



Online survey on factors influencing patients' motivation to undergo bariatric surgery

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Summary

Given the worldwide increasing prevalence of severe obesity and considering the amount of scientific evidence demonstrating the beneficial effects of bariatric surgery (BS), it is surprising that only a fraction of patients with obesity undergo BS. We therefore conducted an anonymized online survey among individuals with a history of BS to understand factors influencing the deciding process leading to BS. Respondents were recruited on a voluntary basis from obesity-related social media groups between April and June 2020. The self-designed, non-validated questionnaire consisted of 20 questions and was open to any participants with a history of BS. Of 851 participants who started the survey, 665 completed the questionnaire (completion rate of 78.1%). Five years after BS, still 70% of the survey-participants were *very satisfied* or *satisfied* with the surgical result. However, the majority (73.3%) would have undergone BS earlier. The main motivation to choose BS was related to health status or quality of life. Important characteristics for a bariatric surgeon to obtain patients' trust are "taking time and listen" (74.7%), empathy (64%) and sympathy (56%). Post-operative satisfaction with the surgical outcome was high and long-lasting in this large cohort of BS patients. However, most participants would retrospectively have undergone BS earlier. The main reason to choose BS as treatment for their obesity were impaired physical health or reduced quality of life. Nearby location to patients' residence and availability of surgeons with empathy were decisive motives for bariatric centre selection.

KEYWORDS

bariatric surgery, characteristics of bariatric surgeons, choice for bariatric centre, decision-making for bariatric surgery, reasons for bariatric surgery, survey

What is already known about this subject

- There is an obvious discrepancy in disease prevalence and access to surgical therapy even though bariatric surgery is currently the most effective treatment for severe obesity.
- Patients with severe obesity face complex barriers which delay or even prevent efficient and established treatment.

Jeannette Widmer, Daniel Gero, Marco Bueter and Andreas Thalheimer contributed equally to this study.

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What this study adds

- Individuals with a history of bariatric surgery give insights about their motivation to undergo surgical therapy for their severe obesity.
- Bariatric patient's view of pre-operative information retrieval, relevant surgeon's characteristics and post-operative satisfaction.

1 | INTRODUCTION

Given the worldwide increasing prevalence of severe obesity with its associated comorbidities and considering the scientific evidence demonstrating the beneficial effects of bariatric surgery (BS), it is surprising that only a fraction of patients with obesity undergo surgical weight loss intervention.¹ For example, only 36% of patients assigned to an obesity centre in Toronto and formally qualified for BS, eventually received a weight-loss operation.² It seems that barriers to undergo BS are multifactorial and include environmental, patient-related and behavioural aspects.³ Environmental factors involve e.g., general practitioners' (GP) concerns about management of post-operative complications as well as discomfort with long-term follow-up after BS.^{4–6} Other similar hurdles are negative or stereotypical attitudes towards patients with obesity influencing GPs' decision for effective treatment.⁷ One third of GPs do not even discuss BS proactively with patients with obesity.^{8,9}

On the other hand, a patient-related factor is fear of post-operative complications and post-surgical restrictions in daily routine.¹⁰ Accordingly, patients with obesity often seek bariatric treatment only if their quality of life or life expectancy are significantly reduced.¹¹

However, behavioural patterns supporting obesity treatment include the individual awareness for a healthy lifestyle and the quality of physician–patient communication. Patients who choose BS have been shown to participate more frequently in physical activity compared to patients who do not consider BS as a treatment option indicating a higher awareness for a healthy lifestyle.¹²

In summary, patients suffering from obesity seem to face complex and multilayered barriers, which delay or even prevent efficient and established treatment strategies. We therefore conducted an anonymized online survey among individuals with a history of BS to learn more about key factors influencing the decision-making towards BS as treatment for severe obesity.

2 | METHODS

2.1 | Data collection

Respondents were recruited from obesity-related, German speaking, social media groups between April and June 2020. An invitation for participation and three reminders every 2 weeks were posted on the “Adipositas Zuerich” (approximately 4900 followers) and “Adipositas Chirurgie—Fragen und Antworten” (1500 followers)

Facebook© groups. Both social media groups are private and administered by persons somehow affected by obesity. Thus, the survey was open to any respondents with a presumed interest in and history of BS. The survey was administered via Typeform™ (Barcelona, Spain) and only completed questionnaires could be submitted. Respondents could not be backtracked to a specific Facebook© profile.

2.2 | Questionnaire

The questionnaire consisted of 20 questions that are listed in Appendix S1. Although the questionnaire was not formally validated, all questions were extracted from other, previously validated questionnaires that were used in earlier studies to collect information on basic demographics and factors that impacted on the participants' decision to choose a bariatric centre, bariatric surgeon and primary bariatric procedure.^{8,9,11,13} We included only complete questionnaires for data analysis.

2.3 | Statistical analysis

The manuscript was prepared according to the “CHECKlist for Reporting Results of Internet E-Surveys” (CHERRIES) guidelines, which was designed to ensure the quality of reports in the medical literature analogue to checklists of recommendations such as the CONSORT statement for randomized trials.¹⁴ It ensures complete description of web-based surveys and improves the quality by methodological standardization. Response rate was calculated in terms of a completion rate based on definitions and metrics proposed by the American Association for Public Opinion Research.¹⁵ There was no exclusion of data.

The survey-participants' body mass index was calculated from the self-reported body weight and height. “Post-operative” weight was represented by the “current” weight. The percent of total weight loss (%TWL) was defined as operative weight minus current weight, divided by operative weight and multiplied by 100.

Statistical significance was defined as $p < .05$. Continuous data are given as mean \pm standard deviation (SD) as appropriate and categorical as number (n) and percentage (%). Student's t test, Wilcoxon's rank sum test or Fisher's exact test was used to compare means, medians and proportions or odds among groups. GraphPad Prism Version 9.1.0 (GraphPad Software, Inc., San Diego, CA) has been used for statistics.

TABLE 1 Demographics and basic information

Basic information	M (SD) or N (%)
Male	56 (8.5)
Female	607 (91.5)
Age (years)	45 ± 10.07
Body mass index (kg/m ²)	
Pre-operative	50.4 ± 9.1
Post-operative	33.2 ± 8.1
%TWL	33.8 ± 12.8
Operation technique	
Roux-en-Y gastric bypass	287 (43.3)
Sleeve gastrectomy	246 (37.1)
One anastomosis gastric bypass	81 (12.2)
Distal Roux-en-Y gastric bypass	18 (2.7)
Gastric band	14 (2.1)
Biliopancreatic diversion (±DS)	7 (1.1)
Other	8 (1.2)
Unknown	2 (0.3)
Time of operation (months ago)	
<3	83 (12.5)
3–12	179 (27)
13–24	119 (17.9)
25–60	172 (25.9)
>60	110 (16.6)
Number of diets before surgery	
1–5	105 (15.8)
5–10	198 (29.9)
>10	355 (53.5)
None	5 (0.8)

Abbreviations: %TWL, percent of total weight loss; DS, duodenal switch.

3 | RESULTS

3.1 | Demographics and basic information

Of 851 members who started to answer the questions, 665 respondents finally completed the questionnaire (completion rate: 78.1%). The survey was mostly completed on a smartphone (87%) taking an average of 5 min 47 s. The majority of participants was female (91.5%; $n = 607$) with a mean age of 45 ± 10.1 years. Further demographics and basic information are summarized in Table 1 and Figure 1(A).

3.2 | Satisfaction with post-operative results

Overall, 85.1% ($n = 564$) of the respondents were *very satisfied* or *satisfied* with the achieved post-operative result (Figure 2(A)). Still 70% of participants 5 years after surgery ($n = 110$) were *very satisfied* or *satisfied* with the surgical result. The correlation between post-operative satisfaction and %TWL is shown in Figure 1(B). Participants with private insurance ($n = 60$, 9%) were more often *very satisfied* compared to participants with non-private insurance (68% vs. 59%). A total of 63.1% ($n = 181$) of patients after Roux-en-Y gastric bypass (RYGB) were *very satisfied* with the post-operative result compared to 58.6% ($n = 144$) of patients after sleeve gastrectomy (SG).

3.3 | Retrospective evaluation of experience with BS

If given the chance again, 73.3% ($n = 486$) of the survey-participants would have chosen BS as treatment for their obesity

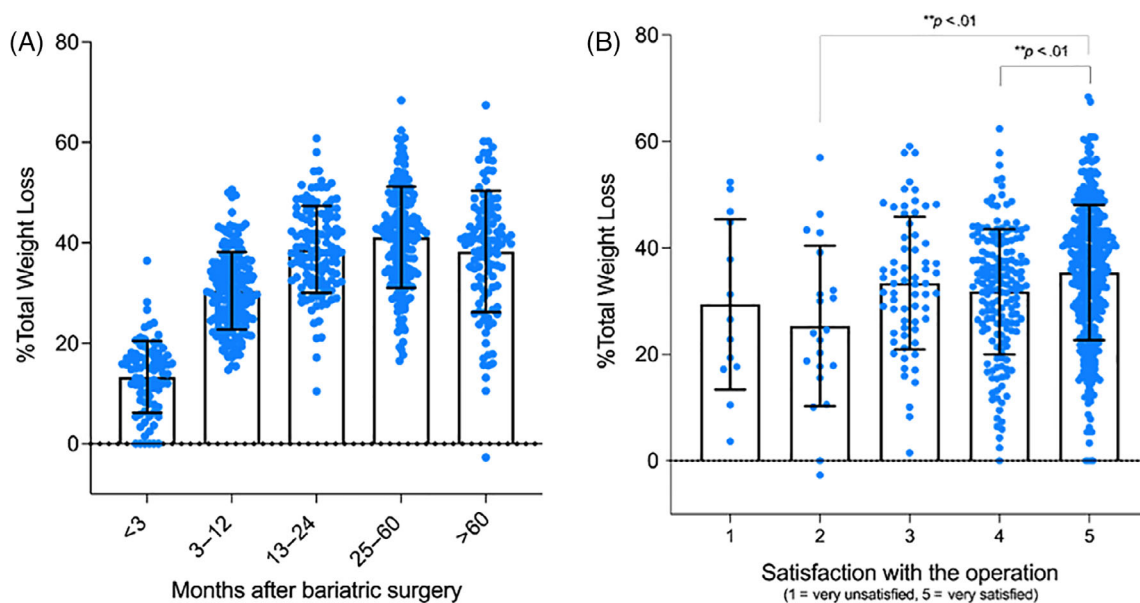


FIGURE 1 (A) Percent of total weight loss (%TWL) after bariatric surgery and (B) correlation between satisfaction with the operation and %TWL

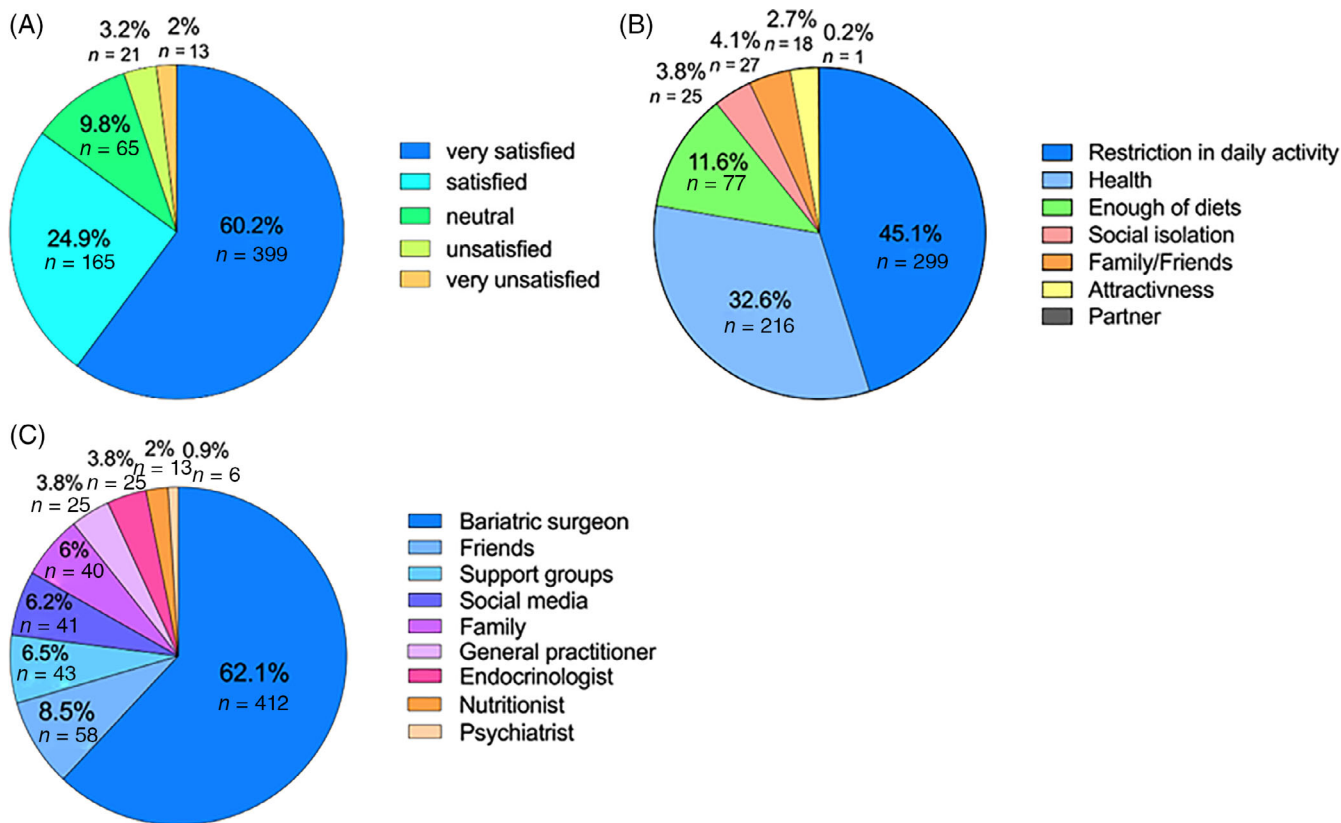


FIGURE 2 (A) Satisfaction with post-operative results; (B) patients' motivation to undergo bariatric surgery; (C) most important influencers for operation techniques

earlier than they actually did. A total of 18.1% ($n = 120$) were satisfied with their decision and would not change anything. A different operation technique would have been preferred by 4.2%; a different obesity centre by 2.7%. Only 1.7% ($n = 11$) of participants reported to regret their decision of undergoing BS. There was no difference in retrospective evaluation of experience between patients after RYGB and SG.

3.4 | Self-appointed reasons for obesity

More than three-fourths of the participants attributed their obesity to overeating (79.8%, $n = 527$), lack of physical activity (56%, $n = 370$) and/or lack of discipline (39.5%, $n = 261$) (Figure 3). A total of 40.1% of the respondents ($n = 265$) considered genetic inheritance as main origin of their condition. Further, both psychological traumas and social environment (eating behaviour in families) were mentioned as cause for obesity by 25.4% ($n = 168$).

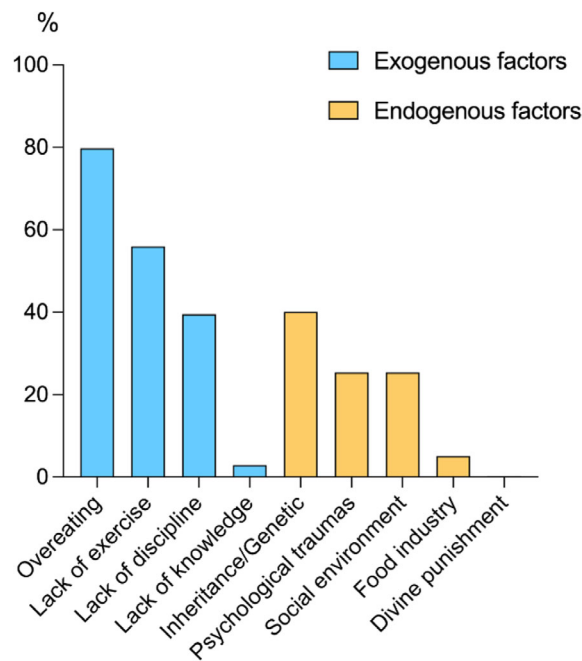


FIGURE 3 Self-appointed reasons for obesity

3.5 | Motivation to undergo BS

The survey revealed increasing restriction in daily activities (limited walking distance, tight cinema/airplane seat, finding fitting clothes, etc.) as one of the main motivations to choose BS as treatment option

(45.1%, $n = 299$). Other factors influencing the choice for BS and an overview of influencers on patient's decision for a specific operation technique are shown in Figure 2(B),(C).

3.6 | Choice of centre and surgeon

The obesity centre was chosen by its location (close to home) (46.3%, $n = 307$), by recommendation of friends (35.4%, $n = 235$), GP (28.8%,

TABLE 2 Survey participants' pre-operative information collection

Where did you get information about the OT before	
The first appointment with surgeons?	N (%)
Social media groups	247 (37.3)
Patient's information events	202 (30.5)
Google	182 (27.5)
GP	181 (27.3)
Support groups	164 (24.7)
Family/partner	68 (10.3)
Hospital's webpage	53 (8)
Did you have a favoured OT pre-operatively?	
Yes	344 (51.9)
No	319 (48.1)
Did you get your favoured OT?	
Yes	588 (88.7)
No	75 (11.3)
Did you ask for a second opinion?	
Yes	130 (19.6)
No	533 (80.4)
How good was pre-operative, surgical education?	
Very good	420 (63.3)
Good	152 (22.8)
Neutral	54 (8.1)
Bad	24 (3.6)
Very bad	13 (2)

Abbreviations: GP, general practitioner; OT, operation technique.

$n = 191$) or social media groups (11.6%, $n = 77$). The centre's or surgeon's webpage convinced only 12.7% ($n = 84$) and 12.5% ($n = 83$), respectively, to get in contact with the service. The expected waiting time until surgery (5.9%, $n = 39$) or recommendations by family members (4.8%, $n = 32$) were of less importance.

The most important characteristics for a bariatric surgeon to obtain patients' trust are "taking time and listen" (74.7%, $n = 495$), empathy (64%, $n = 424$) and sympathy (56%, $n = 371$). Reputation was important for 46.2% ($n = 306$) of all survey-participants, while a high caseload was reported to be relevant for 26.8% ($n = 178$). Of no importance were good appearance (2.9%, $n = 19$), academic titles (2%,

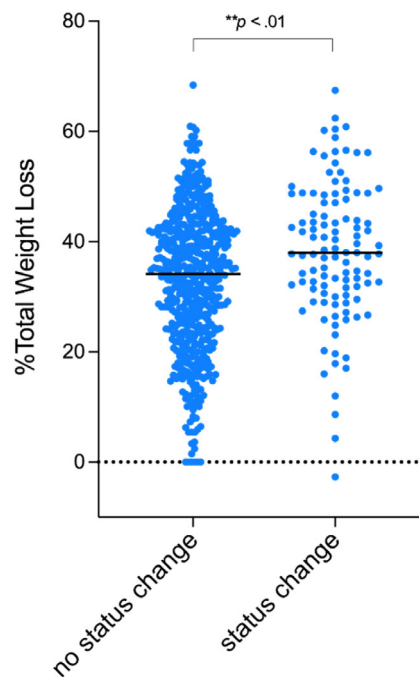


FIGURE 5 Change of relationship status in accordance with percent of total weight loss

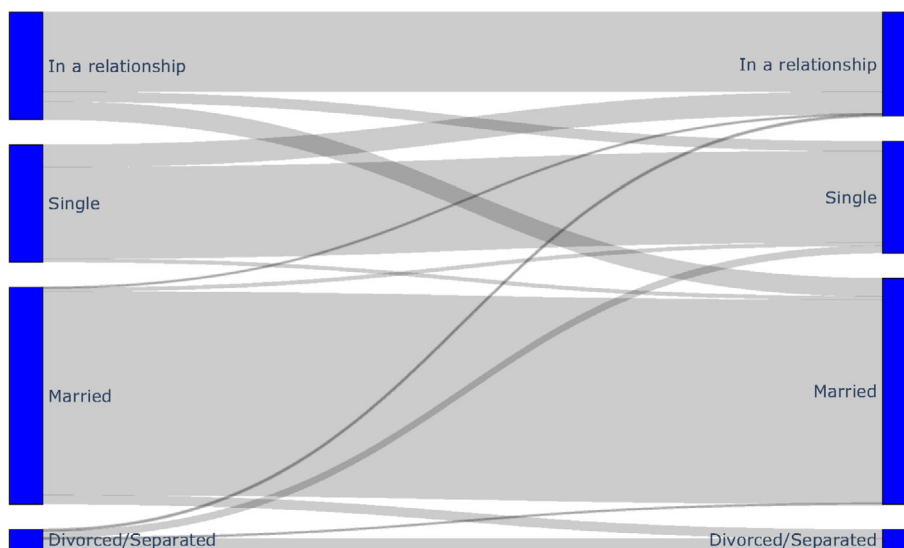


FIGURE 4 Change of relationship status before and after bariatric surgery

$n = 13$) and sex (0.9%, $n = 6$) of the bariatric surgeon. Details of pre-operative information collection are summarized in Table 2.

3.7 | Changes in relationship status

Prior to the operation 23.2% ($n = 154$) of the survey-participants were in a relationship, while 46.9% ($n = 311$) were married and 29.8% ($n = 198$) (25.3%) were “single,” “divorced” or “separated.” Overall, there was no change in the relative distribution of the relationship status post-operatively. However, on an individual level there were upward shifts from single towards married relationship statuses following BS (Figure 4). For example, 19% ($n = 32$) of those participants who reported to be a “single” changed their status into “in a relationship” and 16.8% ($n = 26$) of participants who reported to be in a relationship changed their status to “married.” In contrast, only 9.1% ($n = 14$) of those being in a “relationship” changed their status to “single” and 5.8% ($n = 18$) from “married” to “single” or “divorced” or “separated.” %TWL was significantly higher in the group who changed their relationship status after surgery compared to those with an unchanged relationship status (mean %TWL of 38.3% vs. 33%, p -value $<.001$) (Figure 5).

4 | DISCUSSION

The results of this survey deliver information on the view of individuals with severe obesity over their chronic disease and on factors influencing their decisional process towards BS as treatment option. Key findings include that the majority of respondents would have undergone a bariatric operation earlier in life. Second, over two-thirds of the survey-participants attribute their obesity rather to self-appointed than not controllable parameters. Third, restriction in daily activities as well as health issues were determining factors to decide for BS. Finally, important motives for bariatric centre selection were a nearby location to patients' residence and availability of surgeons with empathy.

Overall satisfaction after BS was high among the survey-participants—even after more than 5 years post-surgery and between all groups of operation techniques. This finding is supported by already published data demonstrating that over three-fourths of post-bariatric patients are sufficiently satisfied and would undergo surgery again.¹³ The level of satisfaction seems to correlate with the level of post-operative weight loss as very satisfied patients had a significant greater %TWL than the rest of the survey-participants. This is in accordance with a recent survey showing that 2 years after BS, 79.9% of 1991 participants were satisfied with the surgical result, while greater weight loss was significantly associated with a higher level of satisfaction.¹⁶ Apparently, the achieved amount of weight loss after BS seems to have an impact on overall satisfaction post-operatively and probably is used as an expression of success among bariatric patients.

Nevertheless, the majority would retrospectively undergo surgery earlier, which may represent the stony path patients have to tread before eventually making the decision for BS. Treatment of obesity still is complicated by misperception about the disease and prejudice—also

by the healthcare professionals. Based on a literature review on mindset and communication barriers towards BS, barriers mainly arise from absent or incorrect information about obesity as chronic disease and its therapy option.¹⁷ Consequences may be inadequate treatment of obesity, underestimation of the risk of severe obesity—and delayed decision-making on the next therapy escalation.

Assuming that discriminatory treatment of patients with obesity influences their self-awareness and understanding of disease, respondent's personal opinion on the reason for their obesity was asked. We divided the answers into two categories—exogenous (caloric intake, physical activity, patient's discipline, knowledge about obesity treatment) and endogenous factors (genetic factors, psychological traumas, influence of social environment, food industry, religious reasons).¹⁸ Exogenous factors may appear influenceable from the point of view of those affected by obesity, whereas endogenous factors are rather not. Our finding that two-thirds of the respondents attribute their obesity mainly to exogenous factors suggests that obesity is still not understood as a chronic disease, which would not be caused by someone's fault or by lack of discipline—not even by those affected by it. The belief of being self-responsible for the obesity is instilled in those patients over years—also by healthcare professionals.^{17,19,20} A recent study from Saudi Arabia revealed that most patients blame low self-discipline as one of the main reasons for poor adherence to diet and exercise after BS.²¹ Hence, every so-called therapy failure may stoke the feeling of shame, weakness and guilt and maintains the negative spiral of weight gain.

It is no wonder that features like empathy, sympathy and active listening were most important to the survey-participants when it comes to choosing the bariatric surgeon. These “soft skills” are increasingly essential for an effective patient care.²² Especially in BS with stigmatized individuals, it seems necessary to advocate for patient's needs and rights.²³ Literature has documented that unprofessional surgical behaviour can even have adverse effects on patient safety and—of course—satisfaction.^{24,25} Other factors such as surgeon's gender, academic titles or neat appearance were obviously less relevant to the survey-participants.

Our survey data also hypothesize that the surgeon has a significant influence on the choice of surgical method which has already previously been reported.²⁶ Even if the future candidates for BS made up their minds about the preferred surgical technique, the surgeons still seem to be noticed as important counsellors and allies on the patient's path for BS. This is in line with the literature highlighting a shared decision-making to achieve satisfying post-bariatric results but also to address patients' concerns and expectations.²⁷

Most survey-participants name progressive limitations in daily activities and compromised physical and mental health main promoters for surgical treatment. In accordance to this, Fischer et al. surveyed 248 patients with obesity and found that the most important reasons to undergo BS are improvement of comorbidities, weight loss, enhanced physical activity, pain reduction and increased life expectancy.²⁸ Further, a descriptive study utilizing interviews with 24 patients at the time of their “decision visit” determined the factors related to their positive decision towards BS.²⁹ The primary theme was “health issues”; the second was “lack of energy.” Other factors were named—e.g., “being there

for family,”—but they played only a subordinate role in decision-making for BS. The diversity of patients' pre-operative expectations has been recently explored in a free-word association study, where terms like “health, attractiveness, happiness, agility” and the emotion of “hope” were over-represented in patients willing to undergo BS.³⁰ The pursuit or hope of a healthier life seems to be an important pillar of the complex decision process towards BS.

Interestingly, our survey suggests that post-operative change in the relationship status was associated with a significantly higher % TWL compared to unchanged relationship status. This is in line with a study by Bruze et al. reporting similar results.³¹ They showed increased incidence of separation for those in a relationship and increased incidence of marriage or new relationship for those who were unmarried or single when comparing post-bariatric patients to controls. Within the surgery group, changes in relationship status were more common for those with larger weight loss. A recent study found a trend of higher relationship satisfaction in subjects with higher weight loss.³² These observations support the pleiotropic effects of BS beyond mere weight loss.

The main limitation of our study derives from the inherent methodological bias of internet-based surveys. First, even though individuals with obesity are rather active on social media platforms, the survey participants are not representative for bariatric patients in general. Second, the survey respondents participated on a voluntary basis, which mirrors a form of selection bias (volunteer effect). Third, data heterogeneity regarding—for example—the surgical techniques was inevitable.¹⁴ Further, to generate a satisfying response rate we focused on our primary questions and omitted questions about education, socioeconomic state, race and cultural patterns. Another limitation is the retrospective nature of data collection. Data could not be checked for correctness and accuracy, especially in terms of pre- and post-operative weight and operative technique. Another restriction is based on the choice of German language for the questionnaire, which did not allow capturing the narratives of non-German speaking BS patients. Nevertheless, this approach allowed to pool patient opinions from three neighbouring countries (Switzerland, Germany and Austria) with very different healthcare systems and use of BS.²⁶

5 | CONCLUSION

Post-operative satisfaction with the surgical outcome was high and long-lasting in this large cohort of BS patients.

However, most patients would retrospectively undergo BS earlier in their life. This and the fact that most survey participants are convinced of self-appointed reasons for their obesity may indicate a certain therapy delay for this chronic disease. Hence, motivation to opt for BS is often not until health status and quality of life are compromised. Decisive motives for bariatric centre selection were a nearby location to patients' residence and availability of surgeons with empathy.

In summary, future management of patients with obesity should include accurate transfer of information to all parties and interdisciplinary decision-making on therapy escalation.

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CONFLICT OF INTEREST

No conflict of interest was declared.

AUTHOR CONTRIBUTIONS

Jeannette Widmer and Daniel Gero: contributed equally to the study design, interpretation and analysis of data, and writing of the manuscript; Barbara Sommerhalder: analysis of data; Daniela Alceste, Ivana Raguz, Michele Serra, René Vonlanthen: interpretation of data, revision of the manuscript; Marco Bueter, Andreas Thalheimer: study concept and design, interpretation of data and critical revision of the manuscript.

ETHICAL APPROVAL

The Cantonal Ethics Committee of Zurich concluded that these types of studies do not fall under the scope of the Swiss Human Research Act; thus ethical approval was not required. Informed consent from participants was, for this type of study, not required under the Swiss law.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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