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How well does it fit? Process evaluation of a multidisciplinary pre- and postoperative metabolic bariatric surgery support programme: A patients' perspective

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Summary

Multidisciplinary support can help patients improve health and cope with changes after metabolic and bariatric surgery (MBS). However, there is uncertainty regarding what intervention components, delivery methods and intensity are effective. To understand how intervention effects are achieved, we performed a process evaluation of a 15-session pre- and post-MBS programme comprising medical, dietary and psychological interventions delivered via group sessions until 9 months postsurgery. The evaluation examined programme relevance, perceived fit and practicability ('appropriateness') and satisfaction with content and delivery ('acceptability'). Interviews ($n = 11$) and focus groups ($n = 2$) were performed with 21 patients in different programme phases. Programme fidelity was assessed using administrative data on attendance in 1.396 patients. Presurgery, practicing with postoperative recommendations and multiple social components, was described as useful. Although participants found several postoperative components helpful (e.g. meal planning), the perceived fit was lower due to group delivery, session spacing and varying needs. Attended programme time postsurgery was lower than presurgery. Individual needs varied in terms of support intensity and type, and by gender, age and surgery type. Participants recommended greater session spacing, as maintaining behaviours >1 year postsurgery was expected to be most challenging. Participants requested additional information on negative lived experiences, exercise and coping with various postoperative changes. Programme fit can be improved by taking patients' varying needs into account in a flexible programme, with a duration beyond the first postoperative year, and more attention to negative lived experiences, exercise and coping with changes.

KEYWORDS
acceptance, appropriateness, cognitive behavioural therapy, metabolic bariatric surgery, nutritional therapy, process evaluation

What is already known about this subject

- Multidisciplinary support arround metabolic bariatric surgery is recommended.
- Some beneficial effects of (multidisciplinary) behavioural support interventions on post operative health outcomes have been reported.
- Although recommended, it is unclear which aspects of metabolic bariatric surgery support interventions are seen as appropriate and accepted by patients.

What this study adds

- Studying whether patients find support programmes appropriate and acceptable is crucial for understanding their effectiveness, and it enables optimization.
- This study shows that participants placed a high value on various aspects of the studied support programme, including pre-operative practising of postoperative recommendations, multiple types of social support and attention for meal planning and food choices.
- Moreover, we identify key factors regarded as important by participants for optimizing support, relating to the degree of personalization, continuity of support (including timing and spacing), post-surgery expectations and intervention delivery modes (e.g. in groups, individual and online).

1 | INTRODUCTION

Treatment of obesity is complex due to the many biological, psychosocial, behavioural and environmental factors that may undergird its aetiology. Obesity treatment can include lifestyle interventions, behavioural therapy, pharmacotherapy and/or metabolic and bariatric surgery (MBS).[1] MBS is the most invasive treatment, but for individuals with severe obesity, it is currently the most effective intervention for weight reduction, resolution of comorbidities and improvement of quality of life (QoL) over the longer term.[1–4]

Professionals and patients advocate that, in addition to MBS, lifestyle and psychological support are necessary to adjust to the required everyday changes.[5–7] Professionals, peers and others (e.g. social networks) can be of great value to the patient to improve or maintain health and to cope with changes and problems after MBS. Multidisciplinary support is recommended[5]; however, there is still much uncertainty about how to configurate optimal supportive care for individuals undergoing MBS. Therefore, more evidence is needed on which intervention components, delivery methods, intensity and timing of interventions are helpful to support patients in promoting and maintaining physical and mental health over time.

Several reviews and meta-analyses investigated the effects of pre- and postoperative behavioural,[8–10] psychosocial[11] and physical activity interventions.[12,13] Marshall et al. focused on multidisciplinary treatment before and after MBS: for weight loss, postoperative interventions were more effective than usual or less intensive care, which was not observed for pre-operative interventions. Julien et al. reported similar findings concerning behavioural interventions.[8] Both pre-operative and postoperative interventions have been described to improve symptoms of depression, anxiety, QoL, diastolic blood pressure and resting heart rate.[10] However, the authors of these reviews reported methodological issues in study designs and heterogeneity in interventions and measured outcomes. Moreover, not all meta-analyses could detect beneficial effects on weight loss.[9,13]

Until now, the majority of studies have performed outcome evaluations of interventions, with weight change being the most frequently studied outcome.[8–13] However, investigating effectiveness, while important, is not sufficient. To be able to optimize complex programmes in real-life settings, an understanding of how these effects are achieved is needed. Process evaluation can help to see which mechanisms play a role in behaviour change and/or maintenance, which contextual factors are associated with variation in outcomes, and to assess fidelity and quality of implementation.[14,15] Such understanding enables us to better explain, sustain and improve programme effectiveness. Some studies have investigated process outcomes, for example, intervention fidelity outcomes,[16,17] acceptance or needs for interventions surrounding surgery.[18,19] Concerning acceptance and appropriateness of post-surgery follow-up, previous studies state that patients desire more psychological support and lack guidance on long-term lifestyle changes.[6,7]

Currently, there is a lack of comprehensive process evaluations for MBS support programmes. This study addresses this gap by examining the views of patients enrolled in a pre- and post-surgery multidisciplinary support programme, which includes cognitive behaviour therapy (CBT) and nutritional support via group sessions (10–12 patients) until 9 months after surgery. This 15-session programme (pre-surgery: 5, post-surgery: 10) is provided by an obesity clinic, part of a Dutch general public hospital. The study evaluated three implementation

outcomes in patients: 'appropriateness' (i.e. relevance, usefulness, perceived fit, suitability, practicability and compatibility), 'acceptability' (i.e. of content, complexity, comfort, delivery and credibility) and 'fidelity' as the delivered programme intervention dose (i.e. frequency and minutes of attendance).[20] The evaluation enables optimization of the support programme to better fit with patients' needs.

2 | MATERIALS AND METHODS

2.1 | Study design

The study employed mixed methods, including interviews, focus groups and analysis of administrative data. Qualitative methods were used as they allow for the collection of detailed descriptions, which are needed to better understand the experiences of patients enrolled in complex health behaviour programmes.[21] Multiple methods were combined to enhance data rigour by triangulation. The study procedures were approved by the local feasibility ethical committee of Rijnstate Hospital, the Netherlands.

2.2 | Setting: the programme

At Vitaly's obesity clinic (part of general public hospital Rijnstate, Arnhem, the Netherlands), approximately 1.500 patients undergo MBS annually. All patients participate in a pre- and post-MBS support programme, hereinafter referred to as the 'programme' In addition to 5 years of medical follow-up by a physician or specialized nurse, cognitive behaviour therapy (CBT) and nutritional support are provided by a psychologist and dietician until 9 months post-surgery. The CBT component of the programme focuses on developing adaptive cognitions and behaviours. Nutritional support is based on the Dutch dietary guidelines and MBS specific recommendations due to the altered anatomy of the patient.[5]

The programme is offered via face-to-face group sessions with 10–12 participants. During the COVID-19 pandemic, group sessions were delivered online (March 2020 until May 2022). Table 1 summarizes the programme sessions. The programme includes 15 sessions (1170 min), of which five sessions are in the pre-surgery programme (450 min). Sessions have a duration of 90, 75 or 45 min. If patients need extra counselling by a dietitian or psychologist, additional individual sessions are planned. Supporting materials and tools include a printed reader with information and session content, the clinics' website, an app with programme information (e.g. appointments and information flyers) and a social media page for patients. Patients can voluntarily participate in a WhatsApp group chat with their support group members (HCPs are not involved).

Pre-surgery, patients participate in five weekly group sessions. These aim to enhance readiness for surgery and educate patients on key topics related to the post-surgery diet. During the fifth session, an expert by experience shares his/her experiences with surgery and life after the procedure. A close social contact of each patient (e.g. partner) is also involved in the fifth session.

Post-surgery, there are five monthly sessions, followed by five biweekly sessions. The post-surgery programme aims to inform patients about the postoperative period and risks, how to maintain a regular eating pattern, recognize and cope with triggers for overeating, and make a conservation plan. It was chosen to increase the session frequency later in the programme, as it was expected that patients would find it more difficult to change and/or maintain favourable behaviours as time progressed.

Behavioural change techniques used during the programme include psychoeducation, goal setting, problem solving, (self-)monitoring, identifying triggers for overeating, cognitive restructuring and relapse prevention.

Programme participants were informed that they could only miss one pre-operative session and three postoperative appointments (the latter including all clinic appointments). After the study period, a small financial penalty was introduced in case patients did not report their absence in a timely manner.

The programme is fully funded via reimbursements from enrolled patients' health care insurance. The Dutch healthcare system is predominantly public, and all residents are required to hold a healthcare insurance. Individuals receive a referral for MBS via their general practitioner.

The group sessions were generally not aligned with medical appointments due to scheduling related reasons.

2.3 | Interview and focus group participants

All patients who underwent a primary Roux-en-Y gastric bypass or gastric sleeve gastrectomy and who were participating in the group programme or had finished it <3 months ago, were eligible to participate in an interview or focus group. Maximum variation sampling was used to recruit patients who were at different time points in the programme: in the beginning (until postoperative session 4); the latter part (postoperative session 5–10) and after completion (<3 months after ago at initial contact). By recruiting at different time points, we aimed to explore patient perspectives at different stages of the programme and to reduce memory bias. Eligible patients were invited via letter or e-mail from the clinic, information flyers in the clinics' waiting rooms, online via the clinics' website and social media page, and face-to-face at the end of programme sessions.

During three invitation rounds, a total of 314 patients were invited via e-mails and letters. Together with the other approaches, 42 patients responded, of which 21 participated. Most participants were recruited during the first invitation round (184 invited and 17 participated); the last two rounds focused on recruiting individuals at specific time points. Figure 1 shows a flowchart of recruitment.

2.4 | Theoretical framework

This study was grounded in a phenomenological orientation. The process evaluation focused on exploring 'appropriateness' and

TABLE 1 Overview of sessions in the pre- and postoperative group support programme.

Session	Week (session duration)	Interventionists	Topics
Pre-surgery programme			
1. Introduction and regular eating pattern	Week 1 (90 min)	• Psychologist • Dietician	• Education on normalizing new eating pattern (hunger types, regular eating, meal planning) • Education on the role of surgery effects and behaviour over time • Education on the Dutch dietary guidelines • Education on vitamin supplementation after surgery • Explanation of diet registration • Pre-surgery weight management
2. Regular eating patterns and planning	Week 2 (90 min)	• Psychologist • Dietician	• Discuss diet registrations • Normalize new eating pattern • Meal planning • Separating eating and drinking • Eating and drinking tempo (exercises during session)
3. Normalizing new eating pattern, self-control and eating pattern after surgery	Week 3 (90 min)	• Psychologist • Dietician	• Discuss diet registrations • Normalize new dietary pattern • Meal planning • Self-control • Post-surgery diet (e.g. protein intake, sugar and gastrointestinal complaints, and carbonated drinks)
4. Normalizing new eating pattern, eating pattern after surgery and weight change after surgery	Week 4 (90 min)	• Psychologist • Dietician	• Discuss diet registrations • Normalize new dietary pattern and meal planning • Self-control • Liquid diet after surgery • Going from liquid diet to solid foods • Weight change after surgery over time: expectations and influencing factors • Other effects of bariatric surgery (e.g. excess skin and potential complications) • Discuss personal goals besides weight loss
5. Session with expert by experience and close social contact	Week 5 (90 min)	• Psychologist	• Discuss implications of surgery with patients, one of their close social contacts and the psychologist (45 min) • An expert by experience shares his/her story and interacts with patients (45 min)
Surgery and surrounding care	Up to 3 weeks after surgery	• Medical team • Dietician	Patients receive call from dietician
Post-surgery programme			
1. Nutritional aspects	Week 1 (75 min)	• Dietician	• Discuss how patients feel after surgery, questions, problems and positive experiences • Vitamins / minerals • Dumping syndrome • Defecation pattern • Adequate fluid intake
2. Protein intake	Week 4 (75 min)	• Dietician	• Adequate protein intake • Physical activity
3. Food labels	Week 8 (75 min)	• Dietician	• Discuss adequacy of food intake in current phase • Reading food labels
4. Nutritional aspects	Week 12 (45 min)	• Dietician	• Social occasions • Weight change over time • Alcohol • Explanation of food records • The psychologist inventories group needs on psychological level
5. Normalizing new eating pattern	Week 16 (90 min)	• Psychologist • Dietician	• Normalize new eating pattern (repetition) • Hunger and satiety • Portion size

TABLE 1 (Continued)

Session	Week (session duration)	Interventionists	Topics
6. Recognizing triggers	Week 18 (90 min)	• Psychologist • Dietician	• Discuss normalizing new dietary pattern • Recognize unhelpful thoughts and difficult situations • Recognize triggers by analysing behaviour • Social occasions: going out for dinner • Reading recipes • Alcohol consumption after surgery
Consultation with nurse	Week 18	• Medical team	
7. Recognizing and coping with triggers	Week 20 (45 min)	• Psychologist	• Discuss normalizing new dietary pattern • Behavioural analysis • Proactive problem solving
8. Recognizing and coping with triggers	Week 22 (90 min)	• Psychologist • Dietician	• Recognize triggers • Proactive problem solving • Making choices in the supermarket • Reading food labels
9. Coping with triggers and conservation plan	Week 24 (45 min)	• Psychologist	• Recognize triggers by analysing behaviour • Coping with triggers: proactive problem solving • Conservation plan
10. Conservation plan	Week 26 (90 min)	• Psychologist • Dietician	• Conservation plan • Reflect on what patients have learned • Share a small party snacks (made by participants) and discuss the chosen recipes
Follow-up			
Consultations at outpatient clinic	1–5 years after surgery	• Medical team	

'acceptability', as per Proctor's taxonomy of implementation outcomes.[20] Examining appropriateness allowed for an exploration of how well the programme fits with the patient and his/her context, for example, how do participants describe relevance, usefulness, perceived fit, suitability, practicability and compatibility. Acceptability refers to patient's perceptions of programme content and delivery, for example, satisfaction with various aspects such as content, complexity, comfort, delivery and credibility. Evaluation of programme delivery included experiences with the group format (both online and face-to-face, as appropriate), individual support, session timing and spacing and supporting materials and tools. Additionally, the implementation outcome, 'fidelity', was investigated by assessing the individual delivered intervention dose in the total patient population since the implementation of the current programme.[20]

Because the programme aims to achieve behavioural change and maintenance, concepts from Bandura's Social Cognitive Theory (SCT) were used to further sharpen the evaluation.[22] The central concept of this theory is reciprocal interaction between personal factors, environmental factors and behavioural patterns.[23] The study focused on three SCT concepts: reinforcements, self-efficacy and expectations. Reinforcements are defined as internal or external responses to a person's behaviour that affect the likelihood of (dis)continuing a behaviour. These positive or negative responses can be self-initiated or triggered by the environment. Our programme, and other intervention programmes,[8–13] provide reinforcements by, for instance, providing content on strategies for implementing healthy behaviours, coaching and monitoring. Self-efficacy is defined as a person's confidence in his or her ability to successfully perform a behaviour. The programme provides activities to reinforce specific skills and knowledge to increase the patient's ability to apply the recommendations and behaviours, for example, meal planning. Expectations are defined as the anticipated consequences of a person's behaviour. During the programme, an expert by experience is involved, and expectations for weight over time are addressed.

2.5 | Data collection

2.5.1 | Focus groups and interviews

Focus groups and interviews were held over a 5-month period between August and December 2022. All interviewees provided written informed consent, in which they were informed about the reasons for conducting the study. The interviews were semi-structured, with room for flexibility in question formulation and sequence. The interview guide evolved iteratively to maximize data quality. The discussed topics are presented in Table 2, which also reflects the coding tree themes and topics. The interview guide was checked for clarity by a

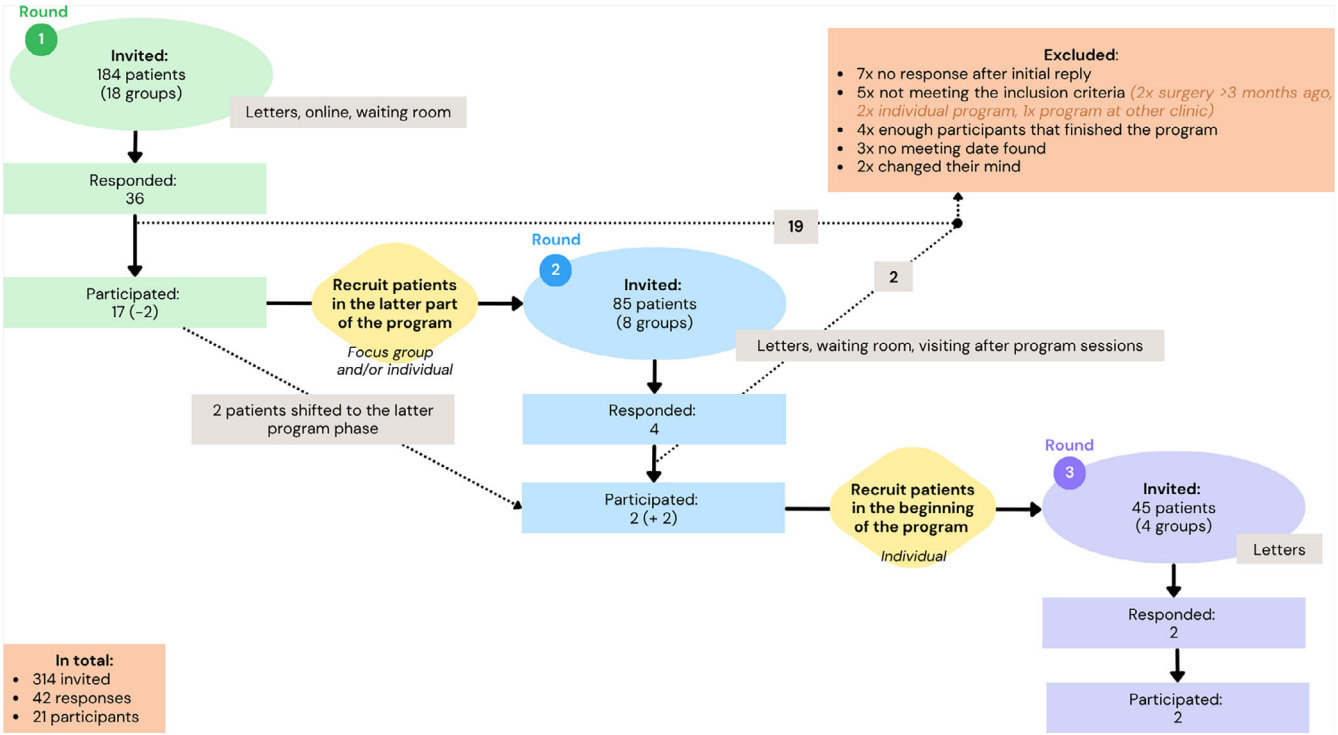

FIGURE 1 Flowchart of recruitment.

TABLE 2 Themes, subthemes and topics discussed during interviews and focus groups about the support programme.

Appropriateness	Acceptability
Relevance and usefulness	Programme content
• Preparing for preparing for surgery and the postoperative period • Postoperative support (e.g. implementing/maintaining programme recommendations and reaching personal goals)	• Satisfaction • Complexity • Availability[a] • Credibility
Perceived fit and suitability	Programme delivery
• Fit with personal factors, degree of personalization • Aspects needing more attention • Influence of delivery mode on perceived fit	• Group sessions (face-to-face and/or online, comfort) • Additional individual support (consultations or calling)
Practicability and compatibility	Continuity of support[a]
• Personal factors (e.g. skills, self-efficacy, past experience and attitudes[a]) • (Social)environmental influence • Physical factors	• Timing and spacing • Continuity of HCPs[a]

Abbreviation: HCPs, health care professionals.
[a](Sub)themes and topics inductively derived from the data, in addition to the deductively determined (sub)themes based on the theoretical framework.

person in the targeted population. Audio was recorded during all conversations. Saturation was reached when little new information on the themes was retrieved during the interviews.

First, focus groups were conducted to gain the perspectives of multiple individuals and to observe interactions between participants. Two focus groups were performed; one involved participants at the start of the programme ($n = 5$), the other involved participants who completed the programme ($n = 5$). Repeated attempts were made to recruit patients involved in the latter part of the programme, however, without success. This may be due to the higher biweekly frequency of sessions at this point in the programme. Focus groups were conducted at the clinic and had a duration of approximately 1:20 hours.

Focus groups were followed by 11 individual interviews to explore individual experiences, without the influence of group interaction and to go deeper into the themes. Depending on the patient's preference, interviews were held at the clinic ($n = 8$) or at home ($n = 2$). One interview was held online because of the travelling distance. Interviews were on average 1:04 h in length.

The interviewer (NB) was a PhD candidate with a nutritional background, working as a researcher at the clinic. No relationship was established between the interviewer and participants, and she was not involved in patient care or the programme. To prevent potential influence on the interview, the nutritional background was only disclosed if participants asked about this. An MSc student in social sciences (VS) assisted in focus group data collection and processing.

2.5.2 | Fidelity: delivered intervention dose

Fidelity was assessed using administrative data on the individual delivered intervention dose (frequency and minutes of attendance, and percentage of total attended programme time). This was retrieved for the total population of patients who completed the programme, with a primary MBS procedure, and at least 1 year of follow-up time since surgery, since May 2020 (start of current version of the programme).

2.6 | Data analysis

All audio recordings were transcribed verbatim. The data was deidentified, with pseudonyms replacing names. A thematic analysis was performed in line with the steps proposed by Braun & Clarke.[24] Themes were mostly determined in advance; some subthemes were determined during the reading and re-reading of the transcripts. Data was managed using Atlas.TI software (Scientific Software Development GmbH, version 22). Two researchers (NB, VS) performed the coding of both focus groups. During two meetings, discrepancies in coding were discussed until a consensus was reached. The individual interviews were transcribed and coded by NB. To support the data saturation process, participants received a summary of the analysis to comment on. Eight participants replied, agreeing with the content and emphasizing points of importance to them.

A descriptive analysis was performed on the delivered intervention dose, including the session attendance frequency, minutes and percentage of attended programme time (mean ± SD or median [P25; P75] were appropriate). Analyses were stratified for the pre- and post-surgery programme. It was also assessed whether the delivered intervention dose differed according to the proportion of programme time that was provided online during the COVID-19 pandemic. To determine the proportion of programme time offered during the online period, the minutes of programme time planned in that period per individual were summed. To assess if the proportion of programme time in the online period was associated with the delivered intervention dose, non-parametric correlations (Kendall's tau, Spearman's rho) were used. Statistical analyses were performed in SPSS Statistics (IBM, version 25).

3 | RESULTS

3.1 | Participants

In total, 21 participants participated in the focus groups ($n = 10$) and interviews ($n = 11$). Participants had a mean age of 50 ± 10 years (range: 31–63); the majority were female (71%) and underwent a gastric bypass procedure (76%). Table 3 describes the interviewee characteristics. To assess fidelity, 1.396 programme participants were included, of which the majority were female (78%), underwent a gastric bypass procedure (79%) and had a mean age of 46 years ± 12 (range: 19–76).

3.2 | Fidelity: delivered intervention dose

In the pre-surgery programme, on average, 429 ± 58 min of 450 were attended (95% ± 13 of intervention dose in minutes, mean attended session frequency: 4.8 ± 0.6 out of 5). For the post-surgery programme, the median attended minutes was 585 [465; 645] of 720 (81% [65; 90] of dose in minutes, median attended session frequency: 8.0 [7.0; 9.0] out of 10). In the pre-surgery programme, 1.057 of 1.396 (76%) patients attended ≥5 sessions, and 98% attended ≥4 sessions. In the post-surgery programme, 183 (13%) attended ≥10 sessions, and 1052 (75%) attended ≥7 sessions. Six-hundred and eleven patients (44%) had ≥1 extra individual consultation with a psychologist or dietician; mostly, this was one consultation ($n = 343$, 25%). Seven percent ($n = 95$) had ≥3 extra sessions. On average, patients had 0.7 ± 1.1 extra consultations (range: 0–8).

For 695 patients, 100% of programme time was within the online period. For 162 patients, this was 75%–99% of programme time, for 238 patients, 50%–74% of programme time and for 301 patients <50% of programme time. The proportion of programme time in the online period and the delivered intervention dose in minutes for the post-surgery programme showed a very weak positive correlation (Kendall's tau: 0.151, Spearman's rho: 0.198, $p < .01$). No clinically relevant association for this was observed for the pre-surgery programme (Kendall's tau: 0.080, Spearman's rho: 0.083, $p < .01$).

3.3 | Appropriateness

3.3.1 | Relevance and usefulness

Participants indicated that they felt prepared for surgery after the pre-surgery programme, although they could not fully know what to expect beforehand:

> **P7**: As long as you haven't had the operation you just don't know what to expect, and after the operation there will be a lot of things that really helped you a lot.

Several dietary and behavioural pre-surgery programme components were described as useful; for example, learning and practicing the post-surgery dietary regimens before surgery were valued by many participants. Gaining insight into hunger (e.g. how regular eating relates to hunger and types of hunger) was also described as useful by some participants. Knowledge of the Dutch dietary guidelines was already acquired by some participants; a few of them mentioned they did not mind revisiting this topic.

TABLE 3 Characteristics of the 21 focus group and interview participants.

Characteristic		Mean ± SD/*n* (%)	Min.	Max.
Age (years)		50 ± 10	31	64
Gender (F)		15 (71%)		
Months since surgery		7 ± 4	1	14
Type of surgery	Gastric bypass	16 (76%)		
	Gastric sleeve	5 (24%)		
BMI at screening (kg/m^2)		44 ± 7	37	65
Programme delivery mode	Online	1 (5%)		
	Face-to-face	5 (24%)		
	Both face-to-face and online	15 (71%)		
Working situation	Fulltime	10 (48%)		
	Part-time	8 (38%)		
	Retired	2 (10%)		
	No work	1 (5%)		
Education	Primary and secondary prevocational	5 (24%)		
	Senior general secondary, pre-university and secondary vocational	8 (38%)		
	Higher vocational and university	7 (33%)		
	Missing	1 (5%)		
Programme phase	Beginning	8 (38%)		
	Latter part	4 (19%)		
	After	9 (43%)		
Living situation	With partner	11 (52%)		
	With family	10 (48%)		
Country of birth	The Netherlands	20 (95%)		
	Missing	1 (5%)		
Number of sessions	Pre-operative	4,9 ± 0.3	4	5
Attended[a]	≥4	21 (100)		
	5	19 (90%)		
	Postoperative	8.7 ± 1.3	6	10
	≥7	20 (95%)		
	10	8 (38%)		
Programme dose (minutes)	Pre-operative	441 ± 27	360	450
	Postoperative	631 ± 92	420	720
Extra individual sessions	Number	1.4 ± 1.7	0	6
	≥1	12 (57%)		

Abbreviation: BMI, Body Mass Index.
[a]After completion of the programme.

Social components in the pre-surgery programme were frequently described as helpful. Peers could support each other while going through a similar experience. Involving a close social contact of the patient in one of the sessions was important to many participants, as this person then better understands the changes and potential problems that may arise after surgery. The sessions in which an expert by experience shares his/her story were seen as very valuable, as one could learn about what to expect after surgery. Although useful, many participants indicated that the shared experiences were mostly positive. They wanted more attention on the negative aspects of surgery (e.g. gastrointestinal complaints and complications). This request was expressed by those who did not experience gastrointestinal complaints or complications, but especially by two participants who did. As participant 17 explained, those who had experts by experience in their own social network valued hearing both positive and negative experiences:

P17: Yes, it's different when you hear it from someone than seeing it on a sheet, what the percentages are, isn't

it? What could happen, it's just a sheet. And then, yeah, then you see maybe 2%, then you think, well, the chance that I don't belong to that group that is much, much greater. But also, what are things you encounter in everyday life? And eh, yeah, what do you do… What do you do when you go out for dinner? And maybe some situations *really* take some adjusting, getting used to, or are maybe less fun, and you need to find your way with those things.

Compared to the pre-surgery programme, the postoperative programme was considered overall less relevant by many participants. Many attributed this to group-format-related factors, the perceived fit and continuity of support. These aspects are further described below.

3.3.2 | Perceived fit and suitability

Participants' programme support needs varied in type and intensity. Some participants sought more nutritional support, while others sought psychological support (e.g. regarding coping with post-surgery changes). A few expressed that the relevance of programme content was perceived as lower if a participant felt that he/she was on the right track:

P17: Once in between I also thought "yeah, should I go?", you know, like that. But I've entered, so I, *I'm going*. […] But we also sometimes said at home, yeah, I don't really know what I could do differently now.

The data also show differences in perceived fit based on gender, age and surgery type. For instance, a few women indicated there could be attention for hormonal changes after surgery. Regarding age, a few participants describe that they observed that their group members younger than 30 years of age may have different support needs. Several participants discussed this issue during a focus group and an interview:

P4: […] because I think from 30 onwards it doesn't really matter anymore. But around 20, especially women, they just have very different needs and things with living and stuff.

P11: We have a young lady there. Under 30, yeah, she's very sad about how her body looks like now. And you know, I'm 61, I don't worry much about that anymore, you understand? But I do get her.

Two out of five interviewees who underwent a gastric sleeve procedure (~20% of the clinics' patient population) mentioned that there was less attention for their surgery type and related problems, which sometimes resulted in frustration.

Some topics needed more attention, according to participants. Exercise received very little programme attention; many participants felt this was a gap, especially information on starting exercise after surgery was requested. Other topics noted as needing more attention were related to coping with changes post-surgery. These were physical (e.g. hormonal changes, excess skin, hair loss and medication uptake changes), psychological (e.g. body perception and weight loss) and social (e.g. relationship changes) in nature. One participant, who disclosed having eating pathology in the past, was explicit about acceptance of change after surgery and missed guidance on this:

P18: Yes, well, I, I myself have suffered a lot from a… Yeah, I think some kind of emotional dip or something. Yes, that has to do with those hormones, but that also just has to do with the fact of the *change*. Just a bit of frustration of, okay, I can not do what I used to do. And how, am I going to give that a place. Because actually you are saying goodbye to something that… belongs to you.

Furthermore, intervention delivery was stated to play a role in the perceived programme fit. Some participants expressed that the group format makes it difficult to personalize programme content. When asked about how personalized they see the current programme, many participants referred to the possibility to call a professional or to plan an individual session. Individual or subgroup sessions for patients with specific needs were suggested by some participants (e.g. for emotional eating, as this was not applicable to everyone). Also, group discussion management was described as important for fitting programme content (e.g. ensuring enough time to discuss the planned topics; spreading attention among group members; adequate response to conversations that are too specific or personal for group discussions and preventing too much repetition of topics brought in by patients).

3.3.3 | Practicability and compatibility

Most participants shared that they found ways to adapt to the new situation in their social surroundings, for example, at home, work, when going out for dinner, other social occasions or when travelling. These occasions were discussed during the programme and peers shared practical tips with each other. Adhering to recommendations was most challenging during social occasions, for example, parties. Next to

programme content, many other factors were described to influence the practicability of recommendations, such as attitudes towards recommendations, previous dieting experiences and physical factors.

Programme content focused on making food choices appropriate for a post-surgery diet was considered helpful by many (e.g. comparing foods; tips for meals, snacks and going out for dinner; advice on reaching an adequate protein intake). Meal planning was also frequently mentioned as helpful, especially in the early postoperative period. A few participants mentioned that using a food diary was insightful to monitor their intake, but it was sometimes also seen as a burden as the diary had to be filled in frequently. When asked about programme content on coping with difficult moments to prevent overeating, two participants replied that it was not the most relevant topic at this point post-surgery. Another participant replied that this content could be used in the future.

Attitudes relating to the extent to which recommendations were perceived as restricting were mentioned to affect practicability, positively or negatively. The focus on a lifestyle change instead of a strict diet was seen as positive by some participants, as this allows room for enjoying less healthy foods occasionally. Some participants describe trying to find a balance between the benefits of adhering to recommendations and their invasiveness in daily life (e.g. by experimenting with drinking liquids at meals, or being more flexible with recommendations at social occasions or work). Attitudes towards the costs of recommendations could also be of influence: healthy, tolerable and protein-enriched foods were perceived as expensive by some, as were the specialized multivitamin supplements.

Past experiences were described to be able to influence practicability as well. Some participants noted that part of the relevant knowledge, skills and behaviours (e.g. regular eating) were already known or implemented. However, some participants also expressed that dieting history was a potential pitfall (e.g. when weight loss decreased or plateaued, dieting thoughts or fear of gaining weight could occur). A few participants described professionals' reinforcements to be helpful when dieting thoughts occurred:

P16: Absolutely. That was also very helpful and I just *really* needed that at that moment. Just that, that confirmation, that kick under the butt, of, you don't *have* to stand on that scale every day. *Here*, in my *head*, I know, but… Then that's… That old pattern that then wants to come back.

Physical factors were also described to affect the practicability of recommendations. For example, early satiety helped participants to eat less, but for some participants at the beginning of the programme, this also made it difficult to comply with eating six meals a day or reaching an adequate protein intake. Gastrointestinal complaints could reinforce adherence to recommendations (e.g. avoiding foods high in sugar and fat and eating slowly), as well as be a barrier to a balanced dietary intake or multivitamin supplement use. Taste changes were sometimes described as a barrier to applying recommendations.

3.4 | Acceptability

3.4.1 | Programme content

In general, most participants expressed satisfaction with the pre-surgery programme and less with the post-surgery programme, as relevance and perceived fit were lower. The combination of a dietician and psychologist was mentioned to be useful by a few, as they complemented each other. Most participants were satisfied with the complexity of the content: there was enough information and it was clear, although a few participants mentioned that the amount of information at the start of the programme was overwhelming. Two participants preferred information to be more complex; one of them suggested having more text available, with basic, but also more in-depth information. Another participant suggested having supplementary videos on important topics (e.g. social occasions, alcohol and carbonated drinks). Concerning content availability, a few participants expressed that session content should be available before the sessions, as this was not the case during the post-surgery programme.

Credibility of recommendations was perceived as increasing when a clear explanation was given about the importance according to two participants. A few participants expressed that credibility decreased if they heard about discrepancies in advice between HCPs or between MBS clinics (e.g. via peers/online, e.g. about specialized multivitamin supplements and alcohol consumption). Also, if participants experimented with recommendations or heard stories of peers doing this without problems (e.g. not separating solid and liquid foods), recommendations were sometimes seen as less important. Suspected financial motives of the clinic for support choices influenced programme credibility, according to some of the focus group participants. A few participants suspected there may be financial reasons for restricting the number of additional individual consultations, recommending specific specialized multivitamin supplements and discontinuing supermarket visits that used to take place before the COVID-19 pandemic.

3.4.2 | Programme delivery

Many participants experienced both positive and negative aspects of group sessions. It was deemed valuable to be with others who are going through a similar process, sharing experiences, recognition and learning from each other. Some participants valued the openness and humour of other participants as well. A few spoke of making new social contacts, who sometimes remained in touch after the programme. In contrast, two participants found peer support mostly outside the support group, in their social network or online. Although most participants described the benefits of group sessions, most also expressed downsides. Group interaction could have a hold over sessions, mostly during a round in

which everyone shares how they are doing, especially if there were more dominant group members present. If this round took up too much session time, or if there was too much focus on a few individuals or on too specific problems, relevance for others could decrease. Some participants felt that they had missed information that the HCP intended to share because of the group process:

P12: For me the added value is that we are going to talk about social occasions, eating out, alcohol, and reading and adjusting recipes. That is the added value. Right? Further on, the psychologist probably also has something about this planned in the story, I didn't even mention that. But *that's* what I came for today and I didn't hear that.

A few participants suggested finishing the session with the sharing round, or including time for social talk before the session, to prevent group interaction from interfering with discussing planned programme topics.

Most participants felt comfortable during group sessions, being with others who could have similar experiences regarding obesity and MBS. Some participants expressed that they valued feeling listened to and not judged by the HCPs at the clinic. Sometimes there was some discomfort during group sessions, for example, when a group member had a disagreement with a HCP, or if peers shared very personal stories.

Sixteen of the 21 participants experienced online group sessions during the COVID-19 pandemic. These sessions were not well accepted: there was little group bonding, interaction and sharing. Participants felt that they could not express emotions or provide and receive comfort. There were also distractions from the surroundings, problems with IT and one participant mentioned potential privacy issues at home. Two participants expressed positive aspects of online sessions: they could focus very well on pre-surgery programme content, and also, one of them had decreased mobility pre-surgery. Digital peer support via the voluntary patient WhatsApp chat group was considered helpful by many, as patients could support each other (e.g. surrounding the surgical procedure, practical tips and humour). A few felt the group chat was less useful, as the discussions were not always relevant to them.

Programme sessions of 45 min were considered too short by many. Many participants found that travel time to the clinic needs to be in balance with the benefits. The group size of 10–12 patients was generally accepted. One participant mentioned that the group size was generally favourable, although not when group members who were perceived as dominant were present. Another participant mentioned that the sharing round with 12 participants took too much time.

Extra individual sessions, when needed, were valued by many participants, as patients could discuss more personal topics and receive personalized advice. A few participants stated that they appreciated it if a session leader took the initiative to suggest an individual session during group sessions. In addition, participants valued the option to call an HCP. Many expressed they felt helped with their questions and listened to and that it was easy for them to contact HCPs, although the latter was not experienced by everyone. A few expressed that the standard planned call from the dietitian approximately 2 weeks after surgery was valuable, as it gave reassurance.

3.4.3 | Continuity of support

The timing and spacing of support during the pre-surgery programme were generally accepted. However, many participants were unsure about the timing and spacing of the post-surgery programme. Most participants preferred to space sessions more over time:

P7: What I read everywhere on FaceBook, and of course we can not say that yet…. The first nine months of post-surgery programme there is a meeting every month or so. But actually the first year, the body does most by it itself.

P6/P8: Yes, that's right.

P7: So you actually, uh… You don't have to do much effort. And the year after that, *then* it's actually going to start. And you don't have that *post*-surgery programme anymore. And so, you hear that, or you read, from a lot of people, yeah, but *that* is the moment it actually comes down to, and then you miss that.

P6: You should learn that now already. At least that's what they're saying now.

Many participants suggested planning sessions after the first post-operative year, possibly only for those who feel they need this. Although most participants referred strongly to their motivation for not wanting to go back to their previous situation when asked about self-efficacy for behaviour maintenance, a few did express fear of recurrent weight gain or relapse of old behaviours. A few participants suggested programme durations, ranging from 12 to 24 months after surgery, with a frequency varying from once every 3–6 months after the current programme period. Although group sessions stop 9 months after surgery, some participants mentioned that they still can call the clinic when they run into problems or experience recurrent weight gain.

The first five sessions of the post-surgery programme were planned monthly, which was an accepted session spacing in that period for many. The last five biweekly sessions were planned too close to each other according to all participants who have experienced this part of the programme, except one. Participants stated that

session relevance decreased as there was little time to practice recommendations or that there were no major changes:

P3: No, not much changes in two weeks. There is a lot of repetition in what you actually do.

Also, many participants disliked the planning of sessions within holiday periods.

Consistency in HCPs was considered important for continuity of support; many participants had multiple changes in session leaders during their programme. This was not appreciated as the trust relationship was lost, and a few mentioned sessions felt less personal or fitting due to this. Changes in HCPs were described to be a barrier to sharing during sessions, especially with changes in psychologists:

P15: And there was someone sitting next to me, she was bothered by something. I said, but actually, you should talk to the psychologist. And then she whispers in my ear 'I don't feel a connection yet, I don't dare it'. Look, then she's going to walk longer with that in her mind.

A few participants expressed concerns about the clinics' organization due to the changes in personnel.

4 | DISCUSSION

We performed a process evaluation of appropriateness, acceptability and programme fidelity for a multidisciplinary pre- and postoperative MBS support programme. The main findings were that patients found the pre-operative programme particularly useful (e.g. practicing postoperative regimens and social content), whereas the postoperative programme was regarded as being less relevant. Although some postoperative programme content was considered helpful for practicability (e.g. meal planning and food choices), delivery in group format, session timing and spacing, and variability in patient needs (e.g. in type and complexity, and/or based on gender, age and surgery type) decreased relevance and perceived fit. The delivered intervention dose was highest for the pre-surgery programme.

4.1 | Variability in needs: a more flexible programme

Many participants made statements showing variation in support needs for nutritional and psychological support, support intensity and according to gender, age and surgery type. Previous studies also report variations in patient needs.[7,25] This suggests that programme appropriateness and acceptability of content can be optimized by a more flexible programme design. Content and intensity could be further personalized according to patient needs; for example, by having part of the programme focused on important basics and part based on needs indicated by the patient or the HCP. To realize this, a combination of different delivery modes can be used: during group sessions (e.g. sub-groups working on a shared topic of interest); via digital support (e.g. assignments, e-learning modules, applications for coaching and monitoring, basic and additional information via text and video's); group sessions for specific subgroups and individual counselling.

4.2 | Timing and spacing: support beyond the first year

Results show that support, spaced more over time and beyond the first postoperative year, can increase programme acceptability and appropriateness. Participants expected that the effect of surgery would diminish over time and that practicing recommendations may become more difficult, risking recurrent weight gain. Using the same arguments, Engström et al. suggest there should be support groups with the involvement of a HCP until at least 2 years after surgery.[26] Parretti et al. similarly state that support should continue beyond 2 years; they describe how, at around 18 months after surgery, patients shift from confidence to fear of weight gain.[7] In our study, with participants not yet in this phase, many participants currently felt confident to keep working on their health and weight due to their motivation, but a few also feared gaining weight. Most weight gain occurs within the medium term (2–5 years) after surgery,[27] meaning access to support might be particularly important during this time. During this period, support may help to further develop or maintain self-efficacy by facilitating the development of strategies and providing reinforcements via lifestyle support, CBT or potentially third-wave CBTs, such as Acceptance and Commitment Therapy, for mental flexibility on unhelpful thoughts.[11,28] Moreover, setting realistic expectations and giving attention to reasons for recurrent weight gain, including physiological ones, might help to prevent decreasing self-efficacy and feelings of failure, which can prevent patients from seeking help.[6,26,29] Regarding expectations, Järvholm et al. also note that it can be important to share that 10 years after surgery, most patients still feel physically regulated in eating due to surgery.[29]

4.3 | Lived experiences and expectations

More attention for negative lived experiences, in addition to information on negative aspects of surgery and complications provided by HCPs, can optimize programme fit according to participants. Other studies similarly indicated the need for more pre-operative information to prepare them for postoperative experiences.[7,30] More information on lived experiences may result in being less surprised or being better prepared for problems and changes that may occur. These lived experiences are preferably diverse, in type of experienced difficulties and for surgery type, gender and age. During recruitment and

instruction of experts by experience, there should also be attention for highlighting negative aspects of surgery.

4.4 | Delivery modes: taking their advantages and disadvantages into account

Combining group and individual support seems preferable, as it makes one able to benefit from the strengths of both delivery modes, as indicated by our participants. Group sessions were useful for peer support in our study. Other studies similarly describe that sharing experiences during outpatient and patient-initiated support groups was valuable.[6,7,30] However, in our study, group sessions could also lower relevance and perceived fit. Another downside reported in the literature was that some patients felt vulnerable and judged by peers in outpatient support groups[7]; this was not reported during our study. Like in our study, other studies reported that access to HCPs for individual questions, for example, by telephone consultation, was valuable.[6,7] In addition, individualized contact was reported to aid motivation in a previous study.[25] In our study, reported benefits of individualized contact were personalized support and discussing more personal topics.

Due to the COVID pandemic, most participants experienced online group sessions. In general, these online group sessions were not well accepted as there was little group bonding. Still, other forms of digital support, in addition to face-to-face sessions, have the potential to be useful. We did not specifically study needs for eHealth support, but a blended programme could be organized to fit with the need for further personalized, longer-term support. In a survey by Bradley et al. on postoperative intervention preferences of 154 participants 3 years post-surgery, 62.7% of participants preferred face-to-face delivery, although 71.4% also had an interest in an internet-based programme.[19] In a systematic review, Wright et al. conclude that eHealth interventions were as effective or more effective than control interventions on weight loss and eating pathology and may be suitable for patients that require additional support.[31] The authors, however, note that intervention components were not well reported. Based on these findings, the acceptability and appropriateness of eHealth support surrounding MBS should be further investigated.

4.5 | Strengths and limitations

To our knowledge, this is the first comprehensive process evaluation of a multidisciplinary MBS support programme. This evaluation was based on concepts from both implementation science and a behavioural model (i.e. SCT) for methodological rigour. The qualitative methods provided rich data, which is needed to better understand complex health interventions. Also, triangulation of methods was used to evaluate the programme from different angles. By including patients at different stages of the programme, memory bias was reduced, assessing the experience as it is perceived at that moment.

A limitation is that the current study did not evaluate the views of participants on the medium to long term after surgery. Additionally, interviewees had a higher attendance in the postoperative programme compared to the general population. Also, views from other stakeholders, such as HCPs and managers, were not studied. Currently, there were also no participants <30 years of age, and there was a lack of diversity in cultural background, which might also influence the perceived fit of the programme.

5 | CONCLUSION

This process evaluation showed that the pre-operative group support programme was seen as useful by patients who underwent MBS; however, the postoperative programme was regarded as less relevant due to a lower perceived fit (e.g. group format related) and suboptimal continuity of support. The postoperative programme also had a lower proportion of delivered intervention doses. Useful programme components, according to participants were practicing with the post-surgery diet preoperatively; group member peer support (e.g. sharing experiences and practical tips); involving an expert by experience and a close social contact pre-surgery; attention to meal planning and food choices in daily life and (social) surroundings; psychoeducation on hunger; access to individual support and including a psychologist and dietician.

Statements of participants indicated that the following aspects are important to improve programme fit:

A. Participants expressed variation in support needs: programmes can adjust to this by providing a more flexible, personalized programme on intensity and content concerning nutrition, psychological support (e.g. coping with postoperative changes), and exercise. Also, age, gender, surgery type and the type or complexity of health or psychological needs should be considered in support content and peer support possibilities.
B. To ensure continuity, support should endure beyond the first postoperative year, up to 2 years, as participants expected to encounter more difficulties then. In the first postoperative year, group support can be less frequent than biweekly; after this period, a lower support frequency is suggested (e.g. once every 3–6 months).
C. Different delivery modes could be combined, for example, on-site HCP-guided group sessions for peer support could be supplemented with more personalized support, for example, individualized or in specific subgroups depending on needs.
D. Participants state the importance of adequate attention to lived experiences, including negative ones, to better manage expectations about life after surgery and potential problems.
E. To ensure continuity, participants indicated the importance of consistency in group session leaders.

For future research, it is useful to investigate the effectiveness, appropriateness and acceptability of further personalized support and delivery methods, spaced more over time. Also, investigating programme appropriateness and acceptability 2–5 years after surgery can be valuable to see how support needs may change further over time.

AUTHOR CONTRIBUTIONS

The study was conceptualized by NB and MCK, with contributions from EH, LD and EB. Data was collected, processed and analysed by NB and VS, the latter supported by MCK. All authors were involved in data interpretation and manuscript writing and approved the submitted and published version.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest was declared.

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