

Looking good: factors affecting the likelihood of having cosmetic surgery

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Abstract The present study examined various factors associated with the likelihood of having cosmetic surgery in a community sample of Austrian participants. One-hundred and sixty-eight women and 151 men completed a questionnaire measuring how likely they were to consider common cosmetic procedures. The results showed that women were more likely than men to consider most cosmetic procedures. Path analysis revealed that personal experience of having had cosmetic surgery was a significant predictor of future likelihood, while media exposure (viewing advertisements or television programs, or reading articles about cosmetic surgery) mediated the influence of vicarious experience and sex. These results are discussed in relation to previous work examining the factors associated with the likelihood of having cosmetic surgery.

Keywords Cosmetic surgery · Self-improvement · Sex differences · Path analysis

The past decade witnessed an explosion in the number of cosmetic surgery procedures taking place in the West [3, 10, 13]. Although this increase has been most evident in the United States (cf. [15]) where the American Society of Plastic Surgeons reported a 288% increase in the number of procedures between 1997 and 2002 [1], data from European nations also evidence similar increases. In Britain, for instance, the British Association of Plastic Surgeons recorded 22,041 procedures carried out by its members in 2005 alone, an almost 35% increase from the previous year.

On a global scale, the possible reasons for this increasing demand include higher disposable incomes, advances in cosmetic surgery, loss of stigma, and the way in which cosmetic surgery is portrayed in the mass media and entertainment industries [25]. In the first instance, higher disposable incomes and competitive pricing from cosmetic surgery companies have meant that such surgery is now a realistic option for many people (e.g., [9, 12]). In addition, advances in medical aspects of cosmetic surgery have resulted in better safety records, minimally invasive equipment, and faster recovery times. All of this has led to lower anxiety among patients considering elective cosmetic surgery.

Finally, the surge of television programs and articles about, and advertisements for, cosmetic surgery has undoubtedly led to greater public awareness of cosmetic surgery [33]. For example, Sarwer et al. [25] have noted an increase in media fascination with, and reporting of, celebrities who have had elective cosmetic surgery (see also [8]). A less direct effect of the media comes from the propagation of ideal beauty standards, which are often not obtainable by natural means (e.g., a slim yet full-breasted

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figure for women; [17]) and which some individuals attempt to reach through cosmetic procedures (cf. [18, 24]).

All of this, Sarwer et al. [25] suggest, has resulted in the changing perceptions of cosmetic surgery. Where cosmetic procedures were once associated (stereotypically) with older, Caucasian women (cf. [16]), it is now being considered by women—and increasingly, by men—of all ages. While Sarwer et al. [25] suggest that this change in perceptions can be accounted for primarily by increased media attention, it is also the case that many more people now personally know someone who has had cosmetic surgery, leading to a breakdown of previously held stereotypes and an increase in the number of people considering elective cosmetic surgery [11].

Within the psychological literature on cosmetic surgery, the focus until recently has been almost squarely on the reasons for seeking cosmetic surgery and possible psychological consequences of such surgery (e.g., [7, 21, 27]). This literature stems from cosmetic surgeons' need to assess the psychological suitability of their patients for various procedures [26]. In contrast, research on the factors influencing the future likelihood of having cosmetic surgery is sparse, and the available literature is typically focused on the body image of clinical or nonrepresentative samples of women considering augmentative surgery (e.g., [29, 34]. It is important to overcome this dearth in the literature because it appears that a large proportion of women and men have an interest in cosmetic surgery (see [14, 23]).

Only two previous studies have investigated the factors affecting the likelihood of considering cosmetic surgery [4, 11]. In the study by Delinsky [11], it was found that among a sample of female undergraduates, greater vicarious experience among friends and family who have had cosmetic surgery predicted greater likelihood of having cosmetic surgery in the future, most likely because it increased the amount of information that prospective patients had and because it broke down previously held stereotypes. Consistent with these suggestions, Delinsky [11] also found that media exposure significantly predicted the likelihood of having cosmetic surgery.

More recently, Brown et al. [4] reported that in a sample of British women and men, women reported a greater likelihood of willingness to undergo cosmetic surgery than men, with older men the least likely to report such willingness. The sex bias in the willingness to undergo cosmetic surgery reflected both contemporary trends in Britain (where women were more likely to have had cosmetic surgery than men) and the greater sociocultural pressure on women than men to attain ideals of physical and sexual attractiveness (e.g., [6, 19, 30, 35]).

Brown et al. [4] also reported that lower self-ratings of physical attractiveness predicted higher likelihood of having cosmetic surgery, which supports the notion that

failure to attain societal ideals of attractiveness leads to greater body dissatisfaction and possibly to the consideration of cosmetic surgery to improve appearances [11]. Finally, Brown et al. [4] found that vicarious experience increased the likelihood of having cosmetic surgery for both men and women, although media exposure did not. The authors suggested that the latter discrepancy with the findings of Delinsky [11] could have resulted from cosmetic surgery messages becoming saturated within media sources and, therefore, no longer having the persuading effect they once did.

Both studies, however, were constrained by different limitations: Delinsky's [11] study because of its reliance on female undergraduates, and the study of Brown et al. [4] because of the lack of sophistication in its analytical design. While sufficient for its purposes, the type of data reported by Brown et al. [4] could be subjected to path analysis, as reported by Bryne [5], to more effectively elucidate the factors that predict the likelihood of having cosmetic surgery. The present study, therefore, sought to overcome both limitations by including a representative community sample and greater sophistication in the methods of analysis. In addition, we collected data among an Austrian community population, thus supplementing data from the United States [11] and Britain [4]. Although verified rates of cosmetic surgery are currently lacking for Austria, it has been suggested that 40,000 procedures are conducted annually in Austria and that there is a 10% to 15% rise every year [22].

Based on the above review, we predicted that women would report a greater likelihood of willingness to undergo cosmetic surgery than men and that media exposure and personal experience of cosmetic surgery would be significant predictors of the likelihood of willingness to have surgery. The final section of this study, namely, the path analysis of the different variables, was exploratory and hence no explicit hypotheses were formulated.

Materials and methods

Participants

The participants of this study were a community sample of 168 women and 151 men (age $M=31.09$ years, $SD=12.64$). Data collection took place in Vienna and its environs (Eastern Austria) and represents a mixed sample (various occupational and living backgrounds) of volunteers from the general population. Female participants had a mean body mass index (BMI) of 22.20 kg/m^2 ($SD=3.76$, range 15.37–35.50), whereas men had a mean BMI of 23.80 kg/m^2 ($SD=3.31$, range 16.36–35.49). All participants were of Caucasian descent and the majority were Christians (82.8%; atheists/no religion=15.9%; others=1.3%). In

terms of marital status, 25.8% were single, 47.7% were in a relationship, 23.8% were married, and 2.7% had some other status. Finally, 25.8% of the participants had been educated to a secondary level, 49.7% to an undergraduate level, and 24.5% to a postgraduate level.

Measures

Likelihood of having cosmetic surgery scale Participants were asked to imagine they had been awarded a prize of unlimited funds for any cosmetic surgery procedure. Under the assumption that the prize was for a highly reputable treatment by trained experts, participants were asked how likely they were to have particular procedures done from a set list. Likelihood was reported on an 8-point scale (0=no change under any circumstance, 7=perform procedure). The list comprised 49 of the most popular cosmetic procedures, derived from lists available from reputable cosmetic surgery clinics (see [4]). Both the present study and Brown et al. [4] showed that the scale has excellent internal consistency ($\alpha=.95$) [31].

Cosmetic surgery experiences Exposure to cosmetic surgery media messages was measured by responses to three items. Following the method of Delinsky [11], respondents were asked to rate on a 5-point scale (1=never, 5=very often) how often they had seen advertisements for, read articles, or seen television programs about cosmetic surgery. The three items were collapsed for analysis and showed good reliability ($\alpha=.79$).

Personal and vicarious experience To measure personal and vicarious experience, participants were asked (1) whether they had ever had plastic surgery (1=yes, 2=no) and (2) how many individuals they knew personally who had had elective cosmetic surgery on a 5-point scale (1=none, 2=less than two, 3=less than ten, 4=more than ten, 5=unsure).

Self-ratings of attractiveness Participants were asked to self-report their physical attractiveness on a 7-point scale

(1=very unattractive, 7=very attractive). Although single-item self-ratings of attractiveness have been criticized [32], they are nevertheless widely used in body image research and show medium to high validity.

Demographic variables Participants were asked to report their age, sex, ethnicity, highest educational qualification, marital status, height, and weight (BMI was calculated from the latter two items).

Procedure

All participants were recruited opportunistically through a snowball-sampling technique. A multitude of data collectors directly recruited participants through their personal contacts. Completion and return of the survey was done under conditions of anonymity and confidentiality. A total of 380 survey forms were disseminated, representing a response rate of 84%. Three researchers (TH, SS, MV) developed the German form of the instrument, using the parallel blind technique [2].

Results

Descriptive statistics

Table 1 shows the mean scores and standard deviations for all measures for the total sample and across sexes. Cronbach's α for the likelihood of having cosmetic surgery scale was very high, and 4.7% of the participants reported having already had cosmetic surgery with women being more likely than men. Women also showed a higher level of vicarious experience with cosmetic surgery.

Descriptive statistics and mean comparisons across sexes (unpaired *t* tests) were also performed for all likelihood of having cosmetic surgery scale items (see Table 2). For women, the highest scores were for 'teeth whitening' ($M=4.10$, $SD=2.60$), 'body hair removal' ($M=4.04$, $SD=2.83$),

Table 1 Descriptive statistics for all measures and sex comparison

	<i>M</i>	<i>SD</i>	Sex, <i>M</i> (<i>SD</i>)		<i>t</i>	Cohen <i>d</i>
			Men	Women		
CS scale $\alpha=0.95$	1.17	1.00	0.91 (0.86)	1.41 (1.06)	5.01*	0.58
BMI	22.95	3.63	23.78 (3.29)	22.21 (3.72)	0.84*	0.42
Media exposure	2.80	0.86	2.48 (0.74)	3.09 (0.87)	3.23*	0.82
Vicarious experience	1.57	0.73	1.45 (0.65)	1.68 (0.79)	6.57*	0.35
Physical attractiveness	4.87	1.07	4.96 (1.09)	4.80(1.05)	1.34	0.14
Personal experience	4.70 (% yes)	–	2.60	6.50	$\chi^2=2.69$	

$n=319$, * $p<0.05$

Table 2 Descriptive statistics and sex comparisons for the likelihood of having cosmetic surgery scale items

	Sex		<i>t</i>	Cohen <i>d</i>
	Women (<i>n</i> =168), <i>M</i> (<i>SD</i>)	Men (<i>n</i> =151), <i>M</i> (<i>SD</i>)		
Face and head				
Antiwrinkle (forehead)	1.80 (2.08)	0.99 (1.53)	3.92**	0.38
Antiwrinkle (eyes)	1.98 (2.19)	1.02 (1.56)	4.42**	0.43
Acne scarring reduction	3.15 (2.66)	2.18 (2.31)	3.47**	0.36
Eye-bag removal	2.14 (2.22)	1.41 (1.85)	3.14**	0.32
Eyelid augmentation (blepharoplasty)	1.72 (2.00)	1.03 (1.56)	3.38**	0.34
Nose reshaping (rhinoplasty)	1.80 (2.18)	1.31 (1.87)	2.12*	0.22
Micropigmentation or dermagraphics	1.72 (2.22)	0.57 (0.97)	5.86**	0.51
Brow or forehead lift	1.21(1.59)	0.76(1.15)	2.87**	0.28
Lip implants	0.58 (0.97)	0.45 (0.59)	1.38	0.13
Lip reduction	0.47 (0.79)	0.44 (0.61)	0.41	0.03
Cheek implants	0.57 (1.05)	0.40 (0.54)	1.75	0.16
Chin augmentations (mentoplasty)	0.79 (1.31)	0.58 (1.06)	1.59	0.16
Teeth whitening	4.10 (2.60)	2.88 (2.56)	4.20**	0.46
Ear pinning (otoplasty)	1.99 (2.43)	1.49 (2.12)	1.96*	0.20
Facelift (rhytidectomy)	1.30 (1.85)	0.89 (1.42)	2.19*	0.22
Facial hair removal	3.40 (2.78)	1.36 (1.89)	7.55**	0.73
Hair implants	1.65 (2.14)	1.48 (1.99)	0.73	0.07
Scalp surgery	1.21 (1.82)	1.36 (1.99)	0.70	0.08
Body (women and men)				
Texture and appearance of skin (e.g., minimize scars or sun damage)	3.14 (2.53)	2.09 (2.30)	3.85**	0.41
Body hair removal	4.04 (2.83)	2.21 (2.53)	6.05**	0.64
Skin color lightening	0.52 (0.75)	0.52 (0.68)	0.09	0.01
Skin color darkening	1.13 (1.68)	0.86 (1.38)	1.55	0.16
Overall weight loss (e.g., through liposuction or fat removal)	2.38 (2.52)	1.34 (1.83)	4.15**	0.41
Overall weight gain (e.g., reshaping of body with fatty deposits)	0.69 (1.07)	0.68 (1.12)	0.12	0.01
Overall height increase	0.68 (1.44)	0.64 (1.28)	0.27	0.02
Overall height decrease	0.49 (1.01)	0.42 (0.63)	0.73	0.06
Neck augmentation	0.47 (0.89)	0.54 (0.85)	0.67	0.07
Width of shoulders increase	0.39 (0.68)	0.58 (0.94)	2.13*	0.27
Length of arms	0.43 (0.81)	0.44 (0.66)	0.10	0.01
Biceps augmentation	0.46 (0.77)	0.66 (1.03)	1.94*	0.25
Finger augmentation (e.g., length or girth)	0.54 (1.08)	0.48 (0.72)	0.49	0.05
Fingernail augmentation	1.43 (2.14)	0.82 (1.35)	3.01**	0.28
Nipple reshaping	0.70 (1.30)	0.42 (0.60)	2.40**	0.21
Navel or belly button augmentation (umbilicoplasty)	0.77 (1.43)	0.44 (0.61)	2.57**	0.23
Tummy tuck (abdominoplasty)	2.27 (2.38)	1.07 (1.64)	5.18**	0.50
Waist augmentation (e.g., with fat deposits)	1.21 (1.90)	0.56 (0.89)	3.87**	0.34
Hip augmentation (e.g., with fat deposits)	1.21 (1.89)	0.57 (0.95)	3.76**	0.33
Buttock lift or implants	1.42 (1.99)	0.66 (1.11)	4.16**	0.38
Thigh lift (thighplasty)	1.75 (2.23)	0.48 (0.60)	6.75**	0.56
Calf implant	0.55 (0.93)	0.48 (0.67)	0.83	0.07
Length of legs				
Feet augmentation (e.g., size of feet)	0.47 (0.83)	0.48 (0.73)	0.14	0.01
Toenail augmentation	1.27 (1.91)	0.74 (1.15)	2.99**	0.27
Body (women only)				
Breast enlargement	1.36 (1.97)			
Breast reduction	0.82 (1.54)			
Breast reconstruction	1.96 (2.41)			
Breast uplift	1.93 (2.31)			
Genital reshaping	0.41 (0.62)			
Vaginal tightening	0.40 (0.60)			

Table 2 (continued)

	Sex Women (<i>n</i> =168), <i>M</i> (<i>SD</i>)	Men (<i>n</i> =151), <i>M</i> (<i>SD</i>)	<i>t</i>	Cohen <i>d</i>
Body (men only)				
Breast reduction		0.48 (0.72)		
Pectoral (chest muscles) implants		0.50 (0.79)		
Genital augmentation (phalloplasty)		0.58 (1.11)		

n=319; **p*<0.05, ***p*<0.001

and ‘facial hair removal’ (*M*=3.40, *SD*=2.78). For men, the highest scores were also for ‘teeth whitening’ (*M*=2.88, *SD*=2.56) and for ‘body hair removal’ (*M*=2.21, *SD*=2.53), plus ‘acne scarring reduction’ (*M*=2.18, *SD*=2.31). Twenty-three items differentiated the 2 sexes with women reporting greater scores on 21 of these. Men’s scores were higher for ‘width of shoulders increase’ and for ‘biceps augmentation’.

Zero-order correlations

Table 3 presents the Pearson correlation coefficients for all measures. The likelihood of having cosmetic surgery scale was significantly correlated with sex (*r*=0.24, *p*<0.001), media exposure (*r*=0.31, *p*<0.001), personal experience (*r*=0.17, *p*<0.001), and vicarious experience (*r*=0.16, *p*<0.001). Interesting significant correlations were also observed between sex and media exposure (*r*=0.35, *p*<0.001), personal experience and media exposure (*r*=0.11, *p*<0.05), vicarious experience and sex (*r*=0.15, *p*<0.001), vicarious experience and media exposure (*r*=0.21, *p*<0.05), and physical attractiveness and age (*r*=−0.31, *p*<0.001).

Multiple linear regression models

A series of hierarchical multiple regression models were then performed to test whether the related variables could

significantly predict the overall likelihood of cosmetic surgery. Sex, age, and BMI were added as predictors in block 1; physical attractiveness, personal experience, and vicarious experience with cosmetic surgery were included as predictors in block 2; and media exposure was added in block 3. The results are set out in Table 4. The first model was significant and accounted for 5% of the variance. The only significant predictor was sex (β =0.25, *t*=4.56, *p*<0.001). The second model increased the explained variance by 3%, and the significant predictors were sex (β =0.21, *t*=3.79, *p*<0.001), personal experience (β =0.14, *t*=2.71, *p*<0.001), and vicarious experience (β =0.13, *t*=2.37, *p*<0.001). The third model increased the attributable variance by 4%, showing the incremental validity of media exposure (β =0.23, *t*=4.00, *p*<0.001). Sex (β =0.14, *t*=2.48, *p*<0.001) and personal experience (β =0.12, *t*=2.42, *p*<0.001) remained significant predictors, but vicarious experience was no longer significant.

Paths analysis

Path analysis [5] was then used to examine whether media exposure mediated the links from sex, personal experience, and vicarious experience to the likelihood of having cosmetic surgery. The hypothesized model revealed low parameters with a significant test for model fit [$\chi^2(5)$ =19.72, *p*<0.01], and the other indices indicating poor fit: (1)

Table 3 Bivariate correlations among all measures

	2	3	4	5	6	7	8
CS scale	0.24**	−0.02	−0.01	0.31**	0.17**	0.16**	−0.04
Sex (0=men, 1=women)		−0.05	−0.21**	0.35**	0.09	0.15**	−0.07
Age			0.42**	−0.19**	0.01	0.11*	−0.31**
BMI				−0.18**	0.03	−0.03	−0.30**
Media exposure					0.11*	0.21*	0.06
Personal experience						0.04	0.02
Vicarious experience							0.01
Physical attractiveness							

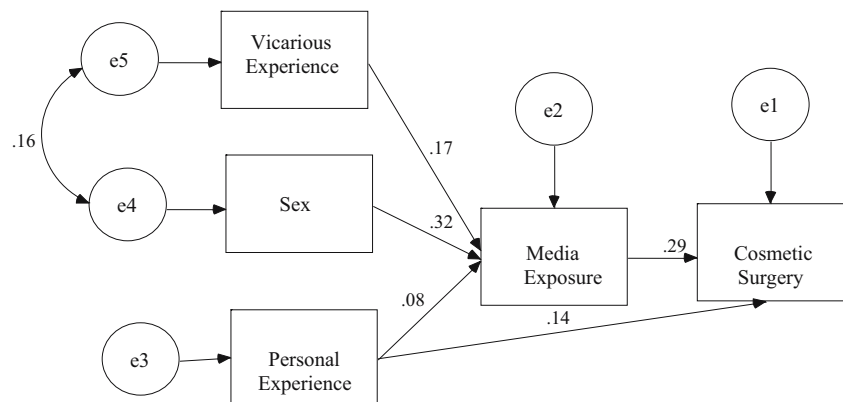
n=319, **p*<0.05, ***p*<0.001

Table 4 Regression analysis onto the likelihood of having cosmetic surgery scale

	CS general likelihood	
	β	F
Sex	0.25	4.56*
Age	-0.03	0.60
BMI	0.05	0.93
	Model $F(3, 314)=7.01^*$	
	Adjusted $R^2=0.05$	
	$R=0.25$	
Sex	0.21	3.79*
Age	-0.06	1.02
BMI	0.04	0.74
Physical attractiveness	-0.03	0.66
Personal experience	0.14	2.71*
Vicarious experience	0.13	2.37*
	Model $F(6, 311)=5.90^*$	
	Adjusted $R^2=0.08$	
	$R=0.32$	
Sex	0.14	2.48*
Age	-0.02	0.34
BMI	0.05	0.88
Physical attractiveness	-0.04	0.76
Personal experience	0.12	2.42*
Vicarious experience	0.08	1.57
Media exposure	0.23	4.00*
	Model $F(6, 311)=7.59^*$	
	Adjusted $R^2=0.12$	
	$R=0.38$	

$n=319$, * $p<0.001$

CFI=0.86 (comparison of the hypothesized model with a model in which all correlations among variables are 0; values around 0.90 indicate very good fit); (2) PGFI=0.32 (the parsimony goodness-of-fit is an indicator of power and is optimal around 0.50); and (3) RMSEA=0.09 (the root-mean-square error of approximation with values of 0.08 or 0.06 or below indicating reasonable fit for the model).

Fig. 1 Final (modified) model linking vicarious experience, sex, personal experience, media exposure, and likelihood of having cosmetic surgery

Possible areas of misfit were examined and a new path was added from personal experience to likelihood of having cosmetic surgery. Although the PGFI (0.26) remained low, possibly because of high intercorrelations among the variables, other goodness-of-fit indices were improved and supported the hypothesized, partially mediated relations: $\chi^2(4)=12.82$, $p=0.01$, CFI=0.91, RMSEA=0.08. Figure 1 shows the final model.

Discussion

The results of this study highlight a number of interesting findings and extend previous work on the likelihood of having cosmetic surgery in several ways. Primary among these was the finding that personal experience of having had cosmetic surgery was a significant predictor of future likelihood, while media exposure (viewing advertisements or television programs, or reading articles about cosmetic surgery) mediated the influence of vicarious experience and sex. In addition, the present results confirmed the hypothesis that women would be more likely than men to report willingness to undergo cosmetic surgery. These results are discussed in relation to previous work.

First, it was notable that previous experience of having had cosmetic surgery was a significant predictor of future likelihood of augmentative procedures. It seems likely that this result stems from previous experience breaking down previously held stereotypes or erroneous perceptions of cosmetic surgery. This might include the perception that cosmetic surgery is dangerous, invasive, or involved prolonged periods of recovery. However, it should be noted that the proportion of participants who reported having had cosmetic surgery in the present study was small (4.7%), making it useful for future work to examine this finding in more detail and with larger samples of participants who have had cosmetic surgery.

The present results also indicate an important role for media exposure in mediating the effects of participants' sex and vicarious experience of cosmetic surgery. While this is in contrast to the results of Brown et al. [4] who reported no effect of media exposure on the likelihood of having cosmetic surgery, it is nevertheless in line with the work of Delinsky [11] and with the conclusions of Sarwer et al. [25]. In brief, it is suggested that greater media exposure leads to greater awareness of cosmetic surgery [33], which in turn helps to break down previously held perceptions of such surgery only being utilized by certain types of individuals [25]. One possible way of extending the present findings would be to examine whether such variables as celebrity worship (e.g., [20]) further mediate the association between vicarious experience, media exposure, and likelihood of having cosmetic surgery.

Even so, it is important to consider the suggestion of Brown et al. [4] that it may not be media exposure per se that is important, but rather the internalization of messages about cosmetic surgery presented in the media. In addition, the influence of mass media in propagating unrealistic ideals of beauty that can only be attained through cosmetic procedures should also be acknowledged [18, 24]. Indeed, this suggestion was corroborated in the present study by the finding that women reported greater willingness to undergo cosmetic procedures than men, supporting previous results reported by Brown et al. [4].

This result, which appears to be fairly robust, can be traced back to the greater sociocultural pressure on women than men to attain and incorporate ideals of physical and sexual attractiveness [4]. Given that such pressures are considered 'normative' for women, it may lead women to seek cosmetic surgery to mitigate feelings of body dissatisfaction. Such an argument might be taken as evidence for pathologizing a willingness to undergo cosmetic surgery, much in the same way as the thin ideal leads in some cases to poor body image or eating disorders (cf. [11]). Nevertheless, it should also be noted that the decision to undergo cosmetic surgery is likely more complex than the decision to diet or exercise, being related as it is with vicarious and personal experience of cosmetic surgery.

The present results also showed that self-ratings of attractiveness were not significantly correlated with the likelihood of undergoing cosmetic surgery, which is in contrast to the previous findings of Brown et al. [4] and the intuitive assumption that perceiving one's self to be physically unattractive should lead to greater openness to cosmetic change. Clearly, this particular association requires further research, which would benefit from the use of more sophisticated tools (e.g., [32]) rather than the single-item measure of self-attractiveness used in the present study. Future work could also extend the present

findings by examining the association between the likelihood of having cosmetic surgery and such variables as cost and invasiveness. Indeed, it was notable that in the present study, the procedures that participants were most likely to undergo were those that were relatively noninvasive or cheap (e.g., teeth whitening). Finally, it would also be useful for future work to examine whether there are differences in the likelihood of having cosmetic surgery between individuals of different personality types (e.g., levels of sensation-seeking or perfectionism; cf. [28]).

In conclusion, the present study corroborates earlier work documenting the important roles of personal and vicarious experiences, and particularly media exposure, in influencing the likelihood of wanting to have cosmetic surgery. Although discussions concerning the ultimate negative and positive effects of having cosmetic surgery continue unabated (e.g., [25]), it seems clear that the choice to have cosmetic surgery is influenced by a host of individual and societal factors. Researchers will need to fully understand the way in which these factors combine to influence decision-making, as a focus on individual or societal factors alone will likely result in an altogether one-sided account.

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