

# Barriers to and Facilitators of Participation in Weight Loss Intervention for Patients with Suboptimal Weight Loss after Bariatric Surgery: A Qualitative Study among Patients, Physicians, and Therapists

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## Keywords

Behavioral intervention · Participation · Obesity · Weight loss · Bariatric surgery · Qualitative research

## Abstract

**Introduction:** Not all patients with suboptimal weight loss after bariatric surgery are willing to participate in postoperative behavioral intervention to improve their weight loss. The objective of this study was to explore barriers to and facilitators of participation in postoperative behavioral intervention. **Methods:** Thirty semi-structured interviews were conducted with patients (18), physicians (6), and therapists (6) (i.e., psychologists, dieticians, or physiotherapists). A thematic analysis approach was used. **Results:** Emotional responses caused by confrontation with suboptimal weight loss hampered patients' deliberation about participation; insufficient exploration of their need for help limited patients' ability to make informed decisions; patients were receptive to their physician's advice when their physician respected their autonomy; using visual weight loss graphs helped to explain suboptimal weight loss to patients; and financial

costs and time constraints obstructed participation. **Conclusions:** To improve adequate intervention participation, healthcare providers should focus on emotion regulation, support patients in exploring their own need for help, and respect patients' autonomy.

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## Introduction

For people suffering from extreme obesity, bariatric surgery such as Roux-en-Y gastric bypass and sleeve gastrectomy is the most (cost-) effective treatment option to reduce weight, comorbidities, and mortality and to increase health-related quality of life [1–3]. Although most patients show substantial postoperative weight loss 1 year after surgery, approximately 20% experience suboptimal weight loss (SWL) (i.e.,  $\leq 50\%$  of percentage excess weight loss (%EWL)) or  $\leq 20\text{--}25\%$  of percentage total weight loss (%TWL) [4–6]. The first year following bariatric surgery is critical to optimize weight loss [7]. Patients with poor weight loss 3 months after surgery are more likely to dem-

onstrate poor weight loss in subsequent years [7]. Therefore, implementing an additional interventional program in the first postoperative months, promoting weight loss-related factors including lifestyle and psychological factors, could potentially enhance weight loss before the critical first postoperative year has ended [6].

Weight loss success after bariatric surgery is dependent on patients' gut hormones, neuronal factors, lifestyle factors, such as physical exercise adherence and diet, and psychological factors, such as depression and eating disorders [8–10]. Although postsurgical psychological and lifestyle interventions have shown to decrease depression symptoms and eating disorders [11, 12] and increase routine follow-up, physical activity, and weight loss [13], initiation of participation in these interventions is generally low. Intervention participation rates in previous post-bariatric weight loss intervention studies show that a substantial number of eligible individuals declined to participate, ranging from 31 to 90% [14–16], even though these interventions were easily accessible and at low or no costs. To improve participation initiation in interventions for patients with SWL, barriers to and facilitators of initiating postoperative weight loss interventions should be identified.

To date, no study has examined the barriers to and facilitators of initiating postoperative weight loss interventions for patients with SWL after bariatric surgery. In a study with focus groups and semi-structured interviews among adults with obesity who were invited to weight loss intervention, three themes of barriers and facilitators were identified: practical factors, such as time and costs; anticipated effectiveness of intervention; and anticipated pleasantness of intervention [17]. While this study provided valuable insights, additional factors may play a role among patients that underwent bariatric surgery. As bariatric surgery is a last-resort intervention, patients already have a history of unsatisfactory weight loss attempts which may affect their decision to participate. Furthermore, previous studies only explored the patients' perspectives. Combining perspectives from multiple actors, such as patients and professionals who are involved in the patients' decision-making process of intervention participation, could contribute to develop a more comprehensive understanding of issues that determine intervention participation [18], especially since healthcare professionals see many different patients regularly. Finally, previous literature describes support for self-determination theory in explaining patients' adherence for weight loss interventions [19–21].

The aim of this study was to examine the barriers to and facilitators of participation in an additional behav-

ioral interventional program among patients that underwent bariatric surgery who show suboptimal postoperative weight loss, including exploration of the perspectives of all actors involved: patients, physicians, and therapists. The results of this study could help care providers develop a patient-centered introduction of postoperative interventions that aim to improve weight loss in patients that underwent bariatric surgery.

## Materials and Methods

### Design

A qualitative approach with semi-structured interviews among patients, physicians, and therapists was used. In this study, “**therapists**” refers to clinicians who provided the intervention and were either psychologists, physiotherapists, or dieticians.

### Recruitment Procedure

Patients were asked by their physician or therapist to participate in this study. A researcher then contacted them for further information and written informed consent. Patients were recruited and interviewed within 3 months after being invited to the additional intervention. Physicians and therapists were asked to participate by the research team. Study participants were obtained from 5 bariatric care centers of the Dutch Obesity Clinic (Nederlandse Obesitas Kliniek, NOK) throughout the Netherlands.

### Setting

#### Pre- and Postoperative Care Program

In the largest multicenter organization for treatment of extreme obesity in the Netherlands, the Dutch Obesity Clinic, bariatric surgery is complemented by a comprehensive pre- and postoperative care program for over 5,000 patients per year. All patients undergo an initial screening by the multidisciplinary team (i.e., a physician, psychologist, dietician, and physiotherapist) according to IFSO criteria [22]. In addition to the IFSO criteria, exclusion criteria for the pre- and postoperative care program are alcohol or drug addiction; psychopathology (except for depression) such as psychosis, schizophrenia, and borderline; and eating disorders such as bulimia and binge eating. The care program consists of 6 preoperative and 13 postoperative group sessions, which are alternately supervised by a psychologist, dietician, or physiotherapist. In addition, patients have individual medical sessions with a physician at 3, 6, and 12 months after surgery. The care program aims to help patients adopt a new lifestyle, to optimize weight loss in the first postoperative year, and to maintain achieved weight loss in the long term. Additional behavioral intervention sessions were added to the program for the 25% of patients with the lowest weight loss (i.e., %EWL) 3 months after surgery.

#### Invitation for Additional Behavioral Intervention Program

During an individual medical session 3 months postoperative, physicians use a weight loss graph to discuss weight loss results with their patients. The graph shows the patient's individual weight loss compared to weight loss quartiles based on the outcome of previous patients (i.e., 25th, 50th, and 75th %EWL percentile) with identical surgery year, surgery type and sex. If the

weight loss of an individual patient scores below the 25th percentile, the physician invites the patient to participate in an additional behavioral intervention program.

#### Design of the Additional Behavioral Intervention Program

The main purpose of the intervention is to improve weight loss by helping patients adjust their behavior. The intervention program consists of 3 individual sessions with the patient's therapist. The aim of the first session was to explore possible ongoing weight loss-related problems using motivational interviewing [23], and to set goals to achieve the patients' desired behavior. The second and third session were used to evaluate progress, provide support, and adjust goals if necessary. The first session can be provided by either a psychologist, physiotherapist, or dietician. Depending on the patients' need for help determined during the first session, a different therapist may supervise subsequent sessions. Approximately, 40% of Dutch Obesity Clinic patients who were invited for the additional intervention declined to participate in the intervention.

#### Study Population

Inclusion criteria were patients who underwent primary Roux-en-Y gastric bypass or primary Sleeve Gastrectomy surgery between January 2017 and July 2018, and patients who were invited to participate in the additional intervention to improve their SWL. Patients with insufficient proficiency in the Dutch language were excluded from the study. Two subgroups of patients were selected: patients who agreed and patients who declined to participate in the additional intervention. To determine whether the patients suffered from psychopathology or eating disorders, the psychological screening reports and the findings from the Brief Symptom Inventory (BSI) self-report symptom scale of the psychological screening reports were evaluated.

Physicians and therapists were also interviewed. The inclusion criterion for physicians and therapists was having at least 1 year of experience with the additional intervention program. To ensure a comprehensive representation of the study population, participants of different age ranges, sexes, and care centers throughout the Netherlands were included.

#### Theoretical Framework

While assembling a theoretical basis for the interview topics, we focused on the patient's motivation to participate. To substantiate motivation, we used the self-determination theory (SDT) [24]. According to Deci and Ryan [24], an autonomy supportive interpersonal style by important others (e.g., healthcare professional) nurtures and promotes one's (e.g., patient) sense of self-determination. This interpersonal style is characterized by behaviors such as providing free choice, acknowledging and accepting negative feelings, and showing patience to allow time for change [25]. Autonomy supportive interpersonal styles have shown to be related to three basic psychological needs as proposed by SDT: autonomy (i.e., feeling that behavior is in harmony with self-choices and values), competence (i.e., feeling capable), and relatedness (i.e., being cared for by others). Social contexts that satisfy these needs stimulate patients' intrinsic motivation to engage in desired behavior [26].

Examples of SDT-related interview topics that were used in this study are as follows. Competence: patients' competence to feel they can change behavior through the intervention and physicians' and therapists' competence to help their patients explore their need for

help to make an informed decision. Autonomy: autonomy from physicians as experienced by patients; autonomy in choosing participation; and autonomy in choosing the type of therapist. Relatedness: patient-physician and patient-therapist relationship; empathy of physician and therapist as experienced by patients; and working together to explore participation in intervention.

#### Interview Procedure and Topics

The interviewer (OT) was trained in interview techniques and was not part of the clinical team of the study participants to facilitate an open conversation where participants could speak freely. Although the SDT was a sensitizing concept, it provided only one set of perspectives for the interview topics. We also developed our topic list based on the expertise of the team members (e.g., the provided information and the design of the interventions' introduction process). Furthermore, concepts found in previous literature were incorporated (e.g., time and costs, and anticipated effectiveness of the intervention) [17]. To provide structure for participants during the interviews, a simplified model of the topic list was shown at the start of each interview (online suppl. Material. 1; see [www.karger.com/doi/10.1159/000526259](http://www.karger.com/doi/10.1159/000526259) for all online suppl. material).

All patients were asked to introduce themselves, and describe their obesity history, their reasons for undergoing bariatric surgery, and their 3-month postoperative medical session with the physician who confronted them with their SWL and invited them to participate in the intervention. The patients' perceived competence, autonomy, and relatedness during this medical session were also discussed and barriers and facilitators of these topics were explored. Participants of the intervention were also asked why they did or did not continue with subsequent sessions. Finally, patients were asked for suggestions to optimize intervention participation.

Physicians and therapists were asked to recall recent sessions with patients who were invited for the intervention. Subsequently, they were asked to discuss their perspective on possible barriers and facilitators that played a role in their patients' decision to either accept or decline participation.

After the first 15 interviews with patients, the research team noticed that patients with the least weight loss (<15th %EWL percentile) were underrepresented. To ensure an accurate representation of this group, additional interviews were performed. Interviews were scheduled until data saturation was reached. The minute range of the interviews was 17–65 min with a mean of 39 min.

#### Analysis

Audio recorded interviews were transcribed verbatim. A thematic analysis of the data was conducted to identify common themes following the six main stages of Braun and Clarke; (1) familiarization with the data, (2) initial coding of the data, (3) organizing codes into themes and subthemes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the manuscript [27]. The first eight transcripts (i.e., of 4 patients, 2 physicians, and 2 therapists) were independently double-coded, discussed, and revised accordingly by two researchers (OT, MB). Subsequently, codes in all transcripts were verified by a third researcher (MW). Qualitative data analysis software (MAXQDA 10) was used to record transcriptions, support coding, organize, and select data from transcripts. Similarities and differences between the perspectives of patients, physicians, and therapists were analyzed and possible explanations were discussed.

**Table 1.** Characteristics of the study participants, presented as mean and standard deviation unless stated otherwise

|  | Patients                        |                                     | Physicians | Therapists |
|--|---------------------------------|-------------------------------------|------------|------------|
|  | did participate in intervention | did not participate in intervention |            |            |
| Participants, <i>n</i>   | 9                               | 9                                   | 5          | 5          |
| Age (mean, range)  | 48 (21–65)                      | 48 (25–60)                          | 37 (28–48) | 33 (27–50) |
| Female, <i>n</i>   | 9                               | 5                                   | 3          | 4          |
| Surgical procedure RYGB, <i>n</i>  | 3                               | 4                                   |            |            |
| Surgical procedure SG, <i>n</i>  | 6                               | 5                                   |            |            |
| Made previous weight loss attempts (e.g., diet, treatment, weight loss programs), <i>n</i> | 9                               | 9                                   |            |            |
| Weight   |                                 |                                     |            |            |
| Weight (kg) at screening   | 123.2±19.0                      | 153.5±27.4                          |            |            |
| BMI (kg/m <sup>2</sup> ) at screening  | 45.6±4.0                        | 47.6±5.8                            |            |            |
| Weight (kg) 3 months after surgery   | 108.9±19.7                      | 131.7±26.7                          |            |            |
| BMI (kg/m <sup>2</sup> ) 3 months after surgery  | 40.2±4.8                        | 40.1±5.1                            |            |            |
| % Excess Weight Loss 3 months after surgery  | 27.2±8.7                        | 31.7±6.5                            |            |            |
| % Total Weight Loss 3 months after surgery   | 11.9±3.5                        | 14.4±2.4                            |            |            |
| Medical screening  |                                 |                                     |            |            |
| Diabetes, <i>n</i>   | 5                               | 3                                   |            |            |
| Hypertension, <i>n</i>   | 4                               | 3                                   |            |            |
| OSA, <i>n</i>  | 2                               | 0                                   |            |            |
| Dyslipidemia, <i>n</i>   | 4                               | 1                                   |            |            |
| Osteoarthritis, <i>n</i>   | 1                               | 1                                   |            |            |
| Psychological screening  |                                 |                                     |            |            |
| No psychopathology, <i>n</i>   | 8                               | 9                                   |            |            |
| No eating disorder, <i>n</i>   | 9                               | 9                                   |            |            |
| Depression, <i>n</i>   | 1                               | 0                                   |            |            |
| Suicidal thoughts, <i>n</i>  | 1                               | 0                                   |            |            |
| BSI at screening   |                                 |                                     |            |            |
| Somatization   | 0.52±0.46                       | 0.22±0.27                           |            |            |
| Obsession-compulsion   | 0.61±0.72                       | 0.28±0.34                           |            |            |
| Interpersonal sensitivity  | 0.42±0.33                       | 0.31±0.51                           |            |            |
| Depression   | 0.20±0.27                       | 0.22±0.24                           |            |            |
| Anxiety  | 0.37±0.42                       | 0.13±0.20                           |            |            |
| Hostility  | 0.20±0.30                       | 0.16±0.13                           |            |            |
| Phobic anxiety   | 0.33±0.51                       | 0.13±0.14                           |            |            |
| Paranoid ideation  | 0.07±0.14                       | 0.18±0.21                           |            |            |
| Psychoticism   | 0.22±0.32                       | 0.13±0.20                           |            |            |

BSI, Brief Symptom Inventory.

## Results

### *Description of Participants*

Characteristics of the study participants are described in Table 1 (the psychopathology of patients in this study was similar to the total population of the obesity clinic). Patients, physicians, and therapists indicated that the patients' motivation to undergo bariatric surgery included disappointing previous weight loss attempts, anticipated comorbidity improvement or prevention, anticipated re-

duction of physical limitations, and anticipated longevity. In some cases, social factors such as shame, being a good role model, or not wanting to be different, also played a role.

All physicians and therapists reported experience with the intervention program ( $\geq 2$  years). Physicians were trained to introduce the intervention, while therapists were trained on how to provide the intervention sessions, including motivational interviewing training.



### *Barriers to and Facilitators of Participation*

Five main themes:

- Emotional response to confrontation with SWL
- Motivation to participate in the intervention
- Design of the intervention's introduction process
- Relational context
- Practical factors

Each main theme, including subthemes, is presented in Table 2. In addition, subthemes with a substantial impact on participation are described in-depth, including the suggestions reported by patients, physicians, and therapists to improve the intervention.

#### *Emotional Response to Confrontation with SWL*

*Patients' Emotions.* In all groups (i.e., patients, therapists, and physicians), participants frequently said the confrontation with SWL caused an emotional response in patients. Some reported that patients were astonished, confused, or angry, while others said patients were disappointed, slightly depressed, or experienced feelings of self-doubt. Patients often emphasized that they felt like they had failed, again. In some cases, patients said they were speechless and explained that their emotions prevented them from questioning their physician about the intervention. "I wish my physician had questioned me more to help me speak out" [25-year-old female, nonparticipant]. Moreover, many explained that their emotions restricted their ability to contemplate about participation. "If I had to decide whether to participate during the medical session, I would have declined. Luckily, a while after the medical session, my emotions subsided and I reflected on my situation" [57-year-old female, participant].

Another barrier identified within all groups was that patients experienced being invited to the intervention as a punishment for not losing enough weight, which often resulted in resistance and strong emotions. Some patients highlighted that—to be invited—felt unfair to them, as they tried really hard to lose weight. "The intervention felt like a punishment for my behavior, even though I did everything I could" [21-year-old female, participant].

*Physicians' Struggle to Cope with Patients' Emotions.* Physicians reported that they often struggled to find a balance between a hard confrontation, which may increase perceived severity of SWL (facilitator), but increase the emotional impact (barrier); and a soft confrontation, which may prevent emotional impact, but decrease perceived severity. Alternatively, some patient responses illustrated possible results of a soft or hard approach. "At first, I was so shocked when my physician confronted me with my suboptimal weight loss! Luckily, she turned out

to be genuinely nice and told me not to worry since everybody loses at his/her own rate... So, I thought, why participate?" [42-year-old female, nonparticipant].

In addition, several physicians stated that strong emotions from patients obstructed the physicians' ability to explain the benefits of the intervention. "Convincing patients with rational arguments while they were emotional was usually not very effective" [30-year-old male physician]. Some physicians emphasized that pushing emotional patients to participate evoked resistance. As a strategy to allow sufficient time to consider an intervention, some physicians postponed the invitation until emotions subsided. Furthermore, discussing other outcomes first (e.g., eating behavior, activity behavior, and comorbidities), helped patients to put their SWL into perspective. Finally, therapists suggested strong emotions may be prevented by telling patients prior to the medical session that an intervention is not a punishment, but rather a chance to explore an improvement in weight loss behavior.

#### *Motivation to Participate in the Intervention*

Many patients reported autonomous motivations as facilitators for participation, such as preventing further SWL, improving comorbidities or health in general, preventing anticipated weight regain, or preventing relapse into unhealthy habits. In contrast, some mentioned more external motivations, "I didn't think it was necessary, but they thought it was important. So, I thought, okay, I'll participate" [57-year-old female, participant].

In all groups, participants said that the patients' perceived need for help often determined whether patients participated. For instance, as reason to participate patients often mentioned "learning to cope with a specific problem" (e.g., adjusting bad eating habits, planning physical activities, or coping with temptations and psychological problems). For some, the severity of their SWL alone was enough to experience need for help. And for those who were insecure whether their behavior was right, exploration of their need for help was a reason to participate. "I want to find out whether my behavior is adequate or not, maybe they can help" [59-year-old patient, participant].

Several patients mentioned as a barrier that they could not think of any help they needed. While some said their physician did not provide them with specific reasons to participate, others declined the intervention as they stated they already knew what to do: "I studied nutrition and dietetics and I hired a personal coach for my physical exercise" [45-year-old female, nonparticipant]. Accordingly, physicians and therapists stressed the importance of

**Table 2.** Barriers (B) and facilitators (F) to participate in intervention, according to patients and physicians & therapists

|  | Patients | Physicians & therapists |
|--|----------|-------------------------|
| Emotional response to confrontation with suboptimal weight loss  |          |                         |
| Patients' emotions   |          |                         |
| Emotions restricted contemplation about decision to participate  | B        | B                       |
| Emotions increased when intervention was perceived as punishment for suboptimal weight loss  | B        | B                       |
| Uncertain about how to cope with suboptimal weight loss  | F        |                         |
| Emotions caused resistance against recommendations physician   |          | B                       |
| Physicians' struggle to cope with patients' emotions   |          |                         |
| Hard to confront patients while they lose weight   |          | B                       |
| Hard to find a balance between: a hard confrontation, which may result in emotional barriers; and a soft confrontation, which may undermine perceived severity of suboptimal weight loss |          | B                       |
| Motivation to participate in the intervention  |          |                         |
| Perceived need for help  |          |                         |
| Clear specific problem (e.g., dietary planning)  | F        | F                       |
| Satisfaction with current weight loss or comorbidity status  | B        | B                       |
| Confidence to improve weight loss without intervention   | B        | B                       |
| Physician does not provide explicit reasons to participate   | B        |                         |
| Unawareness of insufficient weight loss related behavior   |          | B                       |
| Insufficient exploration of need for help  |          | B                       |
| Physician confronts patient with consequences of decision  |          | F                       |
| Perceived severity of suboptimal weight loss   |          |                         |
| High severity  |          | F                       |
| Low severity   |          | B                       |
| Misinterpretation of weight loss graph   |          | B                       |
| Not aware of necessity to intervene in an early postoperative stage  |          | B                       |
| Outcome expectancy of intervention   |          |                         |
| Exploration of weight loss-related behavior  | F        | F                       |
| Improvement of patient-specific problem  | F        | F                       |
| Improvement of weight loss and comorbidities   | F        | F                       |
| Lack of additional contribution to regular care program  | B        |                         |
| Individual treatment helps to speak openly   | F        |                         |
| Personality  |          |                         |
| Opportunism  | F        |                         |
| Stamina  | F        |                         |
| Stubbornness   |          | B                       |
| Design of the intervention's introduction process  |          |                         |
| Selection criteria   |          |                         |
| Only weight loss as selection criterion  | B        | B                       |
| Overselection (i.e., suboptimal weight loss despite adequate behavior)   | B        | B                       |
| Although therapists have important knowledge about their patients' lifestyle, they are not involved in the patients' decision  |          | B                       |
| Information provision about the intervention   |          |                         |
| Information provided during regular care program   | F        | F                       |
| Partially forgotten at the time of the medical session   | B        | B                       |
| Too much information increases psychological distress about the weight loss assessment   |          | B                       |
| Weight loss graph  |          |                         |
| Helps to explain weight loss   | F        | F                       |
| Helps to set goals   | F        |                         |
| Misinterpreted by some patients  |          | B                       |
| Available time for medical session (10 min: regular consult + confrontation suboptimal weight loss + intervention offer)   |          |                         |
| Sufficient to: discuss weight loss, mention benefits of intervention, invite patients to participate   |          | F                       |
| Insufficient to: temper emotions; contemplate about participation, put suboptimal weight loss into perspective, or explore the patients' need for help                                   |          | B                       |
| Brief, abrupt, or a routine procedure  | B        |                         |

**Table 2** (continued)

|   | Patients | Physicians & therapists |
|---|----------|-------------------------|
| Relational context  |          |                         |
| Patient-physician relationship  |          |                         |
| Autonomy is respected by physician  | F        | F                       |
| Good relationship helps to explore patients' need for help  |          | F                       |
| Physician acknowledges that changing behavior is difficult  | F        |                         |
| Physician acknowledges that every patient responds differently to surgery                                 | F        | F                       |
| Scheduling the intervention with a familiar therapist   |          | F                       |
| Social context  |          |                         |
| Social support from friends, family, or other patients reinforces existing attitude towards participation |          | F/B                     |
| Practical factors   |          |                         |
| Time and costs  |          |                         |
| Travel distance   | B        |                         |
| Travel costs  | B        | B                       |
| Competing agenda  | B        |                         |
| Costs of taking a day off work  | B        | B                       |

helping patients to explore their need for help. Physicians recommended to convince patients by telling them that the cause of their SWL was unknown, but that the intervention was a great opportunity to explore this. They also increased their patients' perceived need for help by confronting them with the potential consequences of their choice.

Physicians said that although some patients were motivated by the severity of their SWL, those unaware of this severity, often showed strong resistance to accepting help. Both physicians and patients said the weight loss graph used during the medical session was a great tool to become aware of SWL. It also helped patients to set goals, motivating them to participate in the intervention. "I participated since I want to obtain weight loss above the 25th percentile line" [45-year-old female patient, participant].

However, physicians also mentioned that graphs were hard to understand for some patients. Patients who barely qualified to participate often interpreted their weight loss line as "nearly average", while in reality they were still among the group with the 25% lowest weight loss. These patients said they declined the intervention because they thought it was unnecessary. Physicians also reported that some patients were unaware of the importance of intervening in an early postoperative stage. As one patient said "I'll reconsider when my weight loss stabilizes" [50-year-old male patient, nonparticipant]. In contrast, patients who were aware of the importance to improve their weight loss mentioned this as a reason to participate.

#### Design of the Intervention's Introduction Process

Some physicians and therapists highlighted that, although the intervention is focused on behavior, selection is based on weight loss. They explained that not all weight loss is determined by behavior. Some patients were not selected despite their lack of healthy behavior. In contrast, some patients that did qualify for intervention, already displayed healthy behavior. Inviting patients despite their efforts to engage in healthy behavior often resulted in strong resistance. As a patient said [42-year-old male physician]: "I did everything I could, I always followed your instructions, and now you ask me to change my behavior!" Although patients, physicians, and therapists recognized weight loss as a crucial and objective selection criterion, they suggested to also include other parameters, such as eating habits, physical activity, health related quality of life, comorbidity status, and recommendations of the multidisciplinary team.

#### Relational Context

Patients stressed the importance of a good patient-physician relationship in helping them explore their need for help. They said respect for autonomy, listening, and acknowledgment of their struggles helped them to accept their physician's advice and motivated them to participate. Furthermore, physicians and therapists mentioned that therapists often have closer relationships with their patients than physicians, as therapists are more involved with the patient's behavior. Accordingly, they suggested leaving the weight loss confrontation to the physician and letting the therapist explore their patients' need for help.

## Practical Factors

In all groups, participants reported that practical factors remained a barrier, including travel distance, travel costs, competing agenda, and time off work.

## Discussion and Conclusion

### Discussion

#### Main Findings

This is the first study to explore barriers to and facilitators of participation in intervention for patients that have SWL after bariatric surgery. First, an important barrier was the emotional response caused by confrontation with SWL, as it often hampered the patient's decision to participate. Second, insufficient exploration of the patient's perceived need for help limited the patients' ability to make an informed decision. Third, using a visual weight loss graph helped physicians to explain SWL to patients. However, if the graph was misunderstood, severity of SWL was sometimes underestimated. Fourth, patients were receptive to their physician's advice and motivated to participate when their physician respected their autonomy. Fifth, participation was constrained by perceived financial costs and time barriers.

#### Discussion

Our findings suggest that the patients' decision-making was hampered by emotions after confrontation with SWL. This supports previous research which suggests that a patient's ability to comprehend information diminishes after bad news is received [28]. It may also explain why physicians in this study stated that rational arguments were ineffective when patients were emotional and why physicians tried to postpone discussing the intervention until emotions subsided. Dean et al. [29] stressed the importance of recognizing and exploring emotions before discussing treatment options. To facilitate this, they presented specific communicative and cognitive strategies such as recognizing, exploring, and assisting in managing emotional distress. Consequently, evidence-based communication models have been developed and adapted for use in clinical practice to assist with delivering bad news [30], such as the SPIKES and PEWTER models. These strategies may help bariatric healthcare professionals structure patient-physician communication to regulate patients' emotions. Results of this study also showed that allotting sufficient time to the regulation of emotions during a clinical session is essential.

This study also found that insufficient exploration of patients' perceived need for help limited the patient's ability to make an informed decision, similar to previous research [31]. Informed decision-making includes helping patients understand the nature of their disease and the services provided, including benefits, risks, limitations, alternatives, and uncertainties [32]. When this process is not completely fulfilled, patients may make decisions based on false conclusions [32]. To enhance informed decision-making, healthcare professionals should support deliberation surrounding the decision-making process.

Furthermore, patients who felt that their physician respected their autonomy were receptive to their physician's advice and motivated to participate. This supports the self-determination theory that self-determined behavior can be enhanced by satisfying three basic needs: competence, relatedness, and autonomy [33]. The need for competence may be satisfied during decision talk by helping patients gain an understanding of the health behaviors that should be changed [34]. The need for relatedness may be satisfied by scheduling decision talk with a familiar therapist; and the need for autonomy may be satisfied by increasing independency from external pressures, such as the physician's or therapist's opinion. As in the current intervention, autonomy could be enhanced by using motivational interviewing techniques [35].

A visual weight loss graph helped physicians to explain SWL to patients. Presenting weight loss results in graphical format, in addition to numerical format, increases people's understanding and may therefore improve decision-making [36]. It is important to use graphs that are easy to understand, such as line graphs [37] and absolute data rather than relative data (e.g., kilograms rather than %EWL or %TWL) [37].

Results showed that inviting patients despite their efforts to perform healthy behavior usually resulted in strong resistance. This might be explained by the applied selection criteria. As SWL is not necessarily the result of insufficient behavior, some patients may benefit less from behavioral interventions. In contrast, patients who have achieved sufficient weight loss, but lack a healthy lifestyle may benefit from behavioral interventions, as this may prevent long-term SWL, or weight regain. Although the final goal of the intervention is to improve long-term weight loss or weight regain, the aim of selection for behavioral intervention is to reach patients who may benefit from behavioral change. As therapists have insight into their patient's behavior, their opinion may differentiate patients who could benefit from behavioral intervention. Most studies only use a measure of body weight to define



success, ignoring health status and patient or therapist experience. Ideally, other key outcomes after bariatric surgery, such as the patient's and therapist's perspective, health related quality of life, and comorbidity improvements, should also be included [38, 39]. Finally, similar to previous research [40], and despite the short travel distances and insurance coverage of post-bariatric care in the Netherlands, we found that time and costs were frequently perceived as barriers for participation in the intervention.

#### Recommendations for Future Research

Future research is necessary to determine the effect of emotional regulation training, improvements for informed decision-making, and alternative communication tools on intervention participation rates for patients with SWL after bariatric surgery. Furthermore, future research should determine the effect of early postoperative behavioral intervention on long-term outcomes, such as weight loss, comorbidity improvements, and health related quality of life.

#### Strengths and Limitations

The strengths of this study were that perspectives from all actors involved were used, contributing to a comprehensive analysis of the barriers and facilitators. Furthermore, interviews were double-coded independently by two different researchers and verified for interpretation. Because patients with the lowest weight loss were underrepresented initially, additional interviews targeting this group were performed until data saturation was reached. Limitations were that participants knew that the interviewer worked as a researcher at the Dutch Obesity Clinic, potentially causing subjection to social desirability. To prevent this, participants were informed that other employees of the clinic do not have access to their interviews and that all data will be analyzed anonymously. Furthermore, although male patients were interviewed among the group that declined the intervention, the interviewed patients who did participate in the intervention were all female. Therefore, results may not be representative of male participants who choose to participate in intervention. Though, approximately 80% of patients undergoing bariatric surgery are female [41]. Lastly, voluntary participation to the study may have favored motivated patients.

#### Conclusion

This study provides new insights into why patients that underwent bariatric surgery accept or decline an in-

tervention to participate in postoperative interventions. Participation often depended on the patient's ability to make an informed decision. While emotions impede patient deliberation about participation in interventional programs, support with exploration of their need for help facilitated informed decision-making. Patients' were motivated to participate when physicians respected their autonomy. In effect, participation was mostly determined by the way the intervention was communicated, rather than by the intervention itself. Clinicians should therefore focus on emotional regulation, supporting patients in exploring their need for help, and respecting patients' autonomy to promote adequate intervention participation for patients with SWL.

#### Practice Implications

We recommend that bariatric care providers support their patients in informed decision-making about participation in additional postoperative behavioral interventions with the aid of three actions. First, *choice talk* makes patients aware of the option to participate in an additional intervention in case of SWL. We recommend conducting choice talk to all patients at the start of the regular care program, and shortly before any SWL is determined. Second, *option talk* informs patients with SWL in more detail about the intervention options. During option talk, the purpose and setup of the intervention is explained, and patients are encouraged to sign up for an explorative session in which decision talk will be conducted. Third, *decision talk* helps patients explore personal weight loss-related problems and individual needs corresponding the interventional options. We recommend that care providers apply a minimal intervention strategy. For instance, instead of offering patients the option to participate in a full intervention in the current setting, patients should be offered an option to participate in one explorative session (i.e., decision talk), and depending on the outcome of that session, consider participation in further treatment sessions.

Additionally, *decision support* could be integrated to strengthen the decision-making process. This could be either brief, during the medical session, or more extensive, to be used by the patient before or after clinical encounters [42]. For example, patients in the current study desired leaflets after the medical session (i.e., option talk) to review their options. Decision aids lead to greater knowledge, more accurate risk perceptions, more satisfaction with decisions, more participation in decision-making, and fewer patients remaining undecided [43].

Finally, we recommend that healthcare professionals are provided with emotional regulation training for delivering bad news, such as confrontations with SWL. To decrease time and cost barriers, healthcare providers may consider alternative communication options, such as phone sessions [44] or e-health solutions [45].

### Statement of Ethics

All procedures performed in this study were in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study setup was approved by the Medical Ethical Committee of the Vrije Universiteit Amsterdam, reference number 2018.183. The subjects gave their written informed consent.

### Conflict of Interest Statement

Onno M. Tettero and Valerie M. Monpellier are employed by the Dutch Obesity Clinic. Ignace M.C. Janssen is the medical director of the Dutch Obesity Clinic. Marjan J. Westerman, Maartje M. van Stralen, Meike van den Beuken, and Ingrid H.M. Steenhuis have no conflicts of interest to declare that are relevant to the content of this article.

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### Author Contributions

Onno M. Tettero, Marjan J. Westerman, Maartje M. van Stralen, and Ingrid H.M. Steenhuis: study concept and design. Onno M. Tettero and Meike van den Beuken: acquisition of clinical data. Onno M. Tettero, Marjan J. Westerman, and Meike van den Beuken: analysis and interpretation of data. Onno M. Tettero and Maartje M. van Stralen: writing of the manuscript. Onno M. Tettero, Marjan J. Westerman, Maartje M. van Stralen, Meike van den Beuken, Valerie M. Monpellier, Ignace M.C. Janssen, and Ingrid H.M. Steenhuis: critical revision of the manuscript for important intellectual content.

### Data Availability Statement

Research data are not publicly available on ethical grounds. However, anonymously, data that support the findings of this study are available upon reasonable request from the corresponding author (Onno O. Tettero).

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