Aesth Plast Surg
https://doi.org/10.1007/s00266-019-01535-x

ORIGINAL ARTICLE BODY CONTOURING

Quality Assessment of Online Information on Body Contouring Surgery in Postbariatric Patient

Federico Lo Torto[1] · Marco Marcasciano[1] · Jacopo M. Frattaroli[1] · Juste Kaciulyte[1] · Francesco L. R. Mori[1] · Ugo Redi[1] · Donato Casella[1] · Emanuele Cigna[2] · Diego Ribuffo[1]

Received: 26 September 2019 / Accepted: 31 October 2019

Abstract

Background Nowadays, we have to face the fact that the Web represents one of the most important sources of information for patients. Postbariatric patients in particular are usually very motivated, and they are enthusiastic users of the Web as a source of information on the different types of surgery they could undergo after their weight loss in order to reshape and remodel their body thus regaining physical and functional wellness and dignity. The aim of the study was to assess information on the four most commonly performed postbariatric procedures worldwide, tummy tuck, breast, arm and thigh lift, with the same scale.

Methods Google and Yahoo have been probed for the keywords "Post bariatric Mastopexy OR breast lift" and "Post bariatric abdominoplasty OR tummy tuck" and "Post bariatric brachioplasty OR arm lift" and "post bariatric thigh lift". The first 50 hits were included, and the quality of information was evaluated with the expanded EQIP scale.

Results There was a critical lack of information about qualitative risks and side-effect description, treatment of potential complications, alert signs for the patient and precautions that the patient may take. Moreover, there was poor information about the sequence of the medical procedure, quantitative benefits and risks and quality of life issues after the procedure, and often, there were no other sources of information.

Conclusions Due to the poor and not reliable information offered by the Web, health professionals should seek for a good communication practice with their patients.

Level of Evidence V This journal requires that authors assign a level of evidence to each article. For a full description of these Evidence-Based Medicine ratings, please refer to the Table of Contents or the online Instructions to Authors www.springer.com/00266.

Keywords Postbariatric surgery · Online information · EQIP scale · Quality assessment

Introduction

We live in an information age. Technologies, social media and Internet influence people's everyday lives in many different ways. Traditionally, physicians have always been the only point of reference for patients regarding their diagnosis, prognosis, treatment options and all sort of related medical information. Nowadays, we have to face the fact that the Web represents one of the most important sources of information for patients. In Europe, it is estimated that the percentage of households with Internet access in 2017 had risen to 87 % with more than 70% of individuals in EU using the Internet on a daily basis, and among all these Internet users, more than 50 % of individuals aged 25–74 used the Internet for seeking health-related information [1]. Obesity is unquestionably an important pathology with a very high social impact and represents one of the greatest public health challenges of the last decades. Statistical information on this disease shows that we are facing one of the largest "epidemics" of

✉ Federico Lo Torto
federicolotorto@gmail.com

[1] Department of Surgery "P.Valdoni", Unit of Plastic and Reconstructive Surgery, Policlinico Umberto I, Sapienza University of Rome, via Ettore Fieramosca 200, 00159 Rome, Italy

[2] Dipartimento di Ricerca Traslazionale e delle Nuove Tecnologie in Medicina e Chirurgia, Università degli Studi di Pisa, Pisa, Italy

Published online: 11 November 2019

our century. According to data, in the USA, more than 2 in 3 adults (70.2%) were considered to be overweight or have obesity [2] and in European Union countries, overweight affects 30–70%, while obesity affects 10–30% of adults [3].

Nowadays, bariatric surgery is the most effective long-term treatment for massive obese patients, as it improves or even resolves obesity-related comorbidities [4]. However, the remarkable loss of weight obtained through bariatric surgery procedures can lead to excess skin, which may heavily affect patients' well-being by causing psychological, medical and functional handicaps compromising the achieved results. According to the American Society of Plastic Surgeons, the total number of body contouring after massive weight loss procedures carried out in 2017 was 55.275 [5]. The ISAPS reports meaningful numbers of postbariatric procedures performed worldwide (1.801.341) and in Italy (48.615) in 2017. In both cases, they represent more than 16% of the total aesthetic surgical procedures registered [6].

In our experience, postbariatric patients are usually very motivated and they are enthusiastic users of the Web as a source of information on the different type of surgery they could undergo after their weight loss in order to reshape and remodel their body thus regaining physical and functional wellness and dignity. However, there are some concerns about the quality of online health information. Are the patients exposed to reliable information sources? Checklists and guidelines have been designed in order to identify trustworthy websites that patients may visit. Distribution of medical knowledge to such a huge audience can lead to some dangers and misunderstandings, as the information uploaded on the Web does not go through an editorial examination and the quality of unfiltered information posted is often unscientific, non-exhaustive, disorganized and unclear. Therefore, it seems necessary to question ourselves whether the Web is an accurate and reliable source of information for patient.

We previously described online health information using the EQIP scale for prepectoral breast reconstruction [7], whereas the aim of the present study is to assess information on the four most commonly performed postbariatric procedures worldwide, tummy tuck, breast, arm and thigh lift, with the same scale.

Materials and Methods

Based on the assumption that Google and Yahoo are the most widely used search engine, they probed for the keywords "Post bariatric Mastopexy OR breast lift" and "Post bariatric abdominoplasty OR tummy tuck" and "Post bariatric brachioplasty OR arm lift" and "post bariatric thigh lift". After removing not significant websites (videos or blogs) and duplicates, the first 50 hits were included and were sorted into five groups depending on their origin: practitioners, hospitals, healthcare portals, professional societies and encyclopaedias. The expanded EQIP scale is a checklist that can be used to evaluate the quality of information of any kind of source [8]. This test is composed of 36 questions dividing information into three sections: content (items 1–18) that studies the medical problem and its possible treatments with their benefits and risks; identification data (items 19–24) that refer to the reliability if the sources of information; and structure (items 25–36) that takes into consideration the accessibility of the document, in terms of the possibility for the patients to understand it properly. A binary scale (yes or no) was applied for each of the 36 criteria, so each website could reach a score from 0 to 36. Websites that collected 20 or more points were considered as high score sites. On the contrary, in the case of a score lower than 20, the websites were named as low-score ones.

Results

The data used for this research were collected in January of the current year, from the most popular search engines Google® and Yahoo® [9, 10]. We assessed the following research queries: "Postbariatric breast lift OR mastopexy", "Postbariatric abdominoplasty OR tummy tuck", "Postbariatric arm lift OR brachioplasty" and "Postbariatric thigh lift". Exclusively, the first 60 results were included [11]. We then selected 53 websites for breast lift, 44 for abdominoplasty, 59 for thigh lift and 60 for brachioplasty. The categorization method that was used divided the websites into the following aspects: practitioners, hospitals, healthcare portals, professional societies and encyclopaedia. In the breast lift websites, there were: 20 practitioners (37.7%), three hospitals (5.7%), four healthcare portals (7.5%), 25 professional societies (47.2%) and one encyclopaedia (1.9%). In the abdominoplasty websites, there were: 13 practitioners (29.5%), two hospitals (4.5%), five healthcare portals (11.4%), 23 professional societies (52.3%) and one encyclopaedia (2.3%). In the brachioplasty websites, there were: 44 practitioners (73.3 %), eight hospitals (13.3%), four healthcare portals (6.7%), four professional societies (6.7%) and 0 encyclopaedia. In the thigh lift websites, there were: 39 practitioners (66.1%), four hospitals (6.8%), five healthcare portals (8.5 %), 11 professional societies (18.6%) and 0 encyclopaedia. The entire sample of websites was evaluated quantitatively and qualitatively using expanded EQIP tool (Tables 1, 2, 3 and 4).

Table 1 EQIP tool results applied to the 53 eligible websites about "Post bariatric Mastopexy OR breast lift" research on Google® and Yahoo®

Question	Yes (%)	No (%)
Content data		
1. Initial definition of which subjects will be covered	53 (100%)	0 (0%)
2. Coverage of the above-defined subjects	41 (97.62%)	1 (2.38%)
3. Description of the medical problem	41 (97.62%)	1 (2.38%)
4. Definition of the purpose of the medical intervention	42 (100%)	0 (0%)
5. Description of treatment alternatives (including no treatment)	41 (97.62%)	1 (2.38%)
6. Description of the sequence of the medical procedure	35 (83.33%)	7 (16.67%)
7. Description of qualitative benefits	40 (95.24%)	2 (4.76%)
8. Description of quantitative benefits	4 (9.52%)	38 (90.48%)
9. Description of qualitative risks and side effects	16 (38.10%)	26 (61.90%)
10. Description of quantitative risks and side effects	4 (9.52%)	38 (90.48%)
11. Addressing quality of life issues	31 (73.81%)	11 (26.19%)
12. Description of how potential complications will be dealt with	7 (16.67%)	35 (83.33%)
13. Description of precautions that the patient may take	3 (7.14%)	39 (92.86%)
14. Mention of alert signs that the patient may detect	3 (7.14%)	39 (92.86%)
15. Addressing medical intervention cost and insurance issues	9 (21.43%)	33 (78.57%)
16. Specific contact details for hospital services	35 (83.33%)	7 (16.67%)
17. Specific details of other sources of reliable information/support	8 (19.05%)	34 (80.95%)
18. The document covers all relevant issues on the topic	3 (7.14%)	39 (92.86%)
Identification data		
19. Date of issue or revision	22 (52.38%)	20 (47.62%)
20. Logo of the issuing body	41 (97.62%)	1 (2.38%)
21. Name of persons or entities that produced the document	18 (42.86%)	24 (57.14%)
22. Name of persons or entities that financed the document	6 (14.29%)	36 (85.71%)
23. Short bibliography of evidence-based data used in the document	3 (7.14%)	39 (92.86%)
24. The document states whether and how patients were involved/consulted in its production	1 (2.38%)	41 (97.62%)
Structure data		
25. Use of everyday language, explains complex words or jargon	36 (85.71%)	6 (14.29%)
26. Use of generic names for all medications or products	3 (7.14%)	39 (92.86%)
27. Use of short sentences	33 (78.57%)	9 (21.43%)
28. The document personally addresses the reader	41 (97.62%)	1 (2.38%)
29. The tone is respectful	42 (100%)	0 (0%)
30. Information is clear	42 (100%)	0 (0%)
31. Information is balanced between risks and benefits	7 (16.67%)	35 (83.33%)
32. Information is presented in a logical order	40 (95.24%)	2 (4.76%)
33. The design and layout are satisfactory	39 (92.86%)	3 (7.14%)
34. Figures or graphs are clear and relevant	8 (19.05%)	34 (80.95%)
35. The document has a named space for the reader's notes	10 (23.81%)	32 (76.19%)
36. The document includes a consent form, contrary to recommendations	0 (0%)	42 (100%)

The mean was fixed at 20.8 points for breast lift, 21.5 for abdominoplasty, 22.0 for brachioplasty and 22.2 for thigh lift. There were 33 breast lift websites with a high score (63.3%) and 20 with a low score (37.7%); 30 abdominoplasty websites with a high score (68.2%) and 14 with a low score (32.8%); 50 brachioplasty websites with a high score (83.3%) and ten with a low score (17.7%); and 55 thigh lift websites with a high score (93.2%) and four with a low score (6.8%).

The websites overall had insufficient information concerning medical procedures, tangible benefits and risks and possible life quality risks following the procedure. Moreover, the findings show that there is an absence of information concerning risks and side effects in a descriptive

Table 2 EQIP tool results applied to the 44 eligible websites about "Post bariatric abdominoplasty OR tummy tuck" research on Google® and Yahoo®

Question	Yes (%)	No (%)
Content data		
1. Initial definition of which subjects will be covered	44 (100%)	0 (0%)
2. Coverage of the above-defined subjects	44 (100%)	0 (0%)
3. Description of the medical problem	44 (100%)	0 (0%)
4. Definition of the purpose of the medical intervention	44 (100%)	0 (0%)
5. Description of treatment alternatives (including no treatment)	34 (77.27%)	10 (22.73%)
6. Description of the sequence of the medical procedure	28 (63.64%)	16 (36.36%)
7. Description of qualitative benefits	43 (97.73%)	1 (2.27%)
8. Description of quantitative benefits	2 (94.55%)	42 (95.45%)
9. Description of qualitative risks and side effects	15 (34.09%)	29 (65.91%)
10. Description of quantitative risks and side effects	2 (94.55%)	42 (95.45%)
11. Addressing quality of life issues	43 (97.73%)	1 (2.27%)
12. Description of how potential complications will be dealt with	12 (27.27%)	32 (72.73%)
13. Description of precautions that the patient may take	9 (20.45%)	35 (79.55%)
14. Mention of alert signs that the patient may detect	1 (2.27%)	43 (97.73%)
15. Addressing medical intervention cost and insurance issues	16 (36.36%)	28 (63.64%)
16. Specific contact details for hospital services	37 (84.09%)	7 (15.91%)
17. Specific details of other sources of reliable information/support	7 (15.91%)	37 (84.09%)
18. The document covers all relevant issues on the topic	0 (0%)	44 (100%)
Identification data		
19. Date of issue or revision	27 (61.36%)	17 (38.64%)
20. Logo of the issuing body	35 (79.55%)	9 (20.45%)
21. Name of persons or entities that produced the document	39 (88.64%)	5 (11.36%)
22. Name of persons or entities that financed the document	7 (15.91%)	37 (84.09%)
23. Short bibliography of evidence-based data used in the document	4 (9.09%)	40 (90.91%)
24. The document states whether and how patients were involved/consulted in its production	0 (0%)	44 (100%)
Structure data		
25. Use of everyday language, explains complex words or jargon	44 (100%)	0 (0%)
26. Use of generic names for all medications or products	44 (100%)	0 (0%)
27. Use of short sentences	44 (100%)	0 (0%)
28. The document personally addresses the reader	44 (100%)	0 (0%)
29. The tone is respectful	44 (100%)	0 (0%)
30. Information is clear	44 (100%)	0 (0%)
31. Information is balanced between risks and benefits	25 (56.82%)	19 (43.18%)
32. Information is presented in a logical order	44 (100%)	0 (0%)
33. The design and layout are satisfactory	32 (72.73%)	12 (27.27%)
34. Figures or graphs are clear and relevant	39 (88.64%)	5 (11.36%)
35. The document has a named space for the reader's notes	24 (54.55%)	20 (45.45%)
36. The document includes a consent form. contrary to recommendations	3 (6.82%)	41 (93.18%)

manner, as well as the alert signs that the patient should take into account, treatment of potential complications and precautions that the patient should take. The sequence of the medical procedure was also poorly described.

These results were especially observed significant in private individual websites such as practitioners and professional societies' websites (65% of the breast lift websites with a low score; 100% of the abdominoplasty websites with a low score; 60% of the brachioplasty websites with a low score; and 50% of the thigh lift websites with a low score). The mean score of healthcare

Table 3 EQIP tool results applied to the 59 eligible websites about "Postbariatric Thigh lift" research on Google® and Yahoo®

Question	Yes (%)	No (%)
Content data		
1. Initial definition of which subjects will be covered	59 (100%)	0 (0%)
2. Coverage of the above-defined subjects	59 (100%)	0 (0%)
3. Description of the medical problem	59 (100%)	0 (0%)
4. Definition of the purpose of the medical intervention	59 (100%)	0 (0%)
5. Description of treatment alternatives (including no treatment)	12 (20.34%)	47 (79.66%)
6. Description of the sequence of the medical procedure	23 (38.98%)	36 (61.02%)
7. Description of qualitative benefits	58 (98.31%)	1 (1.69%)
8. Description of quantitative benefits	1 (1.69%)	58 (98.31%)
9. Description of qualitative risks and side effects	15 (25.42%)	44 (74.58%)
10. Description of quantitative risks and side effects	1 (1.69%)	58 (98.31%)
11. Addressing quality of life issues	59 (100%)	0 (0%)
12. Description of how potential complications will be dealt with	9 (15.25%)	50 (84.75%)
13. Description of precautions that the patient may take	14 (23.73%)	45 (76.27%)
14. Mention of alert signs that the patient may detect	15 (25.42%)	44 (74.58%)
15. Addressing medical intervention cost and insurance issues	15 (25.42%)	44 (74.58%)
16. Specific contact details for hospital services	56 (94.92%)	3 (05.08%)
17. Specific details of other sources of reliable information/support	5 (08.47%)	54 (91.53%)
18. The document covers all relevant issues on the topic	11 (18.64%)	48 (81.36%)
Identification data		
19. Date of issue or revision	3 (05.08%)	56 (94.92%)
20. Logo of the issuing body	57 (96.61%)	2 (03.39%)
21. Name of persons or entities that produced the document	3 (05.08%)	56 (94.92%)
22. Name of persons or entities that financed the document	57 (96.61%)	2 (03.39%)
23. Short bibliography of evidence-based data used in the document	50 (84.75%)	9 (15.25%)
24. The document states whether and how patients were involved/consulted in its production	49 (83.05%)	10 (16.95%)
Structure data		
25. Use of everyday language, explains complex words or jargon	59 (100%)	0 (0%)
26. Use of generic names for all medications or products	59 (100%)	0 (0%)
27. Use of short sentences	59 (100%)	0 (0%)
28. The document personally addresses the reader	59 (100%)	0 (0%)
29. The tone is respectful	59 (100%)	0 (0%)
30. Information is clear	52 (88.14%)	7 (11.86%)
31. Information is balanced between risks and benefits	3 (05.08%)	56 (94.92%)
32. Information is presented in a logical order	59 (100%)	0 (0%)
33. The design and layout are satisfactory	56 (94.92%)	3 (05.08%)
34. Figures or graphs are clear and relevant	43 (72.88%)	16 (27.12%)
35. The document has a named space for the reader's notes	56 (94.92%)	3 (05.08%)
36. The document includes a consent form. contrary to recommendations	2 (03.39%)	57 (96.61%)

portals was 22.4; however, more than two-thirds (70%) were evaluated as lower than moderate quality.

The majority of documents did not include the recommended identification data. Only 47.09% had a bibliography or mentioned the sources that produced the document and only 59.2 % reported the date of publication. Structure data section analysis showed unbalance between risks and benefits, but most (81.94%) of the websites included relevant figures and graphs.

Table 4 EQIP tool results applied to the 60 eligible websites about "Postbariatric Brachioplasty OR arm lift" research on Google® and Yahoo®

Question	Yes (%)	No (%)
Content data		
1. Initial definition of which subjects will be covered	60 (100%)	0 (0%)
2. Coverage of the above-defined subjects	59 (98.33%)	1 (1.67%)
3. Description of the medical problem	60 (100%)	0 (0%)
4. Definition of the purpose of the medical intervention	60 (100%)	0 (0%)
5. Description of treatment alternatives (including no treatment)	13 (21.67%)	47 (78.33%)
6. Description of the sequence of the medical procedure	46 (76.67%)	14 (23.33%)
7. Description of qualitative benefits	60 (100%)	0 (0%)
8. Description of quantitative benefits	0 (0%)	60 (100%)
9. Description of qualitative risks and side effects	23 (38.33%)	37 (61.67%)
10. Description of quantitative risks and side effects	0 (0%)	60 (100%)
11. Addressing quality of life issues	57 (95.00%)	3 (05.00%)
12. Description of how potential complications will be dealt with	12 (20.00%)	48 (80.00%)
13. Description of precautions that the patient may take	17 (28.33%)	43 (71.67%)
14. Mention of alert signs that the patient may detect	13 (21.67%)	47 (78.33%)
15. Addressing medical intervention cost and insurance issues	18 (30.00%)	42 (70.,00%)
16. Specific contact details for hospital services	56 (93.33%)	4 (06.67%)
17. Specific details of other sources of reliable information/support	4 (06.67%)	56 (93.33%)
18. The document covers all relevant issues on the topic	9 (15.00%)	51 (85.00%)
Identification data		
19. Date of issue or revision	0 (0%)	60 (100%)
20. Logo of the issuing body	60 (100%)	0 (0%)
21. Name of persons or entities that produced the document	5 (08.33%)	55 (91.67%)
22. Name of persons or entities that financed the document	56 (93.33%)	4 (06.67%)
23. Short bibliography of evidence-based data used in the document	40 (66.67%)	20 (33.33%)
24. The document states whether and how patients were involved/consulted in its production	39 (65.00%)	21 (35.00%)
Structure data		
25. Use of everyday language, explains complex words or jargon	60 (100%)	0 (0%)
26. Use of generic names for all medications or products	60 (100%)	0 (0%)
27. Use of short sentences	58 (96.67%)	2 (03.33%)
28. The document personally addresses the reader	60 (100%)	0 (0%)
29. The tone is respectful	60 (100%)	0 (0%)
30. Information is clear	47 (78.33%)	13 (21.67%)
31. Information is balanced between risks and benefits	7 (11.67%)	53 (88.33%)
32. Information is presented in a logical order	60 (100%)	0 (0%)
33. The design and layout are satisfactory	58 (96.67%)	2 (03.33%)
34. Figures or graphs are clear and relevant	49 (81.67%)	11 (18.33%)
35. The document has a named space for the reader's notes	43 (71.67%)	17 (28.33%)
36. The document includes a consent form, contrary to recommendations	1 (1.67%)	59 (98.33%)

Discussion

Obesity is defined as having a body mass index (BMI) greater than 30 kg/m2, and it is considered as a pandemic of the present century by the World Health Organization (WHO) [12, 13]. Obesity contains an important psychosocial component that healthcare providers must take into consideration. For this reason, patient's course from obesity to regular BMI should be considered a personal transition, as a central concept integral to the overall care of bariatric patients [14]. Part of this transition course is postbariatric surgery of body shape recontouring. Excess

skin resulting after massive weight loss is considered stigmatizing, and it leads to a decline in quality of life and can increase risk of weight regain [15]. The main part of postbariatric patients defines loose skin as a negative consequence of surgery [16]. In those patients who feel uncomfortable and unattractive after bariatric surgery, body recontouring plastic surgery allows self-perceived physical appearance to return to values comparable to those of the normal population and significantly increases their quality of life [17].

Modern society is constantly surrounded by media that can influence the development of a negative self-body image. This environment is considered a risk factor for the development of eating disorders such as obesity [18]. TV shows and social media pages dealing with postbariatric plastic surgery are popular and may lead to an increased interest towards these operations. Ex-obese patients may look to the Internet for information such as indications, contraindications, possible complications, advantages, disadvantages and good practitioners, prior to consulting a specialized surgeon. The World Wide Web offers access to a huge amount of medical information, thanks to almost 20,000–100,000 health-related websites [19, 20], and self-informed patients are quite common nowadays [21]. In this regard, we investigated the reliability of online information available for postbariatric patients.

There was a critical lack of description of qualitative risks and side effects, along with poor information about medical procedures performed and precautions that patients should take. This can feed even greater expectancies in patients that are already as motivated as the postbariatric ones [22]. Body contouring surgery following massive weight loss indeed positively affects a patient's quality of life. However, postbariatric surgery is prone to complications. Recent published reports vary in incidence percentage for what concerns postsurgical complications in skin excess surgeries. Pajula et al. [23] performed a single-centre retrospective analysis and showed an overall rate of 51% of complications. In an another recent report [24], a five-year experience included 335 postbariatric patients that underwent various surgeries for skin excess and 25.37% of them presented at least one complication. Postsurgical bleeding was the most frequent one (12.53%), followed by seroma (7.16%), wound dehiscence (3.88%), scar migration, wound infection and partial skin necrosis. Abdominoplasty and lipoabdominoplasty are associated with a particular risk for wound infection, dehiscence or fat necrosis (5.6%), seroma (4.1%), haematoma (0.8%), scar deformity (0.7%) and deep venous thrombosis (0.2%) [25]. Patients that undergo brachioplasty face an overall 28.9% risk for complications and revision rate ranges from 0% to 21%. Most frequently, they experience hypertrophic scarring, seroma and haematoma [26]. For what concerns thighplasty, complications that follow surgery can reach a rate of 42.72%, with wound dehiscence (18.34%) and seroma (8.05%) considered the most frequent, regardless of the performed surgical procedure [27]. Plastic surgeons should practice a good communication with their patients, especially with postbariatric patients who experience a personal psychological transition course. Body recontouring surgery is an important part of their therapy, and a positive patient–surgeon relationship is proven to be effective in achieving a long-term follow-up and better result [28].

Conclusion

We investigated how the four most commonly performed postbariatric procedures worldwide (tummy tuck, breast, arm and thigh lift) are presented in the Web to the patients. A critical lack of information about qualitative risks and side effects was evident. Moreover, there was poor detailed information about the medical procedures and the majority of documents did not include the recommended identification data. An effective communication among the surgeon and the patient could avoid dangerous misunderstanding, especially with postbariatric patients who often present great expectations, reshaping and remodelling their body in order to regain physical and functional wellness and dignity.

Compliance with Ethical Standards:

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed Consent For this type of study, informed consent is not required.

References

1. Eurostat statistics. Digital economy and society statistics—households and individuals. Internet access of households, 2013 and 2018. https://ec.europa.eu/eurostat/statisticsexplained/index.php/Digital_economy_and_society_statistics_-_households_and_individuals. Accessed 7 Aug 2019
2. National Institute of Diabetes and Digestive and Kidney Diseases. Overweight & Obesity Statistics. https://www.niddk.nih.gov/health-information/health-statistics/overweightobesity. Accessed 4 Aug 2019
3. World Health Organization. Data and statistics. The challenge of obesity—quick statistics. http://www.euro.who.int/en/health-topics/noncommunicable-diseases/obesity/data-andstatistics. Accessed 4 Aug 2019.
4. Wolfe BM, Kvach E, Eckel RH (2016) Treatment of obesity: weight loss and bariatric surgery. Circ Res 118:1844–1855

5. American Society of Plastic Surgeons. Plastic Surgery Statistics Reports. 2017. https://www.plasticsurgery.org/documents/News/Statistics/2017/plastic-surgery-statistics-fullreport-2017.pdf. Accessed 4 Aug 2019
6. ISAPS international survey on aesthetic/cosmetic procedures performed in 2017. https://www.isaps.org/wp-content/uploads/2019/03/ISAPS_2017_International_Study_Cosmetic_Procedures_NEW.pdf. Accessed Oct 19 2019.
7. Marcasciano M, Frattaroli J, Mori FLR et al (2019) The new trend of pre-pectoral breast reconstruction: an objective evaluation of the quality of online information for patients undergoing breast reconstruction. Aesthetic Plast Surg 43:593–599
8. Palma AF, Zuk G, Raptis DA et al (2016) Quality of information for women seeking breast augmentation in the Internet. J Plast Surg Hand Surg 50:262–271
9. Lynch NP, Lang B, Angelov S et al (2017) Breast reconstruction post mastectomy—Let's Google it. Accessibility, readability and quality of online information. Breast 32:126–129
10. eBizMBA. Top 15 most popular search engines: May 2018. http://www.ebizmba.com/articles/search-engines website. Accessed Nov 2018.
11. Eysenbach G, Köhler C (2002) How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests, and in-depth interviews. BMJ 324:573–577
12. World Health Organization. Obesity and Overweight. https://www.who.int/newsroom/fact-sheets/detail/obesity-and-overweight. Accessed 16 June 2019.
13. Rangel-Huerta OD, Pastor-Villaescusa B, Gil A (2019) Are we close to defining a metabolomic signature of human obesity? A systematic review of metabolomics studies. Metabolomics 15:93
14. Ficaro I (2018) Surgical weight loss as a life-changing transition: The impact of interpersonal relationships on post bariatric women. Appl Nurs Res 40:7–12
15. Rosa SC, Macedo JLS, Casulari LA, Canedo LR, Marques JVA (2018) Anthropometric and clinical profiles of post-bariatric patients submitted to procedures in plastic surgery. Rev Col Bras Cir 45:e1613
16. Kinzl JF, Traweger C, Trefalt E, Biebl W (2003) Psychosocial consequences of weight loss following gastric banding for morbid obesity. Obes Surg 13:105–110
17. De Kerviler S, Hüsler R, Banic A, Constantinescu MA (2009) Body contouring surgery following bariatric surgery and dietetically induced massive weight reduction: a risk analysis. Obes Surg 19:553–559
18. Wilhelm L, Hartmann AS, Becker JC, Kisi M, Waldorf M, Vocks S (2019) Thin media images decrease women's body satisfaction: comparisons between veiled muslim women, christian women and atheist women regarding trait and state body image. Front Psychol 10:1074
19. Diaz JA, Griffith RA, Ng JJ, Reinert SE, Friedmann PD, Moulton AW (2002) Patients' use of the Internet for medical information. J Gen Intern Med 17:180–185
20. Wald HS, Dube CE, Anthony DC (2007) Untangling the Web—the impact of Internet use on health care and the physician–patient relationship. Patient Educ Couns 68:218–224
21. Tijerina JD, Morrison SD, Nolan IT, Vail DG, Lee GK, Nazerali R (2019) Analysis and interpretation of Google trends data on public interest in cosmetic body procedures. Aesthet Surg J
22. Kitzinger HB, Abayev S, Pittermann A et al (2012) After massive weight loss: patients' expectations of body contouring surgery. Obes Surg 22:544–548
23. Pajula S, Jyränki J, Tukiainen E, Koljonen V (2019) Complications after lower body contouring surgery due to massive weight loss unaffected by weight loss method. J Plast Reconstr Aesthet Surg 72:649–655
24. Zerini I, Sisti A, Barberi L et al (2016) Body contouring surgery: our 5 years experience. Plast Reconstr Surg Glob Open 4:e649
25. Xia Y, Zhao J, Cao DS (2019) Safety of lipoabdominoplasty versus abdominoplasty: a systematic review and meta-analysis. Aesthetic Plast Surg 43:167–174
26. Sisti A, Cuomo R, Milonia L et al (2018) Complications associated with brachioplasty: a literature review. Acta Biomed. 88:393–402
27. Sisti A, Cuomo R, Zerini I et al (2015) Complications associated with medial thigh lift: a comprehensive literature review. J Cutan Aesthet Surg 8:191–197
28. Carmichael SP 2nd, Veasey EC, Davenport DL, Jay K, Bernard AC (2018) Patient-surgeon relationship influences outcomes in bariatric patients. Am Surg 84:1850–1855