

Original article

Content and accuracy of nutrition-related posts in bariatric surgery Facebook support groups

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Abstract

Background: Support after bariatric surgery is critical. Access to bariatric support groups is sometimes challenging, leading people to seek support on social media platforms like Facebook. Given the ubiquity of recommendations solicited and provided on Facebook regarding nutrition and bariatric surgery, understanding the content and accuracy of these posts is important.

Objectives: The primary aim of the present study was to describe the content of nutrition-related information sought on bariatric Facebook support groups/pages. A secondary aim was to evaluate the accuracy of this content.

Setting: Integrated multispecialty health system.

Methods: An iterative content analysis process was conducted and resulted in identification of 8 primary coding themes. Additionally, 3 registered dietitians with extensive experience in bariatric surgery and obesity treatment examined posts that provided nutritional recommendations to determine accuracy.

Results: Members most commonly sought advice regarding products and practices to assist in achieving nutritional guidelines (35%). Over half of the posts contained inaccurate content or information that was too ambiguous to determine accuracy; 7% of posts were found to be inaccurate or inconsistent with American Society for Metabolic and Bariatric Surgery nutrition guidelines and expert registered dietitian opinions, 22% of posts were found to contain both accurate and inaccurate information, and 24% of posts were considered too ambiguous and required more context to determine the accuracy.

Conclusions: Results highlight the need for bariatric programs to provide greater nutrition education support to patients postoperatively and to provide caution about the inconsistent nature of some nutrition-related content found on Facebook bariatric support groups. (Surg Obes Relat Dis 2018;14:1897–1902.) © 2018 American Society for Bariatric Surgery. Published by Elsevier Inc. All rights reserved.

Keywords:

Facebook; Bariatric support groups; Online support groups; Nutrition

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Support after bariatric surgery is critical in helping individuals achieve successful outcomes postoperatively, including weight loss [1]. The American Society for Metabolic and Bariatric Surgery (ASMBS) recommends

that all bariatric patients be encouraged to attend support groups after surgery; bariatric programs that are accredited by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program are required to offer support groups supervised by a licensed healthcare professional [2,3]. With individuals from more rural locations achieving access to bariatric surgery, the need for telehealth or online support group modalities is imperative; however, there continues to be a variety of barriers to many programs offering these options. Given these obstacles to accessing in-person support groups (e.g., distance, time of group), greater numbers of patients are seeking support in less “healthcare centric” modalities and turning to easily accessible social media platforms like Facebook.

Previous research indicates that 84% of bariatric patients join or follow support groups on Facebook, which was identified as the preferred place to seek out information by bariatric patients [4]. Post-bariatric surgery patients often indicate that dietary and peer support are important, and sometimes unmet, needs postsurgery [5]. This likely has an impact on a patient’s decision to use modalities such as Facebook. Unfortunately, despite frequent use by bariatric patients, little research has examined the content of these Facebook support groups outside of 1 recent study [6]. Findings from that study identified thousands of bariatric Facebook groups and pages that existed for patients to join or “like” with individual membership in groups >34,000 and “likes” of pages >106,000. Results indicated that the majority of member posts/replies in these groups and pages were providing information or recommendations. Nutritional information was the most frequently posted about content area. Similarly, when individuals solicited information, they most commonly did so for nutrition-related content [6].

Given the ubiquity of recommendations solicited and provided on Facebook regarding nutrition and bariatric surgery, understanding the content of posts seeking nutritional advice and determining the accuracy of nutrition recommendations provided on social media platforms is vital to ensure that patients receive high-quality information that is consistent with recommendations from their bariatric team. The primary aim of the present study was to describe the content of nutrition-related information sought on bariatric Facebook support groups/pages (Aim 1). A secondary aim was to evaluate the accuracy of this content (Aim 2).

Methods

Data collection

For more detail regarding data collection, see Koball et al. [6]. In brief, thousands of Facebook groups and pages were identified (by authors 1 and 6) with membership ranging from 1 to approximately 106,000. For groups, the first

50 listed for each search term (e.g., “bariatric,” “bariatric support group”) were identified (515 unique groups); the 10 groups with the highest membership were contacted (by A.M.K.) with 2 group administrators accepting the request to allow a pseudo-Facebook profile to join the groups, thereby allowing access to the group’s posts and consenting to anonymous data extraction. Similarly for pages, the first 50 listed for each search term were identified (325 unique pages). Given the volume of posts, coding was undertaken for the largest Facebook support group that allowed access and the page with the largest membership; >10,000 posts were gathered and transcribed with all identifiable information for each person removed before coding began. Content was extracted from the entire month of May 2016. The institutional review board from our integrated multidisciplinary health system (where data extraction, coding, analysis, and manuscript preparation occurred) approved this study.

Of the larger body of extracted Facebook data, posts coded as containing nutritional content (either via seeking nutritional recommendations or providing nutritional recommendations) were extracted for further analysis (i.e., to achieve aims for present study). A random selection (derived using a random number generator) of 35% of the providing nutritional recommendation posts were analyzed, as detailed later (N=484 Facebook posts; n=169 analyzed). Additionally, 100% of the posts seeking nutritional recommendation (N=315) were examined for content themes.

Coding process

To satisfy Aim 1, the authors conducted a content analysis on the 315 seeking nutritional recommendation posts to identify latent themes through an iterative process, wherein 3 readers (authors 1, 2, and 6) of the posts independently generated themes and then came to a consensus on primary themes reflected in the content (using a grounded theory-guided approach [7]). A coding manual guided by most recent ASMBS recommendations for the presurgical psychosocial evaluation of bariatric surgery [8] was then produced by the authors (1, 2, and 6) to broadly assess group and page content. For this study, only nutrition-related content was examined. Content was coded by authors 1 and 2 who attained reliability (all $\kappa > .70$) before coding independently. The following 8 nutrition-related themes were identified and included: (1) hydration and fluid intake, (2) amount of food, (3) whether a specific food item is okay to eat, (4) how to navigate the liquid diet, (5) physical and psychological symptoms associated with eating, (6) following nutritional guidelines in new or challenging situations, (7) products and practices to assist in achieving nutritional guidelines, and (8) how to cope with cravings for unhealthy or not recommended foods. See [Table 1](#) for a more thorough description of these nutrition-related themes. See [Table 2](#) for content and themes by group and page.

Table 1
Definition of coded themes.

Theme	Coding definition
Hydration and fluid intake	Posts requesting assistance with how to stay hydrated and get the recommended amount of water each day. Questions about help with not consuming water or other beverages during a meal.
Amount of food	Number/amount of specific food/type of food (e.g., calories, carbs, protein). Inquiries about the specifics of how much food can be eaten, and desired guidance on exact amounts of calories to consume. Numbers of grams of carbohydrates and protein to be eaten each day. Posts may include the amount of time that had passed since surgery.
Food okay to eat	“Is this okay to eat?” Posts may include a specified time that has passed since surgery as a qualifier. Concerns with whether it was too early to have a certain type or amount of food. Questions about whether it would be possible to ever consume the food or beverage after surgery.
Navigating the liquid diet	Two specific types of diets were referenced commonly in these posts. Members requested assistance with navigating the liquid diet before the surgery, or a “pouch reset” liquid diet to lose weight quickly during a weight loss plateau.
Physical and psychological symptoms associated with eating	Experiences of discomfort or negative physical symptoms when eating or while eating certain foods/beverages (e.g., endorsing feelings of nausea when eating foods that had not been bothersome before surgery). Expression of newly found disgust or dislike for foods since surgery, and how to overcome this. Coping with stomach pains or excess gas.
Following guidelines in new/challenging situations	Social situations or environments where members experienced challenges to adhere to nutritional recommendations. Some posts expressed concern with upcoming or future events, both personal (e.g., going on a family trip) and professional (e.g., long work hours), and seeking guidance on how to successfully navigate these situations.
Products/practices for adhering to guidelines	These posts involved products (e.g., digital applications, recipes, cookbooks) or behaviors (e.g., how to cook with variety) to make adherence to nutritional guidelines easier and more enjoyable. Most posts focused on the nutritional goals postoperation, but some may include preoperation guidance.
Coping with cravings	Members sought guidance for reducing or coping with cravings for foods that are not recommended postsurgery (e.g., coffee, alcohol). Desires to reduce cravings for sugars/carbs as well as beverages that are advised against (e.g., soda/pop) were found.

Table 2
Frequency of nutrition content and themes by Facebook group and Facebook Page.

Content	Facebook group Number of posts % (n)	Facebook page	P value
Seeking nutrition Recommendations	62 (195)	38 (120)	<.001*
Providing nutrition Recommendations	21 (35)	79 (134)	<.001*
Themes			
1. Hydration and fluid intake	5 (10)	17 (20)	.001*
2. Amount of food	17 (33)	14 (17)	.62
3. Food okay to eat	25 (48)	15 (18)	.06
4. Navigating the liquid diet	10 (19)	19 (23)	.03
5. Physical and psychological symptoms associated with eating	9 (18)	10 (12)	.98
6. Following guidelines in new/challenging situations	8 (15)	1 (1)	.02
7. Products/practices for adhering to guidelines	40 (78)	27 (32)	.02
8. Coping with cravings	10 (20)	6 (7)	.25

* Statistically significant differences after Bonferroni correction ($P < .005$).

To achieve Aim 2, 3 registered dietitians (authors 3, 4, and 5) who are members of the study institution’s bariatric surgery program with extensive experience in bariatric surgery and obesity treatment examined posts that provided nutritional recommendations ($n = 169$). Each dietitian coded for accuracy according to his or her clinical expertise and with guidance from the ASMBS expert nutrition guidelines [8] as well as the Obesity Society, ASMBS, and the American Association of Clinical Endocrinologists clinical practice guidelines [3]. Posts were classified into

1 of 4 following categories: (1) nutritionally accurate (i.e., consistent with ASMBS nutrition guidelines and best clinical practices), (2) nutritionally inaccurate (i.e., not consistent with ASMBS guidelines and best practices), (3) containing both accurate and inaccurate information, and (4) ambiguous (i.e., posts that are missing pertinent information to determine accuracy, such as the surgery type, date of surgery, medical co-morbidities, etc.). Disagreements among dietetic experts were resolved via consensus, similar to prior studies [9].

Statistical analyses

Frequencies of the 8 types of seeking nutrition recommendation themes and of the accuracy of the nutrition recommendation categories were calculated. Two-sample z-tests for the equality of proportions with Yates continuity correction and a Bonferroni adjusted alpha-level were used to compare themes between Facebook groups and pages.

Results

Aim 1: thematic categories

Each post that sought nutritional recommendations ($n=315$) could encompass ≥ 1 of 8 coded themes. Approximately 57% ($n=178$) of posts contained content from 1 theme, 24% ($n=77$) of posts contained content from 2 themes, and 4% ($n=13$) of posts contained content from 3 themes. Approximately 15% ($n=47$) of posts did not contain content from 1 of 8 themes.

Members sought advice regarding products and practices to assist in achieving nutritional guidelines most commonly (35%, $n=110$), followed by asking if a specific food item is okay to eat (21%, $n=66$) and questioning the amount of food to eat (16%, $n=50$). Less common themes included asking how to navigate the liquid diet (13%, $n=42$), seeking advice about hydration and fluid intake (10%, $n=30$), looking for relief from physical and psychological symptoms associated with eating (10%, $n=30$), requesting instruction on how to cope with cravings for unhealthy or not recommended foods (9%, $n=27$), and asking how to follow nutritional guidelines in novel or challenging situations (5%, $n=16$). Again, see [Table 1](#) for examples of posts from these content theme areas. A significant difference emerged between the group and page for the seeking nutrition recommendations content and for the providing nutrition recommendations content with the group being more likely to solicit recommendations and the page being more likely to provide recommendations (see [Table 2](#)).

Aim 2: accuracy of posts

Three registered dietitians coded for the nutritional accuracy of 169 nutritional recommendations provided in response to the posts requesting help with nutrition. Over half of the posts contained inaccurate content or information that was too ambiguous to determine accuracy; that is, 7% ($n=11$) of posts were found to be nutritionally inaccurate or inconsistent with ASMBS nutrition guidelines and expert registered dietitian opinions (e.g., “I have heard the [hydrolyzed collagen] pills can cause a hardening of the arteries and it is better to take it as a food source.”). A review of these 11 posts indicates that nearly 50% ($n=5$) were focused on complete abstinence from carbohydrates, a common dieting misperception among the general population. Otherwise, these inaccurate comments were of-

ten (1) suggesting haphazard food practices that worked for the poster personally (i.e., removing wheat from the diet entirely) or (2) suggesting specific amounts of time to wait until reintroducing a certain food (e.g., “wait to eat dumplings until 1 year out”), neither of which are supported empirically. Twenty-two percent ($n=38$) of posts were found to contain both accurate and inaccurate information (e.g., “Artificial sweeteners are migraine triggers!!! ... A lot of protein shakes that have been recommended to me have sucralose. I would suggest you check everything for artificial sweeteners and avoid them like the plague! I’ll bet your migraines go away! Artificial sweeteners also kill the good bacteria in your gut! Good luck!”), and 24% ($n=41$) of posts were considered too ambiguous and required more context to determine the accuracy (e.g., “[My sugar cravings] went away with the liquid diet. I was sleeved 5/3/2016 I’m 3 days out and fine. It’s mind over matter start giving up caffeine and sodas now and when your liquid diet starts stick to it and the sugar free popcicles [sic] will be awesome.”). Posts that fell into the latter category consisted of recommendations that may vary in accuracy dependent on unstated patient history content, such as where the patient was in their bariatric timeline (i.e., differing amounts of time before and after surgery), the type of surgery (i.e., Roux-en-Y gastric bypass versus the sleeve gastrectomy), and other related health factors (e.g., age, co-morbid diseases, current weight). Just under half of the posts (47%, $n=79$) contained accurate nutrition recommendations.

Discussion

Given the frequency with which nutrition-related information is sought and shared on bariatric surgery Facebook support groups and pages, understanding more about the nature of this content, as well as its accuracy, is imperative to inform patients of the risks and benefits associated with using these online support modalities. Despite its ubiquity, before this study, no empirical examination of nutrition content in bariatric surgery Facebook support groups had been undertaken. The study by Koball et al. [6] provided some initial insight into thematic content of bariatric surgery support on Facebook but did not delve into the most commonly discussed area (nutrition) or into the accuracy of content. With regard to Aim 1, results suggest that individuals seek nutrition-related information for a variety of reasons, most commonly related to products or practices that make it easier and more enjoyable to follow nutrition guidelines postoperatively. Individuals also often sought to answer the question “Is this OK to eat?” They were commonly concerned with whether it was too early to have certain types or amounts of food post-surgery or whether they may ever be able to eat certain foods again after bariatric surgery. For Aim 2, results suggest that >50% of information provided on the Facebook

group and page regarding nutrition-related content may be inaccurate (29%) or would require more information to determine accuracy (24%).

Seeking health- and nutrition-related information online about bariatric surgery is common [10], yet high-quality investigations of the content of this information are scarce or out of date given the rapidly changing technology and social media landscape. More broadly, findings from the Pew Research Center's Internet and American Life Project suggest that 60% of adults in the United States have looked online for general health information over the last year, and 35% use the Internet to diagnose medical conditions [11]. Of those using the Internet to diagnose medical conditions, 53% discuss health information found online with their provider and 41% go on to confirm their diagnosis with a provider [11]. When thinking about results from the present study, it is clear that these findings fit with the context of existing research; it is common and well-accepted to search for health information online and to use social media avenues to do so, which may explain why so many bariatric patients use Facebook for nutrition-specific information.

The questionable accuracy of the nutrition-related content in bariatric Facebook support groups is worrisome when viewed in the context of research suggesting that individuals frequently view health information online as being the same as or better than information from their healthcare provider [12] or use the Internet as their preferred source of health information rather than a healthcare provider [13]. Certain individuals may be at greater risk of believing poor-quality healthcare information online. Much research has been devoted to the study of "eHealth literacy" and has found that individuals high in eHealth literacy tend to be younger and more educated [14]. These patients actively consume all types of information online, use more search strategies, examine information more scrupulously, and gain more positive outcomes from Internet health-related searches than those low in eHealth literacy [14]. In this study, we only accessed the content of 1 Facebook support group and one page and were unable to examine eHealth literacy to determine how likely members were to believe or follow inaccurate nutrition information. Future study in this area is warranted.

The findings in this study regarding accuracy of nutrition-related content are striking and highlight the need for support from a healthcare professional after bariatric surgery, either face-to-face (more attendance to in person support groups) or through professional involvement/administration of Facebook support groups/pages. Previous research has indicated that there is no difference between moderated and unmoderated online support groups with regard to patient participation; however, it has been suggested that moderators may play a key role in fostering communication and encouraging good health practices [15]. There is also research to suggest that in

some online support groups "the self-correction hypothesis" occurs, whereby false or misleading information is quickly corrected by other users; this was not examined in the present study but represents an interesting opportunity for future study [16]. While literature on online/Facebook bariatric support groups is minimal, there are some other studies that discuss important factors to consider related to online support communities for health concerns that should be considered in future research [17–20].

In this study, results suggest that with >25% of the content containing both accurate and inaccurate nutrition information, having a healthcare provider present to provide evidenced-based information and dispel commonly held myths is crucial. Moreover, with another quarter of the content requiring more information to determine accuracy, this study underscores the need for expert, registered dietician involvement to clarify the nuances of pre- and postbariatric nutrition recommendations. For example, often patients will ask if certain foods are acceptable to eat (e.g., grain foods like rice or tortillas) postoperatively, or if they should supplement with vitamins and minerals (e.g., iron). Responses to these questions in the Facebook groups/pages were often based on personal experiences and were relatively concrete (e.g., "Yes, you can have rice" or "I take an iron supplement"). In reality, the answers to these questions depend on a number of factors that a dietician can query, including the length of time since surgery, individual tolerance to certain foods, medical needs, and/or lab values. Having a health professional present to provide tailored recommendations is essential to avoid adverse complications postsurgery. Bariatric programs may consider recommending that their patients only join/follow Facebook groups/pages that have been vetted by an expert team member (e.g., registered dietician) or those that are administered/led by a registered dietician. Programs may also consider creating their own Facebook support group/page and having a dietician monitor the content and provide feedback periodically to help minimize misinformation. It may be worthwhile for ASMBS to consider creating an organization-sponsored Facebook group/page that is led by a team of experts from various disciplines (e.g., surgery, integrated health, nutrition); bariatric teams from across the country could refer their patients to this group specifically in the hopes that more accurate, evidence-based information is being presented. Notably, however, the dynamic in these groups would likely change as often individuals may feel that online support offers a reprieve from real or perceived judgments from healthcare providers [21].

While this study highlights relevant information for healthcare providers to be aware of when counseling patients about online bariatric support groups, there are limitations to note. First, this study only examined content found on 1 representative bariatric Facebook support group and 1 page, not on other online support group modalities;

moreover, the demographic characteristics of the sample is unknown. Thus, generalizability of these findings to other groups is unclear. Second, some degree of clinical judgment is inherent in providing evidence-based care. Our 3 expert registered dietitians who coded the nutrition information resolved conflicts in coding with discussion, but it is possible that other professionals may interpret ASMBS guidelines differently or may have different practices as defined by their bariatric program. Further study to replicate these findings is warranted. Finally, it is unclear how bariatric patients may use the information they glean from Facebook support groups. Despite some completely or partially inaccurate information being presented, further study is needed to determine how patients respond to these recommendations and how this may affect outcomes postsurgery. Future research examining how patients respond to bariatric recommendations in general, both online and in person, would be worthwhile to explore. With regard to this study, it is hoped (although not known) that the individuals who use Facebook support groups have previously met with a dietitian who gave clear recommendations about nutrition follow-up.

Conclusion

Understanding how patients who undergo bariatric surgery seek and use information found on social media platforms is crucial. Doing so will allow providers to impart care beyond the walls of our healthcare systems and improve postoperative outcomes. This study highlights the frequency with which patients seek support on Facebook. We suggest that healthcare providers supply empirical evidence of what types of information patients can expect to get in online support groups (Aim 1 of this study) and how accurate/consistent with best practices the content is (Aim 2 of this study). Given results from this study, providers should caution patients when interpreting information online and encourage an open dialogue about online support group recommendations during in-person visits. Results also highlight the need for greater social media presence from healthcare organizations, and bariatric programs in particular, to help provide evidence-based recommendations more effectively to a broad spectrum of patients who may not be able to participate in postoperative support groups face to face.

Disclosures

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