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Understanding the Post-Surgical Bariatric Experiences of Patients Two or More Years After Surgery

Rebecca H. Liu, PhD, *Western University*

Jennifer D. Irwin, PhD, *Western University*

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Rebecca H. Liu^{1,2} · Jennifer D. Irwin^{1,2,3}

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Abstract

Background In Canada, one year after bariatric surgery follow-up appointments become less frequent and surgical recipients must cope with weight management more independently. Up to 50% of patients experience weight regain by two years post-surgery. Understanding the lived experiences of those who have gone through the bariatric process may shed light on what is needed to support others moving forward. Therefore, the purpose of the study was to gain an understanding of the physical, psychological, social, and clinic-related experiences of individuals who have undergone bariatric surgery at least two years prior.

Purpose The purpose of the study was to gain an understanding of the physical, psychological, social, and clinic-related experiences of individuals who have undergone bariatric surgery at least two years prior.

Methods In-depth, individual semi-structured interviews lasting approximately 60 min were conducted. Interviews were transcribed verbatim and inductive content analysis was used to identify emerging themes. Methods were employed throughout to support data trustworthiness.

Results Participants ($n = 28$; 21 female) were primarily middle-aged (mean: 49.7 ± 12.7 years old), Caucasian (71%), and completed bariatric surgery more than three

years. The data fell naturally into four primary themes, namely physical changes and challenges, psychological experiences, social functioning and support, and clinic-related experiences and reflections.

Conclusions Generally, participants described positive improvements in their physical, psychological, and social state since surgery. However, concerns pertaining to several unanticipated outcomes of the surgery were underscored and informed the recommendations for other patients to be prepared to relearn about ones' body, utilize the support services available, and be aware that social relationships may change and/or require tending. Participants' insights can be used to help others meet with long-term success post-bariatric surgery.

Keywords Bariatric surgery patients · Long-term health · Well-being · Perspectives · Experiences

Introduction

Over the past 30 years, the worldwide prevalence of overweight and obesity has increased at an alarming rate [1]. About 1.5 billion people are overweight and a third of them are obese [2]. For those with more severe obesity and related comorbidities, non-surgical treatments are generally ineffective in achieving substantial and long-term weight loss [3]. Bariatric surgery has been identified as the most effective treatment option for sustainable weight loss among individuals living with severe obesity [4–6]. Physiologically, bariatric surgery is associated with improvements in obesity-related comorbidities such as type II diabetes, hypertension, and sleep apnea [7–11]. Psychologically, it has been correlated with improvements in quality of life and mental health within the first year post-

✉ Jennifer D. Irwin
jenirwin@uwo.ca

¹ Department of Health & Rehabilitation Sciences, Western University, London, ON, Canada

² Faculty of Health Sciences, Health Promotion Research Laboratory, Western University, London, ON, Canada

³ Faculty of Health Sciences, School of Health Studies, Western University, Room 338, Arthur and Sonia Labatt Health Sciences Building, London, ON N6A 5B9, Canada

surgery [12–14]. Despite the positive outcomes, 30–50% of patients experience weight regain by 1.5–2 years after bariatric surgery [15–18] and even without weight regain, some patients are dissatisfied post-surgery for other reasons including excess skin folds, conflicts with sexuality, and challenges adjusting to new eating habits [19].

Understanding the lived experiences of those who have gone through the bariatric process may shed light on what is needed to help others prevent post-surgical dissatisfaction and weight regain challenges [19, 20]. In fact, a number of researchers have tapped into some specific aspects of patients' accounts post-surgery to better understand trials associated with their bariatric processes [19–22]. For instance, Geraci and colleagues [21] looked at the “meaning and essence of experiences” of nine American women from North Dakota who had undergone surgery at least two years prior, with a particular focus on their social support. The authors found that although typically recommended by their surgeons, only half of the women attended support groups, and instead, support came from family, friends, work colleagues, and bariatric-specific groups [21]. That said, no standardized support group guidelines exist and as such, attendance may vary from clinic to clinic. Also, additional barriers (such as time and/or location) to attending support groups may exist for different clients [21]. Magdaleno et al. studied the psychology of seven Brazilian women 1.5–3 years post-surgery [21], focusing on body image and the possible psychological difficulties that can diminish recipients' positive experiences and perceptions of the surgery's overall success. The researchers found that the women experienced challenging interactions with their bodies post-surgery, such as displeasure with scars and skin folds, which led to dissatisfaction, the perception that the surgery was unsuccessful, and the desire for continual plastic surgery fixes. In Natvik and colleagues' phenomenological study [22], the experiences, sensations, and changes attached to eating after surgery were thoroughly explored among four men and four women from Bergen, Norway who had surgery between 5 and 7 years prior to being interviewed. The authors highlighted the discrepancy between surgery-related physical improvements and a lack of change in long-term health behaviors. They also noted that emotional stress, shame, and self-contempt were the experiences of those who had regained their weight. Collectively, these studies reflect a myriad of challenges associated with what it is like for some individuals going through the bariatric process.

While valuable, the findings from the above-noted studies focus on specific aspects of surgical recipients' experiences, and may not be transferable to those in other countries and of both sexes. Given that the provision of health care has both large and subtle differences between and among countries, a study to gain an in-depth understanding of the overall lived experiences of Canadian

bariatric recipients who had surgery two or more years ago was needed to provide insights that would (a) allow for a fuller understanding of current recipients' experiences; and (b) help other Canadians meet long-term ‘success’ post-surgery. Therefore, the four-fold purpose of this grounded theory [23] study was to explore the perspectives of a sample of Canadians of either sex who underwent bariatric surgery at least two years ago, with specific respect to their views about (1) how the surgery has impacted/is impacting them physically, (2) psychologically, and (3) socially; and (4) the clinic-related services and supports that have been particularly influential. Findings from this study could provide valuable insights to those Ontarians/Canadians who are considering, awaiting, or have recently completed surgery on what to expect and how best to prepare themselves for long-term success following bariatric surgery.

Methods

Design and procedure

Participants were formally invited to participate in the study by their bariatric clinic using postal mail. Two hundred and thirty postal mail invites were mailed to eligible participants. Eligible participants were the following: Ontario residents, 18-years old or older; able to speak and read in English; and recipients of bariatric surgery at least two years prior to the study beginning. This time point was chosen given bariatric clinic follow-up assessments become less frequent from two years and on [24] and when patients must presumably manage their weight and lifestyle changes more independently (currently, bariatric clinic follow-up assessments in Canada occur one month, three months, six months, one-year, and then annually from two years up to five years post-operation [24].) It is also the time point when weight maintenance challenges typically start to occur (1.5–2 years from surgery) [15–18]. Interested individuals contacted the researchers to be interviewed, and explicit verbal and informed consent were obtained from all participants included in the study. Telephone interviews were chosen to allow participants to respond anonymously, and communicate their views over the phone more openly and candidly in an environment of their choosing [25]. Ethics approval was received by the host institution and associated hospitals.

Semi-structured telephone interviews lasted approximately 45–60 min and were conducted from February 2016 to May 2016. Interviews followed a semi-structured guide and included questions about how bariatric surgery has impacted various facets of participants' lives (i.e., How has bariatric surgery impacted your personal relationships? How has bariatric surgery impacted your social or working

environment?), what services and supports have influenced and impacted their health (i.e., What services, strategies, and/or supports have positively influenced your health, two years post-surgery? What services, strategies, and/or supports have not influenced your health outcomes, two years post-surgery?), and advice they would share with other prospective surgical recipients (i.e., If you were to offer advice to those starting the bariatric process, what would you tell them?). It should be noted that the terms ‘supports’ and ‘services were designated to the study participants to define from their perspective/experiences. Demographic questions about participants’ age, gender, ethnicity, marital status, employment status, and weight-related dates and measurements were also included (Table 1). Prompts and reflective responding (e.g., “What’s an example?”; “Say more;” “How is this concern connected to the issue you just spoke about?”) were used to explore responses further or if the participant needed encouragement to talk. The first author, RHL, conducted the interviews. Interviews were digitally recorded and transcribed verbatim.

Interview sampling was guided by the recommendations from Marshall et al. [27], and Fusch and Ness [28]. Specifically, Marshall and colleagues advised that grounded theory studies should generally include between 20 and 30 interviews to reach data saturation [29]. They suggested that studies with over 30 interviews do not yield a more significant impact [28]. Moreover, Fusch and Ness [28] suggested that data saturation for one study may not be a ‘one size fits all.’ Instead, they recommend examining whether there is enough information to replicate the study [29, 30], whether further coding is no longer feasible [31], and whether the ability to obtain additional new information has been attained [31]. Data saturation appeared to take place after the 20th interview. To help ensure completeness of the data set, all 28 interviews were analyzed.

Data analysis

Inductive content analysis to identify the themes that emerged from the data was utilized, as described by Patton [32] and facilitated by hand [33, 34]. Although there are computer-assisted qualitative data analysis software packages that exist to manage and handle the data, it should be noted that such programs are merely instruments and do not ‘analyze’ data; ultimately, it is the responsibility of the researcher(s) to analyze the data [34]. In support of the data’s confirmability, the authors, RHL and JDI, each reviewed the transcripts separately and then came together to compare and negotiate discrepancies until agreement about the themes was reached [35]. Using the guidance of Guba and Lincoln [35], additional quality assurance steps were applied throughout data collection and data analysis, and are detailed in Table 2.

Table 1 Participant characteristics (*N* = 28)

Characteristic	Mean ± SD
Age (years)	49.7 ± 12.7
Highest weight (lbs)	336.7 ± 84.4
Lowest weight (lbs)	177.6 ± 36.3
Weight on day of surgery (lbs)	293.2 ± 62.9
Current weight (lbs)	199.5 ± 39.9
Length of time since surgery (months)	42.6 ± 8.4
Sex	<i>N</i> (%)
Female	21 (75)
Male	7 (25)
Ethnicity	
Caucasian	20 (71)
South Asian	3 (11)
Caribbean	1 (4)
Hispanic	1 (4)
Marital status	
Single	4 (14)
Married/domestic relationship	22 (79)
Divorced	2 (7)
Professional status	
Full time	17 (60)
Part time	1 (4)
Retired	8 (28)
On disability	1 (4)
Unemployed	1 (4)
Surgery type ^a	
Gastric bypass	23 (82)
Gastric sleeve	5 (18)

^a It should be noted that the experiences from those who had the gastric bypass and gastric sleeve were combined. The gastric bypass (or Roux-en-Y gastric bypass surgery) involves cutting the stomach to create a smaller pouch, which is then reattached further down the small intestine [24]. In comparison, the gastric sleeve is a newer procedure being performed with increasing frequency for the treatment of obesity and obesity-related diseases. The gastric sleeve involves a lateral cut along the stomach, resulting in a smaller pouch (which is stapled), and the rest of the stomach is removed [24]

The gastric sleeve has been associated with fewer complications and a shorter operation time in comparison to the gastric bypass [26]. Given the potential difference in treatment experiences from the different procedures, our study findings should be interpreted cautiously

Results

Participant characteristics

A total of 28 bariatric recipients responded to the study invitation and were interviewed. Our response rate was 12% and data saturation was reached after the 20th interview. Of the 28 participants, seven identified as male and 21 as female, ranging in age from 31 to 70 years (mean:

Table 2 Quality assurance steps followed for data collection and analysis

Measure	Description
Credibility	Member-checking was done between each question and at the end of each interview, to ensure the responses recorded were accurate representations of the information provided by participants. Honesty demands were utilized to encourage honest responses to each question. Quotations exemplifying each theme were compiled and representative examples were included in this paper
Confirmability	The two researchers independently and simultaneously performed inductive content analysis on the open-ended responses and then compared their analyses. Data was examined for similarities and differences across the transcriptions and common emergent themes were identified. A summary of the analysis was prepared and discussed
Dependability	Research team members met to debrief and summarize their findings. Any biases were considered to ensure that the analyses were not influenced by researcher bias
Transferability	The research process was documented in detail, thus enabling potentially interested parties with the ability to determine whether the study findings will be transferable to other individuals in other settings

Based on Guba and Lincoln [35] and adapted from Irwin et al. [36]

49.7 ± 12.7 years). Participants had surgery approximately three-and-a-half years prior to being interviewed (mean: 42.6 ± 8.4 months), were primarily Caucasian (71%), married or in a domestic relationship (79%), and worked full-time (60%). Twenty-three participants had undergone gastric bypass surgery, while five participants had undergone the gastric sleeve procedure. At the time of the interview, participants were, on average, approximately 100 lbs lighter than they were on their date of surgery, and about 20 lbs heavier than their lightest weight. A detailed summary of participants' demographic characteristics is provided in Table 1.

Physical, psychological, social, and clinic-related experiences and reflections

The findings fell naturally into the four primary themes of physical changes and challenges, psychological experiences, social functioning and support, and clinic-related experiences and reflections. Upon further reflection, sub-themes were apparent for each primary theme and are detailed below, with quotations that best exemplify each presented in Tables 3, 4, 5, 6. In total, there were 10 sub-themes.

Physical changes and challenges

While reflecting on the physical impacts of having gone through bariatric surgery, many participants shared positive and negative physical and physiological changes that they encountered from the two-year mark and on. Four sub-themes emerged involving participants' physical benefits and some of the challenges faced thus far. With regard to positive outcomes, participants identified a reduction in the number and quantity of prescription medications needed to treat obesity-comorbidities such as high blood pressure, diabetes, and high cholesterol. In fact, many reported a complete resolution of their comorbidities and no longer

required any medications. Respondents also expressed gratitude over their increased sense of mobility and reduced pain in their legs and knees following the surgery. In terms of physical obstacles, numerous participants underscored their concerns about excess skin, with their primary concerns being their need for provincially funded reconstructive surgery, conflicting information received from the clinic about which types of post-operative plastic surgery would be covered, and how the excess skin aggravated body dysmorphia. Finally, surgical recipients described the challenges about re-learning and understanding what to eat, what foods irritated their stomachs, and adjusting to portion sizes. Illustrative comments for each sub-theme are presented in Table 3.

Psychological experiences

During recollections of participants' bariatric journeys, two sub-themes regarding psychological experiences were revealed. Participants shared insights on how the first year following bariatric surgery compared with their current psychological state, now that they are two years and beyond from surgery. For instance, participants underscored the importance of sufficient mental preparation, including adequate wait-times for mental adjustments to occur. They also described some struggles getting used to and identifying with their changing/smaller body, and the need for psychological support to adjust to their new body image, such as counseling, once bariatric services concluded at the clinic. Quotations representing the majority of recipients' responses are displayed in Table 4.

Social functioning and support

Upon reviewing the relationship of bariatric surgery to participants' social functioning and support, three sub-themes were identified. With regard to positive outcomes,

Table 3 Sub-themes, and reflective quotations regarding primary theme of physical changes and challenges

Themes	Supportive evidence
(1) Improvements or complete resolution in comorbidities; reduced or no more medications needed to treat obesity-related conditions (20 of 28 participants)	<p>P10: “Before my surgery, I was on 6 different kinds of blood pressure meds [medications], blood thinners, the whole works. The only medication that I wasn’t on was Digoxin, which is for my atrial fibrillation...Everything else has improved because of the surgery. I had diabetes and that is gone now too. If I hadn’t had the surgery, I’m pretty sure I would have been dead by now, eh?”</p> <p>P5: “I was on 2 diabetes medication and since my surgery, I am no longer on any meds [medication]...There were increases of physical activity and improvements in my cardiovascular health. I used to have bouts of asthma and I haven’t taken a puffer in 10 years. I don’t get that feeling anymore. I no longer have high blood pressure”</p> <p>P12: “They said I had fatty liver and I don’t have it anymore. I was on the high side for blood pressure and cholesterol. I was on a few medications before for those conditions but after the surgery I’m in normal zones now”</p> <p>P15: “I initially went to my family doctor; I was concerned about my health. I was borderline diabetic, my blood pressure was high, I was overweight and had tried many other avenues and hadn’t succeeded...[Now], everything has reversed, I am very healthy and [I] can participate in every aspect of life. Reversed blood pressure, diabetes and I’m more mobile”</p> <p>P4: “I feel really good and the other big positive is that my sleep apnea is gone. I was contemplating a knee surgery but I haven’t had to”</p>
(2) Increased mobility, energy, and reduced pain in knees and legs conditions (18 of 28 participants)	<p>P21: “I used to have severe knee and back pain and now all gone...we [my partner and I] can do more together, we can be more active, and I can play with my daughter on the playground which I wasn’t able to do before”</p> <p>P3: “If I went for a walk, I would be huffing and puffing. My knees would hurt, everything just hurt. [Now] I go to the rec centre in town and I do 4 laps. I wasn’t able to do that before and I have done that ever since my surgery”</p> <p>P13: “I have way more energy... I breathe easier, I can get around, just more positive all around. I’m playing ball again; I went skating for the first time in 15 years. Yes, it’s been a great experience. This was very preventative and not curative medicine”</p> <p>P16: “I was having difficulty walking or getting out of bed in the morning because of all the pain that I was having. After the surgery, all the pain went away”</p>
(3) Concerns about excess skin (18 of 28 participants)	<p>P2: “They told me at orientation, you can get your breast lift covered and your tummy tuck. But then when I met the plastic surgeon for my breasts, I had to pay for my arms and because I had lost so much tissue going to B’s from triple E’s... In the end, he [the surgeon] said my breasts would not be covered...so it was very misleading for the clinic to say it was covered. I have all this excess skin hurting my knees, I can’t imagine anyone with more excess skin weighing on their knees”</p> <p>P5: “I wasn’t able to get reconstructive surgery and I was lucky enough to have a doctor who went beyond OHIP [provincial funding body] would cover and willing to support me because financially I couldn’t afford it. I never saw outside of [my body] in my mental state beyond the obesity until probably [pause], and I still struggle with it, probably some body dysmorphia stuff but not to that extent, I still feel like the largest person in the room when I walk in the room, those kinds of things. I can’t advocate enough for the reconstructive surgery at least for the abdominal area because with that it allows you to feel and to maintain. When you gain 10 lbs you can feel it but when you are 335lbs, you don’t feel if you’ve lost 10-15 lbs, you don’t feel 50 lbs [because], your skin is sagging, you don’t feel bloated, you don’t feel stretched</p> <p>P13: “They only thing that I didn’t agree with at the orientation and the teaching prior to is that they make you think that you’ll lose the weight and you will get a tummy tuck but that is not always the case. I’ve known a few people who became extremely depressed afterwards when they were turned down for government funded reconstructive surgery. That’s the only thing I would get them to caution people about the tummy tucks”</p> <p>P18: “The only downside is dealing with the skin after the fact. The only way to get it covered is if you end up with infection and you have to have multiple infection before you can have it covered. I don’t think it is fair. I know myself, under my legs and arms, it bothers me not very much but my stomach it does. If I am being a little more active in the summer in the heat, I can get an infection (it is smelly and yucky) which still does not qualify me for skin removal. The way they charge skin removal, it needs to be re-thought. It is not just the infections; it is everything that comes along with. They had told us about the skin removal, I just didn’t realize how many infections you had to have before you could get it done. I’ve already had 3 or 4 and I was quietly suffering putting baby powder on it. Then when it was not working, I told my doctor about it. It doesn’t take much for it to start sweating there and being very itchy there”</p>

Table 3 continued

Themes	Supportive evidence
(4) Learning and understanding what to eat, what irritates your stomach, and adjusting portion sizes (17 of 28 participants)	P20: “Skin removal. I think OHIP [provincial funding body] should consider covering portions more. Right now, it is only in special circumstances. Not all of it but at least some of it. There are so many people having the surgeries these days. I know in the States they cover half of it but you have to be 600lbs plus or something like that. It would be nice to have at least some coverage here. It would make a huge difference. I can’t run or do jumping jacks without the pain and sweat from the excess skin, I have to wear compression supports. It hinders people’s physical activity”
	P21: “The downfall is all the skin. I put on pants and you have to put your skin in there and that is quite difficult. I still shop in the plus size section... It hasn’t registered all there that my body has changed so I automatically go to the plus size section. It sucks the extra skin. This is definitely something that I tell others. I tell them that after the surgery you are going to need a body lift and a body lift is \$20,000 so are you ok to live with this skin. That is a major downer for me. My butt, my thighs, my arms- I look like a melted candle. Being overweight vs. the extra skin, of course I would still go with the surgery but it has been a drawback and a daily reminder
	P8: “The only thing is that I am left with is a lot of skin. OHIP will cover some skin removal but it will still be \$7000-8000 out of my pocket. At first my skin didn’t bother me but now I have lost half my body weight and now that I am done losing the weight and it is just there. It is really there. When I got the final estimate from the plastic surgeon, I realized that was something that it was not possible. That is the only downfall. Now I have to still wear bigger clothes to fit the skin in and tuck things in. There are some days I think that I am still bigger”
	P10: “I don’t use a dinner plate; I use a salad plate and I keep my portions small and I have kept my stomach small. If I eat from a normal plate, I eat less because otherwise I feel pain”
	P26: “The first year, I found it difficult in what I could and could not eat because there were some foods that I could not tolerate...it got better but in that first year at 6 months, I just couldn’t tolerate it, I would bring it back up. They said there would be that type of complication. Even in my 3 rd year, spices in sauces or everything that is spicy does not work out”
	P4: “The first year was a learning process, learning what you can and can’t do. Knowing that you cheat with some foods and you aren’t getting any exercise, it is going to cause you [to gain] weight. You’ve got to change your lifestyle, you can’t eat all the rich foods you were before. Now beyond, you know what is protein and what foods work best”
	P28: “The first year is learning and you are always measuring and you are doing your puree and soft diets. You are being monitored more closely so once you hit 2 years beyond, you have to take more responsibility for yourself and your health. The first year is really about learning to listen to your body, when it is full, it is full, don’t push it. After that, four years later I am still learning. But I think those first 2 years are key because it’s where you learn how to curb your bad habits that you’ve learned to eat and think differently. Thinking about food differently. I don’t feel so restricted now”

P participant

This main theme was forwarded by 26 of 28 participants. The number of participants who forwarded each sub-theme are also noted

many recipients described their increased energy and their new found ability to participate in more activities with their family, namely their children/grandchildren. Respondents shared their disparate marital dynamics, which ranged from the benefits of having a very supportive partner, to marital dissatisfaction and dissolutions when partners were not supportive or were overtly unsupportive. Improvements in confidence and socializing were reported by many, combined with some mixed emotions as attention from others increased. Quotations are displayed in Table 5.

Clinic-related experiences and reflections

Participants shared their perspectives on the clinical services and support received. One positive sub-theme was evident in that participants felt that they received very strong support and services from the clinic team before and

after surgery. Participants underscored the value of the staff support and notably, a book provided by the clinic, which included post-surgical guidelines, sample meal plans, and what to anticipate moving forward. Many participants referred to this book as their ‘bible.’ Illustrative comments are displayed in Table 6.

Discussion

Overall participants in our study could be considered ‘maintainers’ of most of their surgery-related weight loss, given that 3.5 years after surgery, they remained, on average, nearly 100 lbs lighter than their surgical date weight [37]. Bariatric surgery recipients shared mostly positive improvements in their physical, psychological, and social changes since having bariatric surgery. That said,

Table 4 Sub-themes, and reflective quotations regarding primary theme of psychological experience

Themes	Supportive evidence
(1) The importance of adequate mental preparation and wait time mental adjustments before surgery (14 of 28 participants)	<p>P5: “The process was very long back then because we weren’t doing surgeries within [city] so I had 2 years to prepare myself mentally which you really don’t get to do now”</p> <p>P24: “The biggest things I see in reflection for me personally is that they don’t spend enough time in the head. As much as your body goes through this transition, your mind takes a really long time to catch up. I don’t feel that the program that I went through (not sure if it is the same way or somewhat similar), I feel there needs to be more support in this area. There’s always on option to speak to a social worker so it’s not to say that they don’t have it. That was my background. I wasn’t there. I almost feel that it should be a mandatory process because sometimes you don’t know that you need it”</p> <p>P28: “Any opportunity that I had I could learn about other people’s experiences, I was absorbed it in. Up to 2 years of waiting, it made me really consider the surgery more because I didn’t want to do anything that would jeopardize it because I had waited so long. I don’t see that same mindset with people going through surgery now. That concerns me a bit... I see people out of surgery, 6 weeks later drinking alcohol locally and they talk about it or they are already eating a cookie or cake and I’m like what the hell!?! It even came to light, there was a group of people who on the day before surgery and had done weeks of the optifast, they went out and had a binge dinner. Ok, are they setting themselves up for failure so I worry”</p> <p>P7: “You have to see so many people all the time. I found the process a good experience because you had to learn your psychology, they really want to make sure you are mentally prepared for what could happen and they had you look at yourself in different ways. They wanted to make sure I was physically fit for the operation. Talk to the doctors, talk to psychologist”</p> <p>P27: “I wish I had done it earlier and I never thought of going down the route until that doctor suggested it to me and I am so glad he did. Probably at the time of life, I wasn’t mentally ready for it so I think it all happened serendipitously because the delay let me mentally prepare for the surgery. I think the timing for it was the right time. I had the positive mindset for it otherwise I wouldn’t have been ready for it and put back on the weight. I was able to handle any crisis that came to me, I could deal with it”</p> <p>P10: “The one thing I will say is that if you aren’t mentally ready to get it done then you’re just wasting your time. I know a couple of people who did it and weren’t mentally ready for it and they have nothing but uncomfortable since they had it. It took me 2 ½ years before I had my surgery so I had plenty of time to think about it so when I saw the doctor I was ready. I think you need at least 1 year or so for prep work and getting ready for it mentally, that is the most important”</p> <p>P13: “There were times that I would look in the mirror but I didn’t recognize myself because I was used to buying these large sheet clothes and there was a bit of an identity crisis for a while. I was still me but I was in a different body. It took some time for me to get over it but with my [partner] and friends, I was able to [adjust to the changes more easily]. There is still that body image change and you need to get used to it”</p> <p>P1: “I still struggle with the mind because I think you go into this thinking you are going to be size small. The idea of the goal weight is unrealistic. I think it is the bigger body image stuff, those kinds of things, I think they should talk about those things and I don’t think they ever did”</p> <p>P19: “To this day now, when I look in the mirror I still see myself as 260, 270 lbs. I don’t see that. I see the roll here and there. I don’t have the full confidence”</p> <p>P11: “It’s been a roller coaster; you go to a social worker obviously but one thing they don’t prepare you for is body dysmorphia. After you lose so much weight, you don’t recognize yourself. I walk by a store, see my reflection and don’t recognize myself. The first two years were the hardest not seeing myself as I am but it gets easier with time. Not sure if it is something that you can prepare for...”</p>
(2) Getting used to and identify with changing body and body image (12 of 28 participants)	

P participant

This main theme was forwarded by 19 of 28 participants. The number of participants who forwarded each sub-theme are also noted

Table 5 Sub-themes, and reflective quotations regarding primary theme of social functioning and support

Themes	Supportive evidence
(1) Ability to participate in more activities with partners/family (12 of 28 participants)	<p>P4: “I have been more mobile with my grandchildren and a lot livelier with them. I am having a lot of fun with them. It has allowed me to feel like I’m back in my 40’s”</p> <p>P6: “My grandson was my main instigator. I couldn’t keep up with him. I figured that I had to do something, he went up and down...The operation changed my life, I’m doing things that I wasn’t doing before. I’m golfing, I’m camping. I used to just sit around. I got to the gym quite often. It was a great lifestyle change. Pain and inactivity, it was a vicious cycle. Now it’s nice, you go to the gym, you go for a walk, you feel excellent”</p> <p>P26: “I am more confident and I have a young granddaughter and we can go out in the yard and play soccer. I don’t have to sit down quite as much. I am able to ride a bicycle and it was something that I wasn’t able to do before without it hurting”</p>
(2) Disparate marital dynamic outcomes (16 of 28 participants)	<p>P5: “For me, I made that decision without [them], we had separated when I got the referral. We decided to reconcile after a 9 months separation and [then they] said I love you no matter what”</p> <p>P17: “[The bariatric surgery] has led to a divorce. When I was getting close to my goal weight, my [partner] told me that it was enough and to stop losing. I really didn’t have control and I wasn’t happy...I wasn’t willing to settle anymore”</p> <p>P18: “At first it was hard because my [partner] wasn’t on board when I decided to have the surgery. When I was going through the process, and waiting, it was very tough...I can definitely say that [they haven’t] been my strong[est] supporter so things have definitely gotten better from while going through the process and now”</p> <p>P21: I am very lucky that my [partner] is a very supportive [person] and loves me in whatever size. It helped our relationship because we can do more together. I would say my [partner] has been the only support that I need at this point”</p> <p>P22: “My marriage is still intact and there were problems before surgery and now. This conversation needs to happen during the process because the last thing you want to paint is that it is a marriage ender. That is a huge piece that isn’t discussed enough in preop [before surgery] and postop [after surgery]. There’s a lot that needs to be unpacked. I think a psychologist should be mandatory to talk about relationships. There needs to be 15 minutes to talk about marriage and [it] can’t be brushed under”</p>
(3) An increased sense of confidence, socializing, and mixed emotional (22 of 28 participants)	<p>P9: “I think it has been positive for self-confidence but I think there is a real mix of emotions like you are now not used to getting attention from [others] or if that is what you desire, attention from anyone”</p> <p>P12: “Now I like to go out. Before I never wanted to go anywhere, I was always nervous about chairs and if they had sides on them or trying to get a booth instead of a table. I hated walking in the mall with a passion but now I like doing it. I never wanted to go out to the bar with friends and now I look forward to it”</p> <p>P14: “Everything I used to do, I do now. Just more social. Definitely emotional health is much better, more confidence and I go out a little more”</p> <p>P20: “Definitely a self-esteem booster, 100%. I had nothing before and my confidence and esteem levels were very low. I’m more outgoing”</p>

P participant

This main theme was forwarded by 26 of 28 participants. The number of participants who forwarded each sub-theme are also noted

participants provided valuable insights about what they perceive needs to be improved and strengthened to best support the long-term needs of bariatric surgery recipients.

Participants’ concerns involving excess skin were not unexpected given previous researchers’ findings that excess skin is a common issue following significant weight loss [38, 39]. Hanging skin can be problematic in daily life for those experiencing it post-surgery, as it becomes a constant reminder of patients’ former selves and can impact their body image [39]. In Staalesen et al. excess skin

questionnaire, most post-bariatric patients reported physical and mobility-specific hindrances, difficulties with daily living, and an altered body image as the most common issues associated with their excess skin [40]. Specifically, more than half of post-bariatric sample with massive weight loss reported problems participating in sports, and difficulties in physical activities like running [40, 41]. As a result, 75% of the patient population with no previous body contouring surgery desired reconstructive surgery [42]. The desire for versus the cost of surgery means not all

Table 6 Sub-themes, and reflective quotations regarding primary theme of clinic-related experiences and reflections

Themes	Supportive evidence
(1) Receiving great support and services from the clinic team (26 of 28 participants)	<p>P14: “They were always on top of it and if I needed to go see them [the bariatric clinic], they would make the appointment and I would be there and I even seen the dietician and I had to see a surgeon one time when I was down there and [they] said [name of patient] you don’t need to see me anymore because you are doing great”</p> <p>P23: “I’ve just always followed what they have asked me to do, they asked me to read their book, used it as my bible for 2 years and I never deviated from the book, not ever”</p> <p>P25: “You’ve got to follow the book to a tee, as time goes on, you can only eat a bit in the beginning and then as time goes on, you end up a lot more. So, you have to stay on track and follow the book</p> <p>P4: “Well the bariatric clinic we have here is a tool if you need it. ...The clinic is well set up, full access to psychiatrist and all the other people you need. Their follow-up system was good and they told me that any time you need someone to talk to, they are there and can make an appointment. I haven’t had any problems emotional or any other. While I know, they are there, I haven’t had to make use of them. They are very encouraging”</p> <p>P9: “If I ever run into trouble I feel that I am able to call to make an appointment. They are very accessible and accommodating”</p> <p>P13: “It’s a bit scary after two years because then they tell you see you in a year and you have to learn to trust yourself and make those decisions differently. At the same time, you know that they are there, you can pick up the phone and they will take you in”</p> <p>P7: “The greatest tool they [the bariatric clinic] gave me was the book [bariatric surgery guide], you read it and in the first year it was my bible I followed what to eat and what not to eat. It talked about dumping, what could happen and if I wasn’t feeling up to par, it helped let me know what to do. It was very helpful”</p> <p>P1: “The support of the clinic has been wonderful, to go there all the time and to hear their support in me and how well I am doing. They’ve told me that anytime I need to go back, I can just make an appointment. If something has happened my life and I want to over indulge, they will get me an appointment. They tell me they are always there for me”</p>

P participant

This main theme was forwarded by 26 of 28 participants. The number of participants who forwarded each sub-theme are also noted

recipients can afford to have their excess skin concerns permanently addressed [42, 43]. Similar to what was found in previous research, participants in our study also desired plastic surgery to address the above-noted issues and found cost to be prohibitive. However, it is possible that the need to pay out-of-pocket was particularly startling for our participants, who receive Canada’s publicly funded system of care, with the primary aim to “protect, promote and restore the physical and mental well-being of residence of Canada...without financial or other barriers” [44]. Respondents in our study strongly emphasized the need for body contouring surgery to be (financially) included as part of their bariatric surgery process. Otherwise, they felt the cost would continue to be a financial barrier for those facing excess skin challenges. Clarity about government-funded plastic surgery eligibility criteria and the need for clinic personnel to be fully informed before providing this type of information to patients were underscored as needed to avoid the confusion and disappointment felt by several participants. Excess skin is a substantial issue for individuals who have gone through the bariatric surgical process; participants in our study completed their surgeries an

average of 3.5 years prior to being interviewed, yet addressing concerns about excess skin were still at the forefront of their minds.

Many participants described how having surgery had improved their obesity-related health conditions and their abilities to ‘keep up’ with their family members. This finding is especially important when contextualized within the recent finding by Lieb’s team [45]. The researchers found that successful weight loss maintainers after bariatric surgery targeted improving health and quality of life as the primary motivators for going through the bariatric surgical process [45]. Similar to Liebl’s group [45], our study participants felt that they were taking their life back and were able to be more active and present as a parent or grandparent. In addition, participants from Liebl’s study felt an increase in energy and physical abilities once they could maintain their weight losses long-term [45]. Although the focus of our study was not on who maintained or did not maintain their losses, our respondents expressed their success as including a reduction in the number and quantity of prescription medications to treat their comorbidities, with some even experiencing a

complete resolution of their obesity-related comorbidities and no longer requiring any prescription medication. Many of the participants described their increased mobility, energy, and reduced pain in knees and legs which allowed them to participate in more activities with their partners and family members. Participants were enthusiastic to share all the health benefits and successes they had achieved at the two-year and beyond mark.

Similar to the disparate marital dynamics reported by participants in the current study, Liebl et al. [45] suggested that some partners end their relationship following weight loss surgery because they believe the negative relationship impedes their ability to adopt a healthy lifestyle and maintain weight loss. However, the impact of a spouse's level of involvement on initial weight loss and how a relationship impacts weight loss maintenance is still unclear [46]. According to a narrative review by Ferriby et al. [47], relationship quality of married couples appears to decline following weight loss surgery of one of the spouses. It is believed that the spouses of the surgery recipients may not feel like they have been a part of the treatment or recovery process, which in turn can lead to feelings of isolation or a desire for control; yet research is still limited in this area of bariatric surgery. Regardless of the underlying reasons, it is clear that spouses and partners may be an important resource for better long-term health outcomes and weight management [47] based on the limited research and personal stories shared from participants in the current study.

Despite the disparate marital dynamics, participants from the current study felt that they received very strong support and valuable services from the clinic team before and after surgery. In Peacock and Zizzi's survey on post-surgical behavioral and psychological services, participants also expressed high satisfaction with their surgery and clinic services [48]. The authors found that surgical recipients who utilized clinic services (i.e., behavioral, psychological, nutrition, and exercise programs) more frequently experienced more weight loss in comparison to those who did not complete the programs [48]. Participants from our study also commented on particularly valuable resources, such as a guidebook provided by the clinic, which helped them to stay on track. Respondents seemed to recognize that the clinic was a tool that they could access whenever they needed, especially when they felt that they were reverting to old habits.

Although findings from this study uncovered important and useful information about the lived experiences of Ontario, Canada men and women two-years post bariatric surgery, there are limitations to be addressed. First, although data saturation was reached, as with any qualitative research study, the relatively small sample prevents the generalizability of the findings to others. Also, more

women than men participated in the study. That said, while our aim was to gain a balance of Canadian men and women who were at least two years post-surgery, our sample of 21 women and seven men was reflective of the approximate proportion of women and men who undergo bariatric surgery in Canada; 80% of bariatric surgery recipients in Canada are women [49]. Participant recruitment was limited to two regional hospitals in Ontario, Canada, which may further limit the transferability of findings to other settings and participants. Lastly, given surgery recipients had to contact researchers if they were interested in participating, it is possible the study was subject to volunteer bias. For instance, while a very positive reality for the participants of our study, their collective abilities to maintain post-surgical weight loss could be considered a study limitation given they were a highly homogenous group in terms of maintaining weight loss, and those who were unable to maintain substantive weight loss post-surgery may have provided other insights not shared by our study participants. Thus, the experiences of those who chose not to participate in the study may have been missed in the current study.

Regardless of the above-noted limitations, the current study adds to the growing body of research focused on understanding the experiences, challenges, and insights of those who have undergone bariatric surgery and are now two or more years post-surgery. In fact, to the authors' knowledge, this is the first study focusing on a Canadian population. The findings from this study highlight the personal struggles and successes involved in managing surgery recipients' health and well-being more independently since their bariatric surgery (two or more years ago). Additionally, the study provides insight on the patient-perceived benefits and gaps that still need to be addressed in long-term bariatric care. Future research and bariatric programming should consider addressing concerns with body contouring surgery and the impact of excess skin on the long-term health and well-being of surgery recipients. In addition, further research exploring the impact of spousal/partner involvement in the surgery process may be an important resource that is currently overlooked. Overall, the majority of participants shared positive outcomes in their physical, psychological and social functioning health and were grateful for the opportunity to have the surgery. In conclusion, the following summary of recommendations emanate from our study's findings and are categorized by theme.

Recommendations, expectations, and advice to patients from patients:

- (1) Physical changes and challenges:
 - a. Obtain clarity beforehand about the cost of excess skin-related plastic surgery, and the

coverage or partial coverage for which you may be eligible;

- b. You are likely to experience many physical and physiological health benefits from the surgery including increased energy and mobility, fewer and less medication(s), and an improvement in obesity related conditions;
- c. After surgery you will need to relearn your body and your food limitations (quantity and quality).

(2) Psychological experience:

- a. A longer wait time may be more beneficial to allow you to sufficiently prepare mentally before having the surgery;
- b. Meet with formalized support personnel and peers to help with body image and other transitions, throughout the process.

(3) Social functioning and support:

- a. Be aware that partnerships can be both sources of support or sources of angst, and relationship counseling may be needed. Try to include your partner in as much of the process (orientation, appointments, counseling, etc.) as possible;
- b. You may benefit from receiving support as you go through emotional adjustments that may result from an increased sense of self-confidence and receiving attention from others.

(4) Clinic-related services and supports:

- a. Use the clinic services and resources, they are excellent sources of support and the personnel want you to be successful.

The above-noted participants-driven recommendations can be used as a preliminary guide when considering bariatric surgery or for those who are newly post-bariatric surgery. More research is required to determine the extent to which the findings from the current study represent the views of other bariatric surgery recipients throughout the province, country, and other parts of the world.

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Compliance with ethical standards

Conflict of interest The authors declare that there is no conflict of interests regarding the publication of this paper. The authors declare there were no sources of funding regarding the publication of this paper.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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