Laparoscopic Adjustable Gastric Banding (LAGB) Aftercare Attendance and Attrition

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Abstract

Introduction: Regular aftercare attendance following Laparoscopic Adjustable Gastric Banding (LAGB) is associated with greater weight loss and fewer post-surgical complications. Despite high reported rates of attrition from LAGB aftercare, the reasons for non-attendance have not been previously explored. The present study aimed to explore patient reported barriers to LAGB aftercare attendance, and the perceived helpfulness of potential attrition-reducing strategies, in both regular attendees and non-attendees of aftercare. **Methods:** One hundred and seventy nine participants (107 regular attendees and 72 non-attendees) completed a semi-structured questionnaire, assessing barriers to attrition (101 items) and usefulness of attrition prevention strategies (14 items). **Results:** Findings indicate that both regular attendees and non-attendees experience multiple barriers to aftercare attendance. Non-attendees generally reported that barriers had a greater impact on their aftercare attendance. There was evidence for some level of acceptability for attrition-reducing strategies suggesting that LAGB patients may be receptive to such strategies. **Conclusions:** Current findings highlight the importance of assessing barriers to treatment in both attendees and non-attendees. It is proposed that addressing barriers that differentiate non-attendees from attendees may be most effective in reducing attrition from aftercare.

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Laparoscopic Adjustable Gastric Banding (LAGB) results in safe, substantial and durable weight loss [1]. However, maximum success following LAGB surgery requires continual life-long aftercare. This is essential for band adjustments [2, 3], weight and dietary assessments, patient education, and diagnosis of complications [4-7]. Although all patients are encouraged to regularly attend LAGB aftercare, non-attendance is common, with reported attrition rates ranging from 15% [3, 7] to more than 45% [8]. Failure to attend aftercare has been associated with the development of post-operative complications, poorer weight loss and maintenance, and inferior resolution of obesity related co-morbidities [5, 6, 8, 9]. However little is known about the facilitators and barriers to LAGB aftercare attendance [10]. A comprehensive assessment of aftercare attrition is essential to identify modifiable attrition risk factors and potential strategies to enhance attendance and maximise the benefits of LAGB.

Previous research assessing factors related to attrition from bariatric aftercare has not yielded consistent findings. A recent systematic review exploring predictors of attrition following bariatric surgery identified only eight studies addressing factors associated with aftercare attendance. Only four of these studies evaluated LAGB exclusively [10], and only two considered psychological constructs. The first found that depression, emotional eating, and traumatic childhood were associated with attrition [5]. The second found that only narcissistic personality was negatively associated with the attendance [9] . The other two LAGB studies considered the impact of travel distance to the clinic. Greater travel distance was associated with fewer follow-up visits in one study [8], and was not associated with aftercare attendance in the other [11]. No other factors associated with LAGB aftercare attendance were considered. The limited and inconsistent findings of these studies do not provide a thorough understanding of LAGB aftercare attrition.

The majority of research examining attrition across the non-surgical weight loss literature has assessed pre-treatment predictors of attrition [12]. Few consistent findings have emerged. For example, patient demographics including gender [13, 14], age [15-17], and initial BMI [13, 18] have demonstrated an association with attrition in several weight-loss studies, but not in others [19-21]. A recent systematic review of predictors of weight loss intervention attrition concluded that most demographic variables do not consistently predict attrition [22]. The review highlighted that patient psychological (e.g., high treatment expectations, motivation) behavioural (e.g., more previous weight loss attempts), and practical issues (e.g., travel distance) were more commonly associated with attrition than other baseline or pre-treatment variables (e.g., ethnicity) [22]. Findings were, however, inconsistent across studies with several psychological and behavioural variables demonstrating both negative and positive associations with attrition.

A less commonly used assessment approach involves contacting participants lost who discontinue treatment to obtain their reasons for treatment discontinuation [12, 23, 24]. This method allows for the evaluation of participants' perspectives on the barriers that lead to their attrition, and consideration of problems previously not anticipated by researchers [25]. This approach has identified practical barriers including lack of time, logistics, and work commitments as the primary reasons for attrition from weight loss interventions [26-29]. Other perceived barriers to attendance have included lack of treatment motivation [30-32], lack of treatment efficacy [33-35], factors associated with the treatment approach [29, 36], treatment being too demanding [37], health-related problems [32, 38], and dissatisfaction or issues with the treating clinician [12, 18]. Few weight loss studies[12, 24] have comprehensively and systematically considered patient reported reasons for attrition. None have examined this in a post-bariatric patient population.

One of the few studies to methodically assess weight loss treatment attrition utilised a structured telephone questionnaire to assess reasons for attrition. Practical difficulties accounted for almost half of the primary reasons for attrition, followed by unsatisfactory results (i.e., not achieving weight loss goals) and lack of motivation [24]. Additionally, a number of participants reported that attrition was motivated by satisfaction with treatment results [24]. However, this study did not ask treatment completers about their barriers to participation. Consequently it is not known whether those who completed treatment experienced fewer barriers or experienced similar barriers yet were able to overcome them. The one study to examine barriers to weight loss treatment in both treatment completers and non-completers assessed adolescents and their parents participating in a family-based cognitive behavioural lifestyle intervention [12]. While both completers and non-completers experienced barriers to participation, those who discontinued treatment reported experiencing significantly more treatment barriers [12]. There is a need for research to explore this further in order to determine which barriers discriminate drop-outs and which are experienced by both completers and non-completers.

There is an absence of research examining strategies to reduce attrition from bariatric surgical aftercare. Various strategies have successfully reduced attrition in non-surgical weight loss interventions. Strategies have included flexible treatment schedules [39, 40], providing convenient treatment locations [41] and treatment follow-up/reminder phone calls [42], altering the duration/intensity of treatment [43, 44], making treatment more culturally sensitive [45, 46], modifying the delivery mode of treatment [47, 48], support groups [49, 50], bringing a friend to treatment [51], group rather than individual treatment [52], providing incentives and rewards [53-55], including motivational programs [56], using motivational interviewing techniques [57-59], and targeting weight loss expectations[39]. Interventions perceived as helpful by consumers are more likely to be sought out, implemented, adhered to,

and maintained [60-65]. Thus, evaluating patient-perceived helpfulness of these strategies in reducing LAGB aftercare attrition will inform future intervention efforts.

The present study aimed to explore patient reported barriers to LAGB aftercare attendance and attitudes to potential attrition-reducing strategies. The primary aims were to identify which barriers made attending LAGB aftercare most difficult for both attendees and non-attendees, and to evaluate if there was a difference in attendees and non-attendees reported barriers to attendance . The secondary aim of the study was to initiate exploratory analyses of the perceived helpfulness of strategies aimed at reducing LAGB aftercare attrition.

Method

Participants

The sample comprised of 179 (female n = 134, male n = 45; M = 49.10 years, SD = 10.18 years) LAGB patients from a Melbourne (Australia) bariatric surgery clinic. Inclusion criteria were: (i) 18-70 years of age and (ii) having a LAGB procedure at the Centre for Bariatric Surgery (CBS) between 2005 and 2010. Participants were excluded from the study if in the past 12 months they had: (i) accessed LAGB aftercare from another service; (ii) experienced childbirth, a major illness, major surgery; (iii) experienced a long hospital stay (> 2 weeks); (iv) lived, or were currently living, interstate/overseas; or (v) had their gastric band removed.

Patients entered the aftercare program following standard placement of a LAGB (Lap-Band system, Inamed Health, Santa Barbara, California) by an experienced surgeon. Patients generally had their first visit four weeks after LAGB surgery, and were encouraged to attend the clinic approximately every four weeks until an adequate level of restriction was

reached. Patients were then encouraged to attend every four to eight weeks during the first year, and as required in subsequent years. Of note, the Centre for Bariatric Surgery does not charge an out-of-pocket fee for aftercare visits.

Two non-randomised groups were included in the study. Attendees were defined as patients who had attended between three and five LAGB surgical aftercare sessions in the past 12 months (n = 107). Non-attendees were defined as patients who had not attended any LAGB surgical aftercare sessions in the past 12 months (n = 72).

Materials

Pre-surgical clinical data including age, operation age, baseline weight, baseline BMI, baseline excess weight, and ideal weight was obtained from electronic medical records.

A semi-structured questionnaire was designed for the purpose of the present study to assess the perceived barriers to attending LAGB aftercare and the perceived helpfulness of strategies to support attendance. The scale was developed as per scale development guidelines [66, 67]. A large item pool was generated from a pre-existing survey used to assess obesity intervention attrition [12]; the theoretical and empirical attrition literature (e.g., [10, 22]); and qualitative research [10]. A panel of 26 expert clinicians and researchers assisted with the initial generation of the item pool and the final item review. This provides support for the face and content validity of the scale [66, 67].

The questionnaire comprised a list of 101 commonly perceived barriers to aftercare attendance (e.g., you had feelings of failure), and 14 potential attrition-reducing strategies (e.g., reminders to schedule appointments). Barriers were grouped into 10 themes derived from the literature including: treatment approach, motivation, expectations, mental health,

success, clinician related factors, behavioural factors, practical, physical health, and social/family support (Table 1). Participants were required to rate on a 5-point Likert scale (0 = 'not at all' to 4 = 'completely'), (i) how much each barrier made it difficult for them to attend aftercare, and (ii) the how much they perceived the strategy would help them to attend aftercare. The average score of items from each barrier theme was calculated to provide a theme score. All themes have acceptable internal consistency (α =.71 to .94) providing evidence of reliability. None of the potential attrition-reducing strategies had been used by the clinic from which participants were recruited (Note: while text message reminders are sent by the clinic the day before an appointment the patient has already booked, they are not used in an attempt to reduce aftercare attrition by prompting the patient to schedule an appointment).

Research Procedure

Ethics approval for this study was granted by Monash University Human Research Ethics Committee. Eligible patients were identified by clinic staff and forwarded an explanatory statement outlining the nature and purpose of the study and an opt-out consent form. Patients were instructed to return the opt-out form if they did not wish to be contacted regarding participation in the study. Those who did not return the opt-out consent form were contacted by the researchers via phone. Two phone call attempts were made to contact participants.

Patients who could be contacted within the study timelines (August through September 2012) were invited to take part in a 30-minute telephone questionnaire. Verbal consent to participate was obtained prior to commencement of the questionnaire. The telephone questionnaire was administered by two interviewers trained and supervised to

conduct the phone call by experienced clinical and health psychologists. Relevant clinical data (e.g., baseline BMI and weight) were obtained from the medical records of those who consented to participate.

Results

The flow of participants through the study is outlined in Figure 1. One hundred and seventy nine (20.72%) of the 864 potentially eligible patients sent an explanatory statement and invited to participate in the study completed the questionnaire.

(Figure 1)

Sample characteristics

Descriptive statistics are reported for the overall sample and for attendees and non-attendees separately (see Table 1). Baseline weight, BMI, and excess weight, as well as self-reported current weight and BMI were significantly higher for non-attendees than attendees. Percentage of excess weight loss (%EWL) was significantly higher for attendees than non-attendees. The groups did not differ significantly in terms of gender, current age, operation age, ideal weight, weight or BMI loss.

(Table 1)

Barriers to aftercare attendance

Descriptive statistics for themes are summarised in Table 2.

(Table 2)

Mixed factorial Analysis of Variance (ANOVA) were performed to compare the barrier themes and perceived helpfulness of strategies between groups. Post-hoc tests were also undertaken. Overall non-attendees (M = .74, SD = .42) rated barriers higher than attendees (M = .476, SD = .41), $F(1, 177) = 17.25$, $p < .001$, partial $\eta^2 = .09$. There were also significant differences between barrier themes for the group as a whole, Pillai's Trace = .70, $F(9, 169) = 42.97$, $p = < .001$, partial $\eta^2 = .70$. Non-attendees had significantly higher ratings for barrier themes of motivation ($F(1, 177) = 23.19$, $p < .001$, partial $\eta^2 = .12$), practical barriers ($F(1, 177) = 12.97$, $p < .001$, partial $\eta^2 = .07$), treatment approach ($F(1, 177)$, = 11.23, $p = .001$, partial $\eta^2 = .06$), and mental health ($F(1, 177)$, = 13.91, $p < .001$, partial $\eta^2 = .07$). No further significant group differences for barrier themes emerged.

(Figure 2)

There were also significant differences within the groups among the barrier themes, Pillai's Trace = .13, $F(9, 169) = 2.91$, $p = .003$, partial $\eta^2 = .13$. The order of impact of barrier themes for each group is presented in Table 3.

(Table 3)

Perceived helpfulness of strategies for attendance

There were no significant between group differences in ratings of attrition strategies, the interaction Pillai's Trace = .09, $F(13, 161) = 1.17$, $p = .301$, partial $\eta^2 = .68$, and group main effect $F(1, 173) = 3.48$, $p = .064$, partial $\eta^2 = .02$, were not significant. There was a significant main effect of strategy, Pillai's Trace = .83, $F(13, 161) = 59.03$, $p < .001$, partial

η^2 = .83 as summarised in Table 4. An 'appointment reminder' was perceived to be the most helpful strategy to maintain attendance at aftercare. This was followed by 'a behaviour change/modification program', 'a motivational program', 'being part of an LAGB support group', and 'telephone based follow-up appointments'.

(Table 4)

Discussion

This study examined the reported barriers to LAGB aftercare attendance and the perceived helpfulness of strategies aimed at increasing attendance. Both groups reported experiencing multiple barriers to attendance and a number of treatment barrier themes were equally endorsed by both attendees and non-attendees. However, a number of other barrier themes differentiated attendees and non-attendees and these barriers may be important factors in non-attendance. Both groups perceived a number of attrition strategies as being helpful to increase attendance with some more highly rated than others.

Non-attendees reported significantly more motivational, practical, treatment approach, and mental health barriers. These findings are consistent with the literature identifying motivational, practical, treatment approach, and mental health factors as barriers to weight loss intervention attendance [14, 17-19, 24, 28, 36, 68]. This also supports the finding that those who drop out of treatment generally experience more barriers than treatment completers [12]; however this was not consistent across all barrier themes.

Attendees and non-attendees did not differ in the ratings of expectations, success, clinician related, behavioural, physical health, and social/family support barriers. This is consistent with previous research [12] indicating that both treatment completers and dropouts experience barriers to treatment completion. The finding highlights the limitations of research

examining perceived barriers in dropouts only and calls into question the conclusions drawn based on this research. Several studies have reported that those who drop out of treatment perceive expectations, success, clinician related, behavioural, physical health, and social/family support as barriers to treatment completion [23, 32, 38], leading to the conclusion these factors contribute to attrition. For example, Grossi et al. [24] reported that patients attributed attrition to lack of treatment efficacy (associated with expectations) and success. However, in the current study expectations and success were among the most highly endorsed barrier themes for both attendees and non-attendees, with no difference in ratings between groups.

This study also aimed to identify which barriers were rated as most difficult in relation to aftercare attendance. Practical, expectations, success, motivation, and treatment approach barrier themes were rated significantly higher than all other barriers. This indicates that non-attendees experience multiple barriers to treatment attendance. This is consistent with previous findings indicating that multiple barriers are associated with attrition [23, 24, 35, 63]. It is possible that attrition from treatment acted as a means of reducing, and thus coping with, the stress of multiple problems [69].

The present study also revealed that expectations, success and practical barriers were the highest endorsed barriers for attendees. Expectations and success were rated higher than all other barriers except for practical barriers, and practical barriers were rated higher than all other barriers except for motivation and treatment approach. This suggests that those who attend treatment experience barriers in a similar fashion to those who do not attend.

Targeting barriers that discriminate non-attendees from attendees may be more beneficial at reducing the rate of attrition than targeting barriers experienced by both groups. It was thus of interest to establish which of the barrier themes that differentiated the groups were most highly endorsed by non-attendees. Among non-attendees there was no difference

in the reported ratings of motivational, practical and treatment approach barriers; all of these barriers were rated significantly higher than mental health. This suggests that focusing on strategies to increase motivation (e.g., motivational interviewing), reduce practical barriers (e.g., altering the location of treatment), and alter the treatment approach (e.g., mode of delivery) may be most effective in reducing attrition.

Of note, attendees had a significantly higher percentage of excess weight loss than non-attendees. This finding is consistent with previous research identifying an association between continued treatment participation and improved percentage excess weight loss outcomes [3, 5, 6, 8, 9, 21]. However, it is unknown whether poorer percentage excess weight loss preceeded or followed of aftercare attrition. Importantly, while the groups differed in terms of percentage excess weight loss, both groups lost similar amounts of absolute weight, but the non-attendees were heavier pre-surgery. Previous research shows that pre-surgical weight may be a risk factor for poorer percentage excess weight loss[70], and that it may also be an important risk factor for treatment attrition[71]. These results further highlight the importance of focusing on barriers that discriminate non-attendees from attendees, as targeting individuals who experience these barriers with strategies aimed at minimising attrition may increase their continued participation and improve surgical outcomes.

A secondary aim of the study was to explore which strategies aimed at reducing LAGB attrition are perceived to be the most helpful. Knowledge about perceptions of intervention helpfulness is important as perceived helpfulness is associated with treatment engagement and adherence [60-65]. None of the potential attrition-reducing strategies had been used by the clinic from which participants were recruited. Reminders (e.g., telephone calls or text messages) to schedule appointments, was perceived to be the most helpful strategy for maintaining attendance. Following this, pre-treatment counselling, a behaviour

change/modification program, a motivational program, inclusion in an LAGB support group, and telephone based follow-up appointments were perceived to be the next most helpful strategies, with no significant difference in acceptability ratings. Implementation of these strategies may enhance patient engagement and adherence and reduce attrition. Of note, there was no difference in the perceived helpfulness ratings of strategies between attendees and non-attendees.

Combined these results indicate that practical, expectations, success, motivation, and treatment approach were barriers to all participants, and non-attendees reported significantly more motivational, practical, treatment approach, and mental health barriers than regular attendees. These findings highlight the limitations of a medical model, involving surgical intervention and individual responsibility for change, in the surgical treatment of obesity. Better outcomes may be expected with the use of a chronic disease model of care. This is - a patient-centred systematic interdisciplinary approach to care encompassing self-management support, community resources, integrated multidisciplinary teams and multiple treatment modalities [72]. The model is based on the assumption that improvement in care and outcomes require an approach that engages people, primary care services, broader health services, and the community in the process of chronic disease management [72][73-77]. These programs (e.g., [76, 77]) have achieved improved health outcomes in the treatment of a range of chronic diseases [77-79].

Recently the literature has begun to recognise that obesity is a chronic disorder requiring a chronic disease model of care [72, 73]. Given the serious and chronic nature of obesity, the complexity of its management, and the multiple daily self-care decisions required a standard aftercare program may not be adequate over the course of a patient's life [80]. This is particularly true when care has been designed to fit the patient’s surgery, but has not been tailored to fit the person’s priorities, resources, goals, culture and lifestyle. The current

findings that motivational, practical, treatment approach and mental health barriers were associated with non-attendance supports the use of a multidisciplinary chronic disease approach in a bariatric surgery aftercare. This is strengthened by findings that care involving both the wider community (e.g., being part of a LAGB support group) and service providers (e.g., behaviour change/modification program, motivational program) are accepted by this population. Use of a chronic care model could guide attempts to enhance treatment engagement and outcome. Research is required to evaluate the impact of a chronic care approach to bariatric surgery.

It is important to consider the present findings in light of a number of limitations. Firstly, the questionnaire was developed for the purpose of the present study and limited psychometric evaluation had been conducted. Whilst temporal stability and construct validity were not assessed, development of the questionnaire followed recommended procedures for scale development. This included item generation with input from a panel of experts, followed by an expert panel review [66, 67], which provides evidence of face and content validity. Each theme demonstrated good internal consistency, and non-attendees rated barriers higher than attendees, providing evidence of reliability and known groups validity respectively. Unlike the few other structured measures used in published studies assessing attrition from obesity interventions, this scale has undergone preliminary psychometric testing demonstrating good internal consistency, face, content and known groups validity. However, further development and validation of this questionnaire is recommended.

A second limitation is the relatively large proportion of participants who could not be contacted (39%) or who opted out of participating (29%). The less than optimal response rate occurred despite effort to maximise the response rate (i.e., use of opt out consent, multiple attempts to contact via telephone, follow-up mail out). This may have resulted in selection bias such that those participating in the study were not reflective of the general LABG patient

population. Another limitation relates to the possibility of memory bias for non-attendees as the barriers to attendance were investigated retrospectively. This is a common limitation in research exploring reasons for attrition after it has occurred [12, 24]. In light of this, it was anticipated that the impact of memory bias would be reduced by asking participants about what barriers to attendance they have experienced in the last 12 months. Lastly the Centre for Bariatric Surgery does not charge an out-of-pocket fee for aftercare visits. Therefore results may not generalise to clinic settings that charge patients for aftercare appointments.

Notwithstanding the acknowledged limitations, this study addresses key gaps in the literature and possesses several strengths. This was the first study to comprehensively examine LAGB patient perspectives on barriers to aftercare attendance and potential attrition reducing. Patients were provided with an extensive list of potential barriers and strategies allowing for greater detail and specificity in response. Further, this list was informed by a prior measure of obesity treatment attrition [12], theoretical and empirical literature (e.g., [22, 71]), ongoing research [10], and expert input and review.. In addition, administering the questionnaire to both attendees and non-attendees permitted a comparison of similarities and differences in barriers experienced between groups. Despite the large number of participants that could not be contacted or who opted out, the use of opt-out consent was also a strength in that it maximised possible response rates and therefore potential generalisability of outcomes. Participants were also contacted by impartial researches not involved in their treatment thus facilitating unbiased results.

The findings of this study have several implications for future research and practice. This is the first study to recognise that both attendees and non-attendees experience barriers to LAGB aftercare attendance, emphasising the importance of assessing barriers to treatment in all patients. Identifying that motivational, practical, treatment approach and mental health barriers were more common among non-attendees than attendees highlights their importance

in treatment attrition. The high rate of barriers experienced by regular attendees suggests that there are means by which individuals can overcome these barriers. Research is required to examine the approaches adopted by individuals who attend aftercare despite experiencing barriers yet. This knowledge has the potential to enhance existing attrition-reducing strategies. Additionally, addressing barriers that are experienced by both groups may increase overall aftercare engagement thus improving both treatment attendance and outcomes. Further steps should also be taken to comprehensively validate the questionnaire used in this study.

In summary, the current study contributes to the small body of literature considering attrition following bariatric surgery. Multiple barriers to attendance were experienced by both attendees and non-attendees. Results highlight the importance of systematically evaluating barriers to attendance in all treatment participants. Given aftercare is an essential component in the success of bariatric surgery [6, 7], the identification of barriers that distinguish non-attendees from attendees provides important information. This study also identified a range of strategies that were perceived by both attendees and non-attendees as being potentially helpful in assisting them to attend aftercare. Further research is required to assess the impact of these strategies on attrition.

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Dr Paul O'Brien reported having written a patient information book entitled "The LAP-BAND Solution: A Partnership for Weight Loss" which was published by Melbourne University Publishing in 2007. Most copies are given to patients without charge but he reports that he derives a financial benefit from the copies that are sold. He also reports receiving compensation as the national medical director of the American Institute of Gastric Banding, a multicentre facility, based in Dallas, Texas, that treats obesity predominantly by gastric banding.

No other authors reported disclosures.

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Figure Legend

Figure 1

Flow chart of participants through study.

Figure 2

Reported barrier theme means and standard error bars for participants according to attendance status.

Table 1

Total Sample Characteristics and Comparisons of Mean (SD) Characteristics for Attendee and Non-attendee Groups

Characteristic	Total (*n* = 177) *M(SD)*	Attendees (*n* = 107) *M(SD)*	Non-attendees (*n* = 70) *M(SD)*	Independent Sample T-test
Surgical				
Age (years)	44.85(10.05)	44.76(10.53)	45.14(9.25)	$t(175) = -.24$, $p = .808$
Weight (kg)	122.05(25.41)	116.90(23.32)	129.47(26.92)	$t(175) = -3.30$, $p = .001$
BMI	43.05(7.78)	41.53(7.28)	45.37(8.09)	$t(175) = -3.28$, $p = .001$
Excess weight (kg)	51.18(22.70)	46.54(20.78)	58.08(24.14)	$t(175) = -3.39$, $p = .001$
Ideal weight	70.87(7.33)	70.36(6.94)	71.39(7.72)	$t(175) = -0.92$, $p = .357$
Survey				
Age (years)	49.10(10.18)	48.77(10.79)	49.71(9.16)	$t(175) = -0.61$, $p = .545$
Weight (kg) [a]	99.66(23.80)	93.74(21.58)	108.71(24.32)	$t(175) = -4.29$, $p < .001$
BMI[a]	35.16(7.49)	33.28(6.97)	38.03(7.40)	$t(175) = -3.28$, $p < .001$
Weight lost[a]	22.21 (14.60)	23.17(15.60)	20.75(12.89)	$t(175) = -1.08$, $p = .282$
BMI change [a]	7.89 (5.18)	8.25(5.57)	7.34(4.50)	$t(175) = 1.14$, $p = .255$
% EWL[a]	46.70(26.95)	52.50(28.04)	37.85(22.65)	$t(167.3) = 3.82$, $p < .001$

Note. BMI= Body Mass Index (kg/m^2). %EWL = percentage of excess weight loss ((baseline excess weight/(baseline weight-current weight)) x 100; excess weight is defined as the weight in kg above BMI of 25 kg/m^2; ideal weight is weight in kg at a BMI of 25 kg/m^2

[a] Based on self-reported weight data, 2 non-attenders did not report current weight

Table 2

Means, Standard deviations, Range, and Reliability Analyses for each Barrier Theme

Barrier theme	Description	Sample Question	Number of items	*M*	*SD*	Range
Treatment approach	Goals, focus and strategies of aftercare visits.	The aftercare program did not deal with the cause of your problems	30	.70	.66	.00 - 2.87
Motivation	Motivation to attend and to lose weight.	You were not motivated enough to attend appointments	8	.77	.67	.00 - 2.88
Expectations	Achievement of expectations regarding weight loss and aftercare.	You did not lose as much weight as you were hoping	7	1.06	1.03	.00 - 4.00
Mental health	Mental health and wellbeing.	You were feeling too depressed or unhappy to attend appointments	4	.46	.76	.00 - 3.40

Success	Perceived success following surgery.	You are doing so well you don't need to attend	3	.97	1.04	.00 - 4.00
Clinician factors	Clinician approach behaviours and attitude.	The surgeon/physician did not understand you	18	.51	.58	.00 - 2.60
Behavioural factors	Behaviour changes strategies and expectations.	The "8 golden rules" were too hard to follow	4	.37	.57	.00 - 2.45
Practical barriers	Barriers, competing demands and commitments.	You had a long way to travel to clinic	17	.82	.61	.00 - 2.94
Physical health	Physical illness and injury	You were injured and could not attend appointments	4	.30	.55	.00 - 2.70
Social/family	Support from family for attendance	Your partner/significant other did not think	6	.10	.28	.00 - 3.17

support and compliance. you should attend

Table 3

Comparison of Mean Barrier Theme Rating Within the Attendee and Non-attendee Groups Separately

Attendees		Non-attendees	
Barrier theme[a]	*M*[b]	Barrier theme[a]	*M*[b]
1. Expectations	.896	1. Expectations	1.228
2. Success	.841	2. Success	1.097
3. Practical barriers*	.659	3. Motivation*	1.009
4. Motivation*	.536	4. Practical barriers*	.983
5. Treatment approach*	.531	5. Treatment approach*	.873
6. Clinician factors	.346	6. Mental health*	.680
7. Mental health*	.345	7. Clinician factors	.584
8. Behavioural barriers	.282	8. Behavioural barriers	.456
9. Physical health	.231	9. Physical health	.361
10. Social/family support	.098	10. Social/family support	.102

a. Barrier themes mean ratings are ordered from highest mean to lowest mean for each group separately.

Table 4

Perceived Helpfulness of Strategies to Maintain Attendance at Aftercare in the Entire Sample

Attrition strategy	M^b
1. Reminders (e.g., telephone calls or text messages) to schedule appointments	2.64
2. Pretreatment counseling or therapy	2.01
3. A behaviour change/modification program	1.99
4. A motivational support program	1.97
5. Being part of a LAGB support group	1.76
6. Telephone based follow-up appointments	1.72
7. Internet based follow-up program	1.50
8. A group program	1.40
9. Bringing a spouse of friend to visits	.89
10. More frequent visits	.88
11. Incentives or rewards for attendance	.87
12. Signing a contract with the surgeon/physician to attend appointments	.68
13. Making visits more sensitive to your cultural needs	.38
14. Less frequent visits	.23

[a] Strategies are ordered from highest mean to lowest mean.

Figure
Click here to download Figure: LAGB Aftercare Attendance and Attrition Figures.docx

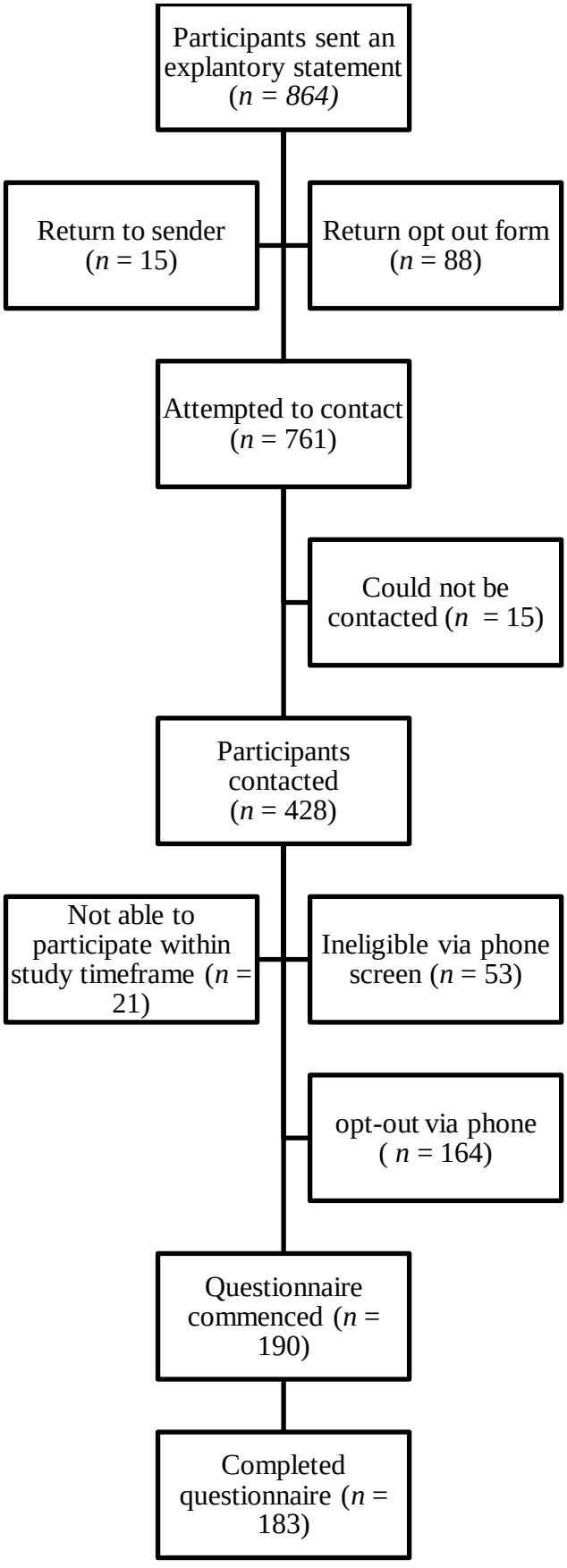

Figure 1. Flow chart of participants through study.

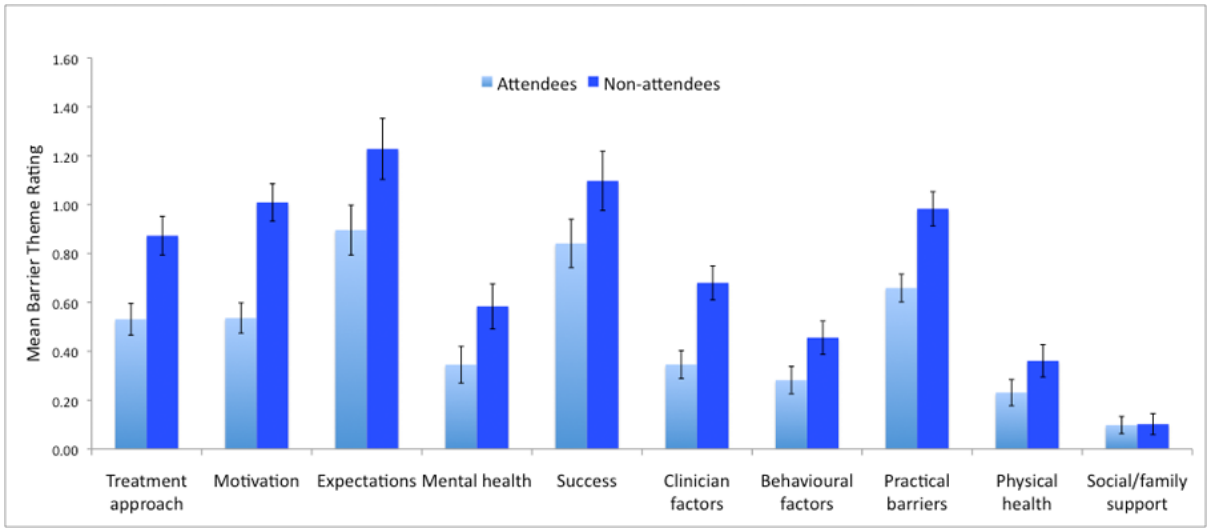

Figure 2. Reported Barrier Theme Means and Standard Error Bars for Participants According to Attendance Status.