



Facebook groups provide effective social support to patients after bariatric surgery

Dimitrios I. Athanasiadis¹ · Alexandra Roper² · William Hilgendorf³ · Adam Voss² · Taylor Zike² · Marisa Embry³ · Ambar Banerjee^{1,3} · Don Selzer^{1,3} · Dimitrios Stefanidis^{1,3}

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Abstract

Background Social support after bariatric surgery is considered essential. Unfortunately, patient participation in such groups tends to be limited threatening their effectiveness. Facebook groups may provide a social support option that attracts more participation. The aim of this study was to describe our experience with the administration of a Facebook social support group and evaluate its perceived value by our bariatric patients.

Methods After IRB approval, all Facebook group posts since its establishment in 2015 were reviewed and a thematic analysis was undertaken. Group members also completed a survey related to their Facebook group experience and its perceived value. Responses were collected using 5-point Likert scales. In addition, 30 members were phone interviewed using open-ended questions and their responses were analyzed.

Results Over 4 years, the group accumulated 12,507 posts, 104,053 comments, and 197,594 reactions. On average, members check the group page more than once per day. Ten common themes were identified in the submitted posts: questions, motivation related, education related, diet related, physical activity related, current status updates, sharing failures, social, random/humorous and other. Members reported that the group helped them do well with their procedure (3.3/5) particularly due to the motivation of others' successful stories (3.5/5) and made them feel understood (3.9/5) even though it offered limited help controlling their eating habits (2.7/5). The phone interviews suggested that the Facebook group offered constant support, was simple to use, and provided the sole social support for many patients. They most appreciated the motivational posts that kept them on track and the assistance/comments of clinical staff. In contrast, they disliked repeated questions/spam and negative stories shared by some members.

Conclusions Facebook groups can provide effective social support to patients after bariatric surgery. Peers educate, answer questions, and motivate patients by sharing their positive experiences. Whether this online connectedness also positively impacts patient outcomes requires further study.

Keywords Facebook · Social media · Bariatric surgery · Social support

It is estimated that obesity will eventually affect one in two adults in the U.S by 2030 [1]. The most impactful and durable option for weight loss is bariatric surgery [2]. However,

for multiple reasons, outcomes vary widely among patients [3]. One such factor is social support [4], which can affect weight loss, level of depression, and problematic eating behaviors following bariatric surgery [5, 6]. Sources of social support include family, friends, the surrounding community [7, 8], health care providers who provide follow-up visits [9], and in-person group meetings [10, 11]. The importance of postoperative social support led the American Society of Metabolic and Bariatric Surgery (ASMBS) to mandate that accredited bariatric centers offer support groups to all postoperative patients [4]. Unfortunately, although patients agree they require social support following their bariatric surgery [5, 6], there are many barriers that prevent

✉ Dimitrios Stefanidis
dimstefa@iu.edu

¹ Department of Surgery, Indiana University School of Medicine, 545 Barnhill Dr., EH 130, Indianapolis, IN 46202, USA

² Indiana University School of Medicine, Indianapolis, IN, USA

³ Indiana University Health North Hospital, Indianapolis, IN, USA

them from attending the clinic follow-ups or the in-person social support meetings. The most common barriers include impaired mobility and lack of transportation [7], long travel distances [8], and being too busy to attend them in person [9].

As a result, many programs have developed online forums where patients can give advice to their peers on questions or concerns that arise during the postoperative period [10]. Despite the appeal and importance of the online social support groups, it is not clear whether their content is as accurate and helpful as the information being exchanged in formal in-person social support meetings. Moreover, only a few studies have explored the types of support these patients receive and whether the patients have seen a meaningful difference in their everyday lives as a result of their participation. Many of these web-based forums/groups may not convey accurate information, and do not have health care professionals monitoring the questions and answers of the platform users [10].

In 2015, our program launched a private Facebook support group supervised by our personnel to provide free and easily accessible social support to our clinic's patients. This ensures they receive the benefits of a social support group in a monitored and safe environment. The aim of this study was to perform a thematic analysis of the content posted by bariatric surgery patients in our Facebook support group webpage and to assess the impact of Facebook group participation on the perceived social support of our patients.

Methods

Facebook group administration

Our center's Facebook group is a private, supervised group which was created in 2015. The group was formed to engage our patients in discussions with patients who have similar experiences, to share ideas, have constant access to copies of forms such as our program's meal plan, and receive answers to questions directly from the health care providers who supervise the group's activity (such as dietitians, and physician assistants).

Since 2015, all of our new patients are invited to join our Facebook support group during their first office visit provided they have, or are willing to create, a Facebook account. Furthermore, all new members agree to avoid posting comments that are hurtful or demeaning to others, contain profanity, or involve insensitive comments based on race, religion, or personal beliefs. All posts are being pre-reviewed by one of our health care providers who monitors the group's activity daily. Posts that belong to any of the aforementioned prohibited categories and are being removed. The posts that are deemed to require medical attention (around 6 per week)

are not getting approved; on the contrary, the patients are requested to inform their medical provider instead. Additionally, to ensure confidentiality, all requests to join the group are being screened by our administrators. Failure to comply with the group's rules results in expulsion from the group.

Study design

After obtaining institutional review board (IRB) approval we proceeded with the participants' recruitment. An announcement was posted in the Facebook group by one of the group's administrators which invited any interested patient to join the study voluntarily. Patients who had previously agreed to receive email communication from the clinic were sent the study's nine-item survey, IRB protocol, and description of the Health Insurance Portability and Accountability Act. Patients who agreed to participate completed the survey using Redcap software. The participants could only select one answer to each of the nine questions. The answers were based on a Likert scale (1–5); the specific questions can be found in Fig. 1.

In addition, phone calls were made to a 30-participant subgroup who volunteered in the survey to receive a call. In an effort to reduce selection bias, phone calls in this subgroup were made to both highly engaged users and those who were not as much based on their replies on how often they check the Facebook groups' notifications. This provided further insight into members' social support experiences. In the end, the interviewers asked eight open-ended questions outlined in Fig. 2.

To expand upon findings from the survey and interviews, two trained researchers reviewed all the posts and allocated them into categories based on thematic content. Data were extracted and tabulated using a pre-piloted table for synthesis. Any new post that did not fit in the pre-piloted table was noted and discussed with the second researcher to come to an agreement. The frequency of preoperative and postoperative thematic sections were presented separately.

Chi-square was utilized for the thematic comparisons using SPSS 26.0 (SPSS Inc., Armonk, NY).

Results

From 2015 to September 2019, our Facebook group membership increased by 400%, from 301 to 1222. During those 4 years, our patients contributed 12,507 posts, 104,053 comments on the posts (average of eight replies on each post), and 197,594 likes on posts and/or comments.

The survey was answered by 246 patients after the removal of 15 duplicates (20.1% response rate). All respondents answered all of the questions. At the time of questionnaire completion, 236 (95.9%) patients were in

Fig. 1 Online survey

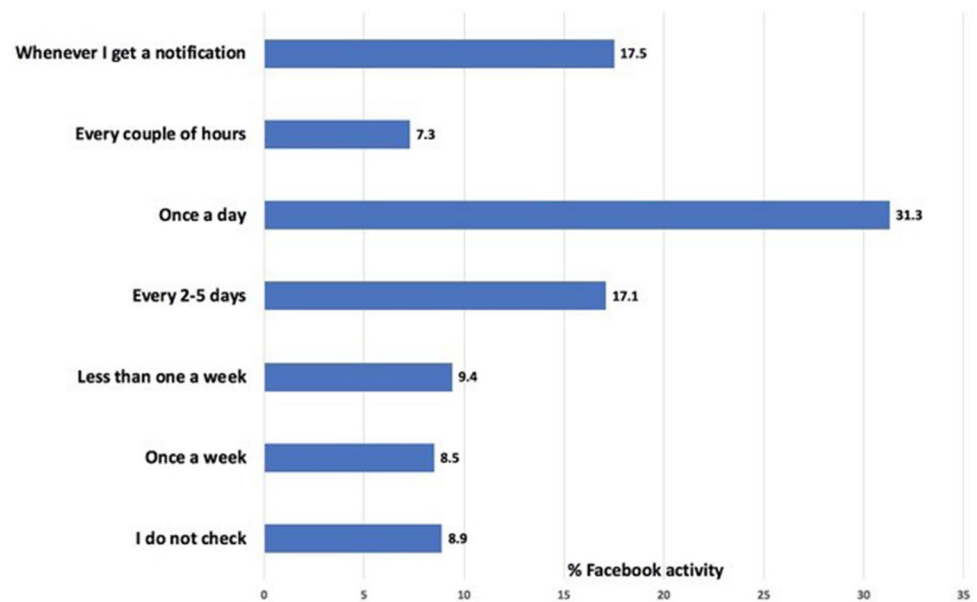
How often do you check the Facebook group activity (new posts or comments)?	<input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Every 2-5 days <input type="radio"/> Once a day <input type="radio"/> Every couple of hours <input type="radio"/> Whenever I get a notification <input type="radio"/> I do not
Does Facebook group help you control your diet (eat healthier or control any no beneficial eating habits)?	<input type="radio"/> Not at all <input type="radio"/> A little <input type="radio"/> Neutral <input type="radio"/> Yes <input type="radio"/> Immensely
Does Facebook group provide emotional support If/when the things are not going as well as you wanted them to be regarding preserving the weight loss?	<input type="radio"/> Not at all <input type="radio"/> Rarely <input type="radio"/> Neutral <input type="radio"/> More often than not <input type="radio"/> Immensely
Is the Facebook page motivating you to keep doing well?	<input type="radio"/> Not at all <input type="radio"/> A little <input type="radio"/> Neutral <input type="radio"/> More often than not <input type="radio"/> Immensely
Is the information in the Facebook page helpful?	<input type="radio"/> Not at all <input type="radio"/> A little <input type="radio"/> Neutral <input type="radio"/> More often than not <input type="radio"/> Immensely
Does watching all these experiences in Facebook group cause you anxiety?	<input type="radio"/> Not at all <input type="radio"/> A little <input type="radio"/> Neutral <input type="radio"/> More often than not <input type="radio"/> All the time
Did it help you connect with people from the group?	<input type="radio"/> Not at all <input type="radio"/> Not much <input type="radio"/> Neutral <input type="radio"/> Sometimes <input type="radio"/> Very much
Do you feel close to people on the Bariatric Facebook group?	<input type="radio"/> Not at all <input type="radio"/> Not much <input type="radio"/> Neutral <input type="radio"/> Somewhat <input type="radio"/> Very much
Do you feel understood by the people on the Bariatric Facebook group?	<input type="radio"/> Not at all <input type="radio"/> Not really <input type="radio"/> Neutral <input type="radio"/> Somewhat <input type="radio"/> Very much

- 1) Why do you use the Facebook group? What is the value for you?
- 2) How helpful is the Facebook group to you? Give examples
- 3) Do you prefer reading posts over creating them? Please expand
- 4) Any negatives of interacting with the group? What you don't like?
- 5) What topics of discussion you find most helpful?
- 6) How is the support you get from the Facebook group compared to the in-person social support meetings? (if you had any experience)
- 7) Were you posting at the preoperative period? If not, why?
- 8) Do you feel close/understood by the people on the bariatric Facebook group?

Fig. 2 Telephone survey

the postoperative phase, while the remaining 10 (4.1%) were awaiting their procedure. Given the small number of preoperative patients their responses were excluded from the analysis.

Respondents were 90.2% females with an average age of 45.2 ± 11 years. The majority of the patients had private insurance (69%) A total of 57 (24.2%) of the postoperative group had undergone revisional surgery. The majority of the respondents had joined the Facebook group before undergoing surgery (72.5%). More than 50% of the Facebook members checked the group's notifications daily or more frequently, such as whenever they got a notification or every couple of hours (Fig. 3).

Fig. 3 Facebook activity

Members reported that the group helped them do well with their procedure overall (3.3/5). Specifically, they felt that it provided emotional support (3.5/5), and the group provided useful information (3.7/5) while avoiding unnecessary anxiety despite being exposed to the various experiences of their group peers (1.5/5). Additionally, they felt understood by others (3.9/5) and connected with other people who had similar experiences (3.1/5). However, responders felt that the group offered limited help in controlling eating habits (2.7/5).

Ten common themes were identified in the submitted posts: seeking advice/ asking questions (regarding surgery,

diet, physical activity, or “other”), an attempt to motivate others, current status updates (posts such as “I am waiting for insurance approval” or “I am 2 months out of surgery and everything is going well”), giving advice/educational posts, sharing failures, administrators’ instructions (regarding upcoming events or information for pre- or postoperation subjects), any physical activity post (excluding questions about physical activity), random/humorous posts, and “other”. The frequency of posts in each category can be found in Table 1. In 42% of motivational posts, “before” and “after” pictures were included.

Table 1 Post categories

	Preoperative N (% of total)	Postoperative N (% of total)	Undistinguishable N (% of total)	<i>p</i> -value*
Questions regarding surgery	479 (12%)	497 (9.2%)	21 (0.7%)	0.155
Questions regarding diet	704 (17.6%)	1238 (22.9%)	643 (20.7%)	<i>0.005</i>
Questions regarding physical activity	25 (0.6%)	43 (0.8%)	29 (0.9%)	0.925
“Other” questions	534 (13.4%)	590 (10.9%)	293 (9.4%)	0.1
Giving advice/educational	82 (2.1%)	400 (7.4%)	363 (11.7%)	<i>0.05</i>
Motivation related	306 (7.7%)	1455 (26.9%)	259 (8.3%)	< <i>0.001</i>
Sharing current status update	1573 (39.4%)	593 (11%)	64 (2.1%)	< <i>0.001</i>
Administrators’ instructions	9 (0.2%)	25 (0.5%)	331 (10.7%)	0.906
Diet	48 (1.2%)	243 (4.5%)	597 (19.2%)	0.284
Reporting failure	147 (3.7%)	154 (2.8%)	39 (1.3%)	0.659
Physical activity	18 (0.5%)	59 (1.1%)	77 (2.5%)	0.820
Random/humor	71 (1.8%)	107 (2%)	284 (9.1%)	0.924
Other	–	–	107 (3.4%)	
Total	3992	5407	3107	

Significant *p*-values are presented in italics

**p*-value between preoperative and postoperative categories

The phone interviews unanimously suggested that the Facebook group was very useful. Specifically, the interviews revealed that the constant social support by their peers “who share similar experiences” along with the “quick responses to my questions by the health care providers” were invaluable. Many referred to the group as the sole source of social support as they “live too far away from the clinic” or “do not have time to attend the social support meetings”. The majority of patients described the group as “uplifting” and that it motivates them to continue as they have “incentives to do better”, and “I am not alone as many are going through the same struggles”. They enjoy the “tips on their journey by people who have walked the same steps” and the instant feedback our dietitians provide on the calorie content of food our patients want to consume; specifically, many patients post a picture of the calorie content of foods and the dietitians instruct them on whether it is consistent with the recommended meal plan or if it is better to be avoided.

Moreover, some patients preferred to mainly post and ask questions specifically related to themselves as “many people are posting each day and not all the information is relevant to each and every one of us”. That being said, most respondents stated that both writing and reading posts were equally important as “some of us do not feel comfortable sharing personal experiences but love reading posts and providing answers whenever we can”. It is worth noting that the vast majority did not post during the preoperative period as they “did not feel the need to do so”, and “were mostly absorbing all the information that was being shared among other members”.

There were several topics that were identified as being helpful, but the ones that stood out were “motivational/success posts”, “healthy recipes”, and the “do’s and don’ts” from the health care professionals.

While the large percentage of participants did not have bad experiences, some reported they “dislike the negativity of some individuals” and did not like some of the rules such as “family members are not allowed” or “some posts are not getting approved because they are deemed medical”.

Most patients could not compare in-person with online support groups due to not having attended in-person groups. Those who had, however, informed us that “people in person do not share as much information as through Facebook”, “people in the in-person meetings stay quiet most of the times”, and “in-person meetings are taking place in odd hours”. In contrast, they viewed Facebook as being “very convenient, easy to navigate, and do not need to drive to get my questions answered and receive support”.

Finally, regarding the question of whether they were feeling understood by the Facebook group’s members the answers were positive. Many patients have “made close friends” through the group’s interactions, and some even mentioned that they “feel like I belong somewhere”. There

were some mixed answers, often because they “felt connected and benefited by the group” but wouldn’t say they felt close to the other members per se.

Discussion

The purpose of this study was to investigate the feasibility of a Facebook group for bariatric surgery patients, and assess patient engagement, and their perception of the social support value it provides. Results showed that our program’s Facebook group grew rapidly, with most participants checking it on a daily basis which further highlights its impact in their lives. We discovered that most of our patients join our group in the preoperative supervised weight loss period which allows them to learn valuable information from their experienced peers. As indicated by our thematic analysis, 39.4% of the preoperative patients update the group on their current status (e.g., having done the preoperative class, the insurance has approved them, the date that surgery is scheduled), while 17.6% asked questions regarding diet, and 12% asked questions about their surgery (17.6% and 12%, respectively). In the course of the phone interviews, participants indicated that they prefer reading through all the posts to learn from the more experienced patients and prepare themselves for the surgery and the postoperative period. In contrast, the postoperative patients showed a thematic shift to more motivational discussions (26.9% from 7.7%, $p < 0.001$), more education posts to help the other patients (7.4% from 2.1%, $p = 0.05$), and fewer updates on their current status (11% from 39.4%, $p < 0.001$). While further research is needed, it appears that the kind of social support postoperative patients need shifts from acquiring knowledge to seeking inspiration and encouragement. The recognition that the kind of support patients need after surgery changes is presumably behind the decision by some programs to have separate support groups for pre- and postoperative patients. After the surgically enforced weight loss during the first postoperative year or two, the need for behavioral adherence to avoid weight regain becomes more apparent and thus promotes a greater interest in motivational postings. Our results corroborate the multidimensional nature of social support [11, 12]; in the present study, preoperative concerns as reflected in Facebook postings are thematically different from postoperative posting activity. While encouragement from others on Facebook may be perceived as generally helpful, our participants did not see Facebook social support as assisting them in adhering to the meal plan. This is generally consistent with findings that an intensive seven-day smartphone-based chat group only temporarily changed consumption of fruits and vegetables and reduced unhealthy snacking [13].

Concerns suggesting that the use of Facebook is associated with lower well-being [14] necessitate additional research on the use of Facebook for social support vs. “real-world” contacts in the bariatric surgery population. Obesity has been associated with greater sensation of loneliness [15–17]. Unfortunately, technology-based interventions for loneliness were not found to be effective in a recent meta-analysis [16]. However, to what degree the use of Facebook can counteract loneliness and facilitate in-person connections in the bariatric population remains to be seen.

As expected, patients expressed gratitude for the easy availability and trustworthy support of our physician assistant and dietitians. These sentiments were reported especially by those who are living far from the clinic, or who do not have time to join the in-person meetings.

As it is suggested in the literature, patient social support is very important and beneficial, especially for bariatric patients [18, 19]. More importantly, in concordance with our results, as Hameed et al. [6] have shown, more than 50% of the postbariatric surgery patients desired greater social support, especially during difficult pre- and postoperative periods. To be most effective, however, the kind of social support offered may need to be tailored to the individual. For example, a high level of weight-related social support was associated with less weight regain after bariatric surgery only in patients who experienced high levels of stress [20].

To the best of our knowledge, our Facebook study is the first that has provided easily accessible and constant social support to bariatric surgery patients and at the same avoided problems such as inaccurate information and negative posts associated with non-professionally monitored platforms [21]. As a content analysis of the various Facebook groups has shown [10], physicians should exercise caution when recommending them to patients since the content may be unhelpful. It is worth noting that our Facebook support group combines two of the three key forms of support described by the qualitative study of postoperative women by Ogle et al. [22]. Specifically, it entails support from both health professionals and other bariatric patients (“like others”) and only lacks the support from spouses, family members and friends (“close others”).

In our thematic analysis, we encountered more posts containing before/after pictures of the patients (42%), compared to other online support groups (18.5% in other Facebook groups and 2.6% in Facebook pages) [10]. We believe this is mainly due to the greater perceived safety and privacy afforded by a monitored online group, while the patients in the non-protected social support groups feel vulnerable and do not trust them [21].

Our findings have several implications for bariatric surgery practice. They suggest that the Facebook group is very well received by our patients, who feel it provides

similar or better support with greater convenience than in-person support groups. It appears the Facebook group provides patients a sense of feeling understood. In addition, they find motivation to stay “on track” in their journey along with their peers. However, it should be noted that in order to function optimally, a private Facebook group needs to be well monitored, demanding time and devotion from the clinic’s personnel. In order to maintain safety and privacy, it is essential that staff members ensure that only the clinic’s patients are joining. Additionally, one or more physician assistants and dietitians are needed in order to field questions appropriate to the scope of their practice and to screen out posts that might not be appropriate. Finally, an online-based group for social support is not a panacea; many patients are not keen with technology or do not have routine access to the internet and thus cannot benefit from it; thus, we believe that it should be used concurrently with in-person group meetings so all patients have access to social support.

Our study points to the need for additional research regarding the extent to which Facebook use by bariatric surgery patients promotes real-world (in person) connection, adherence to recommendations, enhanced quality of life, and weight loss.

The main limitation to our study is the low response rate to the online questionnaire. This might expose our findings to selection bias as the respondents might have been only the members who are more engaged with the group. Furthermore, questionnaire studies have the inherent risk of response bias, socially desirable responding, and/or impression management. Finally, the phone interviews were conducted only with patients who agreed to be interviewed, which could have introduced selection bias as well.

Conclusions

Facebook groups provide various types of social support to patients after bariatric surgery. Peers educate, answer questions, and motivate other patients by sharing their positive experiences. These groups work best when experienced bariatric personnel monitor the group’s activity to screen for inappropriate posts, to ensure that reliable information is being exchanged, and to provide answers to questions not appropriately addressed by the group. Further study is needed to determine if this kind of social connectedness impacts patient outcomes such as weight loss and quality of life.

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Compliance with ethical standards

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References

1. Ward ZJ, Bleich SN, Craddock AL, Barrett JL, Giles CM, Flax C, Long MW, Gortmaker SL (2019) Projected U.S. state-level prevalence of adult obesity and severe obesity. *N Engl J Med* 381:2440–2450
2. O'Brien PE, Hindle A, Brennan L, Skinner S, Burton P, Smith A, Crosthwaite G, Brown W (2019) Long-term outcomes after bariatric surgery: a systematic review and meta-analysis of weight loss at 10 or more years for all bariatric procedures and a single-centre review of 20-year outcomes after adjustable gastric banding. *Obes Surg* 29:3–14
3. Ibrahim AM, Ghaferi AA, Thumma JR, Dimick JB (2017) Variation in outcomes at bariatric surgery centers of excellence. *JAMA Surg* 152:629–636
4. Pratt GM, McLees B, Pories WJ (2006) The ASBS bariatric surgery centers of excellence program: a blueprint for quality improvement. *Surg Obes Relat Dis* 2:497–503 **discussion 503**
5. Liu R, Irwin J (2017) Bariatric surgery recipients' needs and perspectives on maintaining long-term health and well-being. *Bariatric Surg Pract Patient Care* 12:72–84
6. Hameed S, Salem V, Tan TM, Collins A, Shah K, Scholtz S, Ahmed AR, Chahal H (2018) Beyond weight loss: establishing a postbariatric surgery patient support group-what do patients want? *J Obes* 2018:8419120
7. Peytremann-Bridevaux I, Voellinger R, Santos-Eggimann B (2008) Healthcare and preventive services utilization of elderly Europeans with depressive symptoms. *J Affect Disord* 105:247–252
8. Kuo LE, Simmons KD, Kelz RR (2015) Bariatric centers of excellence: effect of centralization on access to care. *J Am Coll Surg* 221:914–922
9. Radvinsky D IM, Ferzli G (2017) Barriers to compliance with long-term follow-up after bariatric surgery. <https://www.sages.org/meetings/annual-meeting/abstracts-archive/barriers-to-compliance-with-long-term-follow-up-after-bariatric-surgery/>. March 2017.
10. Koball AM, Jester DJ, Domoff SE, Kallies KJ, Grothe KB, Kothari SN (2017) Examination of bariatric surgery facebook support groups: a content analysis. *Surg Obes Relat Dis* 13:1369–1375
11. Hwang KO, Ottenbacher AJ, Green AP, Cannon-Diehl MR, Richardson O, Bernstam EV, Thomas EJ (2010) Social support in an internet weight loss community. *Int J Med Inform* 79:5–13
12. Sharman M, Hensher M, Wilkinson S, Williams D, Palmer A, Venn A, Ezzy D (2017) What are the support experiences and needs of patients who have received bariatric surgery? *Health Expect* 20:35–46
13. Inauen J, Bolger N, Shrouf PE, Stadler G, Amrein M, Rackow P, Scholz U (2017) Using smartphone-based support groups to promote healthy eating in daily life: a randomised trial. *Appl Psychol Health Well Being* 9:303–323
14. Shakya HB, Christakis NA (2017) Association of facebook use with compromised well-being: a longitudinal study. *Am J Epidemiol* 185:203–211
15. Jung FU, Luck-Sikorski C (2019) Overweight and lonely? a representative study on loneliness in obese people and its determinants. *Obes Facts* 12:440–447
16. Masi CM, Chen HY, Hawkley LC, Cacioppo JT (2011) A meta-analysis of interventions to reduce loneliness. *Pers Soc Psychol Rev* 15:219–266
17. Petitte T, Mallow J, Barnes E, Petrone A, Barr T, Theeke L (2015) A systematic review of loneliness and common chronic physical conditions in adults. *Open Psychol J* 8:113–132
18. Livhits M, Mercado C, Yermilov I, Parikh JA, Dutson E, Mehran A, Ko CY, Shekelle PG, Gibbons MM (2011) Is social support associated with greater weight loss after bariatric surgery?: a systematic review. *Obes Rev* 12:142–148
19. Conceicao EM, Fernandes M, de Lourdes M, Pinto-Bastos A, Vaz AR, Ramalho S (2019) Perceived social support before and after bariatric surgery: association with depression, problematic eating behaviors, and weight outcomes. *Eat Weight Disord* 25:679
20. Ahlich E, Herr JB, Thomas K, Segarra DT, Rancourt D (2020) A test of the stress-buffering hypothesis of social support among bariatric surgery patients. *Surg Obes Relat Dis* 16:90–98
21. Basterfield A, Dimitropoulos G, Bills D, Cullen O, Freeman VE (2018) "I would love to have online support but I don't trust it": positive and negative views of technology from the perspective of those with eating disorders in Canada. *Health Soc Care Community* 26:604–612
22. Ogle JP, Park J, Damhorst ML, Bradley LA (2016) Social support for women who have undergone bariatric surgery. *Qual Health Res* 26:176–193

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