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Contemporary Decision Making and Perception in Patients Undergoing Cosmetic Breast Augmentation

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Abstract

Background: Today's breast augmentation (BA) patient obtains information from a variety of sources that may positively or negatively influence her decision.

Objectives: The authors evaluate the decision-making process of patients undergoing BA, including how they seek information regarding the procedure, potential complications, the medical device itself, referral sources, and surgeon(s).

Methods: A written 36-item, blinded survey developed for this study was administered to all patients who underwent aesthetic primary BA by the senior author (JW) over a 12-month period in her metropolitan private practice. Patients were included only if they had undergone surgery after Food and Drug Administration approval of silicone implants and had at least four months of follow-up. Patients were excluded if they underwent reconstruction, revision, augmentation/mastopexy, or implant exchange. Data were analyzed utilizing descriptive statistics; frequencies of responses were calculated with SPSS (version 16).

Results: Of 153 mailed surveys, 100 respondents returned completed questionnaires (65%). Mean age was 30 years (range, 20-50 years). Eighty-eight patients were in the workforce, eight were students, and three were homemakers. Thirty-three percent had completed some graduate work or had a graduate degree, and 41% had a college degree. In terms of how patients began their informational searches, 41% began with Google, 18% began with a BA portal Web site, and 1% went through referral from a primary care provider (PCP)/OB-GYN. The primary influence in a patient's decision to have BA was her own desire to change her appearance (36%), and second was her plastic surgeon's Web site (16%). On a graded scale of 10 factors ranking importance (1 = *not at all* and 5 = *extremely*), 52% said that their plastic surgeon's Web site very much or extremely influenced their decision. Of respondents, 82% had silicone implants (18% saline). The most influential factor in choosing implant filler was the feel of the silicone versus saline implants (for 41%), followed by the plastic surgeon's explanation of the difference (29%) and recent FDA approval (13%). Primary sources of information for possible complications were the plastic surgeon and BA portal sites. When asked what the worst complication could be, patients reported capsular contracture (37%), implant rupture or leak (22%), and infection (20%). The most powerful influence on choice of surgeon for BA was the plastic surgeon's Web site (49%); meeting the doctor in consultation was next (14%), followed by BA portal sites (9%). Thirty-six percent of respondents consulted with a psychiatrist or psychologist at some point in their lives, with depression, anxiety, and stress management as top-ranked reasons (in that order).

Conclusions: The Internet (specifically Google, the plastic surgeon's Web site, and portal Web sites) is very important to patients ages 20 to 50 in their search for information on BA. Educational and reality TV may have less influence on this particular group than was previously thought. Patients are well educated, are part of the workforce, and seem to be independent and private thinkers when it comes to their decision making. Referral sources such as the PCP assume a much smaller role in the search for information than in days past.

Keywords

breast augmentation, breast implants, Internet, Google, Web site

Breast augmentation was the most commonly performed cosmetic surgical procedure in 2008, with 311,957 performed in that year.[1] The beauty and cosmetic surgical industries have boomed in the recent past, and the typical patient for cosmetic surgery is much more mainstream than 20 years ago. She gathers information from a variety of sources that were not available to previous generations, which may either positively or negatively influence her

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decision. The purpose of this study was to evaluate the decision-making process and perceptions of female patients undergoing cosmetic primary breast augmentation (BA) in a metropolitan setting in contemporary society. The points that the authors sought to elucidate are where today's BA patient acquires her information, what factors influence her decision making, and if her expectations meet reality. We also sought to evaluate how patients gather their information on potential complications, the medical device itself, referral sources, and choice of surgeon. Gaining knowledge on all of these issues may be beneficial to potential patients, the lay public, and physicians as we seek to redefine and provide an accurate representation of the aesthetic BA patient demographic in contemporary society.

METHODS

Approval was obtained from Lenox Hill Hospital/Manhattan Eye, Ear and Throat Institute Institutional Review Board. A written 36-item blinded survey developed for this study was given to all patients over a 12-month period who underwent aesthetic primary BA by the principal investigator (JLW) in her metropolitan private practice. Patients were included only if they had undergone surgery after November 17, 2006, when the Food and Drug Administration (FDA) reapproved the general use of silicone breast implants for women seeking breast augmentation for cosmetic reasons. Patients who had undergone breast reconstruction after mastectomy or for congenital anomalies, augmentation/mastopexy, and implant exchange were excluded. Results were gathered and analyzed to evaluate this demographic of women in regard to referral sources, their informational resources on the procedure, and their understanding of and reasons for choosing a particular size and type of implant.

The survey was composed of multiple-choice questions on a five-point, Likert-type scale, with an option for an open-ended answer ("other") and follow-up questions with a graded importance for each offered answer (1 = *not at all* to 5 = *extremely*; Figure 1). Patient background and demographic information was also obtained. The study was coordinated and administered by one of the authors (SS), and the design of the study and data were analyzed utilizing descriptive statistics, with the frequencies of responses calculated with SPSS (version 16; SPSS, Inc., an IBM Company, Chicago, Illinois), as led by another author (GP).

The full informed consent and questionnaire can be found online at http://aes.sagepub.com/supplemental (Appendix 1).

RESULTS

Of 153 mailed surveys, 100 respondents returned completed questionnaires (65%). Mean age was 30 years old (median, 27; range, 20-50). Eighty-eight patients were in the workforce, eight were students, and three were homemakers (Figure 2). Thirty-three percent had completed some graduate work or had a graduate degree, and 41% had a college degree. Respondents were predominantly Caucasian; the full breakdown of participants by ethnicity is seen in Figure 3. The survey respondents were asked to list their occupations, and this wide variety of professions and trades is listed in Appendix 2 (found online at http://aes.sagepub.com/supplemental). Fifty-two percent of respondents were single, 38% were married, 6% were divorced, and the rest were separated. Most of the respondents (66%) did not have children; 17% had one child, 9% had two children, and 8% had three or more. Twenty-three percent had a combined family income (CFI) of over $150,000 per year, 15% had a CFI of $100,000 to $150,000 per year, and 21% had a CFI of $75,000 to $99,000 per year. The largest percentage (37%) had a combined family income of $75,000 or less (4% did not respond).

When asked what sparked their interest in BA, most patients indicated the appearance or size of their breasts (87%). Very small percentages answered otherwise, with responses pointing to a friend who had undergone breast augmentation previously, a family member, a plastic surgeon's Web site, or a Weblog. When patients were asked how they began their search (Figure 4) for information about the procedure, 41% began with Google, 18% with a BA portal Web site, 11% with a plastic surgeon's Web site, 10% with consultation with a plastic surgeon (PS), 9% with a friend, 4% with a sister, and 1% through referral from a primary care provider (PCP)/OB-GYN. Other sources of search initiation included YouTube (1%), WebMD (1%), and women's magazines, with *Allure* and *Vogue* magazines cited (1%).

Societal pressures that ranked highest in influencing decision making were magazines, television, and Internet images (in that order). Family and coworkers were the least sources of pressure. The primary influence in a patient's decision to have BA (Figure 5) was her own desire to change her appearance (36%); second was her plastic surgeon's Web site (16%). A BA portal website (13%), a friend (13%), a family member (7%), a spouse or significant other (5%), reality television (TV) (4%), and educational TV (2%) also served as influences. Notably, no respondents indicated that the breast implant manufacturers' Web site was a primary influence.

On a graded scale of 10 factors ranking importance (1 = *not at all* and 5 = *extremely*), 52% said that their plastic surgeon's Web site very much or extremely influenced their decision. Thirty-three percent said the same for a BA portal site. Many (27%) also reported a friend influenced them very much or extremely. Surprisingly, a large percentage (68%) said their partner or spouse had little or no influence at all on their decision.

Of respondents, 82% had silicone implants and 18% had saline. The one most influential factor in choosing implant filler was the feel of the silicone versus saline implants (for 41%), followed by the plastic surgeon's

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1. ***Choose one of the following that you feel <u>most influenced</u> your decision to have breast augmentation. (circle one):***

   a. An educational TV show (Example: Discovery Channel). If so, please list: _____
   b. A reality TV show (Example: Dr. 90210). If so, please list: _____
   c. My plastic surgeon's website
   d. A breast augmentation portal site (a website not owned by a physician; Example: ImplantForum, BI411.com, ImplantInfo by Nicole). If so, please list: _____
   e. The breast implant manufacturer's website. (Example: Allergan "LookingYourBest.com" or Mentor4me) If so, please list: _____
   f. A plastic surgery blog. If so, please list: _____
   g. A friend
   h. Partner/Significant Other/Spouse. If so, please list: _____
   i. A family member. If so, please list: _____
   j. A coworker
   k. Other: _____

2. ***To what extent did any of the following influence your decision to have breast augmentation? Please circle using the scale provided.***

	Not At All	Some what	Moderately	Very Much	Extremely
a. Educational TV	1	2	3	4	5
b. Reality TV	1	2	3	4	5
c. plastic surgeon's website	1	2	3	4	5
d. A breast augmentation portal site	1	2	3	4	5
e. The implant manufacturer's website	1	2	3	4	5
f. A plastic surgery blog	1	2	3	4	5
g. A family member	1	2	3	4	5
h. Partner/Significant Other/Spouse	1	2	3	4	5
i. A coworker	1	2	3	4	5
j. Other: (_____)	1	2	3	4	5

3. ***If a friend, family member, or coworker influenced your decision to have breast augmentation, has this person had breast augmentation performed? (circle one)***
   Yes No Don't know

Figure 1. The first page of the 36-item survey administered for this study.

explanation of the difference (29%) and recent FDA approval (13%). Nine percent said that the media scare over silicone prompted them to choose saline, and 5% were primarily influenced by a patient who had already undergone breast augmentation.

The primary source of educational information regarding breast implants was Internet research (66%), with BA portal Web sites specifically listed (31%), then the plastic surgeon's Web site (18%), the implant manufacturer's site (5%), or a Weblog (4%). Of non-Internet resources, patients considered the plastic surgeon as a primary source of educational information (28%), followed by the breast implant manufacturers' printed literature (3%).

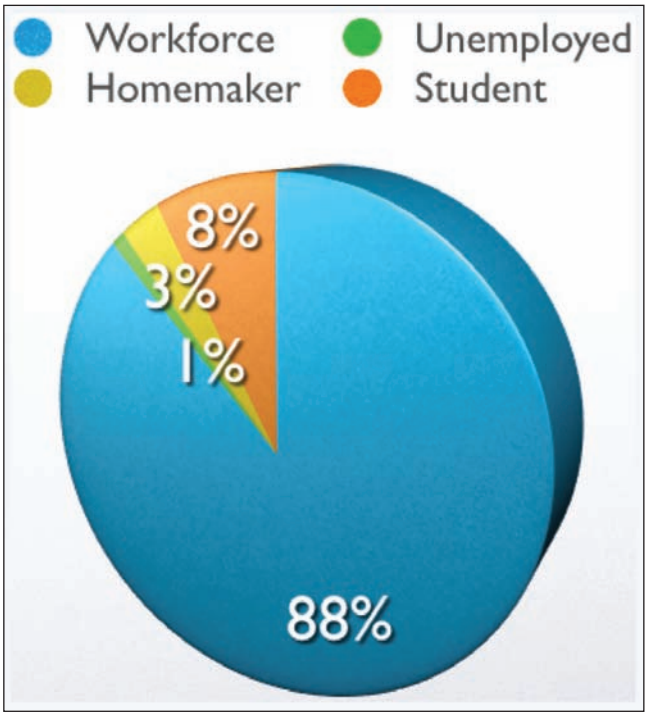

Figure 2. Employment data for respondents (N = 100).

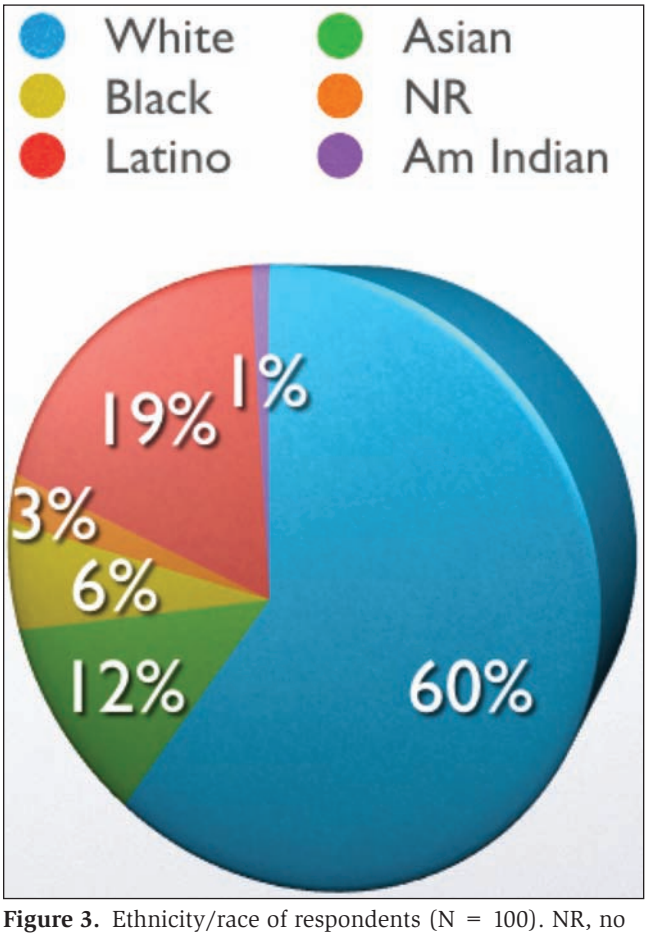

Figure 3. Ethnicity/race of respondents (N = 100). NR, no race indicated.

On a graded scale, the plastic surgeon and plastic surgeon's Web site were the educational resources that most influenced a patient's decision to have BA (with 61% and 55% saying they were very much or extremely influenced by these, respectively). Manufacturers' Web sites proved unimportant, with 72% reporting that their decisions were influenced by them little or not at all. TV, both educational and reality, had limited influence as well; 67% and 66% stated they had little or no influence, respectively. Forty percent said that printed breast implant manufacturers' literature was not at all a source of educational information, despite the fact that the FDA requires that physicians dispense educational planners and obtain patient signature prior to surgery. When patients indicated that a friend, family member, or coworker was their primary source of educational information about this surgery, they were then asked whether this person had undergone BA. Forty-eight percent said no, 45% said yes, and 7% reported that they did not know.

When asked in a multiple-choice format for their best guess of how many women in 2006 had undergone breast augmentation, 30% of respondents picked the correct answer (more than 300,000), 19% said 200,000 to 300,000, and 26% said 100,000 to 200,000. When asked whom they would describe as the typical BA patient, 62% chose "a woman in her 30s and 40s with one or two children," 31% chose "a single young woman in her 20s who wants to attract the opposite sex," 5% chose "a teenager who thinks her breasts are too small," 1% chose "a woman in her 50s who doesn't like the way her breasts sag," and 1% chose "a woman in her 60s who always wanted to do it but finally got up the courage." (The highest number is actually the 19- to 34-year-old age group, according to American Society for Aesthetic Plastic Surgery (ASAPS) statistics in 2008 and 2009.[1,2])

When asked in open-ended format about the worst complication that can arise after BA surgery (Figure 6), the top-listed answer was capsular contracture (37%), then rupture or leak (22%), infection (20%), hematoma (3%), death (3%), an unnatural look (3%), and ultimate "rejection" of implants (2%). Primary sources of information for possible complications were the plastic surgeon and BA portal sites, respectively. Weblogs also ranked high, which correlates with airing negative experiences on message boards, accurate or not. When asked to what extent one learned about possible complications from a list of sources, 55% responded that they learned very much or extremely from the plastic surgeon, 50% from BA portal sites, 45% from implant manufacturers' printed literature, 31% from the plastic surgeon's Web site, and 29% from Weblogs. Seventy-three percent reported that reality TV was not a primary source of information about complications at all and 61% reported educational TV was not a primary source at all.

The most powerful influence on choice of surgeon for BA was the plastic surgeon's Web site (49%).

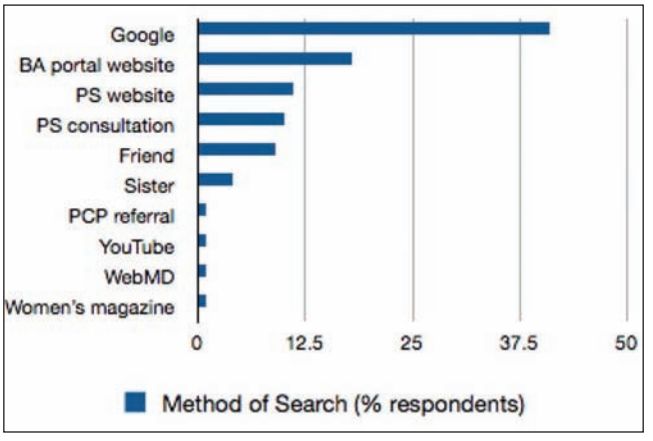

Figure 4. Information searching habits. Each response indicates how patients first began their search for information on breast augmentation.

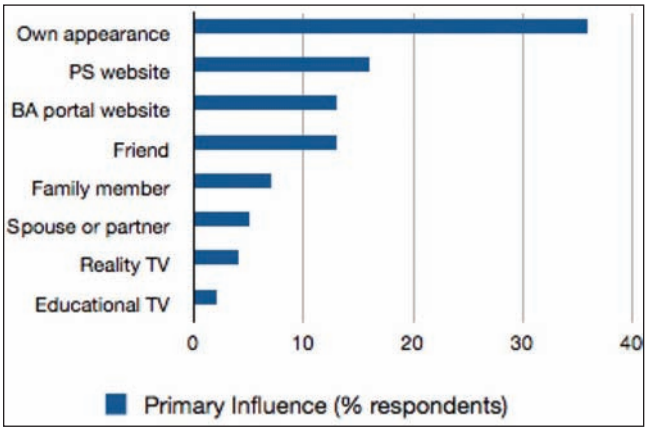

Figure 5. Primary influences. Each response indicates the patient's primary influences in decision making to undergo breast augmentation.

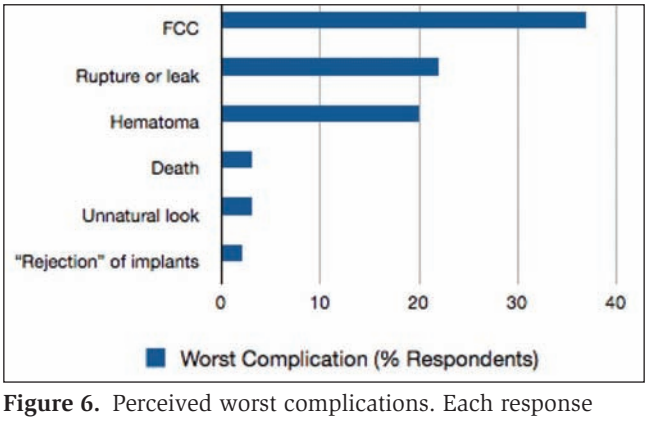

Figure 6. Perceived worst complications. Each response indicates the patient's perceived worst complications after breast augmentation.

Meeting the doctor in consultation came next (14%), followed by BA portal sites (9%). For 5%, the most powerful influence was the recommendation of a previous patient, and for 1%, the recommendation of another doctor was primary. Eighty-one percent said that their preoperative expectations matched the experience of having the surgery either very much or extremely. All respondents were asked to comment on the discrepancy, if present, in preoperative expectations/results. Reasons for discrepancy included dissatisfaction with size ("should have gone bigger"), rippling, adjusting to a new body image, persistent breast asymmetry, and incisional scars. In those whose experience was better than expected, the following reasons were listed: pain (or lack thereof), healing time, "overall outcome much better than expected," and "felt better after surgery than expected."

Thirty-six percent of respondents consulted with a psychiatrist or psychologist at some point in their lives. The top-ranked reasons for consultation were depression (21%), anxiety (21%), and stress management (9%). Other reasons cited include the following: obsessive compulsive disorder (OCD), posttraumatic stress disorder (PTSD), premenstrual dysphoric disorder (PMDD), "parents going through a divorce," "dealing with an alcoholic family member," "marital issues," and "coping with Mom's breast cancer diagnosis." No one listed body dysmorphic disorder or suicidal tendencies anywhere on the survey.

DISCUSSION

Much of the past medical literature focusing on patient population, complication rates, and patient characteristics in BA was gathered years ago. As such, we sought to gain insight into how contemporary patients seek medical information regarding the BA procedure itself, breast implants and their qualities, surgeon(s), and the possible complications of the surgery.

Young et al[3] published the results of a survey completed by 4011 women (2273 who had undergone the procedure, 1738 who were thinking about it) in 2004. Although this study had power in numbers and is laden with useful information, by design it is quite different from ours. This study was administered via www.implantinfo.com for a short time period (six months) before silicone gel implants were reapproved by the FDA, and assessed the responses of women who may have not even had the procedure. It also assessed patients who had undergone multiple revision surgeries and were operated on by any practitioner. The advantage of that type of study theoretically lies in its online anonymity.

In that study, women were asked to respond to an expansive series of questions regarding outcome, satisfaction, quality of life, reasons for reoperation, rheumatologic disorders, mammography, breastfeeding, alcohol and smoking, implant type, and so on. Because the survey was available to a wide audience online, a single person could submit multiple questionnaires repeatedly and the respondent pool

was possibly nonspecific because a Web browser who stumbled upon the site may not have even had an interest in BA but could submit a response and therefore skew the data. In our opinion, this is a major disadvantage. Young et al admitted that one person submitting multiple surveys was a serious concern that did indeed happen (around 500 surveys were found to be duplicates and were deleted), and the authors also mentioned that dissatisfied patients submitted online results more than once.

Fill-in-the-blank questions about how long ago patients' BA had been performed also raised problems, as not everyone answered in the same unit of time. The authors also found that some women without implants responded to questions such as these intended for patients with implants. There also seemed to be confusion on the patients' part with the type of implant, especially in exchange cases, as well as the amount of time elapsed with each implant type. The aforementioned issues illustrate some of the inherent problems in controlling and standardizing the data collection for such a wide audience when a survey is posted online without any encryption or codes assigned to respondents to ensure their identities.

In our study, respondents were anonymous as well, but the survey was administered in a single practice in written format with self-addressed stamped envelopes for return. Our survey was designed so that frequency of responses and descriptive statistics could be used to assess results, and it was constructed with graded five-point scale responses so that it would be clear and consistent to the patient both in content and format. The fact that all patients underwent primary BA in a single practice after the gel reapproval may also be viewed as a positive aspect, in that it allows for clean collection of data without the confounding variables of patients who have never undergone the procedure, patients who are on their second or third revision by a surgeon with unknown background, and browsers on the Internet who have no intention of undergoing BA.

Because our survey was not constructed with the intention of summing the items to obtain a total score or to assess a construct or an outcome, we did not employ additional standardization methods from traditional psychometric theory. Moreover, a number of the items that referred to actual behaviors or sources of information would have been difficult to validate. Nevertheless, we believe that our survey could be utilized in a variety of settings by different plastic surgeons to determine whether any differences exist at a group rather than an individual level. Specifically, the survey was designed in such a way so that frequencies of responses and descriptive statistics could be analyzed with common SPSS software, so that it may be applicable to plastic surgeons in different communities. The questions were also formatted in a Web-friendly manner so that it could be integrated very easily with contemporary survey and data collection software on an independent Web site, such as a breast augmentation portal site or medical society Web site.

The context of our survey also differs from that of Young et al.[3] It was administered almost a decade after theirs, and the past decade has witnessed an explosive growth in the Internet and its applications. Young's study was designed in 2000, the year that the neophyte company Google first launched applications such as AdWords (widely used now for driving patients in certain geographic locations to specific sites) and before common popular Web applications such as Facebook and MySpace were even developed. Our findings did corroborate those of the previous authors, however, in that patients sought out BA independent of others to enhance their appearance and in that the majority found their information online.

Because the Young et al[3] survey was available to everyone who visited the site and the response was so large, regional biases were minimized, whereas one drawback of our survey is that regional biases may exist. Interestingly, Young et al[3] stated that "percentages of women who have undergone augmentation in rural and major metropolitan centers were nearly identical," so based on the fact that the Internet is, as those authors called it, "the great equalizer," it makes sense that patients in small communities are using the same informational resources (ie, the Internet) as those in large cities to help make their decisions. In that article, the authors concluded that the Internet is such a boon "to prospective augmentation patients that such patients are, in our experience, among the best informed patients we have encountered," and on the basis of the results of our own study, we agree.

Young et al's second online study[4] sought to collect data on the informed consent process employed by a wide array of surgeons, as well as the reasons patients fail to follow up with their surgeon. The results were indicative of a large variation in surgical practices, where patients were given differing information; by definition, we did not find this in our study as it was from a single practice. Our practice has a lengthy written informed consent process similar to Tebbetts and Tebbetts,[5] and our patients are scheduled for follow-up on a systematic and regular basis after BA. In his study, Young et al[4] found that some patients were being charged for follow-up visits and after one year, some patients were told to return only if they wanted to with no specific plan being made—interesting findings, but unacceptable, in the lead author's opinion, for any practice dealing with an implanted medical device.

Certain results in our own study deserve comment. For example, 87% of women said that the appearance or size of their breasts sparked their interest in BA. This number confirms that most women are undergoing BA for themselves and not for the benefit of a friend, family member, spouse, or partner. Interestingly, a large portion of patients were college educated and had even completed some graduate work or a graduate degree. The wide variety of occupations listed by respondents in Appendix 2 reveals that this group is part of the workforce and able to generate their own income. This economic power likely affects the decision-making process independent of a spouse, boyfriend, or partner because as patients, they are better able to financially follow through with the procedure once a decision is reached. This remained true in our practice even after the economic collapse on Wall Street in late 2008 and 2009. It would be interesting to know whether

the results of this study would vary in a less urban center with regard to the education level of patients, implant choice, and influences on decision. Currently, the senior author is collaborating with another plastic surgeon with a large BA volume in a much smaller community in Louisiana to compare and contrast the results of the survey in this patient population.

When asked how they began their search for information about BA, the majority of respondents indicated that they began with the search engine Google. These results were not surprising, given that this company is the undisputed market leader in search engine technology. Other conduits for search included BA portal Web sites and the plastic surgeon's Web site. We assume that a Google search, in this instance, implies typing search terms in the Google box (such as "breast augmentation, Manhattan") without prior knowledge of the surgeon's name. Beginning a search with a BA portal site implies that the patient had to previously search for that site or knew the URL. (BA portal sites are Web sites such as implantforum.com, just-breastimplants.com, implantinfo.com, and bi411.com, which serve as a source of education and typically have a geographically-based directory of participating surgeons.) Beginning a search with the plastic surgeon's Web site implies that the name of the plastic surgeon was known from some other avenue and that it was typed in the search or URL box. Interestingly, very few patients in this study began their search through the referral of another physician. The boom of Internet search technology and health-related information on the Web may account for this, as well as the dense physician population of New York City, which is full of other physicians who may not know the plastic surgeon personally or already have well-established referral patterns in a competitive market.

Societal pressures that most influence decision making in rank order were magazine images, TV images, and Internet images. It is our opinion that magazine images are the primary pressure, at least partially as a result of the wide and frequent circulation of catalogs like Victoria's Secret, along with the often-retouched aesthetics of models in men's and women's magazines. The reported primary influence for a patient to undergo BA was the desire to change her own appearance, followed by the plastic surgeon's Web site and a BA portal site. No respondents indicated that the breast implant manufacturers' Web site was a primary influence, but recent strides by the implant manufacturers to make their sites more user-friendly and attractive to this audience will likely change that.

In terms of implant choice (82% silicone, 18% saline in this study), the most influential factor was reported to be the feel of the two different implants. At consultation, the first author places the two different types of implants in the hands of the patient, so that she can assess the difference. We find that many patients subsequently choose silicone implants, even if they told the patient coordinator they were thinking of getting saline implants in the preliminary patient intake questioning.

It comes as no surprise, given similar results in past direct-to-consumer market research by the implant manufacturing companies, that the primary source of educational information in this demographic was Internet research (66%), with BA portal sites, the plastic surgeon's Web site, implant manufacturers' sites, or a Weblog also listed. Of non-Internet resources, patients considered their plastic surgeon as the primary source, followed by the implant manufacturers' printed literature on the subject. It is also likely that before-and-after photographs have a great deal of influence on this group, as search engine optimization data analysis shows that this is a very highly-searched area on many plastic surgeons' sites (B. Hancock, Mednet Technologies, personal communication, March 29, 2009). The plastic surgeon's and manufacturers' printed literature rank highly as sources of non-Internet information, which is reassuring from the standpoint of accuracy.

On a graded scale, the plastic surgeon and plastic surgeon's Web site were the educational resources that most influenced patient decision to have BA. Interestingly, 40% said that the breast implant manufacturers' printed literature was not at all a source of educational information. The explanation here may be that the patients are not reading the literature given to them by their physician (as recommended by the FDA) or, alternatively, that they are reading but not retaining the information. The latter has been shown in the past to be a common finding in the informed consent process.[6] In our practice, every patient who undergoes BA receives a patient planner and signs informed consent documents specialized for the procedure from the manufacturers' literature and adopted from Tebbetts and Tebbetts.[5]

Nearly two-thirds of patients reported that reality TV and educational TV were educational resources of little to no influence, and these programs also had little to no influence on decision making for the surgery. (Examples of plastic surgery reality TV shows include *Dr. 90210* and *Extreme Makeover*, and an example of educational plastic surgery TV is Discovery Channel's *Before and After*.) These findings are contrary to one of the only previously published papers on the topic[7] and possibly reflect the differences in patient populations or perhaps that the shows simply may be losing some of their initial mass appeal. In 2007, Crockett et al[7] examined 42 cosmetic surgery patients and found that plastic surgery reality television played a significant role in cosmetic surgery patient perceptions and decision making. The authors found that four out of five patients reported that television directly influenced them to pursue a cosmetic plastic surgery procedure, with nearly one-third very much or moderately influenced. However, the Crockett et al study had less than half the sample size of our study, and differences in the cultural background of the patients (as well as the location of administration of the study, which was the Yale University hospital clinic in New Haven, Connecticut) may also account for some of the differences between the two patient groups.

When respondents were asked about their opinion of the worst complication that could arise after surgery, the most frequently listed response was capsular contracture (37%), even more than death (3%). We believe this may be attributed to the widespread attention given to the topic

on message boards, Weblogs, and plastic surgery sites. Rates of capsular contracture vary widely in the published literature, as well as on various sites on the Internet, and it is our opinion that this raises a degree of fear of the unknown for patients. Primary sources of information for possible complications were the plastic surgeon and BA portal sites, but Weblogs also ranked highly. This correlates with the airing of negative experiences and complications that can be routinely seen on Weblogs and message boards, accurate or not. Forty-five percent of patients reported learning about complications from the manufacturers' printed literature (brochures and patient planners); this is also not surprising, given the large volume of information necessarily disclosed regarding complication rates in these materials. Nearly three-quarters of patients reported that reality TV was not at all a source of information about complications. This is understandable because these programs usually do not spend a great deal of time (if any) showing the complications or potential downsides of elective cosmetic surgery.

Interestingly, the most powerful influence on choice of surgeon for BA was the plastic surgeon's Web site, followed by a personal meeting with the surgeon. This is to be expected in a modern, Internet-savvy group that has researched and learned about the procedure and surgeon online prior to setting foot in the doctor's office. The majority of patients (81%) revealed that their preoperative expectations matched the experience and postoperative result either very much or extremely. Most of the patients in this group cited that their overall experience was "better than expected." In patients who did not report this, the discrepancy was usually due to size ("should have gone bigger"), and a small number cited issues with rippling, body image adjustment, asymmetry, and scarring. We hope to decrease the number in the second group by preoperatively revisiting issues of size and asymmetry as needed, although these topics are already a major focus of the preoperative consultation.

Thirty-six percent of respondents consulted with a psychiatrist or psychologist at some point in their lives, with depression, anxiety, and stress management as the main reasons. We feel that these, in addition to the secondary reasons outlined in the Results section, are all appropriate and not out of the ordinary. In comparison to a recent survey of 500,000 New Yorkers by the New York City Department of Health and Mental Hygeine (NYCDOH), our 21% rate of depression is actually *lower* than average for New York City (NYC) residents. That survey found that the number of NYC residents who sought counseling or treatment or who had taken a prescription medication for depression was 55% in 2007.[8] The number of New Yorkers diagnosed with depression has seen an increase in this region after the attacks on 9/11 and the worst Wall Street crash since the Great Depression.[9-11] No one listed body dysmorphic disorder or suicidal tendencies anywhere on the survey; this is an interesting finding, as a growing body of literature has linked women seeking BA to higher rates of suicide, depression, and emotional instability than the general population.[12,13] The authors of this study agree with Rohrich et al[14] that these previous studies demonstrate flaws because they fail to identify a cause-and-effect relationship or to establish the presence of preoperative risk factors that would place the women in their studies at an increased risk for suicide.

The Internet has evolved into a global network linking more than a billion people directly; mass collaboration is changing the way businesses and societies harness knowledge with four powerful ideas of openness, sharing, peering, and acting globally. These new principles are replacing some of the older tenets in business.[15] In this study, the Internet was extremely important for women ages 18 to 49 in their search for health-related information, with Google, BA portal Web sites, and the plastic surgeon's Web site being the top-ranked resources. According to a 2001 report by the Pew Research Center, approximately 104 million American adults have access to the Internet. Of these, there are slightly more females (51%) on the Internet than males (49%), of both high and low socioeconomic status. Fifty-five percent of Internet users access the Internet in search of medical information. Of these, 21 million indicated that they had been influenced by health information they read online.[16,17] A more recent Pew Internet Research survey of 2253 adults over age 18 on the social impact of the Internet on health care in 2009 found that Americans' pursuit of health takes place within a widening network of online sources. Results of that survey indicate that 74% of American adults currently go online, 57% of American households have broadband connections, and 61% of adults look online for health information. Online health inquiries have an impact on decisions or actions, with more positive experiences than negative ones.[18] The researchers concluded that technology is not an end but a means to accelerate the pace of discovery, widen social networks, and clarify the questions someone might ask when he or she talks to a health professional. As Fox and Jones[18] stated in their findings, "Whereas someone may have in the past called a health professional, their Mom, or a good friend, they now are also reading [Web]blogs, listening to podcasts, updating their social network profile, and posting comments. And many people, once they find health information online, talk with someone about it offline."[18]

Despite its widespread appeal and popularity, Web-related research indicates that medical professionals do not author an extensive amount of health information available on the Internet.[19] This opens the possibility for false information, as the Internet's unregulated and free-flowing format may present a potential hazard to those who seek and trust online material. In many instances, those accessing information are unaware of who authored the material, when the information was last updated, and whether it is accurate. As the Internet's number of information seekers and providers continues to increase, it becomes important that healthcare professionals gain an understanding of how this information is being perceived.[19] After reviewing the results of our study, we firmly believe that plastic surgeons and other healthcare practitioners should take it upon themselves to provide

realistic and accurate material regarding the procedure on their Web sites, given the large audience of women seeking health information online.

CONCLUSIONS

Our data showed that the typical breast augmentation patient is well educated, part of the workforce, and an independent, private thinker. Most women have not sought psychiatric or psychologic consultation and are not influenced by plastic surgery reality and educational television programming. Our study also reinforces previous reports that adults between the ages of 18 and 49 are more likely than older adults to participate and seek information related to health care through social technologies. As younger adults enter the cosmetic surgery marketplace, they may turn even more to these resources—to which they have become accustomed in other contexts of their lives—to gather and share health advice. Referral sources for plastic surgeons are much different than they were two decades ago and physician referrals play less of a role due to the independent gathering of healthcare information and self-referral via the Web. We believe the results of this survey will aid in dispelling certain stereotypes often linked to the "typical" BA patient. Patients may find this reassuring and the lay public, media, and physicians can integrate this into their understanding of the many women who choose to undergo this very popular procedure.

Disclosures

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