

Differences in Perspectives of Weight Management Among People in the US and Canada with Type 2 Diabetes by Body Mass Index

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Purpose: The link between type 2 diabetes (T2D) and obesity is well established; guidelines for treating T2D include recommendations to support healthy weight reduction. This study explored the perspectives of people in the US and Canada with T2D across BMI categories regarding the perceived value of reaching a lower weight and how this would impact their lives.

Patients and Methods: A quantitative cross-sectional survey informed by a targeted literature review and qualitative interviews was administered in English to adults in the US and Canada with T2D. Enrollment ensured a sample representative of the T2D population by BMI (per US census data). The survey explored weight management experience, impacts of T2D and weight on quality of life (QOL), and perceived value of 5%/10%/20% weight reductions. Results were summarized descriptively. Chi-squared tests and *t*-tests assessed significant differences between BMI categories ($p < 0.05$).

Results: The 746 participants had a mean (SD) BMI of 32.8 kg/m² (8.2). Nearly all (93%) felt weight management was important to managing their T2D, regardless of BMI. Most (66%) reported currently thinking about and trying to lose weight at least multiple times each week over the last 2 years, especially those with higher BMIs ($p < 0.001$). Higher BMI was also associated with more impacts of weight on T2D (emotional well-being, medical/health complications, physical/mobility limitations, sleep, daily activities, social and financial). Participants with higher BMIs desired greater weight reduction than those with lower BMIs when defining dream, achievable, acceptable and unsuccessful weight goals and were more likely to expect positive and meaningful impacts on their life with 5%/10%/20% weight reductions.

Conclusion: Participants with T2D positively valued weight reduction and anticipate it to lead to improvements in their overall T2D management and QOL. As the percentage of weight reduction increased, those with higher BMIs perceived greater meaningfulness and more positive impacts.

Keywords: patient perspectives, weight management, type 2 diabetes

Background

Type 2 diabetes (T2D) is characterized by an increase in blood glucose due to insulin resistance or insufficient production of insulin. It affects approximately 35 million Americans and three million Canadians.^{1–3} Obesity, defined by a body mass index (BMI) ≥ 30 kg/m², or overweight, defined by a BMI of 25–29.9 kg/m², affects approximately 90% of people diagnosed with T2D. These conditions have been shown to be modifiable risk factors associated with both the progression and complications of T2D.⁴ Previous research has shown that obesity can lead to insulin resistance and reduced insulin production, preventing proper management of blood glucose levels. This results in T2D complications and is independently associated with a two-fold increase in the risk of cardiovascular disease.

Professional associations in North America, including the American Diabetes Association (ADA)⁵ and Diabetes Canada,⁶ recommend weight reduction for those with overweight or obesity and T2D to improve health and prevent or improve other comorbidities. Prior research has shown that weight changes and control are challenges for many people

with T2D, despite the recognized importance of weight management.^{7,8} While weight reduction has been seen as an important target of T2D treatment,⁸ a study of Australians with T2D found a positive association between BMI and weight control burden.⁹ New pharmacotherapies for T2D, such as sodium/glucose cotransporter-2 inhibitors (SGLT2), glucagon-like peptide 1 receptor agonists (GLP-1RAs), and glucose-dependent insulintropic polypeptides (GIPs)/GLP-1RAs, provide the benefit of both hemoglobin (Hb) A1C reduction and weight management. Some products have been approved in the US and Canada for weight management. The ADA 2025 Standards of Care recommend considering chronic weight management pharmacotherapy, specifically GLP-1RAs or GIP/GLP-1RAs, along with lifestyle modifications for people with T2D and overweight or obesity.

As new T2D clinical guidelines emphasize the importance of weight monitoring and sustained weight loss for people with overweight or obesity based on BMI categories, it is important to understand the value or importance that people with T2D place on achieving weight loss across all BMI levels.¹⁰ Additionally, existing evidence suggests that individuals with T2D and obesity report an increased burden associated with weight management, dietary adherence, and participation in recommended physical activity, which is largely attributable to weight-related health conditions.^{9,11} However, as not all individuals with T2D have overweight or obesity, it is necessary to determine whether these perspectives differ depending on an individual's BMI. With heterogeneity in body weight and therefore treatment considerations, analysis by BMI may support clinically meaningful interpretations of perspectives on and approaches to weight management.

This mixed-methods study implemented qualitative interviews to explore the depth and nuance of people with T2D's experiences with weight and weight management. The results of these interviews informed a quantitative survey to quantify the perspectives of a larger sample of people living with T2D on weight management and to explore differences in the perspectives of individuals of different BMI levels. As new treatments become available with variable weight reduction benefits, understanding the perceived value of different magnitudes of weight reduction is essential for supporting shared decision-making between people with T2D and their healthcare providers. This study used a cross-sectional online survey to better understand and to quantify the importance and potential impacts of reaching a lower weight or BMI level from the perspectives of people with T2D, comparing perspectives by BMI category.

Objective

The primary objective of this cross-sectional survey study was to better understand how the perspectives of people with T2D may differ depending on BMI with regards to:

- The perceived value of reaching a lower weight or BMI level.
- How achieving varying levels of weight loss would impact their life overall.

A companion manuscript describing the US-only results of this research, without subgroup or cross-country analyses, has been published previously;¹² the results of a Canada-specific analysis will be reported elsewhere. The present manuscript extends that work by including both US and Canadian participants and by providing novel subgroup analyses by BMI, offering additional insights into how perceptions of weight management vary across populations.

Methods

Study Design and Recruitment

This non-interventional study used mixed methods, including a targeted literature review (TLR) and qualitative interviews (n=30), to inform a quantitative online survey (n=746). The Ovid database was used to identify relevant papers, and double screening was conducted; discrepancies between two reviewers were resolved by a third. The TLR was conducted in March 2023 and was the basis of the semi structured discussion guide used during the interviews. Thematic concepts identified during concept elicitation were used to develop the 30-minute, online quantitative survey. Qualitative data from the interviews were used to develop the online survey; survey response options were reflective of the most endorsed themes in the interviews. Survey questions were multiple choice, ranking, and rating-type questions, and all

response options were fixed (ie, no free-text responses were permitted). The primary data collection modality for this study was a cross-sectional online survey as the goal was to quantify concepts identified in the literature and qualitative interviews among a sample of people living with T2D in the US and Canada across all BMI levels.

Eligible participants were ≥ 18 years old, resided in the US or Canada, and had a self-reported diagnosis of T2D. Individuals of all BMI levels were included in this study. Participants were excluded if they had any other type of diabetes at the time of consent, had insufficient knowledge of the English language, or were employed in the pharmaceutical industry or in a position with a direct role in treating people with diabetes. To determine BMI, participants reported their current height and weight (in pounds or kilograms according to their preference) into the eligibility screener. In the online survey, recruitment targets were implemented to obtain a sample reflective of the US T2D population in terms of BMI category distribution;¹³ data could not be found on the BMI distribution of the Canadian T2D population, so the recruitment targets for BMI were the same for both study countries to ensure recruitment across all BMI categories.

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki and was approved by a central institutional review board (IRB; Salus IRB Study number: 23171–01A; approval date: December 21, 2023). Participants were invited via Email and advertisements sent to online patient panelists and completed an online screening to confirm eligibility; participants who were not eligible were redirected away from the survey and could not continue. Eligible participants provided electronic informed consent before completing the online survey. Participants were recruited from October to November 2023 (qualitative interviews) and February to March 2024 (quantitative survey). Remuneration was provided for participation in line with fair market value.

Study Procedures

During the interviews, participants were asked about their perspectives weight, the importance of weight reduction, and expected impact of different magnitudes of weight reduction. The interview guide was used to develop the online survey, ensuring that response options reflected the themes most endorsed during the interviews. All survey response options were fixed (ie, no free-text responses were permitted) and were either multiple choice, ranking, or rating-type questions.

In the survey, participants were asked about their T2D and their experience managing it, the impact of T2D and weight on their life, and the importance of weight management in controlling their diabetes. Participants provided weights they viewed as their personal dream and goal, as well as acceptable and unsuccessful weights. They also discussed their experience managing their weight currently and over the past 2 years. Participants were asked about the emotional and mental impact of weight and weight loss efforts, and the extent to which their healthcare providers (HCPs) were involved in their weight-management efforts. Finally, participants were presented with 5%, 10%, and 20% weight reductions, calculated from their self-reported current weight and based on clinical guidelines and clinical data for levels of weight reduction associated with available and emerging T2D treatments. They were asked about the meaningfulness and impact that each level of weight reduction would have on their life, their expectations for positive impacts, and the extent to which their perceptions of their future with diabetes would change.

Participants reported their sociodemographic and clinical characteristics and completed the Everyday Discrimination Scale (EDS)¹⁴ and the EQ-5D-5L.^{15,16} The EDS captures self-reported frequency of discrimination experiences in everyday social situations. The EQ-5D-5L consists of five domains (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and a visual analog scale rating of health on the day of the survey (rating 0 to 100).

The questionnaires administered in the US and Canada were identical, except for some sections of the socio-demographic and clinical form and questions related to weight, where country-specific adjustments were made (eg, units for reporting information such as height, weight, and income ranges).

Analysis

Survey data were analyzed descriptively (eg, mean, median, standard deviation [SD], range for continuous variables, frequency, and percentages for categorical variables). Chi-squared tests and t-tests were used to test whether observed differences across BMI subgroups (without obesity or overweight [BMI ≤ 24.9 kg/m²], overweight [BMI 25–29.9 kg/m²], Class I obesity [BMI 30–34.9 kg/m²], Class II obesity [BMI 35–39.9 kg/m²], and Class III obesity [BMI > 40 kg/m²]) were statistically significant at the $P < 0.05$ level.

Results

In total, 746 individuals with T2D across BMI categories (US, $n=388$; Canada, $n=358$) completed the survey ([Table 1](#)). Participants in higher BMI categories were more likely to be younger, female, White, single, divorced, or separated; report their working status as disabled; have less educational attainment; and have a lower household income than those in lower BMI categories.

On average, participants were diagnosed with T2D 11.1 years (SD: 9.0) before completing the survey, with no significant differences by BMI. In the past year, the majority had discussed their heart health (69.3%), and fewer than half had discussed their joint health (44.1%) with the HCP managing their T2D. The majority self-reported their overall health as good-to-excellent (61.4%), but those in higher BMI categories rated their overall health more poorly than those in lower BMI categories ($P<0.001$). Nearly half of all participants reported an HbA1c of $<7\%$ (45.8%) and had some form of health insurance (97.2%) with no difference observed by BMI. Most participants had at least three comorbidities (68.2%), and participants with higher BMI reported more than those with lower BMI ($P<0.001$). While those with higher BMI were less likely to be treating their T2D with diet and exercise, they were more likely to be using insulin and oral tablets, and those with BMIs between 35 and 39.9 kg/m² were more likely to be using non-insulin injectables than those with lower BMI ($P<0.001$). Additional sample characteristics are presented in [Supplementary Table S1](#).

Impact and Perspectives of T2D and Weight Management

Most participants (83.5%) felt their T2D was impacted by their weight. Those with higher BMI were more likely to endorse the impact of weight on their diabetes with regards to their daily activities, emotional well-being, family life, medical/health complications, physical/mobility limitations, and sleep ([Figure 1](#); all, $P<0.001$).

While 40.4% of participants with a BMI <25 kg/m² believed that weight is not an issue at all for their T2D, this number decreased as BMI category increased ([Table 2](#)). Among those with a BMI >30 kg/m², 90.0% ($n=395/439$) felt that weight was an issue impacting their T2D. Participants with higher BMI were also more likely to be interested in reducing their weight, to be currently trying to lose weight, and to currently struggle to lose weight (all $P<0.001$). Additionally, those with higher BMI reported thinking about trying to lose weight more in the past 2 years and thinking about how an action or decision may affect their weight (all $P<0.001$). Further information on participants' weight management experiences is presented in [Supplementary Table S2](#).

Perspectives on Weight Reduction

Participants were asked to define and enter values for their personal dream weight, goal weight, acceptable weight, and unsuccessful weight if they were to reach and maintain these values. This was standardized across the sample by calculating it as a mean percentage change from participants' reported current weight.

As BMI increased, so did participants' desired weight reduction to achieve their goal, dream, and acceptable weights, as well as what they would consider unsuccessful ([Figure 2](#); all $P<0.001$). Notably, participants with a BMI ≤ 24.9 kg/m² defined an unsuccessful weight as one associated with weight gain rather than weight loss, and an acceptable weight as one similar to their current weight ($P<0.001$).

Value of a 5% Weight Reduction

The value of a 5% body weight reduction varied by BMI group ($P<0.001$) ([Figure 3A](#)). Participants with a BMI of 25–29.9 kg/m² were most likely to believe that a 5% weight reduction would be very to extremely meaningful, would somewhat or very positively impact their life, and would somewhat or very positively impact their perception of their future with T2D, whereas those with a BMI <25 kg/m² were least likely to endorse each of these beliefs.

Value of a 10% Weight Reduction

When asked about the value of a 10% weight reduction, a greater number of participants with higher BMI (≥ 30 kg/m²) anticipated that it would be very to extremely meaningful, would somewhat or very positively impact their life, and

Table 1 Sample Characteristics (n=746)

Characteristics	BMI <25 kg/ m ² (N=99; 13.3%)	BMI 25–29.9 kg/ m ² (N=208; 27.9%)	BMI 30–34.9 kg/ m ² (N=174; 23.3%)	BMI 35–39.9 kg/ m ² (N=155; 20.8%)	BMI ≥40 kg/ m ² (N=110; 14.7%)
Age (years),** mean (SD)	61.9 (14.4)	60.3 (13.6)	59.9 (13.1)	61.4 (10.8)	55.9 (12.4)
Sex at birth,*** female, n (%)	41 (41.4)	66 (31.7)	74 (42.5)	78 (50.3)	75 (68.2)
Country of residency, n (%)					
US	56 (56.6)	104 (50.0)	96 (55.2)	77 (49.7)	55 (50.0)
Canada	43 (43.4)	104 (50.0)	78 (44.8)	78 (50.3)	55 (50.0)
Racial background (pooled), n (%)					
White***	70 (70.7)	174 (83.7)	153 (87.9)	142 (91.6)	101 (91.8)
Other**	28 (28.3)	38 (18.3)	27 (15.5)	16 (10.3)	13 (11.8)
Prefer not to say	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Current HbA1c level, n (%)					
Less than 6.00%	10 (10.1)	24 (11.5)	17 (9.8)	15 (9.7)	15 (13.6)
6.00%–6.99%	35 (35.4)	84 (40.4)	54 (31.0)	56 (36.1)	31 (28.2)
7.00%–7.99%	33 (33.3)	61 (29.3)	55 (31.6)	45 (29.0)	31 (28.2)
8.00%–8.99%	12 (12.1)	18 (8.7)	25 (14.4)	13 (8.4)	16 (14.5)
9.00% or greater	2 (2.0)	15 (7.2)	12 (6.9)	8 (5.2)	11 (10.0)
Not sure	7 (7.1)	6 (2.9)	11 (6.3)	18 (11.6)	6 (5.5)
Body mass index (BMI),*** mean (SD)	22.2 (2.3)	27.3 (1.5)	32.3 (1.4)	37.3 (1.4)	47.2 (6.8)
Current T2D treatment, ^a n (%)					
Diet and exercise***	84 (84.8)	169 (81.2)	127 (73.0)	115 (74.2)	69 (62.7)
Insulin	23 (23.2)	58 (27.9)	46 (26.4)	34 (21.9)	39 (35.5)
Non-insulin injections***	23 (23.2)	41 (19.7)	42 (24.1)	61 (39.4)	40 (36.4)
Oral/tablets	67 (67.7)	136 (65.4)	120 (69.0)	109 (70.3)	84 (76.4)
1 oral medications ¹	37 (55.2)	64 (47.1)	73 (60.8)	44 (40.4)	43 (51.2)
2 oral medications ¹	20 (29.9)	49 (36.0)	32 (26.7)	44 (40.4)	30 (35.7)
3 or more oral medications ¹	10 (14.9)	23 (16.9)	15 (12.5)	21 (19.3)	11 (13.1)
Not applicable	32 (32.3)	72 (34.6)	54 (31.0)	46 (29.7)	26 (23.6)
Number of self-reported health conditions,*** n (%)					
0	15 (15.2)	19 (9.1)	6 (3.4)	4 (2.6)	–
1	20 (20.2)	33 (15.9)	18 (10.3)	10 (6.5)	6 (5.5)
2	20 (20.2)	39 (18.8)	21 (12.1)	20 (12.9)	6 (5.5)
3+	44 (44.4)	117 (56.2)	129 (74.1)	121 (78.1)	98 (89.1)
Self-reported overall health,*** n (%)					
Excellent	2 (2.0)	6 (2.9)	2 (1.1)	–	–
Very good	27 (27.3)	49 (23.6)	20 (11.5)	11 (7.1)	6 (5.5)
Good	41 (41.4)	104 (50.0)	85 (48.9)	72 (46.5)	34 (30.9)
Fair	24 (24.2)	41 (19.7)	59 (33.9)	62 (40.0)	47 (42.7)
Poor	5 (5.1)	8 (3.8)	8 (4.6)	10 (6.5)	23 (20.9)
Everyday discrimination score, mean (SD),^{1,4} b***	10.4 (6.8)	12.2 (8.6)	12.9 (7.3)	12.9 (7.2)	16.7 (8.5)
EQ-5D-5L utility index, c*** mean (SD),^{15,16}	0.708 (0.239)	0.800 (0.182)	0.761 (0.223)	0.715 (0.222)	0.701 (0.206)
EQ-5D-5L VAS,*** mean (SD)	61.617 (20.824)	68.424 (22.121)	68.019 (18.609)	61.345 (19.973)	59.142 (18.363)

Notes: P values represent chi-squared tests for categorical variables and t-tests for continuous variables to test for differences across BMI groups. ** Indicates $P < 0.05$; *** Indicates $P < 0.001$. ^aIndicates question is not exclusive. ^bThe Everyday Discrimination Scale is scored by reverse coding all items and adding the total, such that higher scores indicate more frequent experiences of discrimination. ^cEQ-5D-5L: The US/Canada tariffs to compute the utility score were obtained from the EQ-5D R package, which was developed by the EuroQol group with the following command: EQ5D (scores, country=version="5L", type="VT"). The EQ5D package allows for calculation of utility index scores from a subject's dimension scores, using country-specific value sets. The value sets in the EQ-5D package are available for many countries and have been produced using the time trade-off valuation technique supplemented by a discrete choice experiment (DCE). ¹Denominator is those taking oral medications

Abbreviations: BMI, body mass index; SD, standard deviation; T2D, type 2 diabetes; US, United States; VAS, visual analogue scale; HbA1c, glycated haemoglobin.

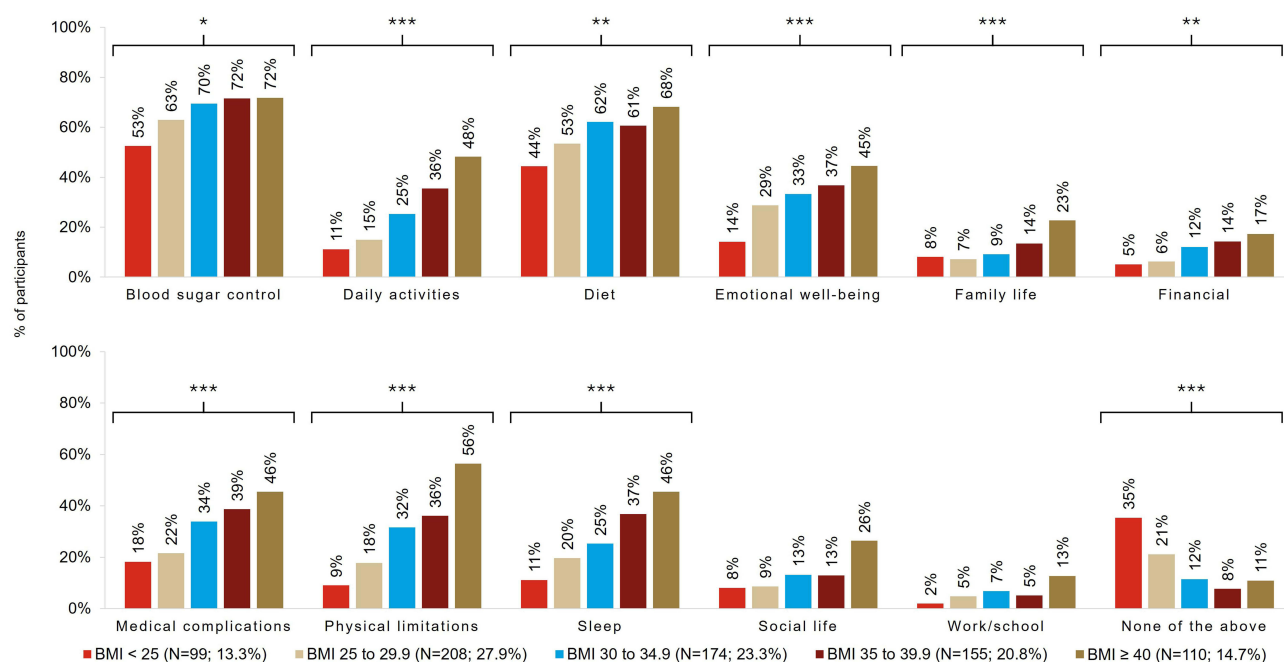


Figure 1 Impact of Weight on T2D (n=746). *P* values represent chi-squared tests for categorical variables and *t*-tests for continuous variables to test for differences across BMI groups. * Indicates $P < 0.05$; **Indicates $P < 0.01$; *** Indicates $P < 0.001$.

Abbreviations: BMI, body mass index; T2D, type 2 diabetes.

would somewhat or very positively impact their perception of their future with T2D (all $P < 0.001$; Figure 3B) compared with those with a BMI $< 30 \text{ kg/m}^2$.

Value of a 20% Weight Reduction

The value of a 20% body weight reduction varied significantly by BMI group ($P < 0.001$) (Figure 3C). Those with a BMI $\geq 35 \text{ kg/m}^2$ were more likely to expect the reduction to be very or extremely meaningful, to have a somewhat or very positive impact on their life, and to have a somewhat or very positive impact on their perception of their future with T2D compared with those with a lower BMI. Participants with a BMI $< 25 \text{ kg/m}^2$ were significantly less likely to expect a very or extremely meaningful impact, a positive impact on their life, or a positive impact on their perception of their future with T2D.

Discussion

This is the first known study conducted in the US and Canada to explore the perceptions of weight, T2D, and weight reduction among people with T2D across all BMI levels. All efforts were made to recruit a sample for this study that was reflective of the weight distribution of people with T2D in the US, supporting the representativeness of this study for the experiences of people with T2D across the weight spectrum.

Consistent with previous research, this study found that people with T2D across different BMI categories feel that weight management is important to T2D management.^{7,8,11} In analyzing the data by BMI category, a significant relationship between a higher BMI and an increased burden of weight management was found. Those with higher BMI were more likely to report that their weight was an issue impacting their T2D, report more impacts of T2D on quality of life, and report more impacts of their weight on their T2D. Previous research found that a higher BMI is associated with negative clinical and psychological outcomes in patients with T2D.^{7,8} This may contribute to a stronger perceived linkage between body weight and diabetes management among individuals with higher BMI, as shown in the present study. Those with higher BMI thought about losing weight more often in the past 2 years and more frequently considered how their actions would affect their weight during the day. While other research has demonstrated the impacts of weight stigma on weight reduction and as a determinant of health,^{17,18} the results of the present study suggest that

Table 2 T2D and Weight Management (N=746)

	BMI <25 kg/ m² (N=99; 13.3%)	BMI 25–29.9 kg/ m² (N=208; 27.9%)	BMI 30–34.9 kg/ m² (N=174; 23.3%)	BMI 35–39.9 kg/ m² (N=155; 20.8%)	BMI ≥40 kg/ m² (N=110; 14.7%)
To what extent do you believe that your weight is an issue impacting your type 2 diabetes?, *** n (%)					
Not at all an issue	40 (40.4)	25 (12.0)	4 (2.3)	2 (1.3)	5 (4.5)
Somewhat an issue	33 (33.3)	90 (43.3)	55 (31.6)	39 (25.2)	10 (9.1)
Very much an issue	22 (22.2)	63 (30.3)	86 (49.4)	80 (51.6)	49 (44.5)
An extreme issue	4 (4.0)	30 (14.4)	29 (16.7)	34 (21.9)	46 (41.8)
Desired changes in weight***					
Not at all interested	35 (35.4)	15 (7.2)	3 (1.7)	1 (0.6)	2 (1.8)
Somewhat interested	27 (27.3)	56 (26.9)	31 (17.8)	30 (19.4)	15 (13.6)
Very interested	21 (21.2)	68 (32.7)	63 (36.2)	60 (38.7)	29 (26.4)
Extremely interested	16 (16.2)	69 (33.2)	77 (44.3)	64 (41.3)	64 (58.2)
Do you currently struggle with changing your weight?, *** n (%)					
No, I do not currently struggle with changing my weight	48 (48.5)	63 (30.3)	14 (8.0)	12 (7.7)	7 (6.4)
Yes, I currently struggle to lose weight	33 (33.3)	142 (68.3)	159 (91.4)	140 (90.3)	101 (91.8)
Yes, I currently struggle to gain weight	18 (18.2)	3 (1.4)	1 (0.6)	3 (1.9)	2 (1.8)
Which of the following best describes your efforts to lose weight?, *** n (%)					
I am currently trying to lose weight	36 (36.4)	147 (70.7)	126 (72.4)	112 (72.3)	74 (67.3)
I have tried to lose weight in the past 2 years, but not currently	21 (21.2)	32 (15.4)	31 (17.8)	25 (16.1)	20 (18.2)
I have tried to lose weight more than 2 years ago	15 (15.2)	17 (8.2)	11 (6.3)	15 (9.7)	15 (13.6)
I have never tried to lose weight	27 (27.3)	12 (5.8)	6 (3.4)	3 (1.9)	1 (0.9)
How many different weight loss attempts have you made in the past 2 years?, ^a n (%)					
	n=57	n=179	n=157	n=137	n=94
1 weight loss attempt	23 (40.4)	56 (31.3)	42 (26.8)	37 (27.0)	22 (23.4)
2–5 weight loss attempts	24 (42.1)	103 (57.5)	91 (58.0)	75 (54.7)	52 (55.3)
6–10 weight loss attempts	5 (8.8)	12 (6.7)	12 (7.6)	12 (8.8)	10 (10.6)
More than 10 weight loss attempts	5 (8.8)	8 (4.5)	12 (7.6)	13 (9.5)	10 (10.6)
In the past 2 years, how often have you thought about trying to lose weight?, *** n (%)					
Never	28 (28.3)	10 (4.8)	3 (1.7)	–	3 (2.7)
Daily	17 (17.2)	47 (22.6)	63 (36.2)	57 (36.8)	48 (43.6)
Multiple times a week	21 (21.2)	75 (36.1)	63 (36.2)	47 (30.3)	37 (33.6)
Once or twice a month	19 (19.2)	41 (19.7)	26 (14.9)	31 (20.0)	17 (15.5)
Once every 3 months	6 (6.1)	22 (10.6)	9 (5.2)	14 (9.0)	3 (2.7)
Approximately two or fewer times a year	8 (8.1)	13 (6.2)	10 (5.7)	6 (3.9)	2 (1.8)
Which of the following ways do you feel that your T2D impacts your ability to lose weight through lifestyle modifications, like diet and exercise?, ^b n (%)					
Blood sugar monitoring	42 (42.4)	94 (45.2)	82 (47.1)	67 (43.2)	34 (30.9)
Complications of diabetes	25 (25.3)	57 (27.4)	65 (37.4)	47 (30.3)	44 (40.0)
Diet requirements	40 (40.4)	105 (50.5)	92 (52.9)	78 (50.3)	47 (42.7)
Side effects of type 2 diabetes medication	34 (34.3)	69 (33.2)	72 (41.4)	69 (44.5)	45 (40.9)
Other	2 (2.0)	3 (1.4)	1 (0.6)	6 (3.9)	7 (6.4)
None of the above	29 (29.3)	44 (21.2)	41 (23.6)	34 (21.9)	24 (21.8)

Notes: P values represent chi-squared tests for categorical variables and t-tests for continuous variables to test for differences across BMI groups. *** Indicates $P < 0.001$. ^a Calculated of respondents who had currently or in past 2 years attempted to lose weight. ^b Indicates question is not exclusive.

Abbreviations: BMI, body mass index; T2D, type 2 diabetes.

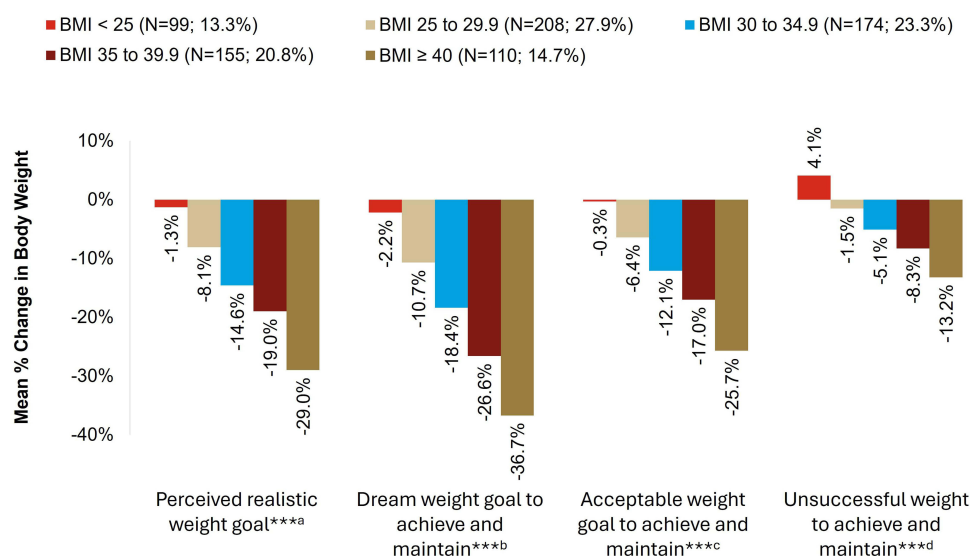


Figure 2 Average Percentage Weight Change Needed to Reach Dream, Achievable, Acceptable, and Unsuccessful Weight by BMI Category (n=746). *P* values represent chi-squared tests for categorical variables and *t*-tests for continuous variables to test for differences across BMI groups. *** Indicates $P < 0.001$ vs. BMI $< 25 \text{ kg/m}^2$. Questions asked: ^a What is your goal weight, the weight you realistically expect to achieve and maintain?; ^b What is your dream weight, the weight you would reach and maintain if you could weigh whatever you want?; ^c What weight could you accept if you achieved and maintained this weight?; ^d What weight would you not view as successful if you achieved and maintained that weight?.

Abbreviation: BMI, body mass index.

higher BMI may be associated with a greater physiological burden, reflecting the cumulative experience of unsuccessful weight loss, symptom burden, and internalized or perceived stigma.

Most participants felt their ability to lose weight was impacted by T2D, particularly with regards to blood glucose control, daily activities, and diet. While this has been previously established in the literature,¹⁹ this study found that people with higher BMI were significantly more likely to feel that T2D affects their ability to manage their weight, as well as to believe that their weight is an issue impacting their T2D. People with higher BMI were also more likely to struggle to lose weight and report that they were currently trying to lose weight. These findings are consistent with a recent study of people with T2D in Australia⁸ and suggest that the lived experience of people with T2D trying to manage their weight varies by their current BMI category. This may reflect differences in prior treatment experiences and perceived attainability of weight goals, underscoring the importance of contextualizing weight management recommendations within patient medical history and lived experience. This reflects the importance of individualized care plans that take into consideration patient experiences and perspectives in managing weight and health. Furthermore, the bilateral way in which people with T2D reported experiencing T2D and obesity in this study, given the complex physiological relationship between these two conditions and other related comorbidities, suggests that individuals with higher BMI may benefit from early clinical interventions.

Specific thresholds for meaningful weight change were elicited via two different methods during the survey. When asked about goal, dream, and acceptable weight loss, as well as what amount of weight loss they would consider unsuccessful, participants' desired weight loss values for each of these categories increased as BMI increased. Participants with a BMI $\leq 24.9 \text{ kg/m}^2$ defined an unsuccessful weight as one associated with weight gain and an acceptable weight as similar to their current weight; those in the highest BMI category ($\geq 40 \text{ kg/m}^2$) considered a 13% weight loss to be unsuccessful. These findings suggest that perceptions of meaningful weight reduction are not absolute but rather scale with current weight, expectations, and lived experiences. Specific weight reduction and management targets are highly dependent on current weight status; among individuals with higher BMI values, a relatively smaller weight reduction was viewed as unsuccessful, whereas those with BMI values considered normal (ie, $\leq 24.9 \text{ kg/m}^2$) valued weight maintenance and the avoidance of weight gain. This further supports the need for individualized weight management approaches for people with T2D. With more T2D treatments that offer not only HbA1c control but also

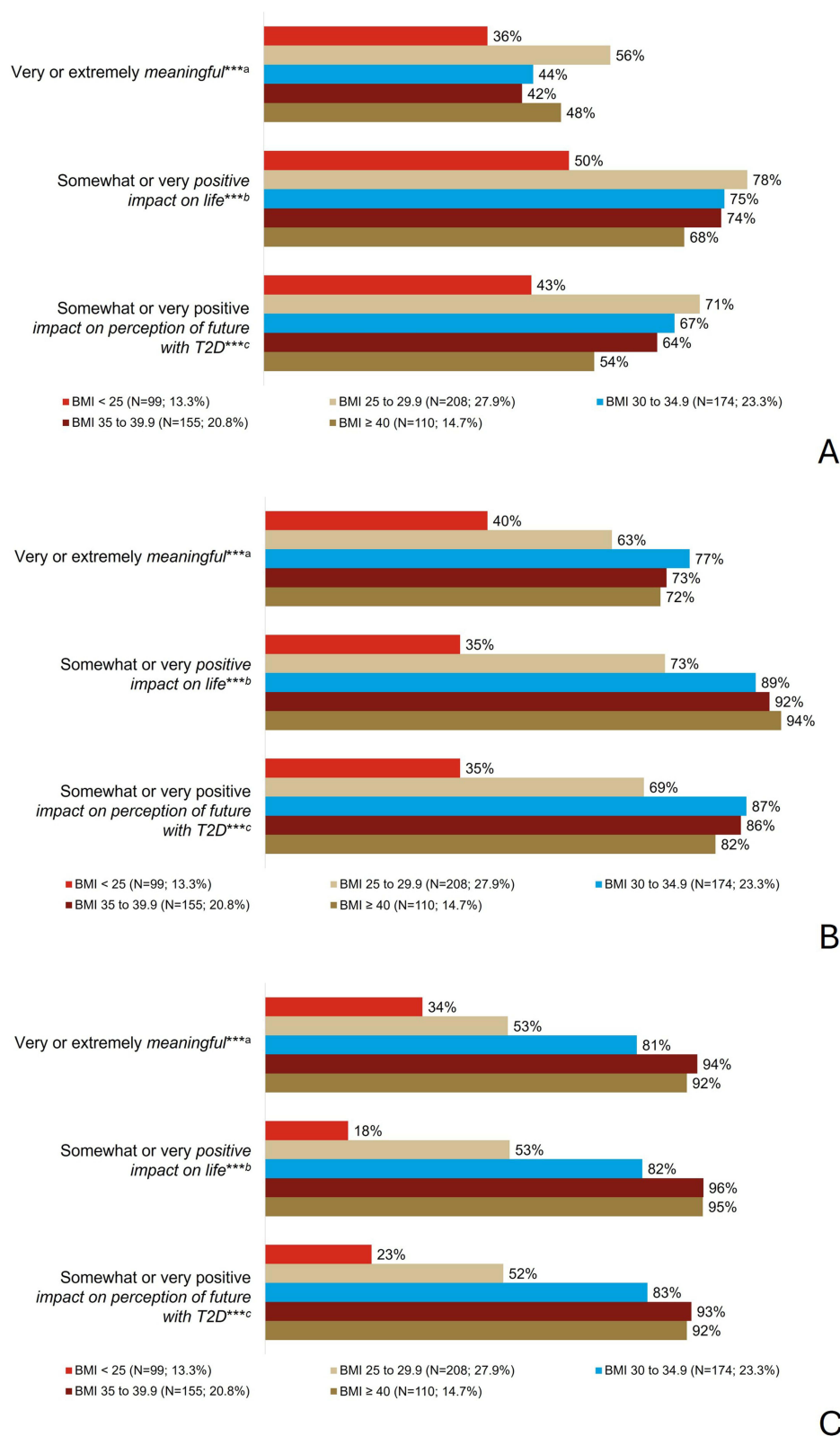


Figure 3 (A) Value of 5% Weight Reduction. **(B)** Value of 10% Weight Reduction. **(C)** Value of 20% Weight Reduction. *P* values represent chi-squared tests for categorical variables and *t*-tests for continuous variables to test for differences across BMI groups. *** Indicates $P < 0.001$. Questions asked: ^a How meaningful would it be for you to lose [5%/10%/20% body weight in lb/kg]? (Not at all/somewhat/moderately/very/extremely meaningful); ^b To what extent would your life be impacted if you lost [5%/10%/20% body weight in lb/kg]? (Very negatively/somewhat negatively/neutral/somewhat positively/very positively); ^c If you lost [5%/10%/20% body weight in lb/kg] in approximately one year, to what extent would it change your perceptions of your future with diabetes? (Very negatively/somewhat negatively/neutral/somewhat positively/very positively). **Abbreviations:** BMI, body mass index; T2D, type 2 diabetes.

substantial weight loss, it is important that HCPs who treat T2D discuss healthy weight loss with their patients and understand their patients' individualized weight loss goals and the importance of personalized approaches to treatment.

Additionally, people with T2D across all BMI categories anticipate that 5%, 10%, and 20% body weight reductions would result in positive impacts to their life. The majority of the respondents viewed all three of the discussed levels of weight reduction (5%, 10%, and 20%) as meaningful and endorsed that they would expect these changes to result in positive impacts to their life and perceptions of their future with T2D. However, as the percentage weight reduction increased, differences between BMI groups emerged: participants with higher BMI perceived higher meaningfulness and anticipated more positive impacts from each weight reduction percentage. This finding reinforces the need for an individualized approach to patient care and a dialogue that includes the patient perspective on meaningful weight reduction, weight maintenance, and goals.

These findings should be considered within the context of the limitations of the study. First, all data were self-reported, and participants could have reported their weight or other clinical factors incorrectly. Although participants were informed that the study would discuss their perspectives of weight and that all information was kept confidential, they may have downplayed or been uncomfortable disclosing their weight-related information due to a fear of bias. Additionally, participants were asked to consider a hypothetical scenario, and responses may have been subject to hypothetical bias such that anticipated impacts may differ from experienced impacts. Secondly, the potential for selection bias should be considered when reviewing the results. Participants self-selected into the study and were required to be fluent in English and able to complete an online survey. Additionally, the knowledge that this study would discuss weight and T2D could contribute to selection bias, in that people with T2D who are not comfortable discussing their struggle with weight management or their experience with T2D may have chosen not to take part in the survey. While participants may, in this regard, be systematically different from the general T2D population in the US and Canada, efforts were made to maximize the generalizability of the study to the wider T2D population, including the use of recruitment targets for racial and ethnic backgrounds in the US and gender in both countries. Data on the distribution of BMI across the T2D population in Canada could not be found, and so the BMI recruitment targets for both the US and Canada reflect US census data for people with T2D. Therefore, the BMI distribution of the Canadian participants may not reflect the BMI distribution of the population of individuals with T2D living in Canada. Additionally, this study included people with T2D of all BMI levels, rather than just those with overweight or obesity, and recruited participants representative of the distribution¹³ of BMI categories according to the latest US census data of people with T2D. Finally, BMI is an imperfect measure of adiposity,²⁰ and may be confounded by other variables such as age, sex, or racial/ethnic background.²¹ This study focused on differences in perspectives by BMI subgroup, but future research may be warranted to explore the influence of other factors, such as gender, age, race, level of social support, and other measures of adiposity such as weight-adjusted waist index²² or body roundness index.²³

Conclusion

As the T2D treatment landscape continues to evolve and additional options for HbA1c control and weight management become available, individualized treatment plans for people with T2D become increasingly important. This study is the first known to examine perceptions of weight, T2D, and the value of different levels of weight reduction among people with T2D across all categories of BMI, including normal weight and overweight, in the US and Canada. The results presented here indicate that people with T2D view weight management as important for T2D management regardless of BMI, but that people with higher BMI are likely to experience a higher burden associated with weight management and weight-related impacts to their T2D. Although even a 5% weight reduction was anticipated to be valuable by participants across all BMI categories, desired weight reduction increased with BMI, underscoring the need for personalized weight-management strategies. This study highlights the importance of individualized care in T2D management, emphasizing the need for HCPs to understand patients' weight loss goals and incorporate their perspectives into treatment planning.

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