Reasons for rejection of rhinoplasty seeking patients: a multicentre observational study*

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Abstract

Background: To date, research on preoperative patient selection has mainly focused on patient personality, with body dysmorphic disorder (BDD) being the most studied. Despite the many reasons for not planning a rhinoplasty, no data are available on the nature of these reasons. Our aim is to conduct a multicentre international observational study on the reasons for rejection of patients seeking rhinoplasty in 5 tertiary rhinoplasty care centres.

Methods: Surgeons documented the reasons for not scheduling a rhinoplasty in consecutive patients who consulted them between January 2021 and March 2022 using a predefined list of reasons for rejection. Surgeons were also asked to report on the patient attitudes after rejection, and about the advice given to patients in the event of refusal.

Results: 186 patients seeking rhinoplasty were included. Multiple reasons for rejection were present in 76% of patients, with a mean of 2.9 reasons for rejection per patient. Overall, patient-related factors were most frequently associated with rejection (64.3%), followed by nose-related factors (28.4%), surgeon-related factors (6.0 %) and surgery-related factors (1.3%). The presence of severe BDD symptoms was reported in only 11.3% of the rejected patients. Patients rejected for rhinoplasty were advised to reconsider the surgery (32.8 %) and/or were referred to another surgeon (32.8%). No further action was taken in 39.8% of the patients. Of the patients who were rejected, most had a neutral (39.2 %) or positive (37.1 %) attitude in relation to the lack of rhinoplasty planning.

Conclusion: This study highlights the variety of reasons for which patients seeking rhinoplasty are not considered good candidates for a rhinoplasty, with patient-related factors being more prevalent than nose-related and other factors. Increasing awareness on the impact of adequate patient selection for rhinoplasty may contribute to better outcomes in rhinoplasty.

Key words: rhinoplasty, aesthetic, functional, rejection, body dysmorphic disorder

Introduction

Rhinoplasty is a challenging procedure due to the combined functional and aesthetic function of the nose, with both functions being important parts of patient post-operative satisfaction [1, 2]. During all 3 phases of rhinoplasty, i.e. preoperative, perioperative and postoperative, the surgeon's efforts should be maximised to achieve the best possible outcome, ultimately leading to a satisfied patient.

To date, most rhinoplasty research has focused on surgical techniques to achieve good rhinoplasty outcomes, utilizing

specific grafts, approaches and techniques to achieve the best and most predictable results. In the preoperative phase, the characterisation and recognition of BDD and its impact on patient satisfaction have been studied to a large extent [3-6]. During the process of patient selection, many experienced surgeons are alert to patients who present with symptoms of Body Dysmorphic Disorder (BDD), i.e. having an excessive preoccupation with an imagined or minor defect in physical appearance resulting in significant impairment in one or more important areas of functioning. The prevalence of moderate to severe BDD is known to be remarkably high in an aesthetic rhinoplasty population, with patients seeking revision rhinoplasty or patients known with a psychiatric history being particularly at risk [4]. In addition, the rhinoplasty surgeon should be aware of the correlation between the severity of BDD and the unfavourable subjective outcome after aesthetic rhinoplasty regardless of the actual nasal deformity preoperatively [3]. Therefore, the presence of BDD symptoms is known to be a legitimate reason to be cautious in planning and/or even to refuse a patient for rhinoplasty. In the daily routine of experienced rhinoplasty surgeons, patients are rejected for a variety of reasons, including BDD symptoms, but also other patient-related factors such as unreliability, unwillingness to pay for an aesthetic procedure, excessive expectations of functional and/or aesthetic results, lifestyle factors such as ongoing cocaine abuse, etc. In addition to patient-related factors, nasal, surgeon and/or surgery-related factors may all act together or in isolation to reject a patient for rhinoplasty.
Despite the importance of careful patient selection in the preoperative phase of rhinoplasty, no study has focused on the specific reason(s) for rejection of patients seeking rhinoplasty. The aim of this study was to determine the nature of rejection in rhinoplasty patients, focusing on the reasons, the number of arguments and the suggested next steps from the context of the surgeon. There is no intention to guide the decision to reject the patient or not, nor to identify reasons that lead to a higher risk of rejection. This study was conducted in 4 countries in several referral centres where the complexity of patients seeking rhinoplasty is high, resulting in a relatively high rate of rejection of patients seeking (revision) rhinoplasty.

Materials and methods

We conducted a prospective multicentre study between January 2021 and March 2022. Five experienced rhinoplasty surgeons in 4 different countries and five different tertiary referral centres (University Hospital Leuven in Belgium, Port Elizabeth in South Africa, Heraklion and Thessaloniki in Greece, Academic Medical Center Amsterdam in the Netherlands) evaluated their patients seeking rhinoplasty and documented the reasons why they rejected the patient for planning the operation.
All the rhinoplasty surgeons involved collaborated and agreed on a list of reasons for rejection to organise the data collection process in a consistent way. This document allowed the surgeons to anonymously record the gender, age, nasal problem (purely functional, mainly functional, combined functional/aesthetic, mainly aesthetic, purely aesthetic), rhinoplasty history (previous septoplasty, previous rhinoplasty, other facial procedures), nose-related reasons for rejection, patient-related reasons for rejection, surgeon-related reasons for rejection, surgery-related reasons for rejection, advice given to the patient and reaction of the patient.
All data were collected, processed and analysed anonymously by the first author (GDG). Participating surgeons were blinded to the data during data collection. Given the heterogeneity of the data between centers, the authors did not consider subgroup analyses to be relevant. All individual centres had this academic study approved by their local medical ethics committee.

Results

Patient population

In total, 5 medical centres collected data from 186 patients, of which 93 at the University Hospital Leuven in Belgium, 55 at Heraklion and Thessaloniki hospital in Greece , 24 at the Academic Medical Center Amsterdam in the Netherlands and 14 at Porth Elisabeth in South-Africa.
Of the 186 patients, 121 were female with a mean age of 36 years (range = 16 - 69) and 64 were male with a mean age of 37 years (range = 17 - 71). Most patients presented with a combined functional/aesthetic problem (48,4%) or a purely aesthetic problem (25.8%). A smaller number of patients presented with a purely functional problem (8.1%), a mainly functional problem (8.1%) or with a mainly aesthetic problem (9.7%). Medical records regarding previous rhinoplasty, septoplasty or other facial aesthetic procedures were blank in 80 patients. Eighteen patients (9.7%) had a single previous septoplasty procedure and 9 patients (4.8%) had multiple previous septoplasty procedures in their history. Thirty-six patients (19.4%) had a single previous rhinoplasty and 37 patients (19.9%) had multiple previous rhinoplasty procedures. Other previous facial procedures had been performed in 22 patients (Table 1).

Rejection rate

Three of the 5 centres, i.e. UZ Leuven hospital in Belgium, Heraklion hospital and Thessaloniki hospital in Greece, also documented the number of patients seeking rhinoplasty presented in their outpatient clinic during the period of this study. A total of 802 patients were seen in these centres, of whom 18.5 % was rejected. A large variability exists between the rejection rates of the different centres with a rejection rate of 44.9% at UZ Leuven hospital in Belgium, 19.7% at Heraklion hospital in Greece and 8.1% at Thessaloniki hospital in Greece.

Table 1. Patient characteristics.

Centre	UZ Leuven, Belgium	AMC, The Netherlands	Heraklion and Thessaloniki hospital, Greece	Porth-Elisabeth, South-Africa	Total
Number of patients	93	24	55	14	186
Gender					
Female	63	11	36	11	121 (65,1%)
Male	30	13	18	3	64 (34,4%)
Transgender			1		1 (0,5%)
Age					
Mean	33	38	40	41	38
Range	16 – 71	16 - 69	18 – 71	26 - 66	16 – 71
Nasal problem					
Purely functional	8	2	2	3	15 (8,1%)
Mainly functional	5	6	3	1	15 (8,1%)
Combined functional-aesthetic	38	12	36	4	90 (48,4%)
Mainly aesthetical	3	1	13	1	18 (9,7%)
Purely aesthetical	39	3	1	5	48 (25,8%)
History of nose/facial surgery					
Previous septoplasty					
One	6	2	9	1	18 (9,7%)
Two or more	3	0	3	3	9 (4,8%)
Previous rhinoplasty					
One	8	5	21	2	36 (19,4%)
Two or more	18	8	12	1	39 (21,0%)
Previous facial procedures					
One	0	2	12	0	14 (7,5%)
Two or more	0	0	2	1	3 (1,6%)

Reasons of patient rejection

A total of 532 reasons of rejection were recorded in 186 patients seeking rhinoplasty. More than one reason was found in 75% of patients, with a mean of 2.9 reasons of rejection per patient and a standard deviation of 1.7 reasons (Figure 1). The data were distributed according to the Poisson distribution.

In our study, the most common reasons for rejection were patient-related factors, accounting for 64.3% of all reasons for rejection. Nose-related factors were also commonly reported, accounting for 28.4%. Surgeon-related factors were less commonly reported, accounting for only 6.0 %, and surgery-related factors accounting for 1.3 % of all reasons for rejection, respectively (Figure 2).

Regarding patient-related factors, 37.6 % of the patients had unrealistic expectations, 24.2 % were unreliable for pre-, peri- or postoperative care, 19.4 % were dissatisfied with 2D/3D morphed imaging, 18.3 % had financial reasons (i.e. unwilling or unable to pay for aesthetic surgery), 14.5 % had an unhealthy motivation (i.e. poor self-esteem, body shame), 14.0 % had a psychiatric disorder such as depression anxiety or another mental comorbidity, 12.4 % expected of overcorrection, 11,3 % had severe BDD symptoms based the surgeon's intuition, 7.5 % had an unfavourable lifestyle (i.e. cocaine abuse, nose picking, excessive smoking, performing boxing-sport), 7.0 % were too flattering and 4,3 % were disrespectful towards medical staff. In 13.4 % of cases, other reasons were present such as being too uncertain for having the operation, having a distorted disease image, having lack of understanding of the complexity of the operation, being too young with the risk for distorting the outgrowth of the nose, having obstructive sleep apnoea or having an insurance problem (Figure 3a).

With regard to nose-related factors, 30.6% of the patients had limited or no options for surgical improvement of function and/or aesthetics, 18.3% had no options to combine functional and aesthetic improvement, 18.3% had minimal deformity with too much surgical risk, 4.2% had a 'crippled' nose with no options to improve the current status, 4.3% had a valve dysfunction where a nasal dilator was the treatment of choice, 3.8% had skin-

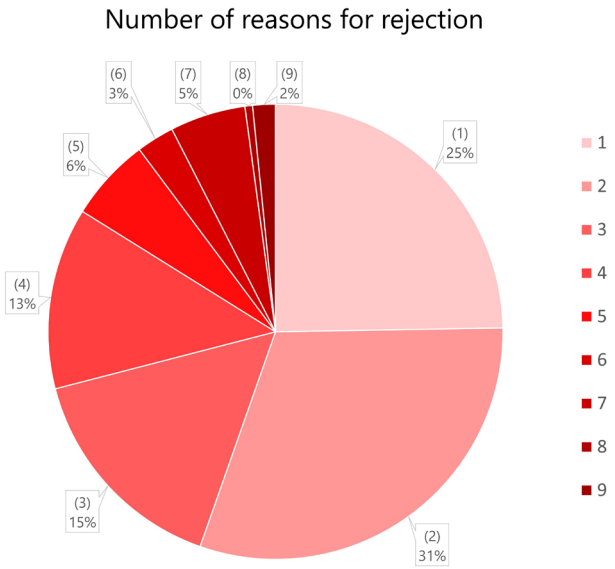


Figure 1. Distribution of patients according to the number of reasons for rejection.

related factors warranting dermatological treatment. In 1.1% of patients there were other reasons, such as a troublesome condition of the nasal mucosa (Figure 3b).

Surgeon-related factors for rejection were uncommon in this cohort of patients. In 8.1% the surgeon feared a neurotic personality, in 4.3% because the waiting list was too long and in 3.8% because of a lack of capacity to perform the surgery. In none of the cases was a prior claim against a surgeon mentioned as reason for rejection. One patient was rejected because the surgeon felt the patient could not answer questions properly during the preoperative consultation (Figure 3c).

Surgery-related factors for rejection were rather exceptional. 3.2% of the patients were rejected because they were not fit enough for surgery and 0.5% of the patients were rejected because of lack of material for rhinoplasty (i.e. lack of commercially available rib cartilage) (Figure 3d).

Further subgroup analyses were not considered relevant due to the heterogeneity of the data. To draw clinically relevant statistical conclusions, the sample size is therefore too small. The heterogeneity of the data is illustrated in Figure 3(a-d), which categorises the data by reason of rejection and nasal problem.

Surgeon's advice and patient's reaction

In a similar number of cases, patients were advised to return to the outpatient clinic after a certain time (41.1%) and/or to consult a colleague for a second opinion (32.8%). In 39.8% of the cases, there were no further action was taken and the patient-doctor relationship was ended. In a relatively small number of cases, the patient was advised to consult a psychiatrist or psychologist (8.1%), two patients (1.1%) were advised medical treatment with intranasal corticosteroids or coblation of the inferior turbinates, one patient (0.5%) was advised to treat haematological disease first and one patient (0.5%) who presented for a third opinion was advised to consult the previous surgeon.

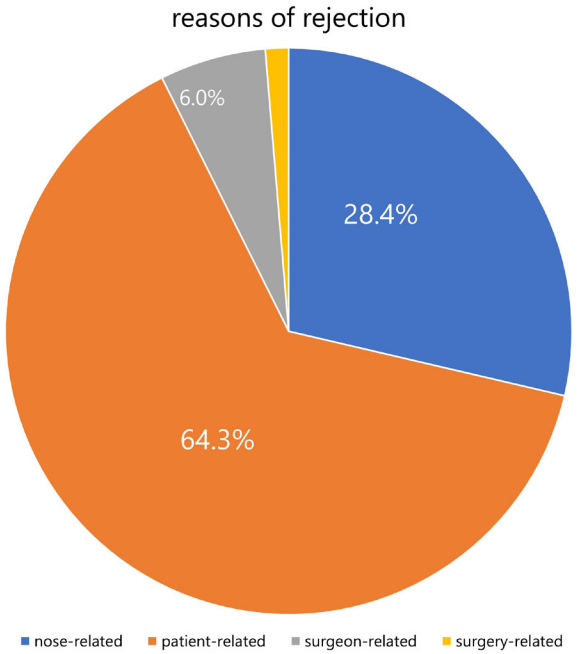
Most patients accepted the advice of not planning a rhinoplasty with a neutral (39.2%) or positive (37.1%) attitude. A smaller number of patients expressed disappointment with the advice given (17.2%). Few patients showed lack of acceptance (3.8%) or anger towards the advice given (3.8%). Only one patient threatened to sue the surgeon.

Discussion

As patient satisfaction is the ultimate goal to be achieved in rhinoplasty, the surgeon must make a well-considered decision to accept or reject a patient seeking rhinoplasty based on several criteria. Our aim with this study is to identify the different reasons for rejection as well as the frequency at which they occur in tertiary care centers. The main strength of this study is that it provides insights into the real-life situation of patient selection for rhinoplasty by combining data from several rhinoplasty referral centers and providing insight into the multiple possible reasons for not planning a rhinoplasty.

First of all, rejection rates show a large variability between different surgeons, ranging from 8.1% to 44.9%. This wide variability reflects the heterogeneity of patients seen in different centres, the different thresholds used by surgeons to accept or reject a patient, and the subjective assessment made by the surgeon in relation to their experience and surgical skills. In 75% of cases the surgeon documented more than one reason for rejection, with an average of 2.9 reasons per rejected patient (Figure 1). Nose-related and patient-related reasons dominated in the choice of rejection, representing 92,7% of the reasons. Surgery- or surgeon-related reasons were rarely reported (Figure 2). At first glance, there is no difference in rejection rates between male and female patients, nor between patients with a different nasal problem. Subgroup analyses were not performed due to the heterogeneity of the data and would require a larger sample size.

In our study, suspected BDD symptoms were reported in only 11.3% of rejected patients and were rarely the sole reason for rejection, despite the high focus on this psychological condition by surgeons, especially after all the studies performed on this topic by the leading authors of this study [3-6]. Combined with other mental health related reasons for rejection, such as the presence of a major depression and anxiety and/or unhealthy motivation for surgery due to low self-esteem and body shame, the rejection rate increased up to 26% of patients. However, only 8% of patients were advised to see a psychiatrist or psychologist. This may indicate that surgeons are able to recognise psychological problems, but are less likely to recommend psychological support. No further research was conducted on this as it is beyond the scope of this article.



NOSE-RELATED	**28.4%**
limited/no options to improve function and/or aesthetics in a surgical way	**10.7 %**
no option to combine functional and aesthetic improvement	**6.4 %**
minimal deformity with too much surgical risk/unpredictability	**6.4 %**
crippled nose without possibility to improve current status	**1.5 %**
nasal dilator is preferred as non-surgical option for valve dysfunction	**1.5 %**
skin-related reason to have dermatologic treatment	**1.3 %**
other	**0.6 %**
PATIENT-RELATED	**64.3 %**
unrealistic expectations: over-expectant, over-demanding	**13.2 %**
unreliable: not reliable for pre- (fake symptoms), per- or post-operative care	**8.5 %**
dissatisfaction with 2D/3D morphed images	**6.8 %**
financial reasons: not capable / willing to pay for (aesthetic) surgery	**6.4 %**
unhealthy motivation (poor self-worth, poor self-esteem, body shame)	**5.1 %**
psychiatric disorder: major depression, anxiety, or another mental comorbidity	**4,9 %**
other	**4.5 %**
expectation of overcorrection	**4.3 %**
severe BDD symptoms (based on gut feeling)	**4.1 %**
life-style reasons, e.g. cocaine abuse, nose picking, excessive smoking, etc.	**2.6 %**
too flattering	**2.4 %**
anger or disrespectful attitude towards medical staff	**1.5 %**
SURGEON-RELATED	**6.0 %**
fear of patient by surgeon: neurotic personality	**2.8 %**
too long waiting list	**1.5 %**
lack of capacity to perform the surgery	**1.3 %**
other	**0.4 %**
fear of patient by surgeon: previous court case launched against surgeon	**0.0 %**
SURGERY-RELATED	**1.3 %**
anaesthesia related: unfit for surgery	**1.1 %**
lack of materials to perform rhinoplasty (e.g. lack of commercial rib cartilage)	**0.2 %**

Figure 2. Distribution of all reasons of rejection reported in 186 patients according to the following categories: patient-related, nose-related, surgeon-related and surgery-related factors.

Another common reason for rejection was dissatisfaction with the 2D or 3D morphed images. In 1out of 5 patients, dissatisfaction with a morphed image was present, suggesting that 2D and 3D morphing is of great value in the preoperative counselling of the rhinoplasty patients. Indeed, meeting the patient's expectations and alignment with the surgeons' ambitions are important determinants of a successful outcome.

Financial reasons, such as inability or unwillingness to pay for aesthetic surgery, were also well represented as a reason for rejection and were reported in 18.3% of patients with purely/mainly aesthetic reasons to seek rhinoplasty (Figure 3a). Rejection rates due to financial reasons varied widely between different surgeons, ranging from 7.3% to 42.8% of patients. It is likely that the different reimbursement modalities used by health care providers and insurance companies play an important role in this observation. We are all aware that healthcare systems are facing increasing resource constraints due to demographic changes, technological development, and public expectations. This is why, for decades, only the functional part of rhinoplasty has been reimbursed, with the aesthetic part being fully paid for by the patient. In addition, more and more functional surgery is no longer fully covered by insurance companies, and aesthetic surgery is excluded from reimbursement by insurances. On the one hand, one might intuitively suggest that the psychological burden of a deformed nose should not be neglected and that those patients whose professional and personal activities are adversely affected by it should have access to this care. Our study shows that psychological problems were rather a reason for rejection, with the need for psychological support rather than rhinoplasty for these patients. Finally, it is practically impossible to determine this limit of psychological burden above which an aesthetic rhinoplasty would be reimbursed without introducing another group of excluded patients. And if this concept were to be applied, a third party would be required to make an objective assessment to avoid any potential conflict of interest. So, it seems that there are many (ethical) factors that need to be addressed before the health care system is able to extend this care to all patients, regardless of their income.

The vast majority of patients were advised to return to the outpatient clinic after a certain period of time (41.1%) and/or to consult a colleague surgeon for a second opinion (32.8%). No further steps or recommendations were made in 39.8% of the cases. Regardless of the advice given, most patients accepted the advice with a neutral (39.2%) or even positive (37.1%) attitude. Lack of acceptance (3.8%), anger at the advice given (3.8%) or threats to sue the surgeon (0.5%) were rarely reported. This

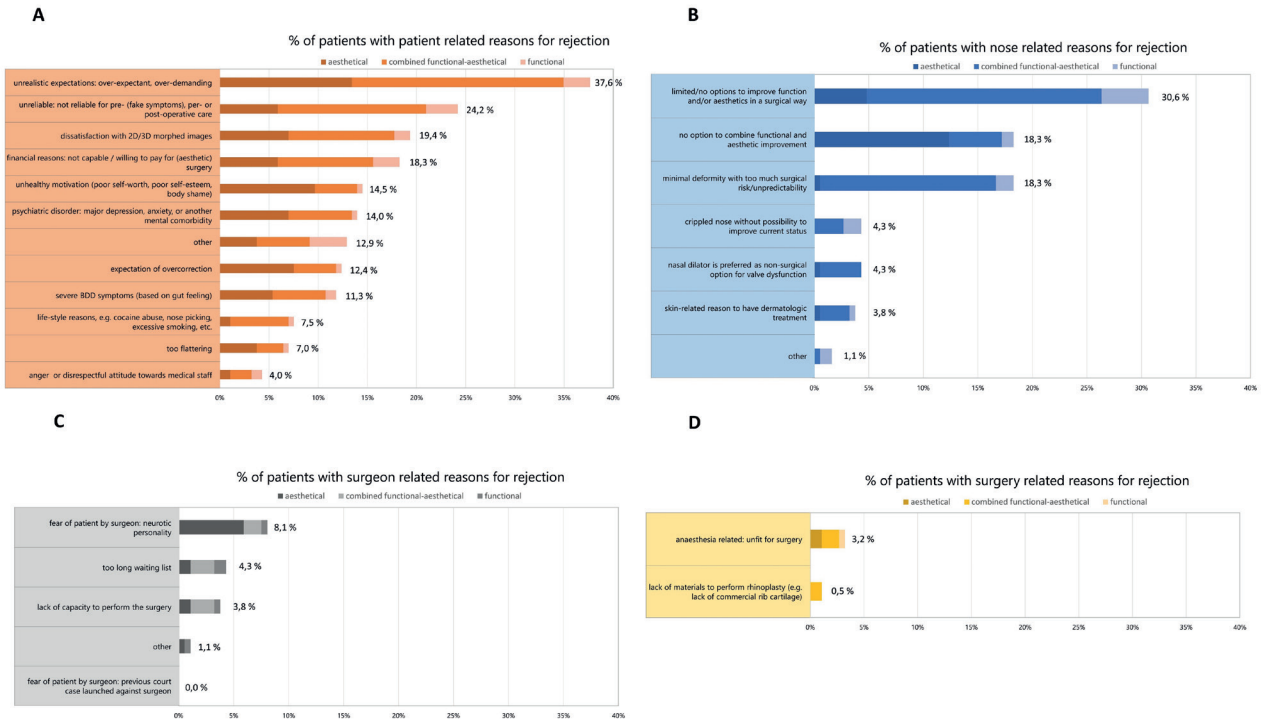


Figure 3. Distribution of patients presenting with a specific patient-related (a), nose-related (b), surgeon-related (c) and surgery-related (d) reasons. Note the heterogeneity of the data when distributed according to reasons of rejection as well as the nasal problem.

illustrates that for a significant number of patients, the surgeon must not be afraid of disappointing the patient by telling them they are not suitable for surgery (yet).

Conclusion

This study highlights the multiple reasons for not planning a rhinoplasty in those seeking nose surgery, with patient-related factors being more prevalent than nose-related factors and other factors. Increasing awareness on the impact of adequate patient selection for rhinoplasty may contribute to better outcomes in rhinoplasty.

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Authorship contribution

GDG and PWH designed and wrote the entire manuscript. GA, EP, JC, CM, MD and GL critically reviewed and revised the manuscript. All authors read and approved the final manuscript.

Conflict of interest

No conflict of interest to declare.

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This manuscript contains online supplementary material

SUPPLEMENTARY MATERIAL

Appendix 1. Rhinoplasty rejection record form.

Centre ☐ Leuven, Belgium
☐ Port Elisabeth, South-Africa
☐ Heraklion and Thessaloniki, Greece
☐ AMC, Amsterdam, The Netherlands

Record the number of patients planned for rhinoplasty before this 'rejection': ……
(list every planned patient with 'I'). Fill out the questionnaire below at the time of the 'rejected' rhinoplasty patient.

• **Gender**: ☐ Male
☐ Female

• **Age**: ….. years of age

•**Nasal problem**: ☐ Purely functonial problem
☐ Mainly functional problem
☐ Combined functional-aesthetical problem
☐ Mainly aesthetic problem
☐ Purely aesthetic problem

• **Rhinoplasty history:** ☐ Previous septoplasty: 1 – 2 – 3 – 4 – over 4
☐ Previous rhinoplasty: 1 – 2 – 3 – 4 – over 4
☐ Other facial procedures: 1 – 2 – 3 – 4 – over 4

Reasons for NOT considering patients for planning of rhinoplasty (more than one option):

☐ **Nose-related (more than one option possible):**
- ☐ limited / no option(s) to improve function and/or aesthetics in a surgical way
- ☐ minimal deformity with too much surgical risk / unpredictability
- ☐ no option to combine functional and aesthetic improvement
- ☐ nasal dilator is preferred as non-surgical option for valve dysfunction
- ☐ nasal 'cripple' without possibility to improve current status
- ☐ skin-related reason to have dermatologic treatment
- ☐ other: …

☐ **Patient-related (more than one option possible):**
- ☐ Unreliable: not reliable for pre- (fake symptoms), per- and post-operative care
- ☐ Psychiatric disorder: major depression, anxiety or other mental comorbidity
- ☐ Severe BDD symptoms (based on gut feeling)
- ☐ Unrealistic expectations: over-expectant, over-demanding
- ☐ Unhealthy motivation (poor self-worth, poor self-esteem, body shame)
- ☐ Expectation of overcorrection
- ☐ Too flattering
- ☐ Anger or disrespectful attitude towards medical staff
- ☐ Dissatisfaction with 2D/3D morphed images
- ☐ Financial reasons: not capable / willing to pay for (aesthetic) surgery
- ☐ life-style reasons, e.g. cocaine abuse, nose picking, excessive smoking, etc.

☐ **Surgeon-related (more than one option possible):**
- ☐ Fear of patient by surgeon
- ☐ Neurotic personality
- ☐ Previous court case launched against surgeon
- ☐ Lack of capacity to perform the surgery
- ☐ Too long waiting list
- ☐ Other:…

☐ Surgery-related (more than one option possible):
- ☐ Anaesthesia related: unfit for surgery
- ☐ Lack of materials to perform rhinoplasty (e.g.; lack of commercial rib cartilage)

What has been advised to the patient at end of outpatient clinic: (more options possible)

☐ No further steps (= end of the patient – physician partnership)

☐ Recommendation to return to own outpatient clinic in time (= intervention 'on hold')

☐ Referral to colleague surgeon for second/third opinion

☐ Referral to psychiatrist / psychologist

☐ Other: …

Reaction of patient:

☐ Acceptance with positive attitude (remains friendly and understanding)

☐ Acceptance with neutral attitude

☐ Acceptance with negative attitude (disappointment)

☐ Lack of acceptance

☐ Anger

☐ Possible official complaint

☐ Other: …