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The impact of cosmetic interventions on quality of life

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Abstract

In the last decade, the number of cosmetic procedures performed in the United States has rapidly increased. While physicians historically have focused on minimizing side effects and optimizing the physical outcome, a broad spectrum of patient needs also factors in treatment success. Unfortunately, few data are available regarding the effects of cosmetic procedures on patient's self-esteem, confidence, relationships, and acceptance by others. Quality of life represents a relevant and important long-term measurement of outcomes in these patients. Studies have shown that cosmetic surgery can have a positive impact on patient quality of life. In contrast, fewer data are available regarding the effects of nonsurgical cosmetic procedures on quality of life. Much of the quality-of-life data regarding nonsurgical cosmetic procedures focuses on patients with human immunodeficiency virus-associated facial lipoatrophy, a condition associated with depression, problems with self-esteem and interpersonal relationships, in addition to nonadherence to the treatment. Recent data indicate that cosmetic treatment of human immunodeficiency virus-related facial lipoatrophy with injectable facial rejuvenators can improve quality of life in these patients. However, there is a dearth of quality-of-life data on patients who undergo facial rejuvenation procedures using the newer injectable devices, such as hyaluronic acid, calcium hydroxylapatite, and poly-L-lactic acid. Future studies should focus on developing standardized tests to assess quality of life in patients undergoing facial rejuvenation interventions. More data obtained from validated assessment tools are needed to systematically evaluate the effects specific treatments have on satisfying the needs of the cosmetic patient.

Introduction

Cosmetic procedures are rapidly increasing among American men and women. Data from the American Society for Aesthetic Plastic Surgery show that from 1997 to 2007, the total number of cosmetic procedures performed had increased by 457 percent [**1**]. In fact, since 2000, the average number of surgical and nonsurgical cosmetic procedures performed per surgeon has also increased (Fig. 1). Although surgical procedures increased by 114 percent from 1997 to 2007, nonsurgical cosmetic interventions have increased the most, 754 percent since 1997 [**1**]. Indeed, in the year 2007 alone, nonsurgical cosmetic procedures accounted for over 63 percent of cosmetic procedures [**2**].

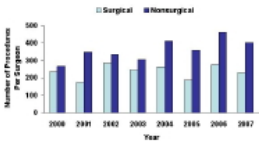

Figure 1

Figure 1. Average number of cosmetic surgical and nonsurgical procedures performed per surgeon (excluding reconstructive procedures), by year, as reported in the American Academy of Facial Plastic and Reconstructive Surgery 2007 Membership Survey [2].

Despite the tremendous growth of this therapeutic field, little information is available regarding the effects of cosmetic procedures on patients' quality of life. Physicians in this discipline traditionally focus on minimizing complications or side effects and optimizing the physical outcome. However, to date, there has been no standardized method of quantifying patient satisfaction and, therefore, treatment success with cosmetic procedures [**3**]. In addition, limited data are available regarding the effects of cosmetic procedures on individuals' self-esteem, confidence, relationships, and acceptance by others. The purpose of this literature review is to discuss the impact of cosmetic interventions on quality of life in individuals electing to undergo cosmetic procedures, particularly nonsurgical aesthetic procedures.

Defining quality of life

Quality of life represents an important long-term outcome for patients receiving cosmetic procedures. Measurement of quality of life entails a multidimensional assessment of patients' physical, social, psychological, and emotional realms [**4**]. Many organizations and researchers have used these types of measurements to evaluate the effectiveness of surgical and medical interventions on patients' overall health. Quality of life represents a means by which the effects of cosmetic procedures on patients can be quantified and better understood. Several instruments – both generic and procedure-specific – are available for measuring quality of life in patients undergoing cosmetic procedures (**Table 1**) [**3**].

The World Health Organization defines health as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" [**5**]. For patients who undergo cosmetic surgery or procedures, measuring efficacy goes beyond physical issues since most patients elect interventions that are unrelated to any direct medical benefit [**6**]. Common factors that may influence quality of life for such a patient include acceptance by friends and family, the effect of the patient's appearance on their social and professional life, and the patient's confidence and happiness. For these individuals, health or well-being is related to the mental, emotional, and social consequences of their appearance [**7**]. It should be noted that although patients who pursue cosmetic interventions typically are dissatisfied with specific areas of their body, research has shown that only a small percentage of these patients display signs of more serious psychiatric symptoms related to body image dissatisfaction and body dysmorphic disorder [**8**]. Thus, it follows that measuring outcomes related to aesthetic procedures, particularly in terms of patients' physical, mental, emotional, and social well-being, is an appropriate and logical action.

Data on cosmetic procedures and quality of life

Cosmetic surgery

Clues about the impact of cosmetic procedures on patients' quality of life can be gleaned from existing cosmetic surgery data. Using the 36-item Short-Form Health Survey in a study evaluating the quality of life of 110 patients undergoing breast reduction surgery, results indicated that 95 percent of the patients' physical and psychological health and well-being greatly improved following surgery [**9**]. In particular, significant improvements were identified between postoperative scores and preoperative scores in physical function ($P<0.0001$), social function ($P<0.001$), mental health ($P<0.001$), and general health ($P<0.001$) [**9**].

Several other studies have assessed the effects of cosmetic surgery on patients. Each of these studies measured quality of life in different, albeit complementary, ways. One such study was a prospective correlational study of 105 patients undergoing elective cosmetic surgery that evaluated quality of life using 4 self-report questionnaires: the Health Measurement Questionnaire, a 19-item self-report scale that measured overall quality of life; the Personal Resources Questionnaire, a 25-item Likert scale that measured intimacy, nurturance, social integration, self-worth, and guidance; the Center for Epidemiologic Studies Depression Scale, a 20-item scale designed to measure current levels of depression; and the Ways of Coping Scale, a 28-item Likert scale that measured coping [**10**]. The investigators observed a significant improvement from baseline in quality of life at 6 months post surgery ($P\leq0.0001$) [**10**]. In addition, mean scores for depression significantly improved from baseline to 6 months post surgery ($P\leq0.0001$), and positive changes were reported in patients' social lives, sex lives, leisure activities, and friendships.

Other studies focusing on patient satisfaction have found that following cosmetic surgery, patient satisfaction significantly improved in several domains, including general health ($P=0.02$), satisfaction with appearance ($P=0.002$), freedom from anxiety ($P<0.01$), freedom from pain ($P=0.01$), and independence from help or care (i.e., independence from the need for assistance to perform routine tasks) ($P=0.04$) [**11**]. These observations were made using the Questions on Life Satisfaction questionnaire (FLZM), a standardized self-assessment test on satisfaction and quality of life [**11**].

Finally, the results of a large, multicenter study (N=103) on the improvements in quality-of-life assessments following facial cosmetic surgery indicated that the best candidates for cosmetic surgery may be patients who lack self-confidence but have a desire for social interaction. The lack of self-confidence is expressed as anxiety and is typically connected with a specific physical quality or limitation, which is the focus of the cosmetic surgery [**12**]. Measurements of depression and inhibitory thoughts did not significantly change after surgery; however, social anxiety significantly improved after surgery, as did anxiety and/or depression [**12**]. Studies such as those discussed above may not only help provide evidence of the effects of cosmetic interventions on quality of life but also help practitioners identify the best candidates for cosmetic procedures.

Nonsurgical cosmetic procedures

Facial skin conditions and dynamic facial lines

While studies have evaluated the impact of cosmetic surgery on patient quality of life, limited information is available regarding the effects of nonsurgical cosmetic procedures. One study in 73 women with visible facial skin lesions reported that lower overall quality of life was associated with increased fear of negative evaluation scale scores (P<0.05), whereas a better perception of quality of life was observed in subjects without any facial diseases or conditions (P<0.01) [**13**]. The investigators noted that only 10 percent of women did not use foundations and these women had better health-related quality of life than those who did use foundations [**13**]. In contrast, a 2-week study in 20 female patients with facial skin diseases found that the use of decorative skin cosmetics significantly improved quality of life in patients with acne (P=0.0078) and in patients with a less severe initial impairment of quality of life prior to treatment (P=0.007) [**14**].

Patient satisfaction has also been evaluated following treatment of facial lines with botulinum toxin. One study (N=30) utilized the standardized Freiburg questionnaire on aesthetic dermatology and cosmetic surgery to evaluate quality-of-life outcomes following treatment [**15**]. Over 80 percent of patients reported that the treatment had been beneficial to them and all patients reported that they would mostly or completely recommend treatment to others. Additionally, over 75 percent of patients reported that they felt more comfortable with their bodies after treatment, indicating the impact of dynamic facial lines on patients' self-image. Emotional well-being was rated as better after treatment in 30 percent of patients, indicating that the presence of dynamic facial lines affected some patients' emotional health [**15**].

Human immunodeficiency virus-associated facial lipoatrophy

Although several more studies reporting quality-of-life outcomes are available regarding nonsurgical procedures, much of the data currently available are centered on patients with human immunodeficiency virus-associated facial lipoatrophy. This type of lipoatrophy is part of a syndrome that occurs in human immunodeficiency virus-positive individuals undergoing treatment with a combination of antiretroviral medications, in particular protease inhibitors and nucleoside reverse transcriptase inhibitors [**16**, **17**].

There is growing concern regarding the implications of human immunodeficiency virus-associated facial lipoatrophy on patients' psychological health and social well-being. Depression, problems with interpersonal relationships, erosion of self-image and self-esteem, and nonadherence to antiretroviral treatment all have been associated with facial lipoatrophy in individuals infected with human immunodeficiency virus [**18**, **19**]. One qualitative study in 14 patients with human immunodeficiency virus evaluated the impact of physical appearance on patients' social and psychological health [**18**]. Results showed that the presence of lipoatrophy was associated with detrimental psychological effects such as depression, loss of self-confidence, problems with libido, and worry and concern about the future. In addition, most patients with lipoatrophy had a reduction in social functioning and reported narrowing their social worlds, with some even avoiding a social life [**18**]. Although small, this study demonstrated that deleterious effects of facial lipoatrophy affect the psychological and social health and lifestyle of patients with human immunodeficiency virus. These issues do not indicate vanity but the deep psychological impact of facial lipoatrophy on patients infected with human immunodeficiency virus, as well as the resultant effects on patients' social quality of life. Another troubling aspect of facial lipoatrophy for patients with human immunodeficiency virus is that it may resemble wasting syndrome and may imply advanced progression of the disease, which may contribute to an increase in the social isolation among these patients [**19**].

Recent data indicate that cosmetic treatment of human immunodeficiency virus-related lipoatrophy can improve patient quality of life. A randomized, open-label study evaluated the effects of immediate versus delayed treatment with injectable poly-L-lactic acid (New-Fill/Sculptra, Dermik Laboratories, a division of sanofi-aventis U.S., Bridgewater, New Jersey, USA) in patients with human immunodeficiency virus-related facial lipoatrophy (N=27) [**20**]. At the recall visit (at least 18 months posttreatment), improvements in facial appearance, as self-reported by patients using visual analog scales, were sustained compared with baseline in both the immediate (P<0.05) and delayed (P<0.001) treatment groups. Scores on the Hospital Anxiety and Depression Scale decreased from baseline to the recall visit in both groups (**Table 2**), indicating that patients in both groups were less depressed and less anxious at follow-up (P=0.029 for depression in the delayed group only) [**20**]. These data provide evidence of the positive effects of poly-L-lactic acid treatment on quality of life in patients with human immunodeficiency virus with facial lipoatrophy.

In a 96-week, open-label, single-arm, pilot study conducted in 50 human immunodeficiency virus-infected patients with severe facial lipoatrophy, treatment with poly-L-lactic acid injections (New-Fill; Biotech Industries SA, Luxembourg) resulted in significant increases in median total cutaneous thickness from baseline to all follow-up time points (P<0.001) [**21**]. Assessments of quality of life (using visual analog scales) were obtained from 44 patients; results showed quality of life progressively increased from baseline to week 48. The median change in quality of life from baseline was +0.3 (range, -2.9 to +10.0) at week 12 (P=0.165), +0.8 (range, -3.9 to +10.0) at week 24 (P=0.015), and +0.8 (range, -2.9 to +10.0) at week 48 (P=0.021). At week 72, the median change in quality of life from baseline was +0.4 (range, -3.3 to +10.0; P=0.209) and was maintained at week 96 (P=0.120) [**21**]. Overall, because the final injection of poly-L-lactic acid was given at week 6, these quality-of-life improvements were maintained for up to 90 weeks after the final poly-L-lactic acid treatment for human immunodeficiency virus-associated facial lipoatrophy.

Injection of calcium hydroxylapatite (Radiesse; BioForm Medical, Inc., San Mateo, California, USA) for facial soft-tissue augmentation in patients with human immunodeficiency virus-associated lipoatrophy also has been evaluated in clinical studies. One prospective, open-label, multicenter clinical trial (N=100) assessed efficacy, safety, and patient satisfaction with calcium hydroxylapatite treatment [**22**]. At 12 months, all patients were rated as improved or better on the Global Aesthetic Improvement Scale; in addition, most patients reported feeling more attractive (97/98 patients, 99.0%), having better emotional well-being (95/98 patients, 96.9%), and having more confidence in their appearance (97/98 patients, 99.0%) since receiving treatment (**Table 3**) [**22**]. These improvements in appearance may be expected to improve the quality of life in patients receiving treatment for human immunodeficiency virus-associated facial lipoatrophy.

In a randomized, open-label, single-center study, the effects of immediate injections (at weeks 0 and 6) versus delayed injections (treatment at weeks 12 and 18) of polyalkylimide gel (Bio-Alcamid; Polymekon Biotech Industrie, Italy) for the treatment of human immunodeficiency virus-associated facial lipoatrophy were evaluated in 31 patients [**23**]. At week 12, results showed a significant improvement in facial lipoatrophy severity in the immediate versus delayed treatment group (P<0.0001). Significant improvement in mental health (P=0.02), anxiety (P=0.02), and quality of life (P=0.01) scores also were observed at week 12 in the immediate treatment group compared with the delayed treatment group (**Table 4**) [**23**]. At week 48, there was no significant difference between groups at any endpoint (**Table 4**). However, median physician- and patient-rated facial lipoatrophy severity scores for the entire population at week 48 were significantly improved from baseline (P<0.0001 for both). In addition, improvements from baseline in all Medical Outcomes Study HIV Health Survey domains (P=0.01 for the mental health summary score only) and in median scores for the slightly modified Dermatology Quality of Life Survey were observed at week 48 (P<0.0001) [**23**].

The effects of injectable hyaluronic acid (Perlane; Q-Med, Sweden) for the treatment of human immunodeficiency virus-associated facial lipoatrophy were evaluated in a prospective, observational study in 18 men, with a mean follow-up time period of 12 months [**24**]. Results for improvement in facial lipoatrophy, as assessed by both the patient and the physician, showed a significant early improvement (P<0.01 from baseline) that remained significant after 12 months (P<0.05). These data indicated high patient satisfaction; additionally, hyaluronic acid injections were well tolerated [**24**]. A study of 5 patients treated with hyaluronic acid for correction of human immunodeficiency virus-associated lipoatrophy also reported good cosmetic results and high patient satisfaction. These patients entered treatment with grade 2 or 3 lipoatrophy and the hyaluronic acid was injected into the reticular dermis. All 5 patients returned within 6 months for additional treatments [**25**]. No data are available regarding the effects of hyaluronic acid on quality of life in these patients with facial lipoatrophy.

Discussion

Americans live in a culture that values aesthetic beauty to the point where people will spend over $12 billion per year on cosmetic procedures [**1**]. Attractiveness influences both the way people think about themselves as well as their behavior toward others and is related to traits such as self-confidence and social acceptance [**11**]. The studies reviewed here have shown that cosmetic interventions, surgical or nonsurgical, can help improve the quality of life and psychological well-being of patients electing to undergo these procedures. The positive changes evoked in these patients were related to their feeling healthier and more satisfied with their appearance, being less depressed or anxious, having better emotional well-being, and having more confidence. Quality-of-life outcomes thus represent an important approach by which practitioners and patients can better assess the effects of cosmetic interventions. Beauty itself is entirely subjective, and the technical aspects of aesthetic procedures may not result in patient satisfaction [**3**]. Therefore, the positive psychological effects that may come with cosmetic interventions can only be measured using quality-of-life outcomes.

However, limitations exist with regard to the use of quality-of-life outcomes in cosmetic interventions. Although various instruments or questionnaires can be used to assess outcomes, no single instrument has been standardized or has gained widespread use [**3**]. Instruments used to measure outcomes should be tested to ensure that they are practical, reliable, valid, and sensitive to change [**26**]. One recent study showed that 4 instruments were reliable and valid for assessing patient-related satisfaction following face-lift, rhinoplasty, blepharoplasty, or skin resurfacing [**27**]. Studies such as this can help provide practitioners with quantitative tools to evaluate outcomes in their patients, or may reveal the limitations of tools. For example, visual analog scales elicit responses that may be very subjective and difficult to interpret [**3**]. Since patients have different expectations and impressions of clinical outcomes, their perceptions of treatment success may differ. Additionally, goals of therapy may vary between individual patients: for example, some may want to look younger and some may want to feel more attractive [**28**]. Others may desire feeling better about their appearance, to look more rested, or to avoid looking tired, stressed, or angry [**28**]. All of these factors should be taken into account when evaluating quality-of-life outcomes.

Conclusions

In conclusion, existing data show that cosmetic interventions produce positive effects on quality of life in individuals electing to undergo cosmetic procedures. While physicians in this field have traditionally focused on optimizing the technical outcome and minimizing side effects, measurements of quality of life may provide a better understanding of the effects of these procedures on patients' psychological and social well-being. Furthermore, because they can serve as the foundation for a customized, comprehensive treatment plan, recently introduced injectable devices for facial rejuvenation has provided new opportunities to address the broad spectrum of patient needs. However, more research is needed to evaluate the effects of different cosmetic procedures on individuals' self-esteem, confidence, relationships, and acceptance by others. Future studies should also focus on the development and standardization of practical, valid, and reliable instruments for assessing quality-of-life outcomes in patients who elect cosmetic surgery.

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