

# Interest in Cosmetic Surgery and Body Image: Views of Men and Women across the Lifespan

David A. Frederick, M.A.  
Janet Lever, Ph.D.  
Letitia Anne Peplau, Ph.D.

*Los Angeles, Calif*

**Background:** Little is known about interest in cosmetic surgery among the general public or how this interest is related to gender, age, relationship status, body mass index, or body image satisfaction.

**Methods:** The present study tested these associations among a sample of 52,677 heterosexual men and women aged 18 to 65 years who completed the online "ELLE/MSBNC.com Sex and Body Image Survey" in 2003., **Results:** Many women were interested (48 percent) or possibly interested (23 percent) in cosmetic surgery. A substantial minority of men were also interested (23 percent) or possibly interested (17 percent) in cosmetic surgery. Individuals interested in cosmetic surgery did not report poorer global body image than individuals not interested in cosmetic surgery. Individuals specifically interested in liposuction, however, tended to have poorer body image, and interest in liposuction was greater among heavier individuals.

**Conclusions:** The finding that many women and men are interested in cosmetic surgery has implications for research comparing cosmetic surgery patients to individuals drawn from the general population. Specifically, researchers conducting comparative studies should recognize that many individuals in their control group may be strongly interested in cosmetic surgery, even *if* they have not yet had any. Furthermore, individuals interested in different types of cosmetic surgery may differ from each other on such attributes as body mass index and body image. (*Plast. Reconstr. Surg.* 120: 1407, 2007.)

The popularity of plastic surgery as a socially acceptable form of body modification has created a booming cosmetic surgery industry. More than 9 million cosmetic surgical procedures were performed in 2004, a 24 percent increase over 2000.<sup>1</sup> Despite the prevalence of cosmetic surgery, little is known about who is most interested in cosmetic surgery and why. The present study of over 50,000 men and women examined how gender, age, marital status, body fat level, body satisfaction, and investment in one's appearance were associated with interest in cosmetic surgery. These findings may be useful to researchers, plastic surgeons, and

others seeking to understand the growing interest in cosmetic surgery.

## PERSONAL CHARACTERISTICS AS PREDICTORS OF INTEREST IN COSMETIC SURGERY

One's physical attractiveness affects the way a person is perceived and treated, by others. Women experience considerable pressure to look young and attractive. One potential consequence is that women are much more likely than men to express interest in and receive cosmetic surgery, particularly procedures that restore the appearance of youth, such as liposuction, face lifts, and eyelid surgery.<sup>1,2</sup> Furthermore, older women may experience added pressure to obtain appearance-altering surgery because they feel they are competing with younger women for the attentions of their current or potential romantic partners. An addi-

*From the University of California, Los Angeles, and California State University.*

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mass index and general interest in cosmetic surgery.<sup>3</sup> One possibility is that body mass index is tied to interest in specific surgical procedures such as liposuction, particularly among individuals dissatisfied with their weight.

### INTEREST IN COSMETIC SURGERY AND BODY IMAGE

Studies with nonpatient samples have documented only weak and inconsistent associations between global body image satisfaction and a desire for cosmetic procedures.<sup>3,4</sup> Research finds that cosmetic surgery patients generally do not differ from nonpatients in body satisfaction, except that they are more likely to express strong dissatisfaction with the specific body region targeted for surgery.<sup>5-7</sup> (See Further Notes, number 1) In contrast to most cosmetic procedures, however, interest in liposuction may be related to global body dissatisfaction rather than to site-specific dissatisfaction because body fat is distributed across several regions of the body (e.g., stomach, hips, thighs, arms).

A second aspect of body image related to interest in cosmetic surgery is appearance orientation or appearance investment, a measure of how much importance individuals place on their looks and how much they pay attention to their appearance.<sup>8</sup> It seems reasonable that individuals who invest more time and effort in monitoring their physical appearance would report greater interest in cosmetic procedures.<sup>4</sup>

### PATIENTS AND METHODS

A 27-item survey was posted on the MSNBC.com and ELLE.com Web sites in February of 2003. Participants were visitors who volunteered for a sex and body image survey. To avoid repeat participation, a computer program prevented multiple responses from any given computer.

#### Participants

For the current study, we conducted analyses on the heterosexual men ( $n = 25,714$ ) and women ( $n = 26,963$ ) in the sample aged 18 to 65 years. Most respondents (98 percent) were from the MSNBC.com Web site and only 2 percent were from the ELLE.com Web site.<sup>9</sup>

#### Age

The mean age was  $33.5 \pm 10.9$  years for women and  $36.9 \pm 11.8$  years for men. The percentages of men and women, respectively, in each age category were as follows: 18 to 25 years, 20 and 30 percent; 26 to 35 years, 29 and 32 percent; 36 to

45 years, 24 and 22 percent; 46 to 55 years, 18 and 14 percent; and 56 to 65 years, 8 and 3 percent.

#### Body Mass Index

The mean body mass index score, an estimation of level of body fat, was  $26.6 \pm 4.1$  for the men and  $24.2 \pm 4.8$  for the women, which is roughly comparable to national data.<sup>10</sup> We used the National Health and Nutrition Examination Survey guidelines for interpreting body mass index scores, where underweight is 14.5 to 18.49; healthy weight is 18.5 to 24.99; overweight is 25 to 29.99; and obese is 30 to 40.5.<sup>11</sup> The categories were further subdivided to examine finer distinctions among body mass index categories that may better relate to body dissatisfaction (e.g., lower underweight, 14.5 to 16.49; upper underweight, 16.5 to 18.49; lower healthy, 18.5 to 21.74).

#### Measures

##### Interest in Cosmetic Procedures

To assess interest in cosmetic procedures, subjects were asked, "If you could afford it, would you ever consider getting cosmetic surgery or liposuction to improve your looks or body?" Response options were as follows: cosmetic only ("Yes, I'd consider cosmetic surgery"), liposuction only ("Yes, I'd consider liposuction"), both ("Yes, I'd consider both cosmetic surgery and liposuction"), maybe ("Maybe, ask me again in a few years"), or not interested ("No"). For some analyses, individuals who selected the liposuction only or the both liposuction and cosmetic surgery options were combined into one category to examine correlates of interest in liposuction.

**Body Image: Self-Rated Attractiveness** To assess satisfaction with their body image, subjects were asked, "How do you feel about your body?" Response options were "I have a great body" (4), "I have a good body" (3), "My body is just okay" (2), and "I find my body unattractive" (1), with higher numbers indicating better body image. In a separate sample of 153 college men and 313 college women, this one-item measure was strongly correlated with the widely-used seven-item Appearance Evaluation Scale for both men ( $r = 0.75$ ,  $p < 0.001$ ) and women ( $r = 0.75$ ,  $p < 0.001$ ), providing confidence in this item as a measure of body image.<sup>9</sup>

**Body Image: Comfort in a Swimsuit** To assess comfort while wearing a swimsuit, subjects were asked, "How do you think you look in a swimsuit?" Response options were "Good; I'm proud/not at all embarrassed to be seen in a swimsuit" (3), "Okay; I do not flaunt it but my self-

consciousness doesn't keep me from wearing a swimsuit" (2), and "So uncomfortable that I avoid wearing one in public" (1). In a separate college sample, this one-item measure was significantly correlated with the Appearance Evaluation Scale ( $r = 0.62, p < 0.001$  for men and  $r = 0.58, p < 0.001$  for women), providing confidence in this item as a measure of body image.<sup>9</sup>

**Satisfaction with Weight**

To assess satisfaction with weight, subjects were asked, "Are you self-conscious about your weight?" Response options were 'Yes, I'm too thin,' 'Yes, I'm too heavy,' and "No."

**Face Satisfaction**

To assess satisfaction with their face, subjects were asked, "How do you feel about your face?" Response options were "My face is very attractive" (4), "My face is nice/pleasant" (3), "My face is plain" (2), and "My face is unattractive" (1).

**Appearance Investment: Mirror Checking**

To assess mirror checking, subjects were asked, "Be honest: approximately how many times per day do you check yourself out in a mirror?" Response options were "never," "one to three times," "four to seven times," and "eight or more times." This item assessed the degree to which participants were oriented toward and monitored their appearance.

**Statistical Analysis**

Because our large sample allowed minuscule effects to reach statistical significance, we established  $p < 0.001$  as our criterion for significance, and we report effect sizes (Cohen's *d*) where appropriate. By convention, *d* values of 0.2, 0.5, and 0.8 correspond roughly to small, medium, and large effects.<sup>12</sup> Chi-square tests were used to assess gender differences in interest in cosmetic surgery

and differences between the youngest age group of women and the oldest age group. When conducting the chi-square test, an interest in cosmetic surgery (collapsed) variable was created by dichotomizing the interest variable into a not interested (no) and interested (maybe; liposuction; cosmetic surgery; both) category to simplify the presentation of results.

To test for differences in body satisfaction (self-rated attractiveness; comfort in a swimsuit; face satisfaction) as a function of interest in cosmetic surgery, planned comparisons were conducted to compare each level of interest in cosmetic surgery variable (no; maybe; cosmetic surgery; liposuction; both). These comparisons were conducted within the context of a one-way analysis of variance performed separately for men and women. To control for possible differences in body mass among the groups, these analyses were also conducted with body mass index as a covariate. Finally, to test whether mirror checking was associated with interest in cosmetic surgery (collapsed), a Goodman and Kruskal  $\gamma$  test was conducted.<sup>13</sup>

**RESULTS**

**Gender Differences in Interest in Cosmetic Surgery and Liposuction**

Table 1 lists findings concerning women's and men's interest in cosmetic surgery and liposuction. Nearly half the women (48 percent) were interested in one or more cosmetic procedures, and a sizeable minority of women (23 percent) indicated possible interest (maybe). Approximately one-fifth of men (23 percent) indicated interest in cosmetic procedures, and an additional 17 percent of men reported possible interest (maybe). Individuals who indicated any interest

**Table 1. Percentage of Women and Men Interested in Cosmetic Surgery in Five Age Groups**

	Not Interested	Maybe	Cosmetic Only	Liposuction Only	Both
<b>Women</b>					
18-25 yr	34%	27%	11%	15%	13%
26-35 yr	27%	25%	14%	15%	19%
36-45 yr	24%	21%	18%	12%	25%
46-55 yr	26%	17%	21%	9%	27%
56-65 yr	29%	14%	25%	7%	25%
Overall	29%	23%	15%	13%	20%
Total no.	7641	6273	4144	3509	5396
<b>Men</b>					
18-25 yr	65%	18%	7%	6%	4%
26-35 yr	59%	18%	8%	9%	6%
36-45 yr	55%	18%	10%	9%	8%
46-55 yr	58%	16%	10%	8%	8%
56-65 yr	62%	13%	11%	7%	7%
Overall	60%	17%	9%	8%	6%
Total no.	15,175	4462	2300	2119	1658

(maybe, yes, cosmetic, yes, liposuction, or yes, both) were combined into one category for each sex. As predicted, women were much more likely than men to express an interest in cosmetic surgery (collapsed) [chi-square test ( $df = 1, n = 52,677$ ) = 5044.34;  $p < 0.001$ ].

**Interest in Cosmetic Surgery among Men and Women across the Lifespan**

Contrary to our prediction that the percentage of women desiring cosmetic surgery would increase with age, similar percentages of women reported some interest in cosmetic surgery (collapsed) across age groups. However, the percentage of women indicating maybe was 27 percent in the youngest age group and 14 percent in the oldest age group [chi-square test ( $df = 1, n = 8892$ ) = 75.51;  $p < 0.001$ ], indicating greater certainty of interest among older women. In contrast, for men, whose attractiveness may be less tied to the appearance of youth, interest in cosmetic surgery was not associated with age (Table 1).

**Interest in Cosmetic Surgery as a Function of Body Mass Index and Satisfaction with Weight**

In our sample, the level of interest in liposuction only was fairly low, averaging 13 percent among women and 8 percent among men (Table 1). An additional 20 percent of women and 6 percent of men indicated interest in liposuction combined with cosmetic surgery. We predicted

that body mass index would not be associated with a general interest in cosmetic surgery but would be associated with an interest in liposuction. In the analyses described below, individuals expressing an interest in liposuction only were combined with individuals expressing interest in both cosmetic surgery and liposuction. These individuals were then compared with those expressing an interest only in cosmetic surgery.

**Women**

Figure 1 presents the association of body mass index to interest in liposuction for women. As predicted, body mass index was strongly associated with an interest in liposuction. Interest in liposuction increased steadily from 22 percent among women with body mass index scores of 20 (slender) to 53 percent among women with body mass index scores of 40 (very obese). Figure 2 shows that across the weight span, women who felt they were too heavy were more likely to express an interest in liposuction than were women who were satisfied with their weight. Consistent with the idea that some underweight women may have an exaggerated fear of being fat, many underweight women who rated themselves as too heavy expressed an interest in liposuction.

**Men**

As shown in Figure 1 and as predicted, men's body mass index scores were associated with a desire for liposuction (those who chose liposuction only or both liposuction and cosmetic sur-

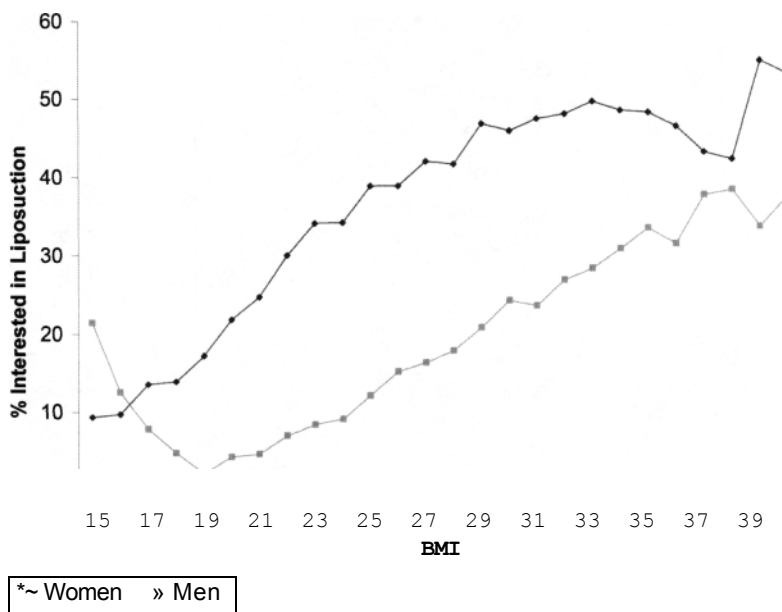
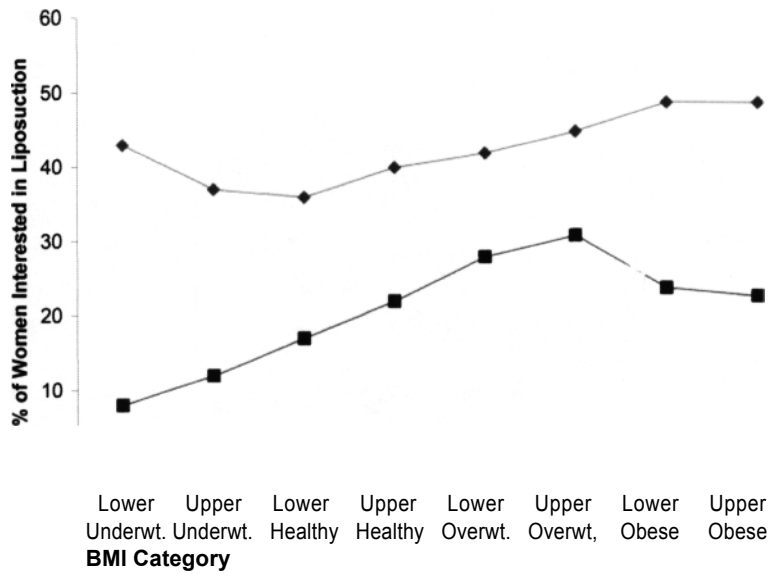
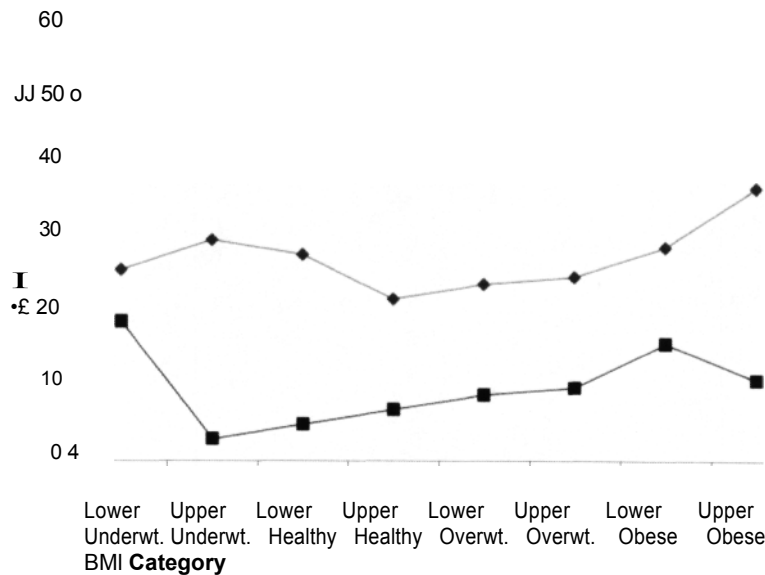


Fig. 1. Men's and women's interest in liposuction as a function of body mass index (BMI) scores. The percentage of men and women interested in liposuction generally increased as body mass index increased.



Too Heavy ->- Satisfied  
 Fig. 2. Women's interest in liposuction as a function of satisfaction with weight and body mass index (BMI) category. Across the weight span, women who were not satisfied with their weight were more likely to be interested in liposuction than women who were satisfied.



Too Heavy -- Satisfied  
 Fig. 3. Men's interest in liposuction as a function of satisfaction with weight and body mass index (BMI) category. Across the weight span, men who were not satisfied with their weight were more likely to be interested in liposuction than men who were satisfied.

satisfied with their weight were less likely to express an interest in liposuction than were men who felt they were too heavy (Fig. 3) (see Further Notes, number 2).

**Interest in Cosmetic Surgery and Body Image Satisfaction**

**Women**

Figure 4 presents women's mean scores on two measures of body satisfaction (self-rated attractiveness and comfort in a swimsuit) and the measure of face satisfaction, based on women's degree of interest in cosmetic surgery and liposuction. As predicted, planned comparisons revealed no difference between women interested versus not interested in cosmetic surgery only on measures of self-rated attractiveness, comfort in a swimsuit, or satisfaction with one's face ( $p > 0.001$ ). Also as predicted, planned comparisons revealed that women interested in liposuction and those interested in both liposuction and cosmetic surgery reported poorer self-rated attractiveness and less comfort in a swimsuit than individuals not interested ( $p < 0.001$ ). The magnitude of these differences was moderate to large, as shown by the effect sizes presented in Table 2. This pattern of results occurred even when body mass index was entered

as a covariate in the analysis of variances described above.

**Men**

Figure 5 presents men's mean scores on body image measures, based on their degree of interest in cosmetic surgery and liposuction. As predicted, men interested in cosmetic surgery only did not report poorer body image satisfaction than men not interested in cosmetic surgery. Men interested in cosmetic surgery reported significantly less face satisfaction ( $p < 0.001$ ), although the effect size was very small ( $d = 0.11$ ). As predicted, planned comparisons revealed that men interested in liposuction or both liposuction and cosmetic surgery reported poorer self-rated attractiveness and less comfort in a swimsuit than those not interested ( $p < 0.001$  for all), and these differences were moderate to large in size (Table 2). Similar to the pattern of results found with women, this effect occurred even when body mass index was entered as a covariate in analysis of variance (see Further Notes, number 3).

**Interest in Cosmetic Surgery and Appearance Investment**

We predicted that individuals scoring higher in mirror checking would report more interest in cosmetic procedures. To test this prediction, we

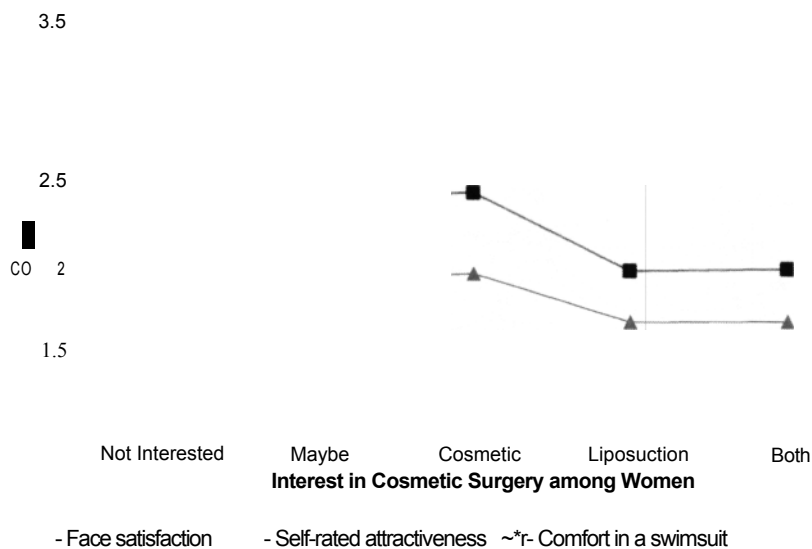


Fig. 4. Mean satisfaction scores for face, self-rated attractiveness, and comfort in a swimsuit among women with varying levels of interest in cosmetic surgery. Women interested in cosmetic surgery only and women not interested in any procedure reported similar levels of body image satisfaction. Women interested in liposuction or both cosmetic surgery and liposuction, however, reported poorer body image than other women.

**Table 2. Effect Sizes for Planned Comparisons between Individuals Not Interested versus Individuals Interested in Cosmetic Procedures on Two Measures of Body Image\***

Planned comparisons of individuals not interested versus individuals:	Self-Rated Attractiveness		Comfort in a Swimsuit	
	Women	Men	Women	Men
Interested in cosmetic procedures only	-0.03	-0.16f	-0.05	-0.10f
Interested in liposuction only	0.57f	0.61f	0.45f	0.59f
Interested in both	0.54f	0.41f	0.43f	0.44f

\*Effect sizes (*d*) for comparisons of mean body image scores between individuals not interested in cosmetic procedures and those who are interested. A positive effect size indicates that the not-interested group had better body image. A negative effect size indicates that the not-interested group had worse body image. •{•Comparisons were significant at the  $p < 0.001$  level.

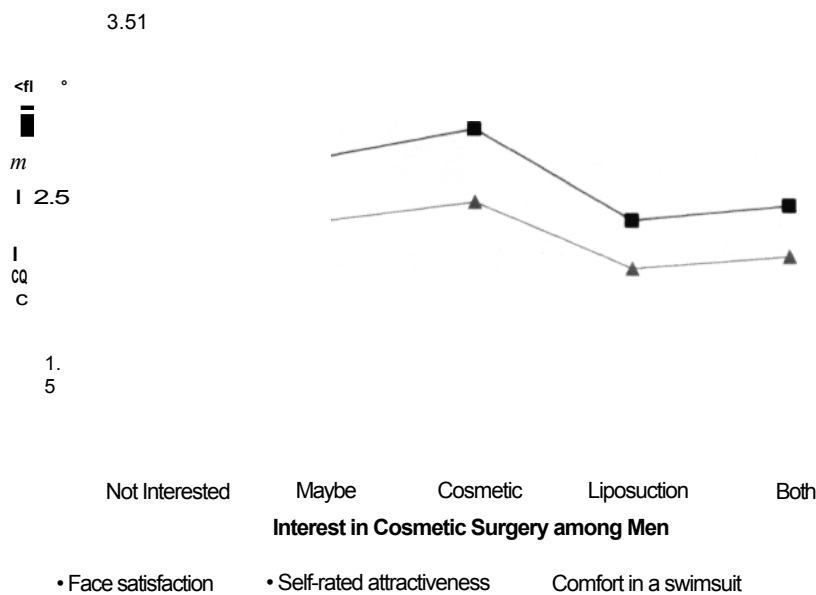


Fig. 5. Mean satisfaction scores for face, self-rated attractiveness, and comfort in a swimsuit among men with varying levels of interest in cosmetic surgery. Men interested in cosmetic surgery only reported better body image than men who were not interested in cosmetic surgery. Men interested in liposuction or both cosmetic surgery and liposuction, however, reported poorer body image than other men.

compared interest in cosmetic surgery (collapsed) among individuals who looked in the mirror none, one to three, four to seven, or more than eight times per day. As shown in Table 3, looking in the mirror more often was associated with a greater likelihood of being interested in cosmetic surgery for both women and men. These results indicate that individuals who are more oriented toward maintaining their appearance are more likely to express interest in cosmetic procedures.

**DISCUSSION**

This study, based on a large sample of adults aged 18 to 65, provides evidence that interest in cosmetic surgery is widespread. Consistent with

the idea that women are under greater pressure than men to attain current ideals of beauty and thinness, more women than men expressed an interest in cosmetic procedures and liposuction. Nonetheless, a substantial minority of men also expressed at least some interest in these body-changing procedures. Age was related only to the percentage of women shifting from maybe interested to interested in cosmetic surgery.

Although Henderson-King and Henderson-King found no association of body mass index to general interest in cosmetic surgery, we found that heavier individuals were more interested in liposuction than other individuals, especially among those who were not satisfied with their weight. This

**Table 3. Association of Mirror Checking to Interest in Cosmetic Procedures among Women and Men\***

Interest in Cosmetic Procedures	Frequency of Looking at Self in Mirror per Day				r	p
	0	1-3	4-7	8+		
Women	63%	68%	73%	77%	0.15	0.001
Men	32%	40%	48%	53%	0.18	0.001

\*Individuals who looked in the mirror more often were more likely to be interested in cosmetic procedures (individuals who indicated they were maybe interested in cosmetic procedures or interested in cosmetic surgery and/or liposuction). The  $\chi^2$  statistic can be interpreted as showing that this measure of mirror checking explained 15 percent of the variance in interest in cosmetic procedures for women and 18 percent of the variance for men.

may reflect a widely held belief among the general public that liposuction is a form of weight control rather than a body contouring procedure. It is important to note, however, that some very slender individuals expressed an interest in liposuction, suggesting perhaps an unhealthy preoccupation with thinness by some.

Our findings provide further evidence that individuals interested in cosmetic surgery do not consistently report less satisfaction with their body or face than individuals not interested in surgery. Interest in liposuction was an exception to this pattern, perhaps because "excess" body fat is distributed across many body regions. In addition, Americans may experience greater pressure to be slender than to have ideal noses, breasts, and so forth, which could explain why individuals interested in liposuction reported the worst body image.

Finally, individuals who frequently monitored their appearance were more likely to report interest in cosmetic procedures than individuals who paid less attention to their looks. This suggests that a strong investment in one's appearance may motivate individuals to consider body modification techniques, including cosmetic surgery.<sup>3</sup>

#### limitations

To increase participation rates, the survey was necessarily short and relied on single-item measures of key variables, although these measures correlated highly with existing validated measures. Although large, this sample was not nationally representative and was limited to individuals who visit the Internet. The proxy for body fat level, body mass index, is an imperfect index because it can be influenced by factors besides body fat, such as muscularity. On the whole, however, body mass index is highly correlated with other measures of body fat level.<sup>14,15</sup>

#### Future Research

First, although women typically outnumber men by an 8:1 ratio among actual cosmetic surgery patients, women in this study outnumbered men only 2:1 in their interest in cosmetic surgery.<sup>1</sup> Future research should identify factors inhibiting men from pursuing cosmetic surgery. Second, we found that body image and body mass index were associated with interest in liposuction but were not associated with general interest in cosmetic surgery. Consequently, it may be useful to revise some existing measures (e.g., Henderson-King and Henderson-King) so that they assess both interest in specific procedures and general interest in cosmetic surgery. Finally, our findings suggest that interest in cosmetic surgery should be assessed when comparing cosmetic surgery patients to control groups of non-cosmetic surgery patients, many of whom may actually also be interested in surgery.

#### FURTHER NOTES

1. Despite the general similarity of cosmetic surgery patients and controls on global body image satisfaction, there is a subset of cosmetic surgery patients who suffer from body dysmorphic disorder, which is typified by pathologic concerns with their appearance or specific body parts. Estimates of body dysmorphic disorder prevalence in the general population range from 0.7 to 5.3 percent, whereas estimates of body dysmorphic disorder prevalence among cosmetic surgery patients range from 6 to 15 percent.<sup>10,16</sup>

2. Readers may also be interested in the association of relationship status to interest in cosmetic surgery. Participants indicated whether they were married, dating, cohabiting, or single. Men's interest in cosmetic procedures differed little based on relationship status. The percentage of single women in each age group expressing no interest in cosmetic surgery differed by less than 10 percent from their married, cohabiting, and dating counterparts. The exception was that among women aged 56 to 65, single individuals reported less interest in cosmetic procedures than did dating or cohabiting women and levels of interest similar to those of married women.

3. Although we did not make predictions regarding the association of interest in liposuction to face satisfaction, we report the results here for interested readers. Face satisfaction did not differ between those not interested in cosmetic surgery and those interested in liposuction among either women or men ( $p > 0.001$ ). Less face satisfaction



was reported among individuals interested in both cosmetic surgery and liposuction ( $p < 0.001$ ), although the effect sizes were small for both women ( $d = 0.11$ ) and men ( $d = 0.16$ ).

**David A. Frederick, M.A.**

Department of Psychology  
1285 Franz Hall, 3rd Floor Mailroom  
University of California, Los Angeles  
Los Angeles, Calif. 90095-1563  
enderfliesl@aol.com.

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#### DISCLOSURES

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