contributes to RDs implementing their practice approach. Moreover, it was unknown which paradigm regarding the importance of weight RDs in Canada ascribe to, how they were

introduced to NWFAs into their practice, and what barriers and facilitators RDs experienced in implementing NWFAs in their practice with higher weight adults. The research reported here indicates that the majority of RDs are using NWFAs in their practice (Chapter 4). To address this gap in the literature, this study explored what, how, and why RDs implement NWFAs in their practice with higher weight adults. In-Chapter 4, this thesis describes how many RDs were using NWFAs, what practice techniques were used among a spectrum of practice approaches, how participants defined obesity and the extent to which weight/weight loss is considered important. In Chapter 5, this study reports what were the barriers and facilitators for implementing NWFAs, and identified what is needed to help more RDs implement NWFAs.

RDs are having to rely on extracurricular opportunities to fulfill their learning, which may add financial and time constraints for some (Brady, 2020). If RDs' education does not reflect current CPGs, and they are not learning about NWFAs and social justice, then this presents a dilemma for RDs who must also practice within the limits of their professional knowledge and skills (PDEP, 2020). Interestingly, Dietitians of Canada recently endorsed the international consensus statement, *Pledge to Eradicate Weight Bias and Stigma of Obesity*, acknowledging as a profession we must work together to deepen the understanding of how dietetics contributes to weight stigma and that the profession must collectively change their ways to end weight stigma (Dietitians of Canada, 2019a). It is the responsibility of Dietitians of Canada and PDEP to ensure accredited dietetic programs are committed to embedding these same commitments in dietetic education, so that they may be reflected in dietetic competencies and implemented in practices by licensed RDs. This current study showed that RDs want to learn more about NWFAs, and did not report learning about NWFAs in their undergraduate experiences, changes to the dietetic curriculum and practicum/internship training programs could enhance learning and future

adoption and implementation of NWFAs. This assertion is supported by the research in Chapter 4 and Chapter 5 which revealed that the majority of Canadian RDs were using NWFAs, and those who had not yet implemented NWFAs were curious to learn more, but would like more knowledge, skills and confidence in order to implement NWFAs.

The environments in which RDs learn and work have added challenges to implementing NWFAs. In both studies, RDs are practicing within a weight-focused biomedical health care system (Delbridge et al., 2022) that expects RDs to focus on weight loss and often refer adults to lose weight (Aboueid et al., 2018). RDs are receptive and want to implement NWFAs, but require further skills, confidence and improved competency in order to implement NWFAs safely and effectively. Additionally, RDs need mentorship and training to challenge the weight-focused paradigms they face in the health care system, as well as how to help support society to accept NWFAs as a viable and effective approach. RDs will need to adopt a critical inquiry, which is the goal of Critical Dietetics, in order to combine medical nutrition therapy with anti-oppressive practices (Delbridge et al., 2022). RDs are an important stakeholder in implementing NWFAs, but in order to change their practices, they need further exposure of how to successfully implement NWFAs in weight-focused environments.

The research in this thesis points to several areas of opportunity to improve dietetic practice. Education and mentorship appeared as an enabler in our study for implementing NWFAs. In order to move the profession forward, multidisciplinary implementation teams can support a consolidated effort for RDs to successfully implement NWFAs into practice. This training and mentorship could involve expertise from those who have experience from both working with NWFAs as well as with implementation science to support behaviour change of health care

providers as well as in health care organizations. As our study showed there were various domains that influenced implementation of NWFAs, it would be beneficial to have within mentorship trainings RDs who represent the various domains to provide contextual guidance, for example RDs involved in policies, at the C-suite level (executive level managers, or final decision makers) of health care organizations and front-line. Dietitians of Canada and PDEP already have an alliance and could work together with community partners to ensure undergraduate dietetic students have access to training on a variety of practice approaches in their education, including NWFAs. For current RDs, these associations could invest in training and mentorship programs and expand their involvement in professional development.

Additionally, it would be beneficial for training and mentorship opportunities to be available for how to implement social justice work into dietetic practice, as well as how to implement practice approaches that reduce weight stigma. In another effort to move the dietetic profession forward, as Dietitians of Canada is an advocacy agency, they could also partner with other agencies to advocate on behalf of RDs for the use of NWFAs. Based on member of Dietitians of Canada's feedback, Dietitians of Canada chose not to endorse the CAOCPGs since many RDs viewed the CPGs as containing conflicting messages supporting weight loss (Dietitians of Canada, 2021).

In addition, Dietitians of Canada will soon publish a practice summary document on Weight Inclusive and Health At Every Size® (or NWFAs) for members of Practice-based Evidence in Nutrition. Practice-based Evidence in Nutrition is an online nutrition-based evidence library for RDs, and we hope this is the start of a clinical pathway that outlines the practice approaches of NWFAs for RDs (Dietitians of Canada, 2021). Dietitians of Canada and Practice-based Evidence

in Nutrition are both working towards removing stigmatizing language from their resources as well (Dietitians of Canada, 2021). It would also be supportive if Dietitians of Canada and Practice-based Evidence in Nutrition provided open access resources, rather than its current subscription-based service, to facilitate mentorship for RDs on how to remove stigmatizing language from their practice to move the dietetic profession forward. The alliances existing within dietetic education could offer mentorship to advance and help propel the future of RD practice with NWFAs.

RDs want to use NWFAs in practice, however this can only be done if health researchers, granting agencies, and policy makers create opportunities for conducting and funding high quality studies that examine NWFAs from multiple perspectives (Dugmore et al., 2019). There are many ways that researchers and granting agencies can provide leadership in expanding the evidence base on NWFAs. More robust, long-term studies and clinical trials on the impact of NWFAs on health and social outcomes are required to support the evidence-based foundation of NWFAs. Currently, there is a lack of standardization of NWFAs in research, including their methodologies, length of study, as well as definitions of NWFAs, which may make it challenging to draw out inferences of these approaches on health outcomes and may minimize NWFAs' effectiveness. However, the research conducted for this thesis has provided a first step at understanding how RDs practice, offering emerging data that can be built upon in future research. Traditionally a large volume of nutrition research has narrowly focused on individual dietary components (e.g., macronutrients, calories) and their impact on health, with ample priority funding opportunities to support this type of work. However, it is time for research and funding bodies to direct their efforts and resources to emerging topic areas that are of high interest to clinicians, such as NWFAs, to support the nutrition science field in moving forward.

Nutrition researchers, Dietitians of Canada and partners should help to support RDs who wish to expand NWFAs research by encouraging research funders to provide scholarships for those wishing to study NWFAs in graduate programs and to create priority funding competitions for NWFAs research, including implementation research of NWFAs. Embracing NWFAs in dietetic training will not only support dietetic competency, but it could also stimulate young scholars' interest in being further trained in NWFAs as part of Master's and doctoral research programs. Ideally, this training will examine NWFAs from multiple interdisciplinary lenses to effectively move the field forward.

The research presented in this thesis provides a steppingstone for future studies in this area. First, this research has created baseline data so that future studies can explore if a further shift has occurred in relation to the use of NWFAs in practice. A follow up study could more deeply explore how RDs have implemented NWFAs, through a qualitative study. This study could find out from RDs who either have been successful or unsuccessful at implementing NWFAs what were the barriers and facilitators. From this study, an implementation plan, or pre-implementation research of the barriers and facilitators, could be developed that helps RDs overcome barriers that they may face to successfully adopt NWFAs in their practice (Straus et al., 2013). It would be helpful for future research to create a validated tool that could be used in primary care settings, instead of checking one's weight or calculating BMI, that helps to screen adults in a non-stigmatizing manner, as a way to link adults to appropriate resources to facilitate health behaviour changes. As well, future research can also expand the evaluation of the effectiveness of any implementation strategies of NWFAs, including what metrics could be used to monitor success without contributing to weight stigma. It is likely that true change requires

social norms to broaden as well as the underlying dominant ideologies about weight and more NWFAs research could influence this shift (Bombak, 2015).

This research is the first to explore the ways in which Canadian RDs are working with higher weight adults, across a spectrum of practice approaches including NWFAs. This research also identified the barriers and facilitators of implementing NWFAs at various stages of implementation. The majority of RDs have implemented NWFAs, and those who have not yet implemented show an interest in doing so. Implementing NWFAs may advance RDs' dietetic care, more importantly support the improvement health and wellbeing outcomes for adults and ultimately improve the health of Canadians.

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Appendices

Appendix A: Survey Understanding the practice approaches of Registered Dietitians working with higher weight adults in Canada

1. Are you a Registered Dietitian?
 - Yes
 - No (*if selected, then proceed to thank you page*)

2. Do you currently work in Canada?
 - Yes
 - No (*if selected, then proceed to thank you page*)

3. In which province/territory is your **primary** place of practice?
 - Alberta
 - British Columbia
 - Manitoba
 - New Brunswick
 - Newfoundland and Labrador
 - Northwest Territories
 - Nova Scotia
 - Nunavut
 - Ontario
 - Prince Edward Island
 - Quebec
 - Saskatchewan
 - Yukon
 - None of the above (*if selected, then proceed to thank you page*)

4. Please tell us your **primary** area of practice (choose one):
 - Family Health Team (FHT) or primary care clinic
 - Physician-led private clinic
 - Community Health Centre (CHC)
 - Nurse Practitioner-Led Clinic (NPLC)
 - Private practice
 - Hospital out-patient program
 - Diabetes centre (out-patient)
 - Cardiac rehab program (out-patient)
 - Bariatric centre (out-patient)
 - In-patient clinical (*if yes, then proceed to thank you page*)
 - Public Health (*if yes, then proceed to thank you page*)
 - Education (*if yes, then proceed to thank you page*)
 - Other: (please specify) _____

5. If you have a **secondary** place of practice, please tell us what it is:
 - Family Health Team (FHT) or primary care clinic
 - Physician-led private clinic
 - Community Health Centre (CHC)
 - Nurse Practitioner-Led Clinic (NPLC)
 - Private practice
 - Hospital out-patient program
 - Diabetes centre (out-patient)
 - Cardiac rehab program (out-patient)
 - Bariatric centre (out-patient)
 - In-patient clinical (*if yes, then proceed to thank you page*)
 - Public Health (*if yes, then proceed to thank you page*)
 - Education (*if yes, then proceed to thank you page*)
 - Other: (please specify) _____
 - I do not have a secondary place of practice

6. In your practice, do you provide service to 5 or more higher weight adult clients (e.g., people with a Body Mass Index [BMI] > 25kg/m²) per week?
 - Yes
 - No (*if selected, then proceed to thank you page*)

7. Which type of community describes your primary place of work? (Please choose one)
 - Remote area (community of <1,000 people)
 - Rural area (small town or village of 1,000 to 10,000 people)
 - Suburban area (a population between 10,000 to 100,000 people)
 - Urban area (a population of >100,000 people)
 - Majority of my work is done remotely (virtually or telehealth)

8. Which of the following best describes your identity? (Choose one)
 - Gender queer
 - Man
 - Non-binary
 - Two spirited
 - Woman
 - Other gender identity: _____
 - Prefer not to answer

9. In our society, people are often described by their race or racial background. Which race category best describes you? (choose one)
 - Black e.g., African, Caribbean, Black descent
 - East Asian e.g., Chinese, Korean, Japanese, Taiwanese descent
 - Indigenous e.g., First Nations, Métis, Inuk (Inuit)
 - Latinx e.g., Latin American, Hispanic descent

- Middle Eastern e.g., Arab, Iranian, Afghan, Egyptian, Iranian, Lebanese, Turkish, Kurdish
- South Asian e.g., East Indian, Pakistani, Bangladeshi, Sri Lankan, Indo-Caribbean, Nepali
- Southeast Asian e.g., Cambodian, Indonesian, Laotian, Vietnamese
- White e.g., European descent
- Another race category (Please specify): _____
- Prefer not to answer

10. How many **years** have you been practicing as a Registered Dietitian? _____

11. What is your highest level of education? (Please choose one)

- Bachelor's degree
- Master's diploma or degree that emphasizes practicum/internship experiences (PMDip, MAN, MScFN internship stream)
- Master's Degree, course-based (i.e., MPH)
- Master's degree, thesis-based (i.e., MSc, MHSc)
- Doctoral degree
- Other (please specify)

12. What clinical practice guidelines or dietary recommendations do you follow in your practice when working with higher weight adults? (choose all that apply)

- American Heart Association
- Canadian Cardiovascular Society
- Diabetes Canada
- Health At Every Size®
- Health Canada – Canada's Food Guide
- Health Canada – Other
- Health Canada pregnancy guidelines
- Hypertension Canada
- Obesity Canada
- None
- Other (please specify):

13. How important is weight change or loss to you as indicator of health status when working with higher weight adults in clinical practice (please select one)?

- Not important at all
- Not very important
- Somewhat important
- Important
- Very important

14. How do you define obesity? (choose all that apply)

- Body Mass Index [BMI] > 30kg/m²
- A complex and progressive chronic disease
- Characterized by abnormal, excessive body fat (adiposity) that impairs health
- I do not recognize or use this language

This survey examines different approaches that Registered Dietitians take when working with higher weight adults. Below are the descriptions for five different practice approaches. Techniques used in practice are discussed later in this survey. **Please read each one carefully.**

Approach	Description
A	<ul style="list-style-type: none"> ● Body weight is an important indicator of health status and is usually measured at each visit. ● Ways of eating promote weight loss, sometimes regardless of body size. ● Counselling focuses on calorie reduction (“calories in/calories out”), and possibly diet quality and eating patterns.
B	<ul style="list-style-type: none"> ● Body weight is <u>usually</u> viewed as an important indicator of health status and is usually measured at each visit. ● Obesity is viewed as a risk factor for disease or as a chronic disease itself. ● <u>Usually</u> includes weight loss as an outcome. ● Counselling focuses on calorie reduction, and possibly diet quality and eating patterns.
C	<ul style="list-style-type: none"> ● Body weight is <u>usually not</u> an important indicator of health status. ● Recognizes that obesity is a chronic disease. ● Usually does <u>not</u> focus on weight change or loss as an outcome. ● Counselling focuses on diet quality and eating patterns.
D	<ul style="list-style-type: none"> ● Weight is <u>not</u> a measured outcome or an outcome to be achieved. ● Obesity is <u>not</u> discussed as a factor contributing to chronic disease. Obesity may not be recognized as a term. ● Discusses weight with adults out of client interest, but understands weight as a normal part of body diversity. ● Counselling focuses on diet quality and eating patterns.
E	<ul style="list-style-type: none"> ● Weight is <u>not</u> a measured outcome or an outcome to be achieved. ● Obesity is not recognized as a term. ● Discusses weight with adults out of client interest but understands weight as a normal part of body diversity.

	<ul style="list-style-type: none"> • Does not take a healthism approach (healthism is the preoccupation with personal health as the primary focus of well-being, usually obtained through modifying lifestyle behaviours). • Recognizes that diet is an outcome of inequity and social justice and advocates for and/or works upstream to deconstruct systemic inequity issues.
--	---

15. Which practice approach **most** reflects the way you practice when working with higher weight adults?

- Approach A
- Approach B
- Approach C
- Approach D
- Approach E

16. Please tell us if there is anything we are missing or got wrong from the above descriptions?

17. If you were to label your practice approach what would label it?

18. Does your current practice approach reflect how you would prefer to approach your practice with higher weight adults?

- Yes (*If selected, will skip to 19*)
- No (*If selected, will proceed to question 18*)

19. Please tell us why you do not use the practice approach of your preference?: _____

20. Below is a list of different assessment parameters, dietary approaches and techniques that may be used in practice when working with a higher weight adults. Please tell us which ones you use in your practice. Choose all that apply for the three sections.

ASSESSMENT
<input type="radio"/> Weigh clients
<input type="radio"/> Calculate Body Mass Index (BMI) to assess health risk
<input type="radio"/> Measure body composition
<input type="radio"/> Monitor health behaviours (e.g., diet and exercise) as an indicator of changed health risk
<input type="radio"/> Assess mental health status (e.g., depression, addiction, eating disorders, etc.)
<input type="radio"/> Assess mechanical health (e.g., back pain, osteoarthritis, sleep apnea, GERD, etc.)
<input type="radio"/> Assess financial health by collecting economic information, including food security
<input type="radio"/> Assess social health (e.g., social support, connection to care givers, living conditions, etc.)
<input type="radio"/> Assess metabolic parameters (lipid profile, blood glucose, liver enzymes, vitamin and mineral status, etc.)
<input type="radio"/> Other (please specify):
DIETARY APPROACHES
<input type="radio"/> Recommend eating fewer calories
<input type="radio"/> Recommend ways to increase overall diet quality
<input type="radio"/> Recommend intake of certain foods to reduce calories
<input type="radio"/> Recommend increasing dietary variety
<input type="radio"/> Recommend reducing total fat intake
<input type="radio"/> Recommend replacing saturated/trans fats with unsaturated fats
<input type="radio"/> Recommend increasing fruits and vegetables
<input type="radio"/> Recommend increasing intake of whole grains
<input type="radio"/> Recommend increasing intake of pulses (e.g. beans, peas, chickpeas, lentils)
<input type="radio"/> Recommend modifying specific macronutrients e.g., low carbohydrate, high protein, high fat
<input type="radio"/> Recommend doing more physical activity
<input type="radio"/> Provide advice using Canada's Food Guide
<input type="radio"/> Recommend Mediterranean dietary pattern
<input type="radio"/> Recommend vegetarian dietary pattern
<input type="radio"/> Recommend low-glycemic index dietary pattern
<input type="radio"/> Recommend Dietary Approaches to Stop Hypertension (DASH)
<input type="radio"/> Recommend Nordic dietary pattern
<input type="radio"/> Recommend time-limited feeding, i.e., intermittent fasting
<input type="radio"/> Recommend a ketogenic diet
<input type="radio"/> Other (please specify):
TECHNIQUES
<input type="radio"/> Recommend limiting snacking
<input type="radio"/> Recommend eating smaller, more frequent meals

<input type="radio"/> Recommend keeping a hunger awareness diary
<input type="radio"/> Recommend keeping a food intake diary
<input type="radio"/> Recommend keeping a weight diary
<input type="radio"/> Recommend weight loss
<input type="radio"/> Recommend that clients do not weigh themselves
<input type="radio"/> Recommend using commercial weight loss products
<input type="radio"/> Draw on the principles of Intuitive Eating
<input type="radio"/> Draw on the techniques of mindful eating
<input type="radio"/> Draw on the principles of Health At Every Size®
<input type="radio"/> Draw on equity-seeking clients' experiences of oppression
<input type="radio"/> Recognize clients' lived experiences impact their lives in ways that are often hidden to providers
<input type="radio"/> Discuss with clients the structural barriers to their being/feeling healthy or well
<input type="radio"/> Use principles of culturally-safe care
<input type="radio"/> Use principles of compassion-informed counselling strategies
<input type="radio"/> Use principles of trauma-informed counselling strategies
<input type="radio"/> Use principles of harm reduction counselling strategies
<input type="radio"/> Other (please specify):

21. This next part of the survey will ask you your views related to using non-weight focused approaches when working with higher weight adults in dietetic practice.

Non-weight focused approaches do not use body weight as an indicator of nutrition or health status, nor as an important outcome of nutrition counselling. A dietitian who uses these approaches may or may not recognize “obesity”, and they may or may not incorporate social-justice into practice. This approach may still discuss weight with adults, but it understands weight as a normal part of body diversity. Nutrition counselling focuses on optimizing diet quality and eating patterns.

- I am ready to move onto the survey questions

22. Please **choose one response** that best describes your interest in implementing non-weight focused approach in your practice.

- I am not interested in implementing non-weight focused approaches in my practice at this time.
- I am curious about implementing non-weight focused approaches into my practice but have not yet taken steps to do so.
- I am learning about and planning ways to implement non-weight focused approaches into my practice but have not done so yet.
- I have practiced from a non-weight focused approach for 6 months or less.
- I have practiced from a non-weight focused approach for more than 6 months.

23. From your professional perspective, please tell us the extent to which you agree or disagree with the following statements about non-weight focused approaches.
(Please select one answer per row)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a.) There is insufficient evidence demonstrating that non-weight focused approaches improve health outcomes.					
b.) Adopting non-weight focused approaches in my practice would require me to change my practice approach.					
c.) It would take too much time to implement non-weight focused approaches into my practice.					
d.) It would take too much effort to implement non-weight focused approaches into my practice.					
e.) Non-weight focused approaches are not within the scope of dietetic practice.					
f.) Non-weight focused approaches are not ethical.					
g.) I do not support non-weight focused approaches.					

24. From your professional perspective, please tell us the extent to which you agree or disagree with the following statements about non-weight focused approaches.
(Please select one answer per row)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a.) Non-weight focused approaches are difficult to use because clients usually want to focus on weight as an outcome.					
b.) My workplace setting discourages the use of non-weight focused approaches in my practice.					
c.) Non-weight focused approaches are difficult to use when clients are told to lose weight by other health professionals.					
d.) Clinical practice guidelines influence the approach I take with higher weight clients in my practice.					
e.) The work of other registered dietitians influences the approach I take with higher weight clients.					
f.) My dietetic college does not support the use of non-weight focused approaches.					
g.) Non-weight focused approaches are difficult to use when clients are told to lose weight as a condition of accessing life enhancing services (e.g., knee surgery)					

25. From your professional perspective, please tell us the extent to which you agree or disagree with the following statements about non-weight focused approaches.
 (Please select one answer per row)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a.) Colleagues within my workplace do not support non-weight focused approaches.					
b.) Non-weight focused approaches do not fit well within the treatment approaches for my practice area.					
c.) I am unable to access funds for professional development to learn about how to implement non-weight focused approaches.					
d.) There are more important priorities than adopting a non-weight focused approach.					

26. From your professional perspective, please tell us the extent to which you agree or disagree with the following statements about non-weight focused approaches.
(Please select one answer per row)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a.) I do not have sufficient knowledge to implement non-weight focused approaches in my practice.					
b.) I do not have sufficient skills to implement non-weight focused approaches in my practice.					
c.) I look to other opinion leaders before adopting new approaches.					
d.) I only adopt new approaches when they become the status quo.					
e.) I do not feel confident trying non-weight focused approaches in my practice.					
f.) My own experience with controlling my weight influences my practice approach with higher weight clients.					
g.) My own personal body image is negative.					

27. Did we miss any barriers to using non-weight focused approaches in dietetic practice? If so, please describe any additional barriers that you'd like to add.

28. Please tell us what **would encourage and support** you in adopting and/or implementing non-weight focused approaches in your practice (please select one answer per row).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a.) Including non-weight focused approaches in undergraduate training programs.					
b.) Including non-weight focused approaches in practicum/internship training programs.					
c.) Having a clinical care pathway to guide best practices for non-weight focused approaches.					
d.) Having a mentor to guide me.					
e.) Having more non-weight focused educational materials for my clients.					
f.) Including non-weight focused approaches in clinical practice guidelines.					
g.) Having the support of Dietitians of Canada for non-weight focused approaches.					
h.) Having more time to dedicate to implementing new ways of practicing.					
i.) Having access to financial resources for non-weight focused professional development opportunities.					
j.) Having a community of RDs to share and learn with.					
k.) Access to journal publications/up to date literature and research.					

1.) Access to non-weight focused journal publications, such as Critical Dietetics.					
--	--	--	--	--	--

29. Did we miss any factors that would encourage or support you in using non-weight focused approaches in dietetic practice? If so, please describe any additional supportive factors that you would like to add.

30. From where did you receive education related to non-weight focused approaches, if any? (Choose all that apply.)

- Undergraduate Degree
- Internship and/or Practicum
- Master's degree: Course-based or practicum-based
- Master's degree: Thesis-based
- Doctoral Degree
- Professional development education (e.g., webinars, conferences, workshops) outside of these experiences
- I have received no formal education on non-weight focused approaches

31. If you wish, please elaborate on the education you received regarding non-weight focused approaches:

32. What dietetics-related training or certificate programs have you completed, if any? (Please choose all that apply)

- Certified bariatric educator (CBE)
- Certificate of Training in Adult Weight Management
- Craving Change
- Body Trust®
- Body Image Training with Marci Evans
- Certified Intuitive Eating Counselor
- Am I Hungry? Michelle May Facilitator Training
- Certified Diabetes Educator
- Dietitians of Canada & Obesity Canada - Obesity Learning Retreat
- Advanced Obesity Management Program (AOMP)
- Balanced View BC

- Academy for Science and Continuing Education in Diabetes and Obesity (ASCEND)
- Ontario Bariatric ECHO
- CSOWM - Certified Specialist in Obesity and Weight Management (through the CDR in the states)
- SCOPE certification (World Obesity Federation)
- Well Now
- Intervenir sans nuire through Equilibre (Quebec)
- Learning from Equity seeking groups or individuals holding diverse identities/experiences
- Critical Dietetics Conference
- Other: (Please list): _____

33. Do you have any comments about this survey that you would like to share?

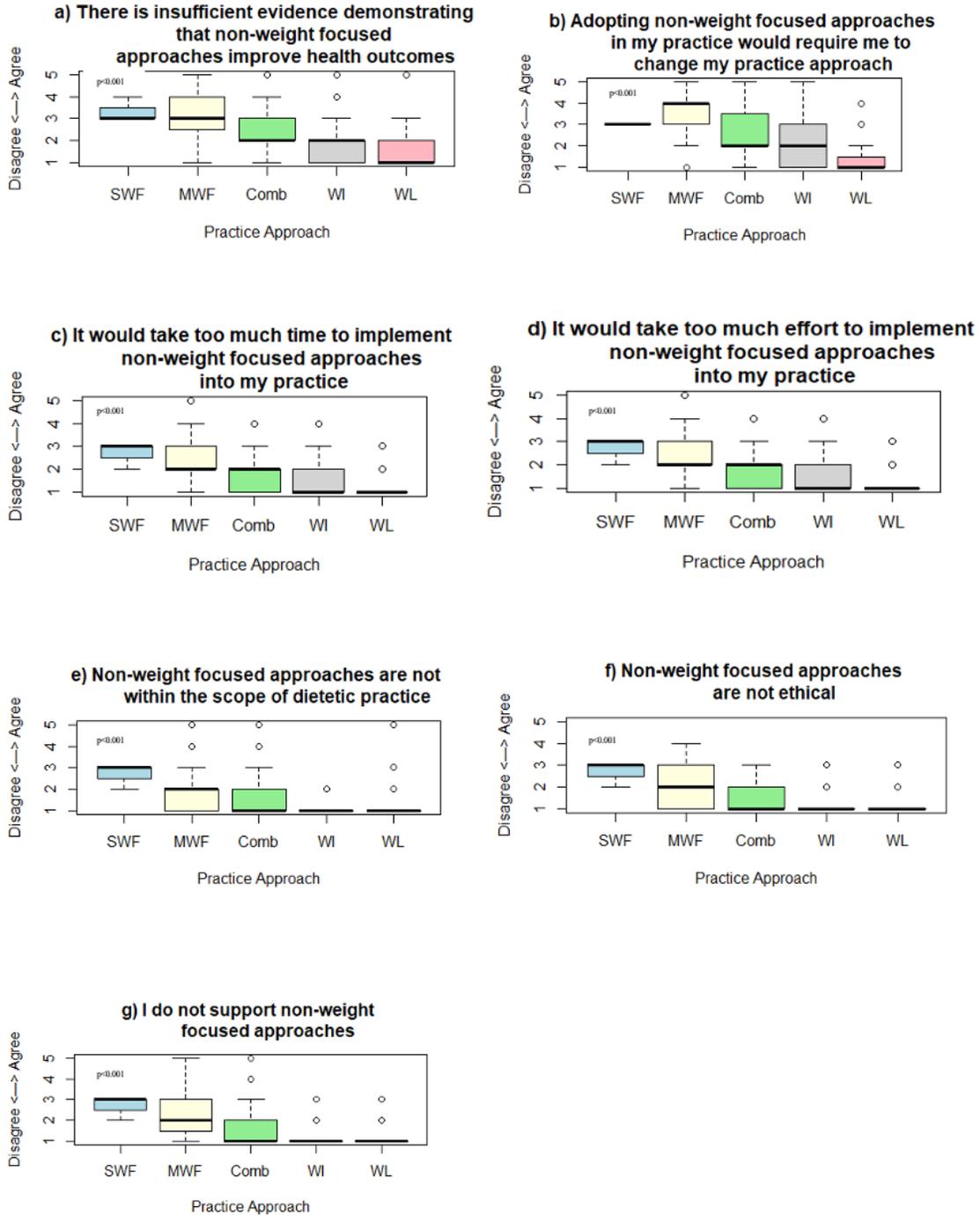
34. Please kindly tell us where you heard about this survey:

Appendix B: Race/ethnicity variables

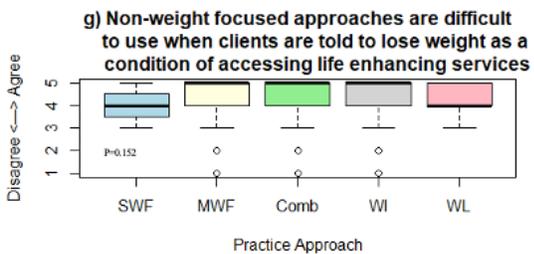
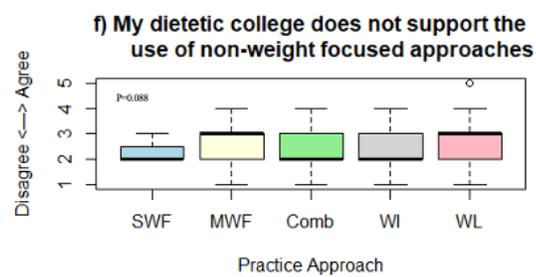
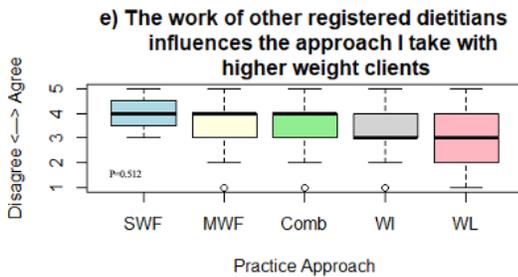
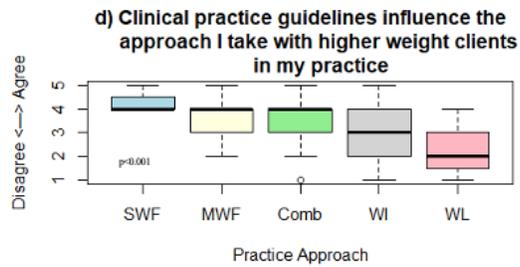
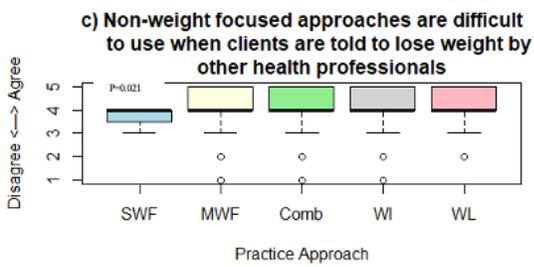
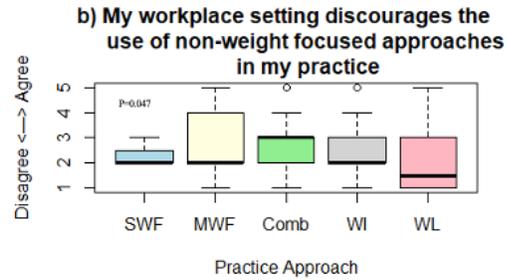
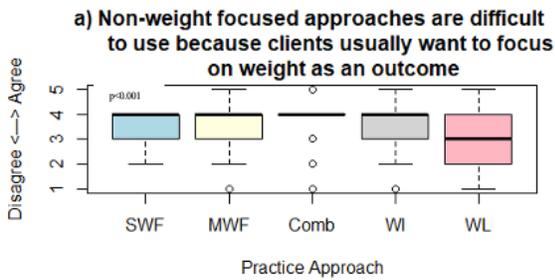
Category	Expanded variables
White	European
East Asian	Chinese, Korean, Japanese, Taiwanese
South/southeast Asian	East Indian, Pakistani, Bangladesh, Sri Lankan, Indo-Caribbean, Nepali, Cambodian, Indonesian, Laotian, Vietnamese
Other	Middle Eastern, Arab, Iranian, Afghan, Egyptian, Lebanese, Turkish, Kurdish; Black e.g., African, Caribbean, Black; Latinx e.g., Latin American, Hispanic; Indigenous e.g., First Nations, Métis, Inuk (Inuit)

Appendix C: Figures for Barriers and Facilitators for Implementing Non-weight focused approaches by Domain

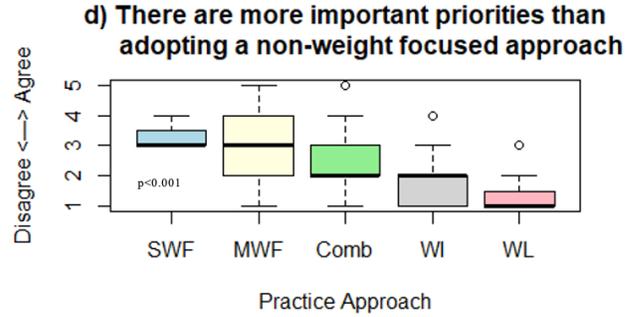
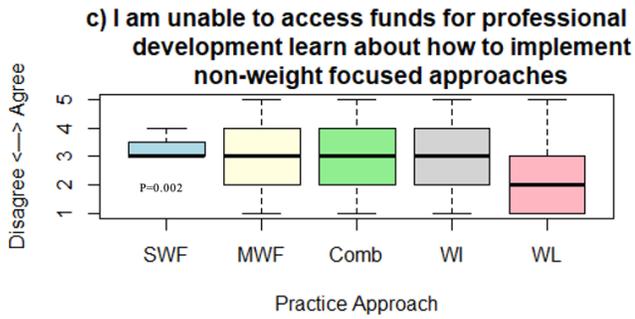
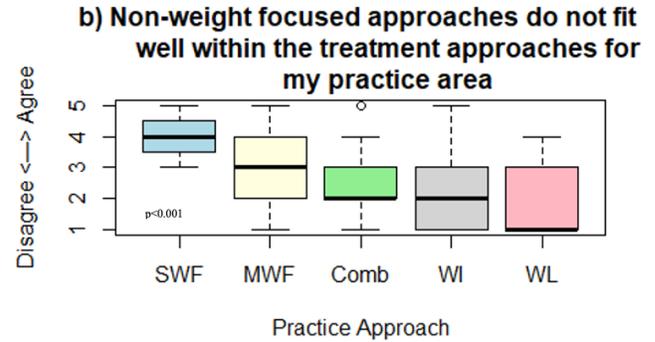
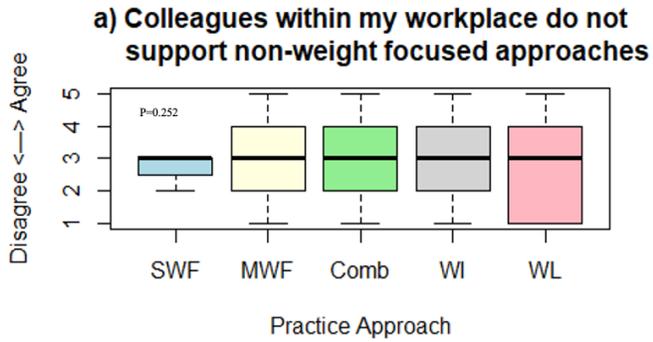
Intervention Characteristics barriers to Implementing Non-Weight Focused Approaches



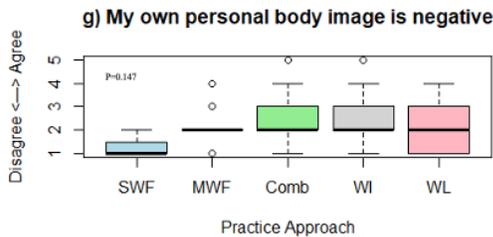
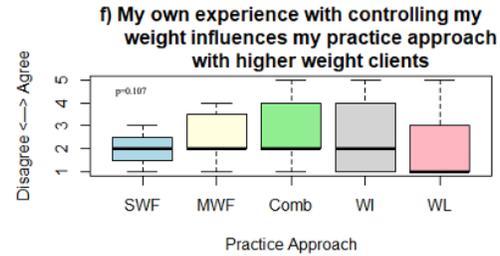
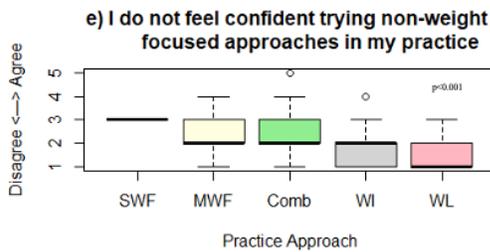
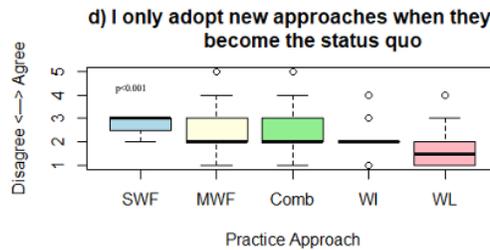
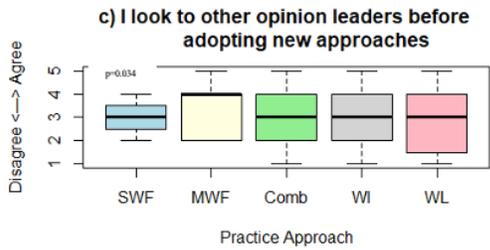
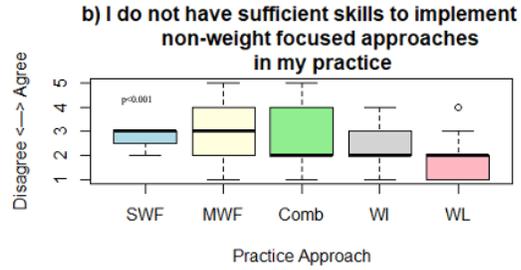
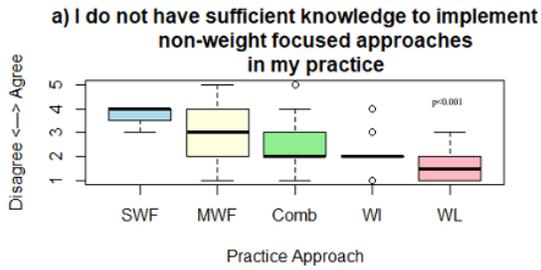
Outer setting barriers to Implementing Non-Weight Focused Approaches



Inner setting barriers to Implementing Non-Weight Focused Approaches

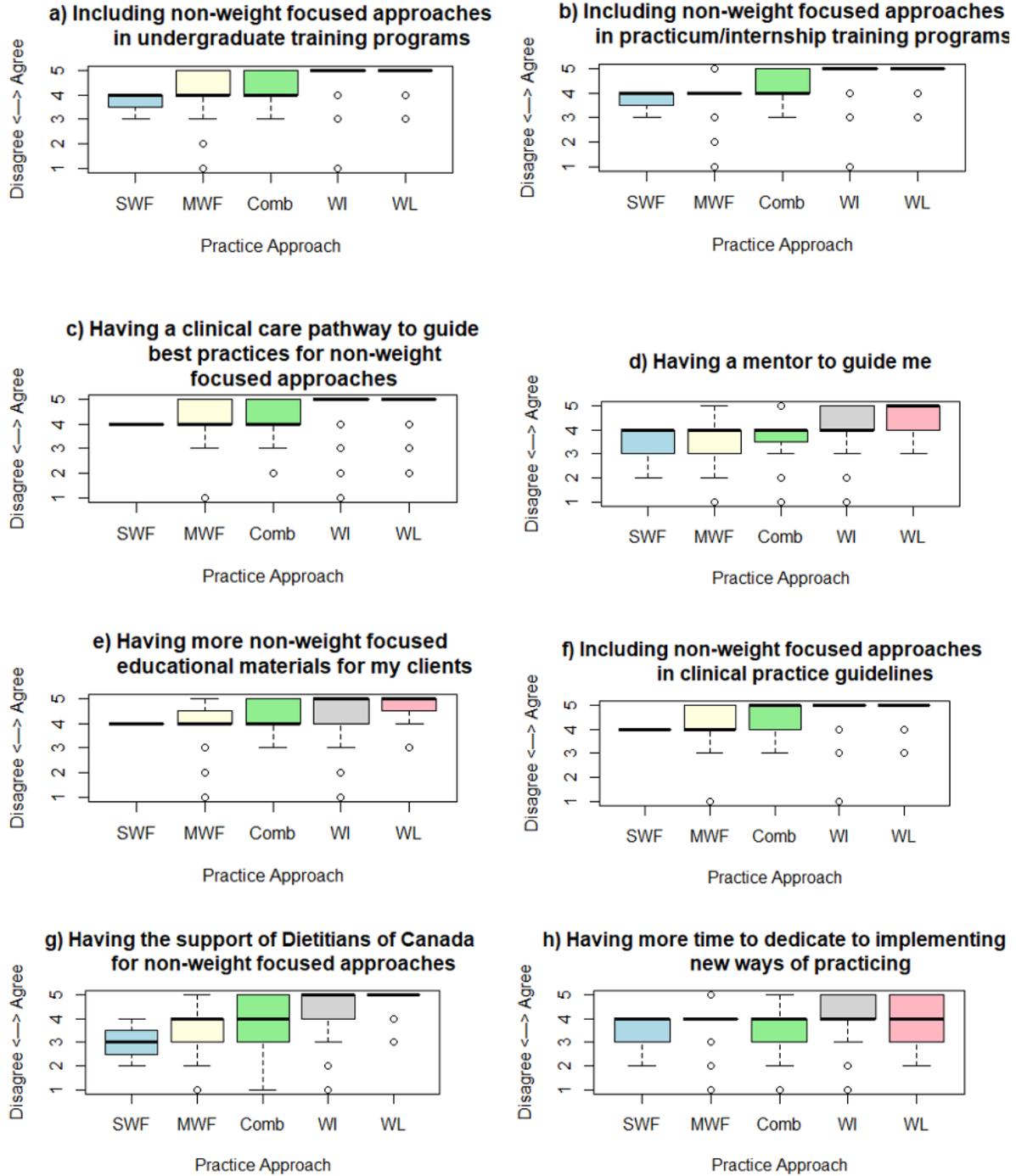


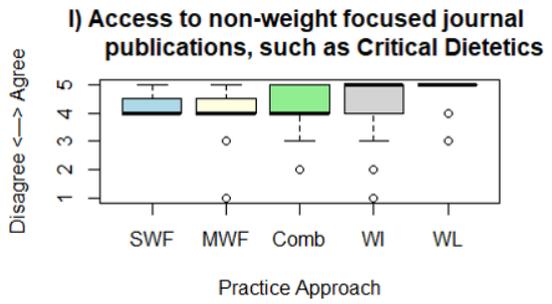
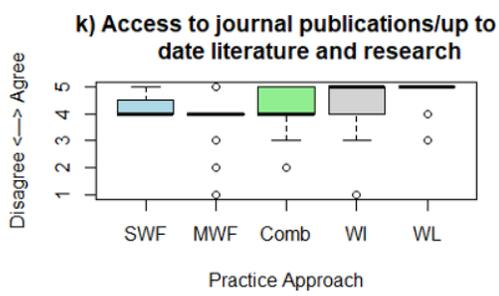
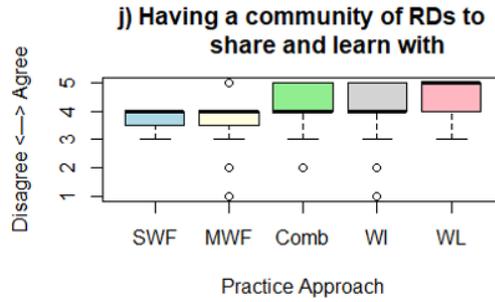
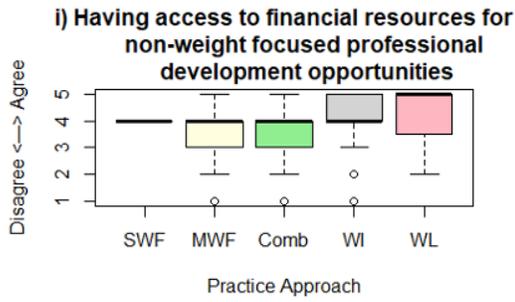
Characteristics of individuals as barriers to Implementing Non-Weight Focused Approaches



Facilitators to Implementing Non-Weight Focused Approaches

*all have $p < 0.001$, except for h.) $p = 0.059$





Appendix D: Ontario Tech Ethics Approval Letter

Date: November 11, 2020

To: JoAnne Arcand

From: Ruth Milman, REB Chair

File # & Title:

16078 - An exploratory view of the barriers and facilitators of implementing non-weight focused approaches for Registered Dietitians working with higher weight clients in Canada.

Status: APPROVED

REB Expiry Date: November 01, 2021

Documents Approved:

Appendix G updated validation study (Received October 28, 2020)

Appendix D Validation Study consent October version (Received October 28, 2020)

Appendix H revised Thank you letter (Received October 28, 2020)

Appendix F revised expert recruitment letter (Received October 28, 2020)

Appendix E revised participant image (Received October 28, 2020)

Appendix C Draft Survey October 2020 (Received October 28, 2020)

Appendix B Revised Recruitment letter for participants (Received October 28, 2020)

Appendix A- participant consent form, revised October 2020 (Received October 28, 2020)

Notwithstanding this approval, you are required to obtain/submit, to Ontario Tech Research Ethics Board, any relevant approvals/permissions required, prior to commencement of this project.

The Ontario Tech Research Ethics Board (REB) has reviewed and approved the research study named above to ensure compliance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2 2018), the Ontario Tech Research Ethics Policy and Procedures and associated regulations. As the Principal Investigator (PI), you are required to adhere to the research protocol described in the REB application as last reviewed and approved by the REB. In addition, you are responsible for obtaining any further approvals that might be required to complete your project.

Thank you for your clarifications and amendments. There are no further ethical issues with your study and you may proceed with recruitment and data collection. We wish you success in this and all of your research endeavours.

Please note that if you decided to change your survey after Phase A, you will need to submit the amended survey for REB review prior to recruitment or data collection in Phase B. This can be done by submitting a change request with the updated participant materials.

Under the TCPS2 2018, the PI is responsible for complying with the continuing research ethics reviews requirements listed below:

Renewal Request Form: All approved projects are subject to an annual renewal process. Projects must be renewed or closed by the expiry date indicated above (“Current Expiry”). Projects not renewed 30 days post expiry date will be automatically suspended by the REB; projects not renewed 60 days post expiry date will be automatically closed by the REB. Once your file has been formally closed, a new submission will be required to open a new file.

Change Request Form: If the research plan, methods, and/or recruitment methods should change, please submit a change request application to the REB for review and approval prior to implementing the changes.

Adverse or Unexpected Events Form: Events must be reported to the REB within 72 hours after the event occurred with an indication of how these events affect (in the view of the Principal Investigator) the safety of the participants and the continuation of the protocol (i.e. un-anticipated or un-mitigated physical, social or psychological harm to a participant).

Research Project Completion Form: This form must be completed when the research

study is concluded.

Always quote your REB file number (16078) on future correspondence. We wish you success with your study.

Sincerely,

Dr. Ruth Milman

REB Chair

[ruth.milman@ontariotechu.ca](mailto:ruth.milman@uoiit.ca)<mailto:ruth.milman@uoiit.ca>

Emma Markoff

Research Ethics Assistant

researchethics@ontariotechu.ca<mailto:researchethics@ontariotechu.ca>

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