

Psychosocial presentation of revisional LAGB patients: a qualitative study

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What is already known about this subject

- The prevalence of obesity has reached epidemic proportions worldwide.
- Bariatric surgery is currently the most viable and cost-effective treatment for obesity and shows sustainability.
- Not all patients achieve excess weight loss (EWL).

What this study adds

- Grounded theory model from patients' perspectives to identify what contributed to not achieving EWL and led to seeking revisional surgery.

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Summary

This qualitative study offers insight into the experiences, expectations, perceptions and beliefs that may lead to laparoscopic adjustable gastric band patients' failure to achieve expected weight loss and seek revisional bariatric surgery. The 23 participants from two sites were interviewed and data were analysed from a grounded theory methodology in order to build a causal model. Analysis of participants' reports identified 'unrealistic expectations of the LAGB' as the core category. Additionally, the restriction of the band had a negative impact on participants' social interactions, leading to feelings of deprivation and, thus, to a desire for reward from food choices and consequently an increase of consumption of high-calorie-dense foods. These foods were chosen because of their specific texture or ability to provide reward. The resulting increase in weight or failure to achieve excess weight loss, led to feelings of shame and loneliness and emotional eating resulting in increased the consumption of rewarding foods. Thus, identifying unrealistic expectations of laparoscopic adjustable gastric band (LAGB) and emotional eating behaviours are important in those who are present initially for primary bariatric and revisional bariatric surgery, as they may contribute specifically to these patients' weight regain and consequent failure to achieve excess weight loss.

Keywords: Emotional eating, qualitative study, revisional bariatric surgery, weight maintenance.

Introduction

Bariatric surgery is the most effective and durable intervention for weight loss in obese and morbidly obese patients and its incidence has increased exponentially. Laparoscopic adjustable gastric band (LAGB), a restrictive procedure, has been the most prevalent bariatric procedure in Australia for the last decade (1). Recent studies have indicated that, at 18 to 24 months post-LAGB surgery,

weight loss stabilizes and a significant proportion of patients experience weight regain (2). Other studies report that a growing number of LAGB patients require revisional bariatric surgery for failed excess weight loss (EWL) and unsuitability of the band (1). In addition, the outcome from revisional surgery may be inferior to primary procedures (3). Successful weight loss after primary LAGB can be defined as more than 50% excess body mass index (BMI) loss or a reduction of BMI to less than 35 kg m⁻²

(4). Although inadequate EWL and/or failure to maintain EWL are the most common indicators for revisional bariatric surgery, to date, this surgery provides little guarantee of success.

Physiologically, gut hormones are important regulators of energy expenditure and have been implicated in the mechanisms of weight loss post-bariatric surgery, as they cause a hunger and satiety effect and have an important role in appetite regulation (5). However, little is known about these mechanisms of weight loss following LAGB (6).

The variability in post-surgical weight loss outcomes has been attributed to activity levels and failure to change problem eating behaviours (7), which include binge eating, night eating syndrome, grazing and 'emotional eating'. Fischer and colleagues (8) found that emotional eating, (i.e. eating in response to moderate emotional states), is frequently found among patients suffering obesity and that the practice of emotional eating can obstruct weight loss outcomes. Research has indicated that there is a high prevalence of binge eating among patients who seek bariatric surgery and that binge eating has been shown to be an indicator of difficulties with post-surgical weight loss. Colles, Dixon and O'Brien (9) found that uncontrolled eating and grazing were related to poorer weight loss after gastric banding, yet White, Kalarchian, Masheb, Marcus and Grilo (10) found post-operative locus of control (LOC) predicted a poorer weight loss outcome after surgery. Other studies have shown that eating behaviours may not improve after bariatric surgery, in that, bariatric patients ate more fatty foods and sweets than participants who had attended a lifestyle intervention programme for weight loss (11). In a study by Kafri, Valfer, Nativ, Shiloni and Hazzan (12), revisional bariatric patients had lower levels of healthy food selection, food tolerance, normative eating patterns and physical activity than primary patients.

Thus, studies to date show a number of factors that may contribute to the failure of bariatric surgery patients in achieving post-operative EWL. However, the psychosocial impact of a patient's inability to change their eating behaviours or of developing problematic eating post-bariatric surgery and, thus, not achieving EWL is not understood.

It is this lack of clarity regarding explanations for patients' failure to achieve EWL that this qualitative study investigates. The goal of this study is to explore, through an inductive approach, the experiences, expectations, perceptions and beliefs that lead to patients' failure to achieve expected weight loss and seek revisional bariatric surgery. In this study, these findings are used to build a causal model that may aid clinicians in providing information, making recommendations, and implementing interventions for revisional and bariatric patients to assist in achieving desired weight loss outcomes.

Materials and methods

Participants

Participants were recruited from two bariatric surgery practices. A total of 23 participants (18 females and five males) were included based upon the following criteria: they had previous LAGB, the average time elapsed since LAGB was 3.72 years (SD = 1.48), failure to achieve expected weight loss outcome (<50% of EWL), and they had recently undergone revisional bariatric surgery (M = 1.78 months, SD = 0.95). The average weight of the sample at LAGB implantation was 129 kg (SD = 29.98) and the lowest average weight reached 98 kg (SD = 21.88). The average weight loss 30.69 kg (SD = 20.52) and regain 24.21 kg (SD = 20.23). The mean weight at date of revisional procedure was 123 kg (SD = 31.90). Demographic information are shown in Table 1. The quantitative measure Depression Anxiety and Stress Scale (DASS) (13) was included as a descriptive measure only. The majority of participants achieved scores in the Normal range for Depression, Anxiety, and Stress on the DASS. However, seven participants achieved scores in the Severe range and four in the Extremely severe range for Anxiety. These data are shown in Table 2.

Table 1 Socio-demographic characterization of the sample

Marital status	13 Married
	1 Divorced
	8 Single
	1 Widowed
Education	13 High school
	3 Post-high school
	7 University
Professional Status	13 Full time
	8 Part time
	1 Unemployed
	1 Retired

Demographic information regarding participants' age, gender, cultural background relationship status, level of education and occupation (if working) was collected.

Table 2 Frequency of levels of depression, anxiety and stress in the participants

	Normal	Mild	Moderate	Severe	Extremely severe
Depression	12	4	5	2	0
Anxiety	12	0	7	0	4
Stress	16	3	3	1	0

The DASS is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress.

Table 3 Interview questions

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1. What led you to be thinking about revisional surgery?
 2. What do you think were the factors that contributed to your first procedure being unsuccessful?
 3. How has the lack of success with the first procedure affected you emotionally?
 4. What is your relationship with food?
 5. What kind of challenges are you facing?
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Procedure

Participants were given information flyers by dietitians, nurses and surgeons at the two bariatric clinics. The participants contacted the researcher who is the primary psychologist at both practices, and the study was explained, and an appointment made. At this appointment, the participants signed consent forms and were informed that the interview would be audiotaped. Each interview lasted between 60 and 90 min and included open-ended questions. In addition to the semi-structured interviews, the participants completed the DASS to obtain descriptive data. Participants were provided with AUD\$50 movie vouchers for participating in the study. Interview questions are shown in Table 3.

Ethical considerations

Ethics approval was obtained from the university's Human Research Ethics Committee. Permission to conduct interviews was obtained from both sites where interviews were conducted.

Data analysis

Each interview was audiotaped, transcribed successively, and then coded, by the primary researcher. NVivo 10 was utilized to code the data line-by-line, using open coding according to grounded theory method (14). Related codes were then grouped into categories and relationships between these categories were examined utilizing axial coding. Data collection and analysis were done simultaneously (i.e. theoretical sampling). Through selective coding, a core category was identified, which tied all the concepts together.

Validity and reliability

Participants were offered a summary of their transcripts to check for accuracy. An inventory of codes with their descriptions was kept in a codebook and NVivo software 10 was utilized to store the memos on the process of coding and the memos on the theoretical codes. Further, field notes, which contained observations made by the researcher during interviews, were kept in NVivo memos. Further memos were kept discussing the process of coding

(code notes), and memos on theoretical codes were also kept. Data collection continued until no new themes emerged (i.e. saturation). Emerging codes were presented to participants in the later stages of the study to extend upon and redefine the theory. The theory was further refined and tested by utilizing disconfirming evidence and negative case analysis. Through theoretical sampling, the researcher modified the questions and the sample population being interviewed, in order to confirm or disconfirm emerging hypotheses and to improve understanding of the limits of the emerging theory.

A supervisory team assisted throughout the data analysis phase to ensure the validity of the data, by challenging ideas and discussing interpretation of codes, categories and the building of the theory. Further, through constant reflexivity during data analysis, the researcher sought to minimize the impact of subjectivity. These processes contributed to the inductive and deductive processes that are critical to building a theoretical model that is grounded in the data from the patients' perspectives.

Results

Developing the model

Participants reported six key factors that contributed to them not achieving their EWL post-LAGB and which led to them seeking revisional bariatric surgery. Following the grounded theory analysis of the 23 interviews, a model emerged with core category of unrealistic expectations of LAGB and five conceptual categories: Restriction of band, impacts on social interactions, desire for food choices that give reward, increase in consumption of high-calorie-dense food choices because of texture and reward and shame, loneliness and loss. These categories and a detailed description of the proposed model that identifies emergent processes and their interrelations are presented in the next sections, together with quotes that capture participants' experiences (Fig. 1).

Unrealistic expectations of LAGB

When recounting their initial decision, participants placed significant expectations on the LAGB surgery itself, to address their long-term difficulties in both social and health domains and limit the desire for high-calorie-dense foods. This belief in surgery as the only satisfactory solution to

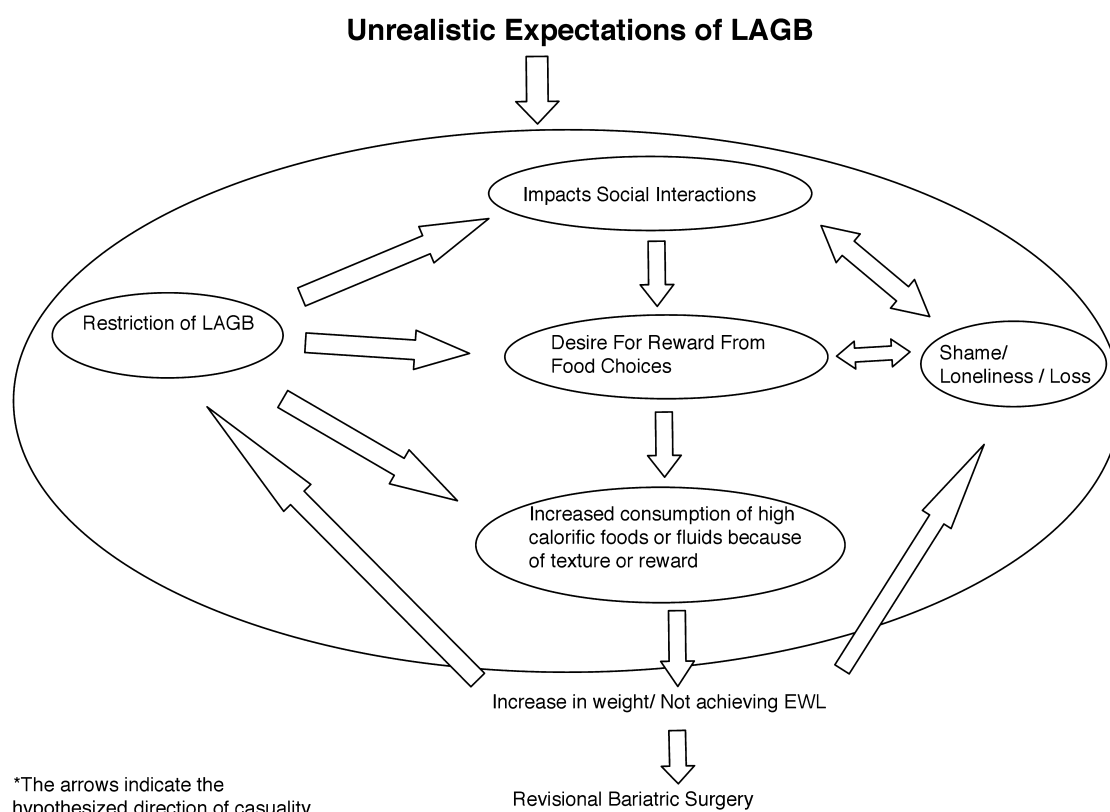


Figure 1 Grounded theory model for revisional LAGB participants.

these difficulties and their diminished responsibility suggests an external LOC. Unrealistic expectations of the LAGB through the process of selective coding were identified as the core category. This core category is the concept that appeared most frequently in patients' interviews and that all other categories were related to.

I entered into it thinking it was going to be a quick fix. I wasn't prepared to do the hard yards to make it work. So then I just didn't put any effort into it. I thought the band would, just solve everything. (Participant 2 reported 'everything' to be: health problems, weight, social and relationship difficulties and desire for high calorie-dense foods).

Restriction of band

The restriction of the band had significant psychosocial consequences in that it limited and impacted upon social interactions. Participants' responses reflected that the restriction of the LAGB was a significant factor in that it not only inhibited their ability to socialize but limited and dictated food choices and thus facilitated the development of maladaptive eating patterns.

I felt very restricted on what I could eat – there were so many things you couldn't eat that it was easier just to

eat things that I knew would work for me. (Participant 23)

Desire for reward from food choices

It was apparent from the participants' descriptions that the restriction, which is the function of the band, led to participants feeling deprived of the ability to eat certain foods and that in response to that deprivation, there was an increased desire for reward foods, such as ice cream and chocolate (both high in calories), which were described as comfort foods.

Ice cream was a big one. I drank a lot of chocolate milk; just things that would go down easily and I knew they'd stay down. I just wanted comfort foods too. Something that would make me feels good temporarily. (Participant 7)

Participants described how the functionality of the band led to an increased consumption of calorific foods and drinks.

I think it (restriction) had a lot to do with what I was putting in my mouth and how often I was and then when it was tight, I just ate more crap foods like ice cream and chocolate milk. (Participant 16)

Increase in consumption of high calorific foods or fluids because of texture or reward

Participants reported how the restrictive nature of the band led to the consumption of calorific foods (because of the texture) and the desire for reward.

I got to the stage where nothing would go down, I could just eat ice cream and everything else naughty as in chocolate because it would go through and it never got stuck. The minute you'd sit down to eating a meal of meat and vegetables, you would feel the restriction. Then I would just turn to the good old ice cream [comfort food] because I couldn't eat a normal meal. (Participant 19)

Thus, the restrictive nature of the band facilitated the development of maladaptive eating and drinking patterns. An increase in weight after a period of time or not achieving EWL was clearly attributed, by participants, to the inability to eat certain foods as a result of the restrictive nature of the LAGB. This was compounded by a desire for comfort or reward from food resulting in an increased consumption of calorific foods because of their texture. Participants indicated this perpetuating cycle of consumption of high calorie-dense foods led to not achieving EWL and elicited a feeling of failure.

The easiest foods to eat were the ones that weren't good for me like chips, chocolate, ice cream. I probably lost maybe four or five kilos in my first week on liquids. That's where I lost the majority of my weight, I was just not really eating the right stuff afterwards, because I couldn't eat proper food I ate the foods that could go through easily. I felt like I failed from the start. (Participant 16)

Impacts on social interactions

Participants' responses reflected that the restriction of the LAGB was a significant factor in inhibiting their ability to socialize. Participants reported they engaged less socially, felt excluded and that the quality of their relationships diminished.

I would say, when we'd be invited somewhere, 'Why would we go to that?' [can't eat]. So then we ended up not having much social life, we didn't spend as much time with friends. When you continue to say no, they end up stop asking. (Participant 12)

The consequences of not being able to eat out socially and feelings of loneliness, led to feelings of social deprivation and exclusion and thus, consuming foods that could be consumed because of their texture and that gave a experience of reward.

I found the only way around going out with friends was to sit at the table and not eat. That's very hard. And then

when I'd go home, I'd end up having chocolate or something like that, because I couldn't eat but I'd feel like I was missing out, it was horrible, so why bother going? I turned to a chocolate [comfort food] and things like that, because I couldn't eat what they were having, so I would eat what I could eat. (Participant 14)

Shame and loneliness

In sharp contrast to the initial hopes and expectations of the LAGB being a miracle cure, participants reported a feeling of shame with regard to not achieving EWL and then having a revisional procedure. The quote below illustrates the far-reaching impact of a failed bariatric procedure.

Yeah, over years of trying [to lose weight]. You've gone through all that pain and all that effort, you're actually worse off than where you started. It was all kinds of difficult. In such a dark place, so you don't want to go out [with friends]. And you just spent twenty thousand dollars. You spent a year in pain and everyone's watching you, as the weight goes down and everyone's watching it get back up. You're always unhappy and down. You just want to be invisible. (Participant 1)

Participants reported that they felt shame given they had failed to achieve EWL and that led to an increased desire for foods that give reward.

I hated myself so much, I was so ashamed and I just thought, I can't do it on my own, obviously, I've tried and tried, and this [LAGB] has got to work for me or you're going to be unhappy for the rest of your life. The more weight I put back on the more I hated myself. I just couldn't stop snacking and drinking the chocolate milk. (Participant 7: chocolate milk identified as a food that gave reward)

Participants identified that food relieved their emotional pain continued to assist in coping with negative affect.

I think because food was a crutch, that I think it will always remain that for me. I think it's my coping mechanism. Some people, I guess, have alcohol, and some people have drugs, I guess for me, food was my comfort, to help me through many difficulties. Yes, I think that hasn't changed, sadly. (Participant 17)

The following excerpt illustrates that the increase in weight and inability to sustain the weight loss precipitated feelings of shame.

I did think it was going to be the answer to my problems. I never thought I would be here again. [Regained all weight lost with LAGB.] So that's what makes me feel like I'm a failure. (Participant 12)

The conceptual category, shame/loneliness/loss has a bidirectional relationship with categories; Desire for reward from food choices and impacts on social interactions. Participants reported that increased negative affect, including grief, loss, shame and loneliness, precipitated emotional eating and described eating specific textured calorific foods as a coping strategy to deal with negative affect.

And I just wanted comfort foods. Something that would make me feel good temporarily. I wasn't in a good place mentally. Things that had good texture I guess, like ice-cream and milk and sweet things was more what I was craving – that sort of thing, just sweets, something to give me an instant feeling of happiness in my mouth, I guess. (Participant 5)

Participants reported the experience of failure with LAGB negatively impacted social interactions.

I felt like a failure with the lap band and I just felt that it wasn't anyone else's business. I didn't want to have to explain myself. (Participant 14)

Increase in weight/not achieving expected weight loss outcome

The increased restriction of the LAGB through adjustments because of the inadequate weight loss or regain precipitated the increased desire for reward /soothing from food and sabotaging behaviour.

The weight came back and I just found that it wouldn't matter how much the doctor tightened it up, I can always find ways around to satisfying my hunger. I would still continue to eat and eat, stuff I could get down I think it was a comfort, a compensation, or something, I just felt . . . I don't know whether it was guilt, I just wanted to eat sweet stuff. (Participant 4)

In addition, it is apparent from the quote below that increased negative affect, precipitated the desire for reward from high caloric food choices and resulted in weight regain.

About two years ago I started having troubles with putting the weight back on, overeating and I'd been upset over my daughter (grief and loss), and eating all the wrong foods. I was miserable as I put all of that weight (50 kg) that I had lost with the band, back on. When I fell in a heap, I turned straight to the bad. Sweets, chocolates and potato chips – the bad things that I have always had in my life for comfort. (Participant 12)

Increase in weight/not achieving EWL results in revisional bariatric surgery

Participants described that the inability to lose the weight or the experience of weight regain created an unpleasant emotional state and they thus sought additional bariatric surgery.

I quite desperate too, that I wasn't able to get the weight off and keep it off, and that I had to do something more permanent. I got down to about 71 kg but then I just put it all back on. (Participant 7)

Discussion

Currently, little is known about the causes of failure to reach EWL for patients whose LAGB procedure is unsuccessful. Previously, some of the reasons identified for failure to achieve EWL include the inability of bariatric surgery patients to make and sustain lifestyle and behavioural changes. Similarly factors that hinder weight management attempts in the non-bariatric population are emotional or habitual eating or reverting back to old dietary habits (15). This grounded theory study developed a causal model by examining the patients' perceptions of reasons for inadequate weight loss. The interpretation of the data suggests that the emerging model's core category is 'unrealistic expectations of LAGB'. Participants reported that they placed high expectations on the LAGB to address their long-term weight difficulties and perceived the LAGB surgery itself as the last resort to lose weight, as they had attempted and failed at many diets in the past. Significant expectations rested on the LAGB surgery itself to address their long-term difficulties in both social and health domains and limit the desire for high-calorie-dense foods. This externalized thinking pattern indicates limited ownership in making lifestyle and behavioural changes post-LAGB. This interpretation aligns with Rotter's (16) social learning theory notion, of internal and external LOC. LOC is described on a continuum and refers to the beliefs individuals have in the amount of control over their lives. In support of these interpretations, other studies have found that participants with an internal LOC were more successful in achieving their initial weight loss goals than programme completers with similar values who had an external LOC (17). A prior qualitative study also showed that patients conceptualized bariatric surgery as a miracle where the health professional is given a central role (18).

In addition to the perception, in this study, that the LAGB was the solution (and possibly as a consequence of this perception), the ongoing desire for high-calorie foods was not changed by the LAGB. Participants referred to as certain foods as 'an addiction' and 'that your body has to have it'. In recent literature, an addiction model of obesity has been proposed. Addiction is seen as prevalent in a percentage of people suffering from obesity as it resembles drug addiction. For example, responses to certain foods (those high in fat, salt and sugar) are similar to responses to addictive substances insofar as they engage brain systems and that they result in behavioural adaptations comparable to those engaged in drug use (19).

Although, LAGB imposes restrictions on the type and volumes of food consumed in a period of time, requiring patients to eat small meals at regular intervals, LAGB does not dictate the choice of all foods. In fact, the actual functionality of the band had a number of negative impacts on the participants in the study. They reported feelings of social deprivation as they felt excluded, which led to a desire for food choices that give reward to deal with this perceived negative affect. This rebound eating can be understood as consistent with restraint theory (20). The restraint theory was developed to evaluate both causes and consequences of the attempts to restrict food intake with the intent of losing or maintaining weight. The restraint theory postulates that eating patterns are influenced by the biological need for food on the one hand, and the cognitive efforts (restraint) to resist that desire on the other. Restraint can be both qualitative (type of food) and quantitative (amount of food). Thus, a perpetuating cycle of behaviour of rebound eating in response to the restriction of foods both in quality and quantity leads to increased consumption of specific high-calorie-dense foods because of the reward or the ability to consume them.

In addition, the LAGB affected participants in this study in the social domain: for example, they were not able to socialize by going out to dinner and, thus, the LAGB had a negative impact on their relationships with family and friends. In response to this social deprivation, participants regulated their negative emotional states by eating calorific food that is associated with comfort to cope with feelings of exclusion and the resulting loneliness. Thus, socio-cultural factors obstructed their weight loss. Other studies have reported that family were identified as invaluable sources of support (15). Further, shame and loneliness were seen as contributing factors to the negative eating cycle and had a bidirectional relationship with desire for reward from food choices. The experience of failure with the LAGB and requiring revisional surgery increased emotional distress and, thus, emotional eating, or emotionally triggered eating (21), which has been defined as a tendency to eat in response to negative emotions and as a method of coping with emotional distress. The increased distress of failure to achieve the expected weight loss outcome further perpetuates the maladaptive eating cycle.

According to Fairburn, binge eating develops as a consequence of excessive restriction either of calories or types of foods (22). The increase in restriction of the LAGB because of inadequate weight loss or weight regain reduces the volume of foods and types of foods maintaining the maladaptive eating cycle. As a consequence of the increased feelings of deprivation, there is an increased need for soothing from high calorific foods that can be ingested. Thus, the eating of high calorific foods is a method of coping with the negative affect and deprivation by providing comfort. As in other studies, emotional eating, or eating in response to

emotional distress, was reported by participants as a historical coping strategy that was still prevalent post-surgery (8). Further, consistent with other studies, emotional eating in this study was indicated as a risk factor for not achieving EWL post bariatric surgery.

The emerging model study suggests three important psychosocial vulnerabilities that may be present in patients who have failed to achieve EWL and have had revisional bariatric surgery: Unrealistic expectations of LAGB, ongoing and increased consumption of high-calorie-dense food as a primary coping strategy to cope with negative affect, and feelings of deprivation. The restrictive nature of the band may, in fact, facilitate maladaptive eating patterns in this subgroup of patients who have failed to achieve EWL and, thus, have revisional bariatric surgery. The findings of this causal model is illustrated using patients' perspectives and offers important insights as to what individuals perceive as the factors that have contributed to their failure with the LAGB and decision to have revisional surgeries.

Study limitations

The participants are from the same ethnic background. Additional research is required on the experiences of weight regain in other ethnic populations post bariatric surgery. Further qualitative research would be useful to confirm the model and, in particular, explore the experiences of those participants not achieving success post-revisional bariatric surgery.

Conclusions and recommendations for practice

Bariatric patients need to be informed on the importance of behavioural changes regarding high caloric foods and developing adaptive coping strategies to assist with emotional eating in order to achieve success and maintain weight in the long term. No patient identified lack of physical activity or ongoing clinic contact as factors that may have contributed to not achieving EWL or weight regain. Given these factors identified role in weight maintenance in the literature, longer term follow up and education is paramount. Consequently, the surgery should be promoted as a collaborative approach between patient, surgeon, and healthcare providers and the patient's role in making lifestyle and behavioural changes that incorporate physical activity highlighted. In addition, this study suggests the importance of the screening of potential bariatric patients, in particular those presenting for revisional surgery, both before and periodically after surgery which may help to identify those with an external LOC, taste for high calorific foods, and tendency for emotional eating in order to assist them to develop effective coping strategies to deal with the

social and emotional and challenges that they may experience post-bariatric and revisional surgery.

Conflict of Interest Statement

No conflict of interest has been declared.

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