

## HEALTH-RELATED QUALITY OF LIFE AFTER RHINOPLASTY: A REVIEW ARTICLE

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**ABSTRACT**

Rhinoplasty is a common aesthetic procedure that has been carried out for a long time and becoming popular all around the world. Rhinoplasty occupies a great percentage in the field of facial aesthetic surgery. Health-related quality of life is another popular issue that has not been studied enough. There are a lot of studies about rhinoplasty including technical details, pre-selection criteria and psychological evaluations, but there is little data about health-related quality of life after rhinoplasty. There's a general lack of well-controlled research about the psycho-social outcomes of aesthetic procedures in otolaryngology. Today, especially in modern medicine, it has been getting more important to evaluate the benefit of any surgical procedure. There is little data about Health-Related Quality Of Life (HRQOL) after those operations.

The aim of this review article is to discuss the health-related quality of life after rhinoplasty with the help of literature.

**KEY WORDS:** Health-Related Quality of life, Rhinoplasty, Septorhinoplasty

## 1. INTRODUCTION/BACKGROUND

The face is the most important anatomical structure describing the entity sensation. Among all anatomical structures, the nose has the great impact due to its central localization. The nose has a great effect on individual's physical appearance. Physical appearance has a great role in social life and relationships (1).

Beauty is under the effect of culture of a society. It is a combination of feelings and sensations. Physical appearance has an important role in social life relationships. There is a great effort to improve physical attractiveness among humans for centuries. Make-up and cosmetic surgeries have been the most used methods for this. Personality is developed under the effect of physical and social environment. Bachelorhood and marriage may affect the cosmetic surgery decision. Recent advances in cosmetic surgeries, television advertisements that encourage people to improve their physical appearance give rise to people experiencing aesthetic procedures (2).

Rhinoplasty occupies a great percentage in the field of facial aesthetic surgery. Today, outcome evaluations are becoming more important to analyze the assessment of quality of medical care. The physician should consider the health status of the patient by traditional treatment endpoints, recurrence, side effects, complications, and cost-effectiveness (3).

## 2. HEALTH-RELATED QUALITY OF LIFE

The World Health Organization (WHO) describes quality of life as individual's sense of their status in life circumstances, of the culture and value system that they live in and in connection to their ideals, standards, expectations and concerns. Quality of life (QOL) can be

categorized as general and health-related quality-of-life. Quality should be handled as a multi-dimensional subject. Lawton categorized quality of life as four main categories: objective environment, behavioral competence (including health), perceived quality of life, and psychological well-being (life satisfaction) (3).

Quality of life was first described in 1980s in medicine. Quality of life reflects the functional influence of a disease and its result therapy on the patient, as sensed by the patient. Health expectations and disease-related experiences of the patients may affect health-related quality of life. HRQOL is a multi-dimensional and subjective phenomenon (3).

The severity of the nasal obstruction is a very important parameter for evaluating the functional outcome of rhinoplasty procedure. The evaluation of satisfaction with the outcomes of rhinoplasty has been used as a subjective parameter for a long period. In some retrospective studies, it has been shown that more than 90% of the patients were satisfied with nasal appearance and breathing functions. Most of the studies have not used quality of life. Quality of life measurements with validated instruments have been carried out in only some studies (3).

## 3. PATIENT SELECTION AND EVALUATIONS

Desire for beauty, necessity to make friends and especially attracting the opposite sex give rise to a person to experience an aesthetic operation. The nose begins its growth period which continues through adolescence and takes its final characteristic shape, feminine or masculine in its contours and proportions (4).

According to the American Society for Aesthetic Plastic Surgery databases, 2012,

approximately every year, half a million people seek consultation for enhancement of the appearance of their nose (1).

According to the American Society of Plastic Surgery statistic for 2013, approximately 221.000 rhinoplasty operations were carried out worldwide in 2013, and 163.600 of these operations were carried out on women. This result is an evidence for the great level of social acceptance of aesthetic procedures in general (5).

There's a general lack of well-controlled research about the psycho-social outcomes of aesthetic procedures in otolaryngology. Most studies report high satisfaction rates after aesthetic surgical procedures; but for long-term satisfaction it has not been thoroughly researched. Unnecessary operations, medical errors may result in decreased satisfaction after operations (6).

Patient satisfaction is affected by various circumstances including preoperative appearance, patient expectations, social relationship capacities, alcohol intake and temperament. Revision rhinoplasty procedure is very important due to its major aim. Its major goal is to maintain the patients true expectations and to provide good results; especially improve the disappointment due to the first unsuccessful operation. This can be succeeded by the help of thorough evaluation of the patient and his/her realistic expectations (7).

The surgeon should be aware of the general appearance of the patient. Talking style, wrinkled and unmatched clothing, untidy hair, dirty appearance give important clues about the psychology of the patient. The patients who have improper personality have abnormal beliefs about their physical appearance. They attribute all their personal abnormalities to the physical deformity of

their nose, they may magnify a minor deformity. Linn and Goldman reported a study of 50 patients who experienced rhinoplasty and found a great incidence of neurosis (8,9).

MacGregor declared that the patients suffering minor physical defects are more upset and vulnerable (9,10).

The optimal time for rhinoplasty should be the age of 15 for females and 17 for males because puberty is complete and the nasal anatomy is not expected to change or grow. Before the operation, the maturity and motivation of the young patient and drug use should be evaluated carefully. The preoperative evaluation should be systematic including what the patient hates about his/her nose, a detailed physical examination, anatomic deformity analysis and a surgical plan (11).

Demographic characteristics of the patients, mental health issues, follow-up period, graft requirement, revision necessity and the severity of nasal deformity, are the factors that may affect the patient satisfaction following rhinoplasty. Luay Abbas has reported the significant improvement in patient satisfaction following primary rhinoplasty patients compared with revision patients. And he found a decreased satisfaction in his younger patients due to their higher expectations. He could not find any statistically significant difference of patients' satisfaction between grafted and non grafted patients (12).

Rhinoplasty can be affected by age-related differences due to its broad range of ages. Opposite to Luay Abbas, the general opinion is that dissatisfactions are more frequent among older patients who underwent rhinoplasty. This is because older patients may have difficulties to adopt the major changes in their facial appearance than younger ones. Additionally with aging,

increasing facial lines, loss of cheek fullness, bags under the eyes, may be seen. Older patients experienced rhinoplasty may be unhappy with their increasing facial lines, loss of cheek fullness, bags under their eyes and although they may be dissatisfied with the objectively better rhinoplasty outcomes due to these additional areas of facial appearance. Another reason for the dissatisfaction among older rhinoplasty patients is that; older patients may have noses with minimal deformity and thus delayed operation to a later time. After operation they may not achieve a significant improvement in satisfaction. It was reported that women are more likely capable than men of becoming aware of the social benefits of a surgically-produced physical improvement. Klassen et al. found that patient satisfaction and quality of life after rhinoplasty could be affected by different races and ethnicity. They found that the improvement and patient satisfaction were poorer among non-Caucasians compared with Caucasians following rhinoplasty (13).

Photographic analyses and documentation is essential before rhinoplasty operation planning (7).

Nasal obstruction is a frequent symptom that has been seen in otorhinolaryngology. It can be categorized as fixed components that required surgery and dynamic components that can be treatable in a medical way. Nasal septal deviation is the most common fixed anatomic structure. The nasal valve forms to the narrowest part of the nose and poses the major resistance to the nasal airflow. Nasal valve insufficiency can be defined as the reduction of the nasal valve area caused by a narrowing of the angle between the nasal septum and the upper lateral cartilage. Nasal septal deviation and nasal valve collapse are the deformities that require surgical correction (14).

It has been difficult to evaluate the result of cosmetic and functional nasal surgeries (rhinoplasty, nasal valve surgery, turbinoplasty, septorhinoplasty, septoplasty) objectively. Cephalometry has been used to evaluate the nose for analyzing changes in the nasal tip, rotation and projection after septorhinoplasty. Werther et al reported the nasion, articulare and pogonion as points described in cephalometry that are useful bony landmarks. Cephalometry does not provide analyzing soft-tissue details and for this reason it is not suitable for aesthetic facial surgery. Direct anthropometric measurements are also another method to evaluate the change in nasal tip, tip projection, radix projection, and nasal length after rhinoplasty. Photographs are quick methods for facial analyzes. Photographs can be saved as permanent records but they have some limitations for facial analyzing due to the changes in lighting and lens distortion. On the other hand, digital photography and imaging are becoming popular for analyzing in various anatomic parameters in cosmetic nasal surgery. Nasal tip projection, nasal tip rotation, and nasolabial angle are the most frequent measurements used in post-operative analyzing of nasal surgeries. Rhinomanometry is a method for assessing nasal airway resistance by detecting transnasal pressure drop and airflow simultaneously. This method has been used to detect changes of nasal resistance after topical decongestion, nasal valve surgery and septoplasty. The necessity for a well-trained operator and the inadequate capacity for assessing the obstruction location are the limitations (15).

#### **4. PSYCHOLOGICAL EVALUATIONS**

Dissatisfaction with physical appearance has a negative effect on a patient's self-esteem, that may result in anxiety or even depression and social avoidance. This

dissatisfaction with the physical appearance gives rise to the thought of aesthetic surgeries for the face and nose. A well-done rhinoplasty operation most commonly maintains and improves health-related quality of life. Psychological results can differ according to the patient's expectations. Psychological results may not be improved due to the significant depressive symptoms, severe personality disorders and psychosis. The evaluation of the physiological and social status of the patient is very important before such important operations in order to exclude inappropriate patients. Appropriate patients with realistic expectations and an experienced surgeon together with rhinoplasty most commonly will result in success. Impaired psychological evaluations before surgery result in negative surgical outcomes (1).

For these characteristics, this procedure requires more physical support. According to some studies, the large percentage of patients benefit from rhinoplasty regardless of the motivation for surgery. These people feel better in social life and relationships. Although the operation was done successfully, some patients may not be satisfied with the outcome, especially patients who are diagnosed with Body Dysmorphic Disorder (BDD). These patients are characteristically depressive, anxious for answers and young patients. They complain of multiple bodily deformities. These cases live socially isolated. It is very important to notice such patients before the procedure. A physiological and/or psychiatric consultation should be done before the operation, if the surgeon has a suspicion (3).

Body dysmorphic disorder can be described as preoccupation with an unrealistic image defect in one's appearance. This defect affects all aspects of life. These patients should be treated with psychiatric /

psychological help. Surgical procedures make the management of these patients more difficult and can not improve the quality of life after operation. To avoid these results, the surgeon should detect these patients carefully before operation. These patients have unrealistic expectations and due to these expectations they may develop depression, anxiety and physical violence towards the physician (6).

Body dysmorphic disorder is a disorder that can be characterized with an objectively absent or minimal deformity, and may cause greater problems and social impairment. The clinical aspect may return to a delusional conviction. This distress may get bigger and the patients may try to hide their defect by clothing, wigs, make-up, hats (16).

According to most studies, patients with minimal deformity are the appropriate individuals for cosmetic surgeries. This is an enigma. The term 'minimal deformity' is not clear enough. On the other hand, most of BDD patients have minimal deformity but these patients are not suitable candidates for aesthetic surgical procedures. To detect body dysmorphic disorder the amount of time being distressed on each day about the defect should be identified, and are there any behavioral problems or not (17).

There is no standardized measurement method to diagnose body dysmorphic disorder before an aesthetic procedure. The prevalence of the disorder was reported as 0.7 to 3% in community samples and 2.5 to 5.3 % in college students. Its prevalence was reported as ranging from 6 to 15% among people undergoing cosmetic operations. Major depression, social phobia, substance abuse, obsessive-compulsive disorder and personality disorders may be combined with body dysmorphic disorder. Especially, depression is very important because it may

be an indicator for latent body dysmorphic disorder (18).

Morselli pointed out that dysmorphism may affect patients before the preoperative period and approximately 75 percent of patients were diagnosed with a psychiatric diagnosis according to the DSM-IV of the American Psychiatric Association. Veale reported the association between the patients with BDD and their childhood or adolescence. These patients characteristically have a poor quality of life and have an isolated life. They demand for frequent dermatological treatments and cosmetic surgeries. Cognitive behavioral therapy and medication (selective serotonin reuptake inhibitors) are very effective in treatment (19).

Medical, sociocultural, psychological and environmental circumstances affect selecting the appropriate patient for rhinoplasty. Evaluation of benefit after anesthetic procedure depends exactly on the patient satisfaction and appropriate patients selection is important for a good result. Quality of life is an important parameter for evaluating health status and becoming popular all around the world (1).

## 5. QUESTIONNAIRES

Some questionnaires were developed for measuring health-related quality of life after rhinoplasty. SF-36 (Medical Outcome Study's 36-Item short-form Health survey), Glasgow benefit inventory (GBI), ROE (Rhinoplasty Outcome Evaluation), NOSE (Nasal Obstructive Symptom Evaluation), FACE-Q, DAS-59 (Deriford Appearance Scale-59), EQ-5D (European Quality Of Life-5 Dimension) are some of the measuring questionnaires that have been used for evaluating HRQOL. SF-36 is a popular questionnaire for QOL assessment. It is an easy, simple and interpretable

questionnaire. Kucur et al., in their 41 patients, with SF-36 showed significant improvement between patients and control groups (1).

Alsarraf et al. reported the improvement in the health status of 88 % of the patients in their study on 26 patients who had experienced rhinoplasty. They used ROE (3).

This test provides to measure the social, emotional and physical variables of the procedure. This questionnaire was translated to Portuguese by Sera Esterves festivals in 2013. Esteves et al. in their 107 patients pointed out a great improvement in ROE scores after rhinoplasty (7).

Bulut et al. used the German version of ROE questionnaire to evaluate their 100 patients who had experienced rhinoplasty after and postoperatively. ROE-D is a good, sensitive measurement method for assessing health-related quality of life after rhinoplasty and evaluation of the aesthetic aspects of the operation. ROE includes 6 questions (20).

Stewart et al. used the NOSE scale method to assess the nasal obstruction pre- and post-operative leave for patients who had experienced septoplasty. They showed significant improvement after surgery. Zahedi et al. showed a significant improvement in their 29 patients after septorhinoplasty procedure. They used NOSE scale and HRQOL questionnaires to evaluate the functional outcome after septorhinoplasty. They found that septorhinoplasty improves the nasal airflow and quality of life of patients with nasal obstruction (14,21).

Disease specific health status instruments are essential for evaluating quality of life. The NOSE scale is a brief, easy instrument that can be used for evaluating disease-specific health status

between groups of patients before and after treatment, for comparing the effects of different treatment modalities (21).

The FACE-Q is a method including approximately 40 functional scales and a checklist to evaluate patient-reported outcomes. It evaluates facial appearance, QOL and adverse effects (13).

Beside these, DAS-59 is a self-reported instrument that measures distress and dysfunction of appearance. It consists of 59 self-reported items developed to maintain an evaluation of the problems in everyday living, personal relations, and psychological distress originating from appearance (22).

Chauhan et al. reported a population of 30 patients who underwent rhinoplasty using the GBI, and showed a mean score for the total score scale of 58.3, the general subscale of 68.2, the social support subscale of 32.2, and the physical health subscale of 18.3. They evaluated GBI instruments as a reliable inventory to measure quality of life in patients with rhinoplasty (23,24).

McKiernan et al. and Sharp et al. also reported similar conclusions (24,25,26). Cingi and Eskiizmir showed high satisfaction and a positive impact on their patients' quality of life, by using the European Quality of Life-5 Dimension questionnaire. (24,27). Saleh et al. used two questionnaires; NOSE and ROE. They reached a positive conclusion, same as the literature (24,28). Schwintzer et al. assessed a population of 56 patients who underwent rhinoplasty by using the FACE-Q questionnaire. Their results showed improvement in appearance, social function, psychological well-being (24,29). Litner et al. measured psychological distress associated with self-consciousness by using DAS-59. They included patients with rhinoplasty and facial aging operations. They showed a significant reduction in

psychological distress in rhinoplasty group (24,30). Bensoussan et al. (Bensoussan et al. 2014) studied quality of life in rhinoplasty and they underlined the difficulties of the measurement of QOL in facial cosmetic surgeries. They pointed out that the improvement of QOL is rising rapidly especially between 3 months to 2 years postoperatively and keeps high, reaches a plateau after 2 to 5 years after an aesthetic procedure (24,31).

However, there are some studies that concluded that rhinoplasty does not have a positive effect on QOL. Mohammadshahi et al. studied a young population, mean age of 25 years. Younger patients may have greater expectations from the aesthetic procedures. This can explain their outcomes (24,32).

Zojaji et al. (Zojaji et al. 2014) studied 50 patients who experienced rhinoplasty (mean age  $26.4 \pm 7.3$  years) by using the General Health Questionnaire 28 and World Health Organization Quality of life questionnaire. They pointed out that rhinoplasty has no positive effect on QOL, except in the domain of psychological health. This statistical result may be because of the relatively small number of patients.

General questionnaires may fail to evaluate QOL in specific areas. The studies that used general questionnaires or combination of these questionnaires instead of specific ones had negative results like Mohammadshahi et al. and Zojaji et al (24,33).

## 6. CONCLUSIONS

Evaluation of benefit after anesthetic procedure exactly depends on patient satisfaction and appropriate patients selection is important for a good result. Quality of life is an important parameter for evaluating health status and is becoming popular all around the world. Specific

questionnaires are more sensitive to detect HRQOL. Different kinds of pathology, absence of homogeneity, recruitment of patients, various techniques, and especially surgical experience have an important role in

the results of aesthetic operations. In conclusion, rhinoplasty improves health-related quality of life according to most studies in the literature.



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