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Management and impact of obesity in Canada: A real-world survey of people with obesity and their physicians

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ABSTRACT

Background: Obesity is a chronic relapsing disease associated with multiple complications. This study described real-world demographic/clinical characteristics, including obesity-related complications (ORCs), prescribing rationale, and patient-reported outcome measures (PROMs) for adults living with obesity in Canada accessing treatment.

Methods: This was a cross-sectional survey of physicians and consulting people with obesity (PwO) in Canada with retrospective data capture in a real-world setting. Canadian data were drawn between July and November 2022 from the multinational Adelphi Real World Obesity Disease Specific Programme™. Consulting PwO were required to be on a weight management program and/or have a current body mass index of ≥30 kg/m^2. Physicians completed questionnaires for the next 3–5 consecutive PwO seen in their routine clinical practice. A quota was applied for obesity management medication (OMM). PROMs including Work Productivity and Activity Impairment (WPAI) questionnaire were provided voluntarily by PwO. Analyses were descriptive.

Results: Overall, 50 physicians (35 general practitioners, 15 endocrinologists) and 199 PwO were analyzed. More than 85 % of PwO had ≥1 ORC. The most common ORCs were hypertension, dyslipidemia, depression, and type 2 diabetes, and one-quarter to one-half of ORCs were not optimally controlled. Approximately two-thirds of the cohort were employed full-time, almost half had private insurance, and almost 70 % were classified as high socioeconomic status. Mean number of weight-reduction attempts over the past 3 years was 2.9. Pharmacological treatment for obesity was common among those with ORCs. A general trend towards greater work impairment among people with ORCs than for PwO without ORCs was observed.

Conclusions: Among PwO participating in our study, ORCs were common, often uncontrolled, and their presence impacted the likelihood of obesity treatment and possibly impaired work productivity. Medical treatment for obesity was often delayed until ORCs developed, suggesting that preventative healthcare measures are not the norm for PwO in Canada. A large proportion of PwO had high socioeconomic status, suggesting that PwO who access treatment may not be representative of the overall population of PwO in Canada.

1. Introduction

Obesity is a chronic relapsing disease characterized by abnormal or excessive body fat and associated with multiple complications, including type 2 diabetes and cardiovascular disease [1–4], and is classified in Canadian clinical practice guidelines [4] and by the World Health Organization [2] as a body mass index (BMI) ≥30 kg/m^2. Despite the availability of evidence-based guidelines for the treatment of people with obesity (PwO), obesity is not treated in the same manner as other chronic diseases, and most treatments are not accessible or reimbursed [5].

Globally in 2022, 16 % of adults (≥18 years of age) were living with

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obesity, which is double the prevalence of obesity in 1990 [2]. Prevalence of obesity may be impacted by social and physical determinants such as lower socio-economic status, marital status and access to healthy foods. Impacts of these determinants are different for men and women [6]. Latest available data from Statistics Canada indicate that 26.8 % of the adult population (≈7.3 million adults) were living with obesity in 2018, and the prevalence of type 2 diabetes, hypertension, and cardiovascular disease was higher in PwO than in those with normal body weight [7].

Canadian clinical practice guidelines for obesity recommend that primary care clinicians should promote a holistic approach to health focusing on individual care plans that provide support for behavioral change, including nutrition therapy and increased regular physical activity, along with adjunctive therapies, which may include psychological, pharmacologic, and surgical interventions [4]. Pharmacotherapy for obesity is recommended as adjuncts to diet, physical activity, and behavioral modifications in people with BMI ≥30 kg/m^2 and in those with BMI ≥27 kg/m^2 with weight-related complications [4]. However, there is a profound lack of interdisciplinary teams for obesity management at the primary care level in Canada [5]. In addition, PwO in Canada may not access adjunctive therapies because of concerns about affordability, long-term effectiveness, and side effects [8].

Treatment of PwO using lifestyle and behavioral interventions is challenging because of complex and persistent hormonal, metabolic, and neuroendocrine adaptations that lead to regain of weight [1]. Caloric restriction can achieve short-term reductions in weight but has not shown to be sustainable long-term, as it may affect neuroendocrine pathways that control appetite, hunger, cravings, and body weight regulation that may result in increased food intake, reduced energy expenditure and weight regain [9].

In Canada, obesity management medications (OMMs) and healthcare professional services (e.g. psychologist, nutritionist support) are generally not covered by public drug benefit programs, and even private insurance payers may not provide sufficient coverage to meet the needs of PwO [5]. In 2019, ≈60 % of Canadians had private health insurance, but only 10.4 % of those with private drug benefit plans would receive coverage for OMMs, in contrast to much broader coverage for drug therapy in other chronic diseases, such as type 2 diabetes or hypertension [5]. Bariatric surgery may also be considered for people meeting selected criteria. Although surgical options are covered by public payers, there remain significant barriers to access, and this is not an appropriate option for many PwO [10,11].

Obesity is associated with a substantial economic burden to the Canadian healthcare system and wider government budgets (e.g., obesity-attributed tax revenue losses) [12], as well as at the family and individual level [13]. The sociodemographic characteristics of PwO are skewed towards lower levels of income [14]; therefore, the lack of public reimbursement and the requirement to pay out of pocket means that the people who need treatment the most are not able to access it until complications develop. Importantly, complications associated with obesity are the main driver of costs for this disease [15,16].

Real-world data for demographic and clinical characteristics and treatment of adults with obesity in Canada are limited or lacking. This study aimed to describe real-world demographic and clinical characteristics, including obesity-related complications (ORCs), prescribing rationale and patient-reported outcome measures (PROMs) related to work productivity for adults with obesity in Canada.

2. Methods

2.1. Study design

This was a secondary analysis of Canadian data drawn from the multinational Adelphi Real World Obesity Disease Specific Programme™ (DSP), a cross-sectional survey of physicians and their consulting PwO with retrospective data capture in a real-world setting. The DSP methodology has been described in detail and validated elsewhere [17–20]. In Canada, participants completed the survey between July and November 2022.

Informed consent was provided by all respondents, and ethics exemption was obtained from the Pearl Institutional Review Board (Protocol #22-ADRW-136), in accordance with FDA 21 CFR 56.104 and 45CFR46.104 regulations, as this was a survey-based analysis of an anonymized database. No medication was provided and no tests or investigations were performed as part of this research. No hypothesis was developed or tested.

2.2. Population

Physicians who contributed to the DSP were those managing and treating PwO who were identified using publicly available lists of clinicians (general practitioners [GPs] and endocrinologists). To participate, physicians were required to manage at least 10 PwO per month. PwO were eligible for inclusion in the analysis if they were ≥18 years of age and were not involved in an obesity clinical trial at the time of data capture. The criteria for a diagnosis of obesity were that the individual was required to be on a weight management program and/or have a previous or current BMI of ≥30 kg/m^2. Although all included PwO were required to have an obesity diagnosis, at data collection PwO could have achieved their weight loss goals and present with a BMI of <30 kg/m^2. Participants were identified as being in one of two groups: those who were and those who were not prescribed an OMM at the time of data capture. A quota was applied to OMM to ensure adequate sample size. Depending on OMM prescribing status and specialty, physicians were asked to complete questionnaires for the next 1–5 PwO not on a weight loss drug and for the next 3–4 PwO on a weight loss drug.

2.3. Data collection

The DSP collected data via a physician survey, a physician-completed patient record questionnaire, and a questionnaire completed by their consulting PwO. Participating physicians were required to complete a physician survey including details about their specialty and setting for ambulatory/outpatient care, followed by questionnaires, based on feasibility, for the next three (GPs) or five (endocrinologists) consecutive consulting PwO seen in their routine clinical practice, detailing demographic and clinical characteristics, OMM and non-OMM treatments, prescribing rationale for current treatment, barriers to treatment, other healthcare professionals involved in a current weight management program, and the number of weight loss attempts in the past 3 years. In addition, using PwO-reported data, socio-economic status was determined based on insurance (low = has publicly provided insurance; high = has employer provided/employer sponsored insurance or voluntary, private health insurance), education (low = did not finish or completed high school, or has some college experience; high = has a college or graduate degree), and employment (low = unemployed; high = working part- or full-time) where an assessment was used for majority wins (Supplementary Table 1).

All PwO for whom their physician completed a questionnaire were invited to complete their own questionnaire on a voluntary basis (with no honorarium) to provide information including patient-reported outcome measures (PROMs). The Work Productivity and Activity Impairment (WPAI) questionnaire is included in this analysis, which is a six-item instrument generating four main outcomes that measure the impact of disease on work productivity and daily activities over the past week, with scores expressed as a percentage, and higher scores indicating greater impairment [21,22].

2.4. Statistical analysis

Descriptive statistics were generated depending on the type of data being summarized. Mean and standard deviation were used for most

continuous variables, and categorical variables were reported with number and percentage. Comparative statistical analyses were not conducted. Missing data were excluded from the analysis and no imputation was conducted.

3. Results

3.1. Overview of study participants

A total of 50 physicians were included in the analysis, providing data for 199 PwO who were on a weight management program in Canada and/or had a BMI of ≥30 kg/m^2. Among the 199 PwO, 156 were receiving OMM and 43 were not. A total of 66 PwO completed a matched patient-reported questionnaire, of which 63 completed the WPAI. Of the 50 participating physicians, 35 (70.0 %) were GPs and 15 (30.0 %) were endocrinologists. The most common settings for outpatient/ambulatory care consultations were in public (69.4 %) or private (24.2 %) offices, followed by public hospitals (6.1 %) and private hospitals (0.3 %).

Other healthcare professionals involved in the current weight management program for all 199 PwO included: nutritionist/dietitian/health coach (32.2 %), other GP (16.6 %), psychologist (7.5 %), psychiatrist (5.5 %), other endocrinologist (5.0 %), cardiologist (3.0 %), and other healthcare professionals (e.g. bariatric surgeon, nurse practitioner) (10.6 %). For 44.7 % of this population, no other healthcare professionals were involved in the management of obesity.

3.2. Demographic, clinical, and socio-economic characteristics of PwO

Demographic and clinical characteristics for all 199 PwO included in the study are summarized in Table 1. In general, the sample was predominantly middle-aged females with class 1 obesity. For 99 PwO with data available, the duration of time since diagnosis of obesity was <1 year for 21.2 %, 1–2 years for 30.3 %, 3–5 years for 19.2 %, and >5 years for 29.3 %.

ORCs were common in the study population (n = 199); 87.4 % had at least one ORC, with a median of 3.0 ORCs (interquartile range 1.0–4.0) [Table 1]. The most common ORCs were hypertension (38.7 %), dyslipidemia (29.6 %), depression (25.6 %), and type 2 diabetes (24.6 %); for most ORCs, about one-quarter to one-half were not controlled, according to the treating physician's assessment (Fig. 1).

Most of the 199 study participants (63.8 %) were working full-time. Less than half of study participants (47.7 %) had private insurance coverage and 40.2 % paid for obesity treatments out of pocket (n = 199; Table 1). Data on socio-economic status were available for 65 PwO; 30.8 % were classified as having low socio-economic status and 69.2 % had high socio-economic status. For the 20 PwO categorized as having low socio-economic status, 11 (55.0 %) had private insurance coverage and 6 (30.0 %) paid for obesity treatment costs out of pocket. For the 45 PwO with high socio-economic status, 30 (66.7 %) had private insurance coverage and 13 (28.9 %) paid out of pocket for obesity treatment.

Physician-reported data available for 109 PwO showed the number of weight loss attempts in the past 3 years was most commonly one (28 %) or two (23 %) but was five or more in 17 % (Table 1). The mean (SD) number of weight loss attempts over the past 3 years was 2.9 (1.9). Physicians provided a description of the weight loss journey to date for 78 PwO, the most common being (i) slow weight loss with maintenance of weight loss to current day (35.9 %); (ii) slow weight loss but then re-gained weight since (26.9 %); and (iii) never succeeded in losing any weight (20.5 %). Physician-reported PwO data showed that the most common lifestyle approaches previously used were the PwOs' own diet and exercise regime (Table 1). Previous attempts at weight reduction also included natural remedies or over-the-counter medications, other non-prescription weight loss medications, or prescription medications (Table 1).

Table 1
Demographic and clinical characteristics of study participants with obesity who were on a weight management program in Canada (physician-reported data based on records of consulting PwO, unless indicated otherwise).

Characteristic	Overall study population (n = 199)[a]
Age[a], mean (±SD), years	48.7 (±13.3)
Female, n (%)	127 (63.8)
BMI at diagnosis[a], mean (±SD), kg/m^2	37.5 (±7.7)
BMI currently[a], mean (±SD), kg/m^2	36.3 (±7.7)
BMI category[a], n (%)	
Overweight (BMI 25.0–29.9 kg/m^2)	17 (8.6)
Class 1 (BMI 30.0–34.9 kg/m^2)	63 (32.0)
Class 2 (BMI 35.0–39.9 kg/m^2)	58 (29.4)
Class 3 (BMI ≥40 kg/m^2)	47 (23.9)
Normal (BMI ≥18.5 to <25 kg/m^2) or underweight (BMI <18.5 kg/m^2)	12 (6.1)
Time since diagnosis of obesity[a], n (%)	
<1 year	21 (21.2)
1–2 years	30 (30.3)
3–5 years	19 (19.2)
>5 years	29 (29.3)
Consultations in past year for obesity[a,b], mean (±SD)	
With GP	2.4 (±2.4)
With endocrinologist	0.6 (±1.1)
Number of weight-loss attempts in the past 3 years[a], n (%)	
1	30 (27.5)
2	25 (22.9)
3	22 (20.2)
4	13 (11.9)
≥5	19 (17.4)
Number of weight-loss attempts in the past 3 years[a], mean (±SD)	2.9 (1.9)
Description of weight-loss journey[a], n (%)	
Slow weight loss with maintenance of weight loss to current day	28 (35.9)
Slow weight loss but then re-gained weight since	21 (26.9)
Never succeed in losing any weight	16 (20.5)
Rapid weight loss but then re-gained weight since	7 (9.0)
Rapid weight loss with maintenance of weight loss to current day	6 (7.7)
Previous methods of weight loss previously used, n (%)	
PwO's own diet	165 (82.9)
PwO's own exercise regime	140 (70.4)
Other (e.g. natural remedies, over-the-counter medications, other non-prescription weight loss medications, prescription medications)	≤51 (≤25.6)
Ethnicity, n (%)	
White	135 (67.8)
African American	13 (6.5)
Asian Indian subcontinent	13 (6.5)
Chinese	13 (6.5)
Asian other	7 (3.5)
Other	18 (9.0)
Number of obesity-related complications at data collection, median (IQR)	3.0 (1.0–4.0)
≥1 obesity-related complication, n (%)	174 (87.4)
Family history of risk factors (most common), n (%)	
Type 2 diabetes	76 (38.2)
Hypertension	73 (36.7)
Obesity in one parent	50 (25.1)
Dyslipidemia	48 (24.1)
Depression	42 (21.1)
Obesity in two parents	39 (19.6)
Employment status, n (%)	
Working full-time	127 (63.8)
Working part-time	17 (8.5)
Not working	55 (27.6)
Insurance status for obesity treatment[c], n (%)	
Out of pocket by patient	80 (40.2)
Public insurance coverage	30 (15.1)
Private insurance coverage	95 (47.7)
Socio-economic status[a,d], n (%)	
High	45 (69.2)
Low	20 (30.8)

Abbreviations: BMI = body mass index; GP = general practitioner; IQR = interquartile range; PwO = people with obesity; SD = standard deviation.

[a] Base number was lower than n = 199 for the following: age (n = 198), BMI at diagnosis (n = 159), current BMI and BMI category (n = 197), time since diagnosis (n = 99), consultations in past year with GP (n = 64) or endocrinologist (n = 62), number of weight-loss attempts in the past 3 years (n = 109), description of weight-loss journey (n = 78), socio-economic status (n = 65).
[b] Reported by PwO.
[c] Responses were not mutually exclusive.
[d] Socio-economic status was based on insurance, education, and employment status.

3.3. Treatment goals and rationale

Most PwO (61.3 %) did not have an established weight reduction target from their physician for the current weight reduction attempt (n = 199). The most common physician-reported goals of treatment for the 199 PwO were to improve overall quality of life (75.9 %), mobility (50.3 %), and mental health (46.2 %).

When looking at reasons for initiating weight-reduction treatment (primarily prescription OMM) among all 199 PwO in the study, 34.2 % was due to worsening ORCs and 32.2 % was because of complications that could put their health at risk (Fig. 2). For a small proportion of PwO (6.5 %), the physician-reported reason for starting weight-reduction treatment was that weight/BMI could lead to future health risks despite the current absence of ORCs. However, it is noteworthy that only 12.6 % of the overall cohort of PwO had no ORCs.

When looking specifically at data for 111 PwO who were deemed candidates for a new weight reduction medication, physicians indicated that the top three reasons were: (i) PwO's BMI was high enough to require OMM (48.6 %); (ii) existing treatments were not managing weight loss well (47.7 %); and (iii) PwO willing to change management approach (46.8 %). Reasons for 20 PwO who were not deemed candidates included existing treatments were managing weight loss well (n = 12; 60.0 %) and PwO unwilling to change management approach (n = 5;

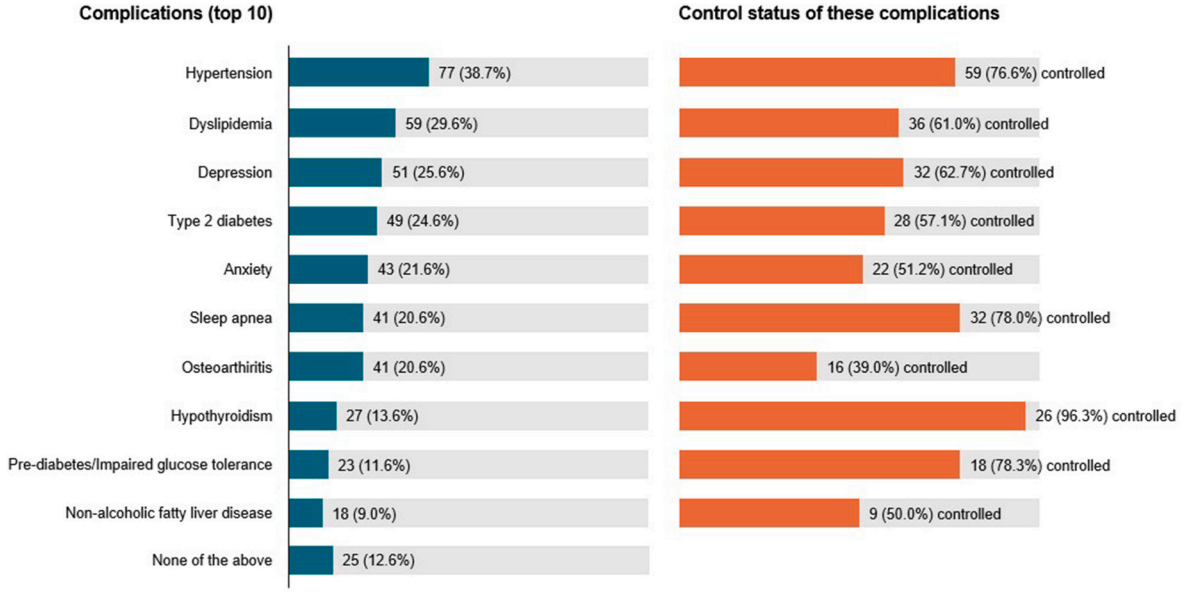

Fig. 1. Most common physician-reported obesity-related complications and their control status (n = 199 people with obesity).

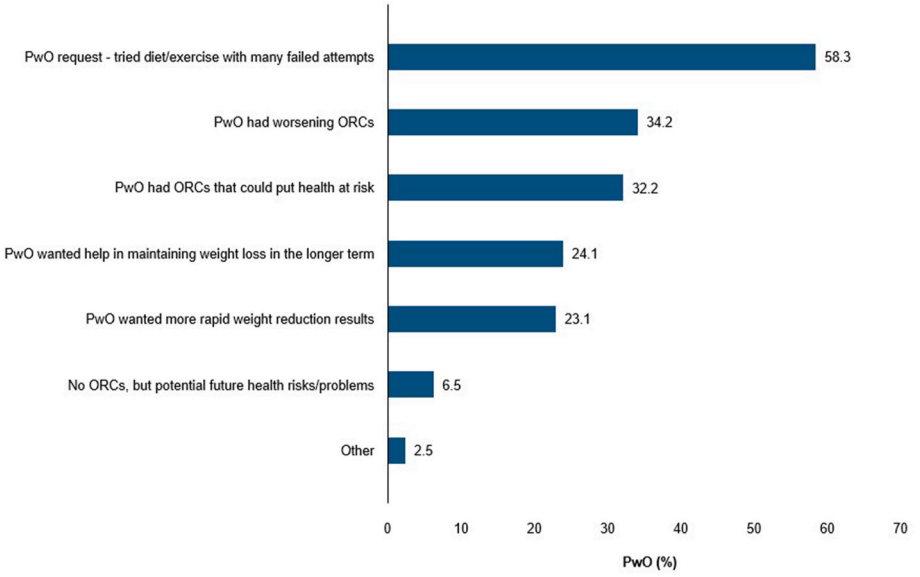

Fig. 2. Physician-reported reasons for starting current weight reduction attempt (n = 199 PwO).
Abbreviations: ORC = obesity-related complication; PwO = people with obesity.

25.0 %).

3.4. Patient-reported outcome measures (PROMs)

For the overall cohort of PwO who provided PROMs via the WPAI questionnaire (n = 37–63, depending on each specific question), mean values for percentage of work time missed due to obesity status was 3.8 %, percentage of impairment while working due to obesity status was 25.1 %, percentage of overall work impairment due to obesity status was 27.4 %, and percentage of activity impairment due to obesity status was 31.7 %. In general, there appeared to be a trend towards greater work and activity impairment among people with common ORCs, although no comparative statistical analyses were conducted (Fig. 3).

4. Discussion

This study presents real-world data on demographic and clinical characteristics, including ORCs, as well as prescribing rationale, treatment goals, activity and work impact results, and barriers/drivers associated with treatment for adults with obesity in Canada. The study population was similar to the general Canadian population in terms of ethnicity [23], and clinical characteristics, such as ORCs, were prevalent as expected for PwO. All study participants were on a weight management program, most were working full-time, almost half had private insurance coverage, ≈40 % paid out-of-pocket expenses for obesity management, and almost 70 % qualified as having high socio-economic status. This potential discrepancy highlights health inequalities in access to clinical weight management that were previously described [7,14,24]. People living in less affluent circumstances are more likely to experience overweight and obesity [14] and are at the same time less likely to access weight management resources [25], potentially resulting in reduced opportunities to achieve optimal health. Accordingly, a survey of Canadians living with obesity identified environmental context and resources as the principal barrier for weight management, and improved financial support as the main way to support PwO [8]. Since obesity is not treated within a chronic disease framework across Canada, there is minimal financial coverage of medically supervised programs and prescription of OMM, and limited access to professional support like nutritionists and kinesiologists due to lack of coverage and/or unavailability of interdisciplinary teams, highlighting the limited resource accessibility and financial challenges faced by PwO [5]. There may also be a misconception that obesity results from poor individual choices, driving stigmatization and discrimination, further reinforcing health inequities. This stigmatization is not limited to healthcare professionals, as there is also evidence of internalized stigma from the PwO [26].

More than 85 % of PwO in our study had ≥1 ORC and the mean number of ORCs was 2.8, with the most common being hypertension, dyslipidemia, depression, type 2 diabetes, and anxiety. For a substantial proportion of study participants, ORCs were uncontrolled, highlighting the need for treating obesity as a disease and the importance of preventing the development of ORCs. In addition, the presence of ORCs impacted the likelihood of treatment of obesity. For example, common reasons reported by physicians for starting the current weight loss attempt were that consulting PwO had worsening ORCs and/or ORCs that could put their health at risk. When physicians were asked for the reasons why the current weight reduction attempt was started, they reported only 6.5 % of the overall cohort of PwO received OMMs to prevent ORCs, suggesting OMM initiation is driven by presence of ORCs. These findings suggest that, in many cases, physicians may be waiting until PwO have complications to address obesity, rather than treating obesity as a chronic disease in its own right, with the goal of preventing complications in the future [5]. Another study in 2506 Canadian adults with obesity and at least one ORC found that only 9.2 % reported having received medically supervised obesity treatment and of those who reported discussing obesity with their provider, >30 % indicated they did not receive any treatment recommendations at all [26]. Some possible reasons why PwO who had ORCs were prioritized for treatment versus those without ORCs in our study could include: (i) physicians do not identify obesity as a disease in its own right; (ii) lack of efficacious OMMs available at the time of the study, resulting in physicians targeting the ORC; and (iii) physicians may not be aware of clinical practice guidelines or of optimal ways to treat PwO in an evolving landscape.

Results of the WPAI questionnaire in our study also suggest that obesity and related complications may be impacting activity and work productivity for some PwO. For example, among PwO who completed the WPAI questionnaire, the proportion of overall work impairment due to weight-related concerns was over 25 %. Unfortunately, the WPAI

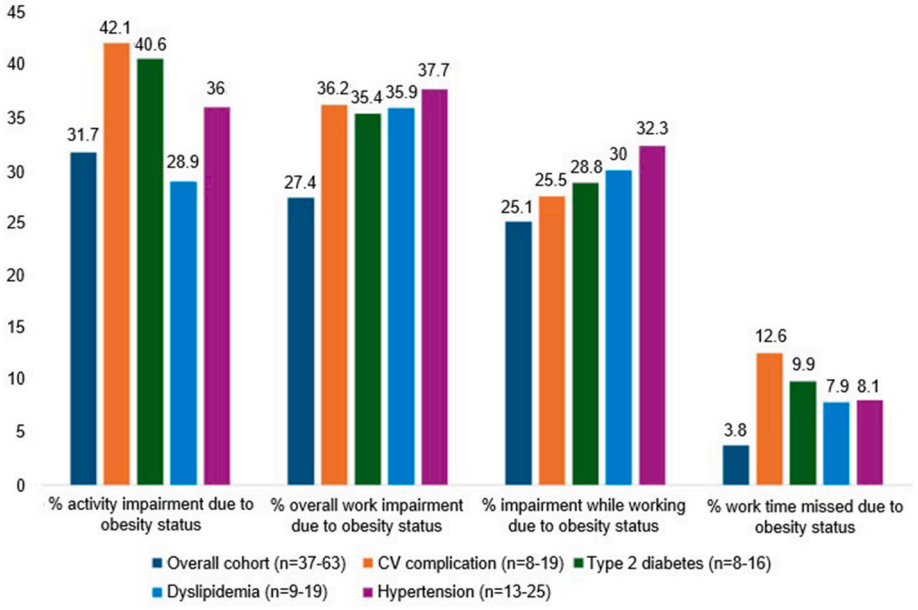

Fig. 3. Work Productivity and Activity Impairment (WPAI) questionnaire[a] (people with obesity).
[a]All participants were asked about activity impairment; only employed participants were asked about work impairment. Higher scores indicate greater impairment.
Abbreviation: CV = cardiovascular.

questionnaire does not provide insight regarding the nature of impairment, such as not being able to work as hard or unable to do certain tasks, or not being offered challenging assignments because of their obesity.

For approximately half of PwO with data available, the time since formal diagnosis of obesity was 2 years or less, although it is possible that PwO could have been living with disease for much longer but waited to consult a doctor or, as suggested earlier, were prompted to consult once ORCs developed. Additionally, our study provides insights on treatment patterns for the PwO who have access to a weight management program. Physician-reported data for individuals who were deemed candidates for a new weight reduction medication based on high BMI and existing treatment not managing weight loss well indicates that for many PwO, treatment efficacy was inadequate. Interestingly, the majority of participants did not have a weight reduction target for the current weight reduction attempt, but did have a quality-of-life goal, which is in line with current Canadian Obesity guidelines recommendations [4].

An important strength of the study is that it provides insight into demographic and clinical characteristics, including ORCs, as well as prescribing rationale, results of the WPAI questionnaire, and drivers/barriers to treatment in a real-world clinical practice setting in Canada. Although results of the study may have limited applicability to other countries, such as the United States, because of the unique healthcare insurance structure in Canada, the intention of the study – and an important strength – was to provide results that reflect the local situation considering the obesity landscape in Canada. In addition, the study used well-established Adelphi Real World DSP methodology that has been described in detail and validated in previous studies [17–20].

5. Limitations

The study also has limitations, including potential selection bias, as results for the study population may not be reflective of the overall population of PwO in Canada, many of whom may not have access to or be receiving any treatment for obesity [5]. To reduce selection bias, physicians were instructed to include the next 3 (GPs) or 5 (endocrinologists) consecutive consulting PwO who met the eligibility criteria. The DSP only includes PwO who consult with their physicians and are accessing healthcare. PwO not accessing healthcare are not represented. PwO not consulting might have a lower likelihood of being included and PwO who consult more frequently (and hence more severe) might have a higher likelihood of being included. In addition, PwO inclusion was influenced by OMM prescribing status and may have contributed to generalisability to the general population with obesity in Canada. Since the DSP is cross-sectional in nature with retrospective data capture (i.e., data were not captured longitudinally), it is not feasible to determine changes in the impact of obesity or changes in treatment effectiveness over time. Nevertheless, a current 'snapshot' of obesity management is important in highlighting relevant potential targets for improvement. In addition, the study was conducted prior to the broad uptake of newer generation OMMs such as semaglutide and tirzepatide, which have demonstrated substantial and sustained weight loss in PwO [27,28]. In general, OMMs available at the time of our analysis had limited efficacy (e.g. 14–59 % achieving $\geq$5 % reduction in bodyweight, based on a systematic review of the literature) [29]. The introduction of newer therapies may change access to treatment for some PwO, although at the time of data collection and analysis there are still no OMMs reimbursed by public payers in Canada and limited private payer coverage; therefore, the level of uptake by prescribers and use of newer and more efficacious OMMs by PwO in the coming years is unclear, and future research is warranted. Although recall bias may be a limitation in a survey-based study, electronic patient medical records were an integral part of data collection, thereby minimizing recall bias in this analysis.

Additional limitations include that physician participation may have been affected by willingness to complete the survey, and results from the WPAI questionnaire should be interpreted with caution due to the small sample size. PROMs including the WPAI questionnaire were provided voluntarily by PwO, which could contribute to selection bias because these people may have been more motivated or experiencing greater impairment than the overall study population. Data on socio-economic status was based on education, insurance, and employment, but not income; therefore, it is possible that some PwO had high income but were not working (e.g. due to family income) and classified as having low socio-economic status. In the study sample of PwO in clinical practice, almost 70 % had high socio-economic status and approximately 40 % paid out of pocket for OMM, which is reflective of the DSP population as described above, however, may not represent the general population with obesity in Canada. Although the study was not designed to examine the characteristics of the cohort relative to the Canadian general population nor test any specific hypothesis, these findings may suggest that the PwO in this analysis represent a relatively privileged cohort. The DSP survey did not collect data on income or household size. Socio-economic status was based on education, insurance and employment, as data on household income is difficult to obtain in these surveys. In addition, the study relied on a convenience sample of physicians managing and treating PwO, which may not represent the overall spectrum of healthcare providers across Canada who give care to PwO. The study used only descriptive statistics, and no comparative statistical analyses, multivariate analyses or adjustments for potential confounders were conducted. Although data were derived using validated DSP methodology, much of the information came from physician-reported questionnaires, and approximately one-third of PwO included in the analysis provided information directly.

6. Conclusion

- ORCs were common, often uncontrolled, and their presence impacted the likelihood of OMM treatment and possibly impaired work productivity. Medical treatment for obesity was often delayed until ORCs developed, suggesting that preventative healthcare measures are not the norm for PwO in Canada.
- The demographics of PwO accessing weight management treatment in this study (i.e. high SES with access to private coverage) is not aligned with the demographics most likely to suffer from obesity (lower SES), suggesting inequitable access to treatment.
- Despite participation in a weight management program, limited success in weight reduction was reported in PwO participating in our study. New and effective OMMs have been approved since the study was conducted, although equitable access to these treatments remains uncertain. Effective treatment needs to be accessible for all Canadians who require it, which can be supported with additional education for physicians and access for PwO.

Author contributions

Jennifer Glass: Conceptualization; Formal analysis; Investigation; Roles/Writing - original draft; Writing - review & editing.

Sophie Carter: Conceptualization; Formal analysis; Investigation; Methodology; Roles/Writing - original draft; Writing - review & editing.

Esther Artime: Conceptualization; Formal analysis; Investigation; Methodology; Writing - review & editing.

Victoria Higgins: Data curation; Formal analysis; Investigation; Methodology; Writing - review & editing.

Lewis Harrison: Data curation; Formal analysis; Investigation; Methodology; Writing - review & editing.

Andrea Leith: Data curation; Formal analysis; Investigation; Methodology; Writing - review & editing.

David CW Lau: Formal analysis; Writing - review & editing.

Ian Patton: Formal analysis. Writing - review & editing.

Jennifer L Kuk: Formal analysis. Writing - review & editing.

All authors performed critical revision of the work and all reviewed,

edited, and approved the final submission and publication.

Ethics

Informed consent was provided by all respondents, and ethics exemption was obtained from the Pearl Institutional Review Board (Protocol #22-ADRW-136), in accordance with FDA 21 CFR 56.104 and 45CFR46.104 regulations, as this was a survey-based analysis of an anonymized database. No medication was provided and no tests or investigations were performed as part of this research. No hypothesis was developed or tested.

Artificial intelligence (AI)

Artificial intelligence (AI) and AI-assisted technologies were not utilized in the writing process.

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Declaration of competing interests

JG, SC, and EA are employees and/or minor shareholders of Eli Lilly & Company.

VH, LH, and AL are employees of Adelphi Real World.

DL has received clinical trial funding from Amgen, Boehringer Ingelheim and Novo Nordisk, and honoraria as consultant/speaker for Amgen, Boehringer Ingelheim, CME at Sea, Eli Lilly, HLS Therapeutics, Novartis, Novo Nordisk, Viatris, and Zealand Pharma.

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JK has no competing interests to declare.

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Appendix A. Supplementary data

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References

[1] Blüher M. Obesity: global epidemiology and pathogenesis. Nat Rev Endocrinol 2019;15:288–98. https://doi.org/10.1038/s41574-019-0176-8.
[2] World health organization obesity and overweight. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight; 2024.
[3] M.M.A.. Yuen Health complications of obesity: 224 Obesity-associated comorbidities from a mechanistic perspective. Gastroenterol Clin North Am 2023; 52:363–80. https://doi.org/10.1016/j.gtc.2023.03.006.
[4] Wharton S, Lau DCW, Vallis M, et al. Obesity in adults: a clinical practice guideline CMAJ, vol. 192; 2020. p. E875–91. https://doi.org/10.1503/cmaj.191707.
[5] Obesity Canada report card on access https://obesitycanada.ca/wp-content/uploads/2019/05/OC-Report-Card-2019-English-Final.pdf.
[6] Obesity in Canada – determinants and contributing factors. https://www.canada.ca/en/public-health/services/health-promotion/healthy-living/obesity-canada/factors.html.
[7] Statistics Canada 2018 Overweight and obese adults. https://www150.statcan.gc.ca/n1/en/pub/82-625-x/2019001/article/00005-eng.pdf?st=ezz4wOXW; 2018.
[8] Lau DCW, Patton I, Lavji R, et al. Obesity management from the perspectives of people living with obesity in Canada: a mixed. Methods Stud Diabetes Obes Metab 2024;26:1529–39. https://doi.org/10.1111/dom.15455.
[9] Brown J, Clarke C, Johnson Stoklossa C, et al. Canadian adult obesity clinical practice guidelines: medical nutrition therapy in obesity management. Version 1. August 4, 2020. https://obesitycanada.ca/guidelines/nutrition.
[10] Sharma AM. Inequalities in access to bariatric surgery. Canada CMAJ 2016;188: 317–8. https://doi.org/10.1503/cmaj.150697.
[11] Biertho L, Hong D, Gagner M. Canadian adult obesity clinical practice guidelines bariatric surgery: surgical options and outcomes. https://obesitycanada.ca/guidelines/surgeryoptions; 2024.
[12] Kotsopoulos N, Connolly MP. Assessing the fiscal burden of obesity in Canada by applying a public economic framework. Adv Ther 2024;41:379–90. https://doi.org/10.1007/s12325-023-02718-4.
[13] Runge CF. Economic consequences of the obese. Diabetes 2007;56:2668–72. https://doi.org/10.2337/db07-0633.
[14] Pan-Canadian Public Health Network. Inequalities in obesity in Canada. https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/science-research-data/8.Obesity-EN_final.pdf; 2019.
[15] Padula WV, Allen RR, Nair KV. Determining the cost of obesity and its common comorbidities from a commercial claims database Clin Obes, vol. 4; 2014. p. 53–8. https://doi.org/10.1111/cob.12041.
[16] Pearson-Stuttard J, Banerji T, Capucci S, et al. Real-world costs of obesity-related complications over eight years: a US retrospective cohort study in 28,500 individuals. Int J Obes 2023;47:1239–46. https://doi.org/10.1038/s41366-023-01376-4.
[17] Anderson P, Benford M, Harris N, et al. Real-world physician and patient behaviour across countries: disease-specific programmes - a means to understand. Curr Med Res Opin 2008;24:3063–72. https://doi.org/10.1185/03007990802457040.
[18] Anderson P, Higgins V, Courcy J, et al. Real-world evidence generation from patients, their caregivers and physicians supporting clinical, regulatory and guideline decisions: an update on disease-specific programmes. Curr Med Res Opin 2023;39:1707–15. https://doi.org/10.1080/03007995.2023.2279679.
[19] Babineaux SM, Curtis B, Holbrook T, et al. Evidence for validity of a national physician and patient-reported, cross-sectional survey in China and UK: the Disease-Specific Programme. BMJ Open 2016;6:e010352. https://doi.org/10.1136/bmjopen-2015-010352.
[20] Higgins V, Piercy J, Roughley A, et al. Trends in medication use in patients with type 2 diabetes mellitus: a long-term view of real-world treatment between 2000 and 2015 Diabetes Metab. Syndr Obes 2016;9:371–80. https://doi.org/10.2147/DMSO.S120101.
[21] Reilly MC, Zbrozek AS, Dukes EM. The validity and reproducibility of a work productivity and activity impairment instrument. Pharmacoeconomics 1993;4: 353–65.
[22] Zhang W, Bansback N, Boonen A, et al. Validity of the work productivity and activity impairment questionnaire – general health version in patients with rheumatoid. Arthritis Arthritis Res Ther 2010;12:R177.
[23] Statista Research Department Population breakdown in Canada 2011-2016, by ethnic origin https://www.statista.com/statistics/996865/population-canada-ethnic-origin/.
[24] Leal C, Chaix B. The influence of geographic life environments on cardiometabolic risk factors: a systematic review, a methodological assessment and a research agenda. Obes Rev 2011;12:217–30. https://doi.org/10.1111/j.1467-789X.2010.00726.x.
[25] Coupe N, Cotterill S, Peters S. Enhancing community weight loss groups in a low socioeconomic status area: application of the COM-B model and Behaviour Change Wheel. Health Expect 2022;25:2043–55. https://doi.org/10.1111/hex.13325.
[26] Patton I, Salas XR, Hussey B, et al. Patient perceptions about obesity management in the context of concomitant care for other chronic diseases. Obes Pillars 2023;8: 100089. https://doi.org/10.1016/j.obpill.2023.100089.
[27] Wilding JPH, Batterham RL, Calanna S S, et al. STEP 1 Study Group Once-weekly semaglutide in adults with overweight or obesity. N Engl J Med 2021;384: 989–1002. https://doi.org/10.1056/NEJMoa2032183.
[28] Jastreboff AM, Aronne LJ, Ahmad NN, et al. SURMOUNT-1 Investigators Tirzepatide once weekly for the treatment of obesity. N Engl J Med 2022;387: 205–16. https://doi.org/10.1056/NEJMoa2206038.
[29] Ahmad NN, Robinson S, Kennedy-Martin T, et al. Clinical outcomes associated with anti-obesity medications in real-world practice: a systematic literature review. Obes Rev 2021;11:e13326. https://doi.org/10.1111/obr.13326.