Published in final edited form as:
Plast Reconstr Surg. 2004 April 1; 113(4): 1229–1237.

A Review of Psychosocial Outcomes for Patients Seeking Cosmetic Surgery

Roberta J. Honigman, B.Comm., B.Soc.Work., A.A.S.W., **Katharine A. Phillips, M.D.**, and **David J. Castle, M.Sc., M.D., M.R.C.Psych., F.R.A.N.Z.C.P.**
Melbourne, Australia; and Providence, R.I.

Abstract

The authors reviewed the literature on psychological and psychosocial outcomes for individuals undergoing cosmetic surgery, to address whether elective cosmetic procedures improve psychological well-being and psychosocial functioning and whether there are identifiable predictors of an unsatisfactory psychological outcome. They conducted a search of appropriate computerized databases for studies that evaluated psychological and psychosocial status both before and after elective cosmetic surgery. They identified 37 relevant studies of varying cosmetic procedures that utilized disparate methodologies. Overall, patients appeared generally satisfied with the outcome of their procedures, although some exhibited transient and some exhibited longer-lasting psychological disturbance. Factors associated with poor psychosocial outcome included being young, being male, having unrealistic expectations of the procedure, previous unsatisfactory cosmetic surgery, minimal deformity, motivation based on relationship issues, and a history of depression, anxiety, or personality disorder. Body dysmorphic disorder was also recognized by some studies as a predictor of poor outcome, a finding reinforced by reference to the psychiatric literature. The authors conclude that although most people appear satisfied with the outcome of cosmetic surgical procedures, some are not, and attempts should be made to screen for such individuals in cosmetic surgery settings.

Plastic and cosmetic surgeons regularly report high satisfaction rates among their patients, and they have provided clinical and empirical evidence supporting positive outcomes in terms of patient satisfaction with cosmetic surgery procedures.[1–4] Further, it has been assumed that a positive change in physical appearance for the patient will lead to an improvement in their psychological well-being, including their self-confidence and self-esteem.[5–8] However, patient satisfaction with procedures and changes in psychosocial status are two different, although related, issues. Patients can be satisfied with their appearance change following the operation but may experience no change in psychological characteristics. Scant literature on the topic of whether successful cosmetic intervention actually results in measurable and meaningful improvement in psychosocial functioning and psychological well-being in the long term[2,9,10] suggests this issue should be studied further.

Most people seeking cosmetic surgery procedures appear psychologically healthy; however, some are not, and for these individuals cosmetic procedures may have a negative outcome, creating problems for both patient and surgeon.[1,11–13] Problems encountered by the patient can lead to requests for repeated procedures, depression and adjustment problems, social isolation, familial dysfunction, self-destructive behaviors, and anger toward the surgeon and his or her staff.[14] Problems encountered by the surgeon can include distress to themselves and

David J. Castle, M.Sc., M.D., Mental Health Research Institute, University of Melbourne, 155 Oak Street, Parkville, Victoria 3052, Australia, dcastle@mhri.edu.au.

From the School of Social Work and the Mental Health Research Institute, University of Melbourne; and Brown University School of Medicine and Butler Hospital.

their colleagues, harassment by patients for further surgical procedures, and complaints and legal action.[7] The challenge that surgeons face is how to identify, before surgical intervention, those patients who may have a poor outcome in terms of psychological adjustment and psychosocial functioning despite a technically satisfactory result.

This article reviews the literature on psychological and psychosocial outcomes for individuals undergoing cosmetic surgery procedures. By "psychological," we refer to the emotional state of the person; by "psychosocial," we include parameters pertaining to functioning in social and work/study domains. There have been previous reviews of this area,[1,7,15] but these have not had a specific focus on studies that incorporated preoperative and postoperative assessments. The current review includes only those studies with preoperative and postoperative measures of psychological and psychosocial functioning with a view to addressing the following: (a) whether elective cosmetic procedures improve psychological well-being and psychosocial functioning; and (b) whether there are identifiable predictors of an unsatisfactory psychological outcome. We then focus on those individuals who are dissatisfied with objectively successful cosmetic procedures. Finally, we present some screening questions that might aid cosmetic surgeons in identifying individuals who appear at high risk for a poor psychological outcome after elective cosmetic procedures. We have previously presented a selective synopsis of this work.[10]

METHODOLOGY

We searched the MEDLINE, PsycLIT, PubMed, PsycINFO, Sociological Abstracts, Social Work Abstracts, Proquest 5000, Web of Science, and CINAHL databases using the following search terms: cosmetic surgery, plastic surgery, patient assessment, body awareness, body image, and body dysmorphic disorder. Further articles were sourced from the reference lists of articles ascertained through the search. We included studies that assessed subjective ratings of satisfaction with the cosmetic procedures as well as variables such as distress, body image, self-esteem, mood, social confidence, social interaction, and quality of life. We included only those studies that evaluated psychological and psychosocial status both before and after elective cosmetic surgery procedures, as this review focuses on change in psychological/psychosocial status with cosmetic procedures and predictors of such outcomes. We did not include studies reporting solely the patient's views of the actual surgical outcome in physical terms.

RESULTS

Study Characteristics

Our search strategy yielded 37 studies meeting the criteria indicated above; they are presented in chronological order in Table I, which is available on-line at www.plasreconsurg.org. We included data on study type, types of procedure, main psychological and psychosocial measures used, and (where available) parameters associated with a poor outcome. As can be seen, these studies were undertaken in a variety of surgical populations using various methodologies and measures. The sample sizes varied from eight to 468, and a preponderance of subjects were female. Most studies were of specific procedures (e.g., rhinoplasty, reduction mammaplasty, augmentation mammaplasty), with the remainder investigating a variety of procedures. The earliest reported studies meeting criteria for inclusion in this review are from 1960 (rhinoplasty, face lift). The earliest relevant augmentation mammaplasty study was published in 1961, and that for reduction mammaplasty was published in 1986. Most of the studies from the last decade have been of rhinoplasty patients or women undergoing mammaplasties.

Outcomes for Specific Procedures

The outcomes for specific procedures varied to some degree. Overall, mammaplasties were fairly uniformly associated with a good outcome, with a somewhat more mixed picture for facial procedures. Thus, psychological and psychosocial outcomes appear to be most consistently positive for mammaplasties. All studies of women undergoing reduction mammaplasty (six studies; total $n = 711$) described very high rates of satisfaction with the procedure (86 percent to 97 percent), with reported improvements in psychological health (including enhanced body image and diminished distress) and (where assessed) a decrease in physical symptoms associated with large breasts. For augmentation mammaplasty (eight studies, total $n = 769$) similarly high levels of overall satisfaction (78 percent to 90 percent) were found, with reports of enhanced self-esteem, social confidence, attractiveness, and satisfaction with body image.

Rhinoplasty procedures showed a somewhat more mixed picture, perhaps reflecting the individual study design. While most of the rhinoplasty studies reported high rates of satisfaction and enhanced social confidence, the study of Edgerton et al.,[16] although not exclusively a rhinoplasty study (it included face lifts and facial surgery procedures), found some post-surgical psychological disturbance in 55 percent of the 35 female and 11 male rhinoplasty subjects. Personality attributes were also identified as having an impact on outcomes in this study, with 50 percent of patients being diagnosed with a personality disorder. Knorr,[17] in a study that investigated the putative "loss of identity" syndrome after rhinoplasty, concentrated on a group ($n = 9$) with poor outcomes; subjects reported being "shocked" by their new appearance and subsequently requested further surgical procedures in an effort to regain their former appearance. In a study of personality characteristics of rhinoplasty patients, Wright and Wright[18] identified psychosis, neurosis, and narcissism as factors adversely affecting the outcomes for some patients.

For face lift, the early study of Edgerton et al.[19] ($n = 71$) reported high rates of satisfaction and "improved sense of well-being" (86 percent). However, the study was specifically of operations on the "aging face," and the mean age of the sample was 48 years; of interest is that age under 40 years was a predictor of poor outcome for this group. The later prospective study of Goin and colleagues[20] ($n = 50$; mean patient age, 56 years) found high rates of psychological disturbance postoperatively (54 percent), with transient depression in a third of patients; this study, however, did not follow patients beyond 6 months after the operation, so the longer-term outcomes are unknown.

Domains of Functioning

Several studies reported enhancement of social functioning, relationships, and general quality of life[4,18,21–26] after cosmetic surgery procedures. One study reported an increase in patients' capacity to enjoy life, substantially reduced anxiety, and feelings of being more positively treated by others,[21] while a study of patients undergoing augmentation mammaplasty[27] reported an improvement in sexual relationships.

A number of studies investigated the personality profiles of patients undergoing cosmetic procedures and found no change in personality as a result of the procedure.[18,28,29] However, Ercolani et al.,[30,31] who assessed personality change using the dimensional Maudsley Personality Inventory,[32] showed a reduction in "neuroticism" and improvement in "extraversion" scores after operation. Overall, the impact of patient personality upon cosmetic surgery has met with mixed reviews,[33] with some authors discounting its value and suggesting that the way a patient's personality affects the overall surgical experience is unclear.[7]

Predictors of Poor Outcome

Of the studies reviewed here, 14 specifically addressed factors that tended to be associated with poor psychological or psychosocial outcome. In some studies, these were simply clinical impressions, and in no study was there a rigorous statistical evaluation of predictors of poor outcome or of the amount of variance potential predictors could explain. However, there was some degree of congruence in the factors that appeared to be associated with poor outcome, including the following:

1. Demographic factors: being male (three studies[16,34,35]), younger age (exact ages not recorded; three studies[19,35,36]);
2. Psychological/psychiatric factors: history of depression or anxiety (six studies[15,20,23,37–39]), dysmorphophobia (an historical term for body dysmorphic disorder; one study[30]), personality disorder (narcissistic or borderline; three studies[18,20,33]);
3. Relationship issues: being motivated by the belief that the cosmetic surgery procedure would save a relationship, or a disagreement between partners on the necessity for the procedure (three studies[18,38,39]);
4. Unrealistic expectations regarding the outcome of the procedure (three studies[33,38,39]);
5. Previous surgical procedure with which the patient was dissatisfied (three studies[17,20,40]); and
6. Minimal deformity (one study[16]).

It should be noted that these conclusions are based on the results of individual studies and that no attempt has been made to pool results. The heterogeneity of the different studies included in this review precluded any attempt at meta-analysis.

DISCUSSION

Methodological Issues

Although most studies reviewed here suggest that the majority of people undergoing cosmetic surgery procedures have a positive outcome in psychosocial terms, methodological limitations of the studies preclude drawing firm conclusions and limit the confidence that can be placed in the findings. Some of the studies have important methodological strengths, such as large numbers of subjects[4,14,22,26,33] and clear delineation of cosmetic procedures.[14,17,18,21,34,36,41]

However, all of the studies suffer from at least some methodological shortcomings, including inter alia small sample size,[17,41,42] ascertainment bias (e.g., samples from specialist centers), high rates of refusal to participate in some studies and no accurate assessment of those who were eligible and were approached but chose not to participate,[17,19,43] a lack of reliable and valid measures,[16,17,27,40,43] and short duration of follow-up.[21,28] Another notable difficulty is that the psychological and psychosocial domains of functioning investigated were often not explicitly stated or clearly defined, making replication of studies impossible. For example, it is unclear what is meant by terms such as “self-image” and “self confidence,” which are broad, vague, and lack precise meaning. In earlier studies especially, patients were often interviewed by psychoanalytically trained psychiatrists whose theoretical biases may have contributed to the high levels of psychopathology.[15,44] Clinical reports of psychopathology must be viewed with caution because uncertainties as to details of interview schedules and a lack of information regarding diagnostic criteria make it difficult to know whether patients were truly psychiatrically unwell.[4] Interview studies mostly did not specify what the patients

were actually asked, making it difficult to interpret the results or compare the results with those from other studies or other populations.

Results are sometimes confusing and contradictory; for example, some studies using clinical interviews reported favorable psychological outcomes,[19,21,37] while others observed negative consequences[36,43] and others noted no change or mixed results.[29,45] Inconsistencies in findings are also evident in more recent studies using standardized tests. Goin and Rees[14] showed favorable psychological change, while two other studies observed no change.[18,42] Other reviews have raised issues of some studies not using validated rating scales or using measures that may not have been designed to tap into the psychopathology specific to disturbances associated with appearance concerns.[15]

Only 11 studies included controls, with the choice of controls varying among studies (e.g., age matched only,[19] surgical outpatients,[23] noncosmetic surgical patients,[18] dental patients,[21] and hand surgery patients[22]). An example of a study that used a more suitable control group is that of Hollyman et al.,[42] who in their survey of reduction mammaplasty patients recruited as controls women with small breasts who did not desire enhancement. Shipley and colleagues,[28] in their retrospective study of women undergoing breast augmentation, used two comparison groups, one of women with small breasts and one of women with average-sized breasts, who were not seeking surgical augmentation. Some studies merely resorted to general population responses on the measures used.[24,39,46] Only Robin et al.[37] explicitly matched their rhinoplasty patients (on age and sex) with noncosmetic surgical patients; they also retrospectively matched the groups for social environment, family structure, mental status, family health history, education, work record, and financial status.

We are aware of no studies that used a randomized controlled design to explore change in psychological functioning and psychological status after cosmetic surgery procedures, leaving open the question of whether the recorded outcomes of change and improvement were due to the procedure itself, to nonspecific elements of the intervention, or to other factors that were not controlled for by the study design (e.g., patient characteristics including motivation or sex). Of course, such a study would be very difficult if not impossible to complete, as patients would be unlikely to accept assignment to a no “treatment control” group.

There is also the problem of how representative study samples are and therefore whether study results can be generalized to the larger population of individuals who seek and receive cosmetic enhancement. For example, some studies assessed exclusively women undergoing breast reduction,[24–26,40,42] and it is not necessarily the case (indeed it is arguably highly unlikely) that results from this group would pertain to men or to women undergoing other procedures. Furthermore, studies tend to report aggregated results rather than individual outcomes. While this is a methodological advance over small series or case reports, it does not make clear whether outcomes for certain individuals differ from those of the group as a whole. There is also the inevitable problem of investigators choosing to study and report only selected outcomes.

Finally, the extent of bias in sample selection was not adequately reported in any of the reviewed studies. For example, it is probable that many individuals who are dissatisfied with the surgical outcome will decline to participate in a follow-up assessment, thus biasing the results toward good outcomes and improvement in psychological status.

Dissatisfaction with Objectively Successful Cosmetic Procedures and the Role of Body Dysmorphic Disorder

Despite these methodological concerns, the studies reviewed here suggest that most people are satisfied with cosmetic surgery and experience a positive psychological and psychosocial

outcome. However, it is clear that some individuals are not satisfied, even when the outcome is objectively acceptable. Such patients have been variously referred to as “insatiable” patients[12,13] and “polysurgical addicts.”[47] For such individuals, the focus of their concern may shift to some other body part following the surgical procedure, or they may be chronically dissatisfied with the cosmetic result.[48] Some of these dissatisfied individuals seek further interventions, often with increased distress and acrimony on the part of both patient and practitioner.[47] It is likely that many, if not most, of these individuals suffer from body dysmorphic disorder (also known as dysmorphophobia), a recognized psychiatric disorder that consists of a distressing and/or impairing preoccupation with a nonexistent or slight defect in appearance.

Of the studies reviewed, Edgerton et al.[38] mention “minimal deformity” as a potential risk factor for a poor psychological outcome, although it is unclear how many and which patients had body dysmorphic disorder per se. Ercolani and colleagues[30] suggest that patients with “moderate dysmorphophobia” are more likely to have an adverse psychological reaction to rhinoplasty, but these authors do not present explicit supporting data. A number of studies used the Body Dysmorphic Disorder Examination–Self-Report but did not determine the outcome of body dysmorphic disorder in cosmetic surgery patients as such. Glatt et al.[49] used the Self-Report in their study, but as a measure of body image dissatisfaction rather than to make a diagnosis of body dysmorphic disorder. Sarwer et al.,[3] in a study undertaken to investigate changes in body image following cosmetic surgery procedures, found at preoperative investigation that 7 percent of women who sought cosmetic surgery procedures met diagnostic criteria for body dysmorphic disorder. A number of studies have investigated rates of body dysmorphic disorder in patients attending cosmetic surgeons, with rates between 7 percent and 15 percent being reported.[15,50–52]

Studies from the psychiatric literature suggest the body dysmorphic disorder patients usually have a poor psychosocial outcome following cosmetic procedures and that occasional patients with the disorder are even violent toward the treating surgeon.[44,53] In a study from England,[48] 81 percent of 50 body dysmorphic disorder patients seen in a psychiatric setting were dissatisfied or very dissatisfied with the outcome of nonpsychiatric medical or surgical interventions. In a series of 25 body dysmorphic disorder patients who had undergone cosmetic procedures, Veale[54] reported 76 percent to be dissatisfied with the outcome. In a U.S. study of 188 adults with body dysmorphic disorder,[53] 131 had sought and 109 had received nonpsychiatric treatments (e.g., surgical, dermatologic) for their minimal or nonexistent deformity; in 53 percent of cases, these treatments led to an exacerbation of or no change in body dysmorphic disorder symptoms. Twenty-three percent had received cosmetic surgery for the perceived deformity; the most common outcome from surgery in particular was no change in concern with the treated body part (48 percent) or in overall disorder symptoms (58 percent). Seventeen percent reported improvement in the disorder following the surgical procedure, and 24 percent reported worsening of the disorder. Fifty-four percent of all surgeries that patients requested were not received, primarily because the surgeon refused to provide it. A later U.S. study by Phillips and colleagues[44] assessed the nonpsychiatric medical and surgical treatment sought and received by 289 individuals (250 adults and 39 adolescents) with *Diagnostic and Statistical Manual of Mental Disorders IV* body dysmorphic disorder. Treatment was sought by 76.4 percent and received by 66 percent of adults. Dermatologic treatment was most often received by 45.2 percent of adults, followed by surgery (23.2 percent). These treatments rarely improved the symptoms of the disorder, indicating that a majority of patients with the disorder who receive nonpsychiatric treatment tend to respond poorly. A recent survey of 265 U.S. cosmetic surgeons by the American Society for Aesthetic Plastic Surgery[55] found a high rate of awareness of body dysmorphic disorder and a reluctance to operate on these patients. Of surgeons who had operated on patients with the disorder (n = 178), in 43 percent of cases, the

surgeon reported the patients' preoccupation with the perceived defect to be greater after than before the intervention, and only 1 percent were considered symptom-free after the operation.

Presumably these poor outcomes reflect no change or even a worsening in psychological well-being in these patients, although no study to our knowledge has assessed change in characteristics such as self-esteem in patients with body dysmorphic disorder who undergo cosmetic surgery procedures. Another notable limitation of existing research on this disorder is that most studies have been retrospective and have assessed patients seeking psychiatric treatment for the disorder. This may bias the findings toward a poor surgical outcome, given that patients who do not respond well to cosmetic interventions are probably more likely than those with a good response to be referred for subsequent psychiatric care. Further prospective studies are needed that assess body dysmorphic disorder patients in a surgical setting both before and after their operation (as opposed to a psychiatric setting only after the operation) to evaluate their response to surgical intervention.

Screening for Psychological Problems in Cosmetic Settings

The foregoing review reveals that there are only limited rigorous scientific data that help clinicians predict who will fare poorly in psychological and psychosocial terms following a cosmetic procedure. However, the studies do provide some guidance for cosmetic specialists, as detailed in previous reviews of this area[8,56] and as reinforced by the current review.

First, there are issues related to the cosmetic complaint itself. Patients should be given the opportunity to articulate their specific appearance concerns in detail.[5] They should be asked for how long they have been concerned about the problem, for how long they have been contemplating a cosmetic procedure, and what precipitated the current consultation. Past cosmetic interventions should be explored in some detail, as the literature suggests that previous surgery with which the patient was dissatisfied is a risk factor for yet another poor outcome.[17,20,40] Questions should include the number of previous procedures the patient has received and how the patient, family, and friends perceived the cosmetic and psychosocial outcome. One should be most concerned about people who have had numerous procedures by many practitioners, most or all of which the patient has considered unsatisfactory. Any history of legal proceedings, threats, or overt violence toward previous cosmetic surgeons should obviously raise significant concern.

Because the literature suggests that unrealistic expectations regarding the outcome of the procedure may also predict a poor response, the surgeon should assess the patient's expectations of both the proposed procedure and the desired outcome in cosmetic and other terms.[5] In the studies reviewed here, unrealistic expectations by the patient of the outcome of the procedure tended to be associated with poor psychosocial outcome. Sarwer and Didie[56] suggest that a distinction can usefully be made between expectations regarding the self (e.g., to improve body image) and expectations in terms of external parameters (e.g., enhancement of one's social network, establishing a relationship, getting a job). Some evidence points to the latter as being more concerning; for example, if the person views the proposed procedure as a panacea that will solve all their life problems—for example, ending their social isolation and getting them a job—the specialist should be wary of performing the procedure. As the studies reviewed here suggest, being motivated by the belief that surgery will save a relationship may be a particularly poor prognostic indicator. Empirically based questions to assess unrealistic expectations for surgery do not exist and are greatly needed. In the meantime, questions addressing the above issues would seem appropriate.

Whether patients with "minimal deformity" are good candidates for cosmetic procedures is unclear. One problem is that the definition of "minimal deformity," a term used in the surgical literature, is problematic, as there are, to the best of our knowledge, no standardized definitions

of the term or validated methods to measure it. Presumably, however, a large proportion of patients who undergo cosmetic procedures, many of whom are pleased with the outcome, would be considered to have had "deformities" of minimal proportions. Indeed, Edgerton et al.[16] followed 48 of their 98 patients with "minimal deformity" for 6 months after their procedures and found that 85 percent had a good outcome according to both patient and surgeon. However, in this study, "minimal deformity" was not operationalized, the study was conducted before body dysmorphic disorder was included in the *Diagnostic and Statistical Manual of Mental Disorders*, and the patients' clinical and psychological characteristics were not clearly specified.

On the other hand, it has been argued that patients with minimal deformity may not be good surgical candidates. In particular, many body dysmorphic disorder patients, who by definition have minimal or nonexistent deformities, appear to be poor surgical candidates (see above). The contradictory findings in the literature regarding minimal deformity as a predictor of surgical outcome underscore the need for further studies, which should more precisely define the term "minimal deformity." They should also focus on assessing the extent of the deformity objectively, and more fully characterizing the study patients in psychological and psychiatric terms.

As part of the screening process, the surgeon should attempt to determine whether the patient has body dysmorphic disorder.[8,50,57,58] It should be noted that although psychiatric treatments for the disorder can be very effective, many patients do not seek psychiatric help, instead pursuing a surgical solution for a psychological problem. Indeed, studies indicate that 7 percent to 15 percent of patients seeking cosmetic surgery have the disorder.[15,50–52] To diagnose it, one should inquire as to the amount of time spent each day worrying about the appearance problem, how much distress the perceived flaw causes, and whether the concern has any behavioral consequences (for example, social avoidance). If the patient reports being preoccupied with the perceived appearance flaw (for example, thinking about it for at least an hour a day) and if the concern causes significant distress or impairment in functioning, body dysmorphic disorder may be present. Similarly, if the cosmetic surgeon perceives the patient's problem as being much more trivial than the patient perceives it to be, this should arouse suspicion of body dysmorphic disorder. Brief questionnaires for the disorder have been validated for use in psychiatric[59] and dermatologic[60] settings; whether these instruments have adequate predictive value for the diagnosis of body dysmorphic disorder in surgical settings remains to be established.

Because a number of studies have identified a history of depression or anxiety or a personality disorder as predictors of poor surgical outcome, psychiatric history and current mental state should also be evaluated. Brief questionnaires developed for use in primary care settings (e.g., the Primary Care Evaluation of Mental Disorders, or PRIME-MD[61]) may be useful. Of course, merely having or having had a mental illness should not in and of itself preclude individuals from cosmetic procedures. However, the cosmetic specialist should be aware that certain psychiatric conditions can present with significant dysmorphic concern, which might resolve with adequate psychiatric treatment.[62] For example, cosmetic procedures should probably not proceed if the person is significantly depressed or psychotic or has body dysmorphic disorder. In such cases, it is important to attempt to refer the patient to a mental health professional qualified to treat these disorders.[10]

CONCLUSIONS

It appears that most patients undergoing cosmetic surgery have a good outcome in psychological and psychosocial terms. Nonetheless, several predictors of poor outcome do emerge from the literature, suggesting that surgeons should be cautious in performing cosmetic

procedures on individuals with these characteristics. However, these conclusions must be tempered by the realization that the literature has a number of significant methodologic limitations.

Further research is needed to assist surgeons in better identifying, before surgery, those individuals at increased risk for a poor outcome. Such studies should carefully characterize the population being studied (including whether they have body dysmorphic disorder), clearly identify outcome variables, use standardized and state-of-the-art measures, and utilize a prospective design. Another important direction for future research is the development of empirically based screening questionnaires that will assist surgeons in selecting individuals for cosmetic procedures who are likely to have a good outcome in psychosocial terms. Such questionnaires would have the benefit of operationalizing what is currently an impressionistic process with no clear or universally accepted guidelines.

Acknowledgements

The authors thank David Sarwer, M.D., for his help in refining the manuscript.

References

1. Sarwer DB, Pertschuk MJ, Wadden TA, Whitaker LA. Psychological investigation in cosmetic surgery: A look back and a look ahead. Plast Reconstr Surg 1998;101:1136. [PubMed: 9514352]
2. Meisler JG. Toward optimal health: The experts discuss cosmetic surgery. J Womens Health Gender Based Med 2001;9:13.
3. Sarwer DB, Wadden TA, Whitaker LA. An investigation of changes in body image following cosmetic surgery. Plast Reconstr Surg 2002;109:363. [PubMed: 11786842]
4. Cash TF, Duel LA, Perkins LL. Women's psychosocial outcomes of breast augmentation with silicone gel-filled implants: A 2-year prospective study. Plast Reconstr Surg 2002;109:2112. [PubMed: 11994621]
5. Pruzinsky T. Psychological factors in cosmetic plastic surgery: Recent developments in patient care. Plast Surg Nurs 1993;13:64. [PubMed: 8346319]
6. Pruzinsky, T.; Edgerton, MT. Body-image change in cosmetic plastic surgery. In: Cash, TF.; Pruzinsky, T., editors. Body Images: Development, Deviance, and Changes. New York: Guilford; 1990. p. 217-236.
7. Wengle HP. The psychology of cosmetic surgery: Old problems in patient selection seen in a new way —Part 2. Ann Plast Surg 1986;16:487. [PubMed: 3078616]
8. Grossbart TA, Sarwer DB. Cosmetic surgery: Surgical tools—Psychosocial goals. Semin Cutan Med Surg 1999;18:101. [PubMed: 10385278]
9. Jacobson WE, Edgerton MT, Meyer E, Canter A, Slaughter R. Psychiatric evaluation of the male patients seeking cosmetic surgery. Plast Reconstr Surg 1960;26:356.
10. Castle DJ, Honigman RJ, Phillips KA. Does cosmetic surgery improve psychosocial well-being? Med J Aust 2002;176:601. [PubMed: 12064961]
11. Sarwer DB. The obsessive cosmetic surgery patient: A consideration of body image dissatisfaction and body dysmorphic disorder. Plast Surg Nurs 1997;17:193. [PubMed: 9460445]
12. Groenman NH, Sauer HC. Personality characteristics of the cosmetically insatiable patient. Psychother Psychosom 1983;40:241. [PubMed: 6657879]
13. Knorr NJ, Edgerton MT, Hoopes JE. The insatiable cosmetic surgery patient. Plast Reconstr Surg 1967;40:285. [PubMed: 6037160]
14. Goin MK, Rees TD. A prospective study of patients' psychological reactions to rhinoplasty. Ann Plast Surg 1991;27:210. [PubMed: 1952747]
15. Sarwer DB, Wadden TA, Pertschuk MJ, Whitaker LA. The psychology of cosmetic surgery: A review and reconceptualization. Clin Psychol Rev 1998;18:1. [PubMed: 9455621]

16. Edgerton MT, Jacobson WE, Meyer E. Surgical-psychiatric study of patients seeking plastic (cosmetic) surgery: Ninety-eight consecutive patients with minimal deformity. Br J Plast Surg 1960;13:136. [PubMed: 13819311]
17. Knorr N. Feminine loss of identity in rhinoplasty. Arch Otolaryngol 1972;96:11. [PubMed: 5032051]
18. Wright MR, Wright WK. A psychological study of patients undergoing cosmetic surgery. Arch Otolaryngol 1975;101:145. [PubMed: 235253]
19. Edgerton MT, Webb WL, Slaughter R, Meyer E. Surgical results and psychosocial changes following rhytidectomy. Plast Reconstr Surg 1964;33:503. [PubMed: 14171431]
20. Goin MK, Burgoyne RW, Goin J, Staples FR. A prospective psychological study of 50 female face-lift patients. Plast Reconstr Surg 1980;65:436. [PubMed: 7360810]
21. Marcus P. Psychological aspects of cosmetic rhinoplasty. Br J Plast Surg 1984;37:313. [PubMed: 6743899]
22. Hueston J, Dennerstein L, Gotts G. Psychological aspects of cosmetic surgery. J Psychosom Obstet Gynaecol 1985;4:335.
23. Meyer L, Ringberg A. Augmentation mammaplasty: Psychiatric and psychosocial characteristics and outcome in a group of Swedish women. Scand J Plast Reconstr Surg Hand Surg 1987;21:199. [PubMed: 3685905]
24. Klassen A, Fitzpatrick R, Jenkinson C, Goodacre T. Should breast reduction surgery be rationed? A comparison of the health status of patients before and after treatment: Postal questionnaire survey. Br Med J 1996;313:454. [PubMed: 8776311]
25. Shakespeare V, Cole RP. Measuring patient-based outcomes in a plastic surgery service: Breast reduction surgical patients. Br J Plast Surg 1997;50:242. [PubMed: 9215080]
26. Schnur PL, Schnur DP, Petty PM, Hanson TJ, Weaver AL. Reduction mammaplasty: An outcome study. Plast Reconstr Surg 1997;100:875. [PubMed: 9290655]
27. Kilman PR, Sattler JI, Taylor J. The impact of augmentation mammaplasty: A follow-up study. Plast Reconstr Surg 1987;80:374. [PubMed: 3628567]
28. Shipley RH, O'Donnel JM, Bader KF. Psychosocial effects of cosmetic augmentation mammaplasty. Aesthetic Plast Surg 1978;2:429.
29. Sihm F, Jagd M, Pers M. Psychological assessment before and after augmentation mammaplasty. Scand J Plast Reconstr Surg 1978;12:295. [PubMed: 741220]
30. Ercolani M, Baldaro B, Rossi N, Trombini G. Five year follow up of cosmetic rhinoplasty. J Psychosom Res 1999;47:283. [PubMed: 10576477]
31. Ercolani M, Baldaro B, Rossi N, Trombini E, Trombini G. Short term outcome of rhinoplasty for medical or cosmetic outcome. J Psychosom Res 1999;47:277. [PubMed: 10576476]
32. Eysenck, HJ. The Maudsley Personality Inventory. London: University of London Press; 1959.
33. Napoleon A. The presentation of personalities in plastic surgery. Ann Plast Surg 1993;31:193. [PubMed: 8239409]
34. Slator R, Harris DL. Are rhinoplasty patients potentially mad? Br J Plast Surg 1992;45:307. [PubMed: 1623348]
35. Guyuron B, Bokhari F. Patient satisfaction following rhinoplasty. Aesthetic Plast Surg 1996;20:153. [PubMed: 8801805]
36. Meyer E, Jacobson WE, Edgerton MT, Canter A. Motivational patterns in patients seeking elective plastic surgery. Psychosom Med 1960;22:193.
37. Robin AA, Copas JB, Jack AB, Kaeser AC, Thomas PJ. Reshaping the psyche: The concurrent improvement in appearance and mental state after rhinoplasty. Br J Psychiatry 1988;152:539. [PubMed: 3167406]
38. Edgerton MT, Meyer E, Jacobson WE. Augmentation mammaplasty 11: Further surgical and psychiatric evaluation. Plast Reconstr Surg 1961;27:279.
39. Beale S, Hambert G, Lisper H, Ohlsen L, Palm B. Augmentation mammaplasty: The surgical and psychological effects of the operation and prediction of the result. Ann Plast Surg 1985;14:473. [PubMed: 4083704]
40. Goin MK, Goin JM, Gianini MH. The psychic consequences of a reduction mammaplasty. Plast Reconstr Surg 1977;59:530. [PubMed: 847030]

41. Moses S, Last U, Mahler D. After aesthetic rhinoplasty: New looks and outlooks on post-surgical satisfaction. Aesthetic Plast Surg 1984;8:213. [PubMed: 6532163]
42. Hollyman JA, Lacey JH, Whitfield PJ, Wilson JS. Surgery for the psyche: A longitudinal study of women undergoing reduction mammaplasty. Br J Plast Surg 1986;39:222. [PubMed: 3697564]
43. Edgerton MT, Langman MW, Pruzinsky T. Plastic surgery and psychotherapy in the treatment of 100 psychologically disturbed patients. Plast Reconstr Surg 1991;88:594. [PubMed: 1896531]
44. Phillips KA, Grant J, Siniscalchi J, Albertini RS. Surgical and nonpsychiatric medical treatment of patients with body dysmorphic disorder. Psychosomatics 2001;42:504. [PubMed: 11815686]
45. Hay GG, Heather BB. Changes in psychometric tests following cosmetic nasal operations. Br J Psychiatry 1973;122:89. [PubMed: 4683030]
46. Klassen A, Jenkinson C, Fitzpatrick R, Goodacre T. Patients' health related quality of life before and after aesthetic surgery. Br J Plast Surg 1996;49:433. [PubMed: 8983542]
47. Fukuda O. Statistical analysis of dysmorphophobia in out-patient clinic. Jpn J Plast Reconstr Surg 1977;20:569.
48. Veale D, Boocock A, Gournay K, et al. Body dysmorphic disorder: A survey of fifty cases. Br J Psychiatry 1996;169:196. [PubMed: 8871796]
49. Glatt BS, Sarwer DB, O'Hara DE, Hamoni C, Bucky LP, LaRossa D. A retrospective study of changes in physical symptoms and body image after reduction mammaplasty. Plast Reconstr Surg 1999;103:76. [PubMed: 9915166]
50. Sarwer DB, Wadden TA, Pertschuk MJ, Whitaker LA. Body image dissatisfaction and body dysmorphic disorder in 100 cosmetic surgery patients. Plast Reconstr Surg 1998;101:1644. [PubMed: 9583501]
51. Phillips, KA.; Castle, DJ. Body dysmorphic disorder. In: Castle, DJ.; Phillips, KA., editors. Disorders of Body Image. Hampshire, United Kingdom: Wrightson Biomedical; 2002. p. 55-66.
52. Ishigooka J, Iwao M, Suzuki M, Fukuyama Y, Murasaki M, Miura S. Demographic features of patients seeking cosmetic surgery. Psychiatry Clin Neurosci 1998;52:283. [PubMed: 9681579]
53. Phillips KA, Diaz SF. Gender differences in body dysmorphic disorder. J Nerv Ment Dis 1997;185:570. [PubMed: 9307619]
54. Veale D. Outcome of cosmetic surgery and 'DIY' surgery in patients with body dysmorphic disorder. Psychiatr Bull 2000;24:218.
55. Sarwer DB. Awareness and identification of body dysmorphic disorder by aesthetic surgeons: Results of a survey of American Society for Aesthetic Plastic Surgery members. Aesthetic Surg J 2002;22:531.
56. Sarwer, DB.; Didie, ER. Body image in cosmetic surgical and dermatological practice. In: Castle, DJ.; Phillips, KA., editors. Disorders of Body Image. Hampshire, United Kingdom: Wrightson Biomedical; 2002. p. 37-53.
57. Sarwer, DB.; Pertschuk, MJ. Cosmetic surgery. In: Kornstein, SG.; Clayton, AH., editors. Textbook of Women's Mental Health. New York: Guildford; 2002.
58. Pruzinsky, T. Cosmetic plastic surgery and body image: Critical factors in patient assessment. In: Thompson, JK., editor. Body Image, Eating Disorders and Obesity. Washington D.C.: APA Press; 1996. p. 109-127.
59. Phillips, KA.; Atala, KD.; Pope, HG. Diagnostic instruments for body dysmorphic disorder. New Research Program and Abstracts: Proceedings of the American Psychiatric Association 148th Annual Meeting.; Miami. May 12, 1995; p. 157
60. Dufresne RG, Phillips KA, Vittorio CC, Wilkel CS. A screening questionnaire for body dysmorphic disorder in a cosmetic dermatologic surgery practice. Dermatol Surg 2001;27:457. [PubMed: 11359494]
61. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: The PHQ primary care study. Primary Care Evaluation of Mental Disorders Patient Health Questionnaire. JAMA 1999;282:1737. [PubMed: 10568646]
62. Castle, DJ.; Phillips, KA. Disordered body image in psychiatric disorders. In: Castle, DJ.; Phillips, KA., editors. Disorders of Body Image. 34. Hampshire, United Kingdom: Wrightson Biomedical; 2002. p. 101-120.

TABLE I

Studies of Psychosocial Outcomes from Cosmetic Surgery Procedures

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
Jacobson et al. (1960)[9]	Evaluate presurgical and postsurgical status of male cosmetic surgery patients	Mainly rhinoplasty (66%); other procedures included lip and chin	33, M, 30 yr	Preoperative and postoperative self-administered ratings	None	-Sentence completion -Guildford-Zimmerman Temperament Survey -Minnesota Multiphasic Personality Inventory -Morale-Loss Scale -Self-Concept Scale -Draw a Face–Draw a Person Test	2 wk; 2, 6, 12 mo	-All patients expressed subjective satisfaction -Not as preoccupied with appearance -Increased sense of well-being and self-confidence	n.s.
Meyer et al. (1960)[36]	Determine motivation for cosmetic surgery	Rhinoplasty	30, F, 20 yr	Presurgical and postsurgical psychiatric interview and self-administered psychological tests	None	-Guildford-Zimmerman Temperament Survey -Self-Concept Scale -Draw a Face–Draw a Person Test -Sentence Completion Test -Edwards Personal Preference Schedule	2 wk; 2, 6, 12 mo	n.s.	-No obvious deformity -Expectation of “magical outcome” -Adolescence
Edgerton et al. (1960)[16]	Study patients with minimal deformity seeking plastic surgery	Rhinoplasty, face lift, and facial surgery	83, F; 14, M; age n.s.	Preoperative and postoperative interviews	None	n.s.	2 wk; 2, 6, 12 mo	55% had some postoperative psychological disturbance (some patients with psychiatric disorders did well)	-Males -Complaints of skin blemishes, wrinkles, acne scarring -Depression -Unrealistic expectations
Edgerton et al. (1961)[38]	Evaluate experiences of patients undergoing augmentation mammaplasty	Augmentation mammaplasty	84, F, 17–52 yr	Presurgical and postsurgical interviews and psychological tests	None	-Guildford-Zimmerman Temperament Survey -Morale-Loss Scale -Tennessee Dept of Health Self-Concept Scale -Sentence Completion Test	6 mo to 3 yr	-Patients generally pleased with results -Improvement in self-esteem	-Marital problems -Depression -Seeking surgery at request of husband -Patients urgently seeking surgery -Unrealistic expectations

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
Edgerton et al. (1964)[19]	Survey patients requesting surgery to aging face	Face lift and blepharoplasty	64, F; 8, M; 48 yr	Preoperative and postoperative interviews and self-report tests	7 patients age matched to only those undergoing psychological testing	-Rorschach -Johns Sentence Completion -Thematic Apperception Test (only 8 patients)	2 mo to 10 yr	86% reported improved sense of well-being	Age under 40
Knorr (1972)[17]	Investigate syndrome of "loss of identity" encountered in rhinoplasty patients postoperatively	Rhinoplasty	9, F, 26–64 yr	Case study interviews	None	n.s.	n.s.	-Results of initial surgery poor and requested further surgery -Patients said surgeon had difficulty understanding their complaint	Longstanding dissatisfaction with physical appearance
Hay & Heather (1973)[45]	Determine whether degree of deformity is of major importance in the decision to undergo rhinoplasty	Rhinoplasty	12, F; 5, M; 23.4 yr	Presurgical and postsurgical interviews and psychological testing	None	-Hysteroid-Obsessoid Questionnaire -Personal Illness Scale of the Symptom Sign Inventory	6 mo to 2 yr	-16 of 17 felt surgery helped them feel better about themselves	No evidence that improvement in psychological functioning relates to initial degree of disfigurement
Wright & Wright (1975)[18]	Study personality characteristics of those seeking cosmetic surgery, and degree of change in personality traits	Rhinoplasty	90, M and F, 30 yr	Presurgical and postsurgical interview and psychological testing (only 25 patients followed up)	25 noncosmetic surgical patients	-Minnesota Multiphasic Personality Inventory	18–24 mo	-No major personality change -Improved self-concept -Socially more-self assured	-Psychosis -Neurosis -Decisional discrepancies with partner -Personality disorder (narcissism)
Goin et al. (1977)[40]	Determine psychological reactions to reduction mammaplasty	Reduction mammaplasty	8, F, 35 yr	Preoperative and postoperative interview	None	n.s.	Up to 13 mo	-Transient emotional disturbance in 5 patients -Longer-term outcome good, with improved self-esteem and reduced physical symptoms	Preoperative psychological disturbance in body image
Shipley et al. (1978)[28]	Examine effect of breast augmentation on psychosocial functioning	Augmentation mammaplasty	19, F, 30.5 yr	Presurgical interview and postsurgical mail survey	20 small-busted women and 19 average-busted women	-California Psychological Inventory -Ziller Social Self-Esteem Test -Dress, Popularity and	3 mo	-Improved body image -No effects on personality or self-concept	n.s.

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
Sihm et al. (1978)[29]	Psychological and psychiatric evaluation of augmentation mammaplasty patients	Augmentation mammaplasty	20, F, 21–45 yr	Presurgical and postsurgical psychological and psychiatric examination	None	Activity Questionnaire Unspecified measures of body image, identity, intellectual level, and personality integration	12 mo	-More self confident -No change in personality structure	n.s.
Goin et al. (1980)[20]	Psychological study of face lift patients	Face lift	50, F, 56 yr	Longitudinal prospective	—	Minnesota Multiphasic Personality Inventory	Postoperative days 5, 14, 21, 60, 180	-54% displayed short-term psychological disturbance -30% transient depression -28% improved self-esteem	-Idealized the surgeon -Severe psychological disturbance following other operations -Paranoia
Marcus (1984)[21]	Examine psychiatric status of rhinoplasty patients	Rhinoplasty	15, F; 5, M; 23 yr	Presurgical and postsurgical interviews	25 dental patients (18 males)	-Secord-Jourard Body Cathexis Scale -Anxiety and Depression Scales -Self-Esteem Scale	3 mo	-90% pleased with surgical outcome -Increased ability to enjoy life -Increased social confidence	n.s.
Moses et al. (1984)[41]	Assess satisfaction with rhinoplasty	Rhinoplasty	34, F, age n.s.	Presurgical and postsurgical interviews	—	-Subjective nose image measure -Objective nose image measure -Subjective improvement score	1 wk; 1 and 3 mo after cast removal	High satisfaction with surgical outcome	n.s.
Burk et al. (1985)*	Investigate patient attitudes to body parts versus overall appearance	Various cosmetic procedures	40, F, 21 + yr	Longitudinal	—	-Semantic Differential Test -Tennessee Self-Concept Scale -Personal Self Scale -Physical Self-Scale -Self-Criticism Scale	2, 4 mo	Increased physical self-esteem and satisfaction with operated body part	n.s.
Hueston et al. (1985)[22]	Assess psychological profile of cosmetic surgery patients and effects of surgery on psychosocial functioning	Various procedures: augmentation and reduction mammaplasty, face lift, blepharoplasty, abdominoplasty	169, M and F, 35 yr	Presurgical and postsurgical testing	53 hand surgery patients	-Middlesex Hospital Questionnaire -Life Events Questionnaire -Social Adjustment Scale -Locus of Control Scale	3 mo	Psychosocial functioning of both the aesthetic and hand surgery groups improved	n.s.

Plast Reconstr Surg. Author manuscript; available in PMC 2007 January 4.

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
Beale et al. (1985)[39]	Assess predictors of successful outcome from augmentation mammaplasty	Augmentation mammaplasty	61, F, age n.s.	Subsample (*n* = 39) followed longitudinally	28 females from general population	-Rosenberg Self-Esteem Scale Cesarec-Mark Personality Schedule	12 mo	78% completely satisfied with outcome	-Psychiatric problems -Unrealistic expectations -Patients using surgery to improve relationship
Hollyman et al. (1986)[42]	Examine body perception prereduction and postreduction mammaplasty	Reduction mammaplasty	11, F, 22.4 yr	Presurgical and postsurgical interviews and psychological testing	19 females not seeking breast surgery	-Crown-Crisp Experimental Index -Body perception apparatus -Visual analogue scales	2, 8, 16, 26 wk	-Postsurgery relief of psychological distress -Improved body image	n.s.
Kilman et al. (1987)[27]	Evaluate impact of augmentation mammaplasty on personality and relationship functioning	Augmentation mammaplasty	75, F, 35 yr	Retrospective questionnaire study	None	Author's questionnaire	3 mo to 3 yr	-Positive effects on perceived attractiveness, body and self-image -Greater sexual interest of partner	n.s.
Meyer & Ringberg (1987)[23]	Evaluate personality, psychosocial and psychiatric characteristics	Augmentation mammaplasty	38, F, 38.4 yr	Presurgical and postsurgical interviews	33 female surgical outpatients	-Cesarec-Marke Personality Scheme -Marke-Nyman Test	1 yr	86% satisfied, and social and psychological expectations fulfilled	Unspecified personality characteristics
Robin et al. (1988)[37]	Assess psychological status of rhinoplasty patients	Rhinoplasty	31, M and F, 25.8 yr	Presurgical and postsurgical psychological testing	31 matched controls (see text)	-Facial Appearance Sorting Test -General Health Questionnaire -Rochford Masculinity/ Femininity Scale	6 mo	Marked reduction of psychiatric symptom scores (controls showed no change)	n.s.
Goin & Rees (1991) 14	Assess psychological reactions to rhinoplasty	Rhinoplasty	103, F (18 yr); 18, M (20 yr)	Presurgical and postsurgical questionnaire	None	Brief Symptom Inventory	1, 6 mo	-98% said cosmetic outcome was what they had desired -53% said operation changed their lives -21% said others behaved differently to them	Pre-existing anxiety disorder
Edgerton et al. (1991)[43]	Summary of author's	Various procedures	100, of whom	Retrospective case studies	None	n.s.	Mean 6.2 yr	83% considered to have a	n.s.

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
	experience in treating 100 "significantly psychologically disturbed" patients		87 (59 F) received surgery					positive psychological outcome	
Slator & Harris (1992)[34]	Validate earlier reports of psychiatric morbidity in rhinoplasty patients	Rhinoplasty	41, M and F, 31.2 yr	Retrospective mailed questionnaire	None	-Rust Inventory of Schizotypal Cognitions -Crown-Crisp Experimental Index -Personal Distress Scale	Mean 9.5 yr	No evidence that patients requesting cosmetic rhinoplasty at high risk of severe psychiatric disorder	Males
Napoleon (1993)[33]	Identify personality types associated with poor outcome from cosmetic surgery	Various cosmetic and reconstructive procedures	133, M and F, 45.6 yr	Preoperative assessment of personality, longitudinal follow-up	None	-Author's own; personality diagnoses according to DSM-III	1.5 yr	62% satisfied with outcome	-Unrealistic expectation of surgery outcome -Borderline and narcissistic personality disorder
Young et al. (1994)[†]	Evaluate impact of surgery on psychological parameters and interpersonal functioning	Augmentation mammaplasty	112, F, 33 yr	Retrospective telephone interviews	None	Authors' questionnaire	5 yr	-Decreased self-consciousness (86%) -Improved self-confidence (88%) -Felt better about themselves (95%) -Surgery met their expectations (95%)	n.s.
Klassen et al. (1996)[24]	Assess health status before and after breast reduction surgery	Reduction mammaplasty	166, F, 30.5 yr	Presurgical and postsurgical questionnaire and psychological testing	General population sample	-Short Form 36 -Rosenberg Self-Esteem Scale -General Health Questionnaire 28	6 mo	86% expressed great satisfaction with postoperative result	n.s.
Klassen et al. (1996)[46]	Assessment of health status after variety of cosmetic interventions	Various cosmetic procedures	198, M and F, 32.6 yr	Presurgical and postsurgical questionnaire and psychological testing, longitudinal	General population sample	-Short Form 36 -General Health Questionnaire 28 -Rosenberg Self-Esteem Scale	6 mo	-Most pleased with outcome -Gains in psychological, social, and physical function	n.s.

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
Guyuron & Bokhari (1996)[35]	Evaluate patient satisfaction following cosmetic surgery	Rhinoplasty	381, F; 87, M; 38.1 yr	Retrospective	None	Authors' questionnaire	n.s.	Most very satisfied with outcome	Younger males
Shakespeare & Cole (1997)[25]	Assess outcomes of plastic surgery procedures	Reduction mammaplasty	110, F, 35 yr	Presurgical and postsurgical postal questionnaire	None	-Short Form 36 -Rosenberg Self-Esteem Scale	3, 6 mo	Substantial benefit to psychological and physical health and well being	n.s.
Schnur et al. (1997)[26]	Examine psychological outcomes after reduction mammaplasty	Reduction mammaplasty	363, F, 40.6 yr	Retrospective review of medical charts and postsurgical postal questionnaire	None	Author's questionnaire	Mean 5.7 yr	97% believed outcome very successful and improved their lives	n.s.
Rankin et al. (1998)[‡]	Examine quality of life after cosmetic surgery	Various procedures, including liposuction, rhinoplasty, facial surgery, abdoplasty, and breast augmentation	91, F; 14, M; 31–50 yr	Presurgical and postsurgical self-report questionnaire	None	-Health Measurement Questionnaire -Personal Resources Questionnaire -Centre for Epidemiologic Studies Depression Scale -Ways of Coping Scale	1, 6 mo	Improved quality of life	n.s.
Ercolani et al. (1999)[30]	Assess short- and long-term psychological changes in rhinoplasty patients	Rhinoplasty	25, M; 54, F; 22 yr	Presurgical and postsurgical questionnaire	None	-Maudsley Personality Inventory -Inventory for Personality and Anxiety Testing	6 mo, 5 yr	-Decrease in anxiety and neuroticism and increase in extraversion -No significant change in body dysmorphic disorder patients	"Dysmorphophobia"
Ercolani et al. (1999)[31]	Psychological effects of rhinoplasty	Rhinoplasty	36, M; 37, F; 21.6 yr	Presurgical and postsurgical questionnaire	None	-Maudsley Personality Inventory -Inventory for Personality and Anxiety Testing	8 mo	Majority of patients benefited psychologically from the operation	n.s.
Glatt et al. (1999)[49]	Assess physical and psychological outcome following	Reduction mammaplasty	61, F, 37.8 yr	Postal questionnaire	None	-Body Dysmorphic Disorder Examination Self-Report		Decrease in physical symptoms and high degree of patient satisfaction	n.s.

Author (year)	Study Objective	Procedure	No., Sex, Mean Age	Study Design	Control Group	Scales Used	Follow-Up Period	Outcome	Factors Associated with Poor Outcomes
	reduction mammaplasty					-Breast Chest Ratings Scale			
Sarwer et al. (2002)[3]	Investigate body image change following cosmetic surgery	Various cosmetic procedures	57, F; 45 followed up; 40.6 yr	Preoperative and postoperative assessments	None	-Body Dysmorphic Disorder Examination Self-Report -Multidimensional Body–Self-Relations Questionnaire	6 mo	87% “extreme satisfaction” with feature operated on, but no change in overall body image satisfaction	Body dysmorphic disorder
Cash et al. (2002)[4]	To examine the psychosocial outcomes of women receiving bilateral breast augmentation	Breast augmentation	360, F, 32 yr	Prospective	None	Questionnaire at initial consultation to assess reason for and expectations of surgery and concerns regarding perceived risks	6, 12, 24 mo	More than 90% were consistently satisfied with surgery and attained expectations of enhanced body image	Events within the first 6 months after surgery which compromise the aesthetically desired outcome

M, male; F, female; n.s., not stated.

[*] Burk, J., Zelen, S. L., and Terino, E. O More than skin deep: A self-consistency approach to the psychology of cosmetic surgery. *Plast. Reconstr. Surg.* 76: 270, 1985.

[†] Young, V. L., Nemecek, J. R., and Nemecek, D. A. The efficacy of breast augmentation: Breast size increase, patient satisfaction and psychological effects. *Plast. Reconstr. Surg.* 94: 958, 1994.

[≠] Rankin, M., Borah, G. L., Perry, A. W., and Wey, P. D. Quality of life outcomes after cosmetic surgery. *Plast. Reconstr. Surg.* 102: 2139, 1998.