Predictors of patient satisfaction following septorhinoplasty: a prospective case series

Ishtiak Mahamud[1] and Nadia Ashraf[2]

[1]University Hospitals of Derby and Burton NHS Foundation Trust
[2]Whipps Cross University Hospital

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Abstract

Objectives: Careful patient selection in septorhinoplasty is critical to good patient outcomes. Body Dysmorphic Disorder (BDD) is a known risk factor for poor postoperative satisfaction. Our aim was to refine factors influencing patient satisfaction following septorhinoplasty and identifying relative risk of BDD. Design: A prospective cohort study was conducted. All participants completed SCHNOS and BDDQ (Body Dysmorphic Disorder Questionnaire) pre- and post-operatively; both validated tools in septorhinoplasty assessment. Setting: ENT clinic, district general hospital, UK Participants: 16 patients undergoing septorhinoplasty by a single surgeon, and 32 controls. Main outcome measures: Incidence of BDD in septorhinoplasty patients compared to control group. Identifying patient groups at high risk of BDD at presentation Results and Conclusions: Mean obstructive SCHNOS score improved from 79.7 to 35.9 following septorhinoplasty (22.5 in controls), p<0.01, 95%CI [28.6-58.9] and mean cosmetic SSCHNOS from 71.9 to 29.2 (1.7 in controls), p<0.001, 95%CI [27.2-58.2]. 38% (five female and one male) screened positively preoperatively on BDDQ and 31% (four male and one female) were borderline (0% in controls). Postoperatively 19% screened positively on BDDQ; one male identified preoperatively, and two males converting from borderline to BDD. All female patients positive on BDDQ preoperatively were non-BDD postoperatively. BDDQ is a useful screening tool for patients who may be dissatisfied with septorhinoplasty outcome. Satisfaction is high in female patients overall, although they are more likely to screen positive for BDD preoperatively. Particular caution should be exercised in male patients scoring borderline or positive on BDDQ.

Introduction

Careful patient selection in septorhinoplasty is critical to good outcomes. Pre-operative considerations should include the patient's motivation for surgery, social history, psychological and psychiatric history, as well as an assessment of their expectations of surgery. Unrealistic expectations can lead to post-operative dissatisfaction.

Body Dysmorphic Disorder (BDD) is an obsessive-compulsive spectrum disorder, where there is a preoccupation with perceived defects in physical appearance, which are not observable or appear slight to others. BDD is a known risk factor for poor post-operative satisfaction following septorhinoplasty .

There is a BDD prevalence of 5% in those seeking cosmetic surgery. These patients are often dissatisfied with the operative result and their BDD symptoms remain static or worsen post-operatively .

Given the clear need to very carefully select patients suitable for surgery, our aim was to identify and refine factors influencing patient satisfaction following septorhinoplasty.

Methodology

A prospective study was conducted, including 16 consecutive patients (after exclusion of one patient) undergoing septorhinoplasty by a single surgeon (NA) and 32 controls. Patients were recruited from the senior

author's University hospital and independent practices. All were primary cases except one male patient, who had undergone two prior septoplasties at a different centre and required rib graft. Control patients were recruited from a general ENT clinic.

All participants completed the Standardized Cosmesis and Health Nasal Outcomes Survey (SCHNOS) and Body Dysmorphic Disorder Questionnaire (BDDQ) pre-operatively and again post-operatively (figure 1). Follow-up range was 9-24 months. Patients who did not attend follow-up were contacted by telephone to complete the questionnaires. One patient was not contactable post-operatively and had to be excluded from the analysis.

SCHNOS is a validated questionnaire that assesses functional and aesthetic patient-reported outcomes following rhinoplasty . Each question is scored on a Likert scale of between zero and five (zero being no problem, and five being an extreme problem).

The SCHNOS produces two scores; a nasal obstruction score (SCHNOS-O) and a nasal cosmesis score (SCHNOS-C). The SCHNOS-O is calculated as a sum of scores of items 1–4 divided by 20 and multiplied by 100. The SCHNOS-C score is calculated as a sum of scores of items 5–10 divided by 30 and multiplied by 100 (figure 1).

Data collection, methodology, analysis and presentation performed in line with PROCESS 2020 guidelines (PMID 33189880, http://www.processguideline.com/).

Statistical analysis

The paired t-test was used to compare the pre- and post-operative patient scores. Statistical significance was attributed p<0.05 and the 95% confidence interval of the difference in scores calculated. Statistical analysis was performed using IBM SPSS Statistics version 27 (2020).

Results

Demographics

48 patients were included in the study; 16 undergoing septorhinoplasty and 32 controls. The mean age of the surgical group was 32, compared to 42 in the controls. 63% were female in the surgical group and 56% in the controls. 81% of patients presented primarily for functional concerns (University hospital patients) and 19% for aesthetic concerns (independent sector patients).

SCHNOS

Overall, SCHNOS-O score improved from 79.7 to 35.9 following septorhinoplasty (22.5 in controls), (p<0.001, 95% CI [28.6-58.9]), and SCHNOS-C from 71.9 to 29.2 (1.7 in controls) (p<0.001, 95% CI [27.2-58.2]). Figure 2.

Gender

In females, SCHNOS-O improved from 87.2 pre-operatively to 31.5 post-operatively (p<0.0001, 95% CI [35.0,-72.0]) and SCHNOS-C improved from 77.7 pre-operatively to 17 post-operatively (p<0.0001, 95% CI [48.8-72.6]). In males, SCHNOS-O improved from 70.8 pre-operatively to 43.3 post-operatively (p=0.052, 95% CI [0.0-55.4]) and SCHNOS-C improved from 62.2 pre-operatively to 49.4 post-operatively (p=0.15, 95% CI [0.0-32.0]). Figure 3.

BDD

In the septorhinoplasty group, 38% of patients (five female, one male) were identified as BDD positive pre-operatively, with a further 31% (four male, one female) being identified as borderline for BDD (0% in controls). 19% of patients screened positively on BDDQ post-operatively; one male patient who was identified pre-operatively as BDD, and two male patients who had initially been identified as borderline for BDD on the pre-operative questionnaire. All female patients who were identified as BDD positive pre-operatively screened BDD negative post-operatively.

Age

Patients under the age of 30 had a higher SCHNOS-C pre-operatively (76.7, compared to 63.9 in over 30s) but also showed a greater post-operative improvement (scoring 25.7 compared to 35) (p<0.001, 95% CI [32.9-69.1]). The over 30s population had a poorer post-operative improvement by comparison (p=0.79, 95% CI [0.0-62.6]). SCHNOS-O improved from 74.5 to 30 (under 30s)(p<0.001, 95% CI [31.3-57.7]) compared to 88.3 to 45.8 (over 30s)(p=0.058, 95% CI [0.0-86.9]) respectively. Figure 4.

Discussion

Synopsis of key findings

We found a statistically significant improvement in both functional and cosmetic patient-reported outcomes following septorhinoplasty. The SCHNOS-O improved from 79.7 to 35.9 (22.5 in controls), p<0.001, 95% CI [28.6-58.9], and SCHNOS-C from 71.9 to 29.2 (1.7 in controls), p<0.001, 95% CI [27.2- 58.2].

Gender

Although female patients had higher SCNHOS-O and SCNHOS-C scores pre-operatively (indicating more severe nasal symptoms and aesthetic concerns), they also showed a greater improvement in both scores post-operatively. This is similar to other studies confirming higher post-operative satisfaction in female patients .

BDD was more likely to be identified in female patients pre-operatively (50% of all female patients), but also more likely to 'resolve' post-operatively, compared to male patients. Males were more likely to screen borderline for BDD pre-operatively and more likely to remain or become BDD positive post-operatively.

Age

Patients under the age of 30 had a higher mean SCHNOS-C score but showed a greater improvement in both SCHNOS-O and SCHNOS-C post-operatively compared to those aged 30 or over. Other studies have shown older patients have greater post-operative satisfaction .

The greater number of males in the 30 and over age group (50% compared to 30% in the under 30 age group) may explain this difference. Additionally, the high post-operative BDD rate in our over 30 group may have contributed.

50% of those under the age of 30 screened positive for BDD pre-operatively compared to 17% over 30. Post-operatively, this changed to 10% and 33% respectively. 50% of patients in the over 30 age group were positive or borderline for BDD post-operatively and all of these were male patients.

Strengths and weaknesses of the study

Given the 100% sensitivity and 89-93% specificity of BDDQ in diagnosing BDD , it is useful for excluding BDD but may lead to false positives.

The size of the patient sample is small and a similar study with a larger sample size would further validate our findings.

Comparison with other studies

The 38% prevalence of BDD detected on pre-operative BDDQ is similar to other studies; 32% prevalence was found by Joseph et al in a sample of 34 patients presenting for septorhinoplasty, screened with BDDQ, and 31.5% in 130 screened patients by Fatholoomi et al Other studies give a much lower BDD prevalence in patients presenting for rhinoplasty (1.8 -31.5%) , probably because of different methods of screening and patient demographics. An uneven gender split may alter the rate detected, as BDD prevalence is known to be higher in females . Prevalence of BDD in the general population has been found to be around 2% and was 0% in our control cohort.

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The 50% prevalence of BDD in our female patients is similar to the 45% prevalence found by Joseph et al . BDD or symptoms of BDD may not be static. Our data shows that BDD diagnosis on BDDQ reduced following septorhinoplasty. Despite this, surgeons should remain cautious about operating on any patient who screens positive on BDDQ. Other factors should also be taken into account, including patient demographics, patient expectations, previous surgery and overall psychological stability. Our data suggests that particular caution should be applied to male patients and those over the age of 30; groups who were less satisfied with the post-operative result in our series.

There is some data that patients presenting for 'aesthetic rhinoplasty' are more likely to have psychological problems. A study of 597 patients attending facial plastic surgery clinics showed 13.1% screened positive on BDDQ if presenting with cosmetic concerns compared with 6.7% in those presenting for reconstructive surgery . Although our sample size was small, this was confirmed in our series. Of the three patients presenting primarily for aesthetic concerns, two had BDD on BDDQ and the third scored borderline for BDD. Post-operative patient satisfaction was high in all three of these patients post-operatively and the BDDQ became negative. This highlights the importance of a multi-faceted assessment of the patient.

Some patients may be knowledgeable about the screening tools in use and may doctor their responses in order to avoid screening positive for BDD. If there is any doubt about proceeding with surgery, the patient should be considered for clinical psychology assessment, although difficult to access in a National Health Service setting.

Clinical applicability

Post-operative satisfaction following septorhinoplasty is generally high in carefully selected patients. Certain patient groups are at higher risk of post-operative dissatisfaction; particularly males over the age of 30. BDDQ is a useful screening tool for patients with BDD and hence can be used to identify those who may be dissatisfied with septorhinoplasty outcome. Satisfaction is higher in female patients overall, despite being more likely to screen positive for BDD pre-operatively. Particular caution should be exercised in male patients screening positive or borderline on BDDQ.

References

Key words

Rhinoplasty

Patient-reported Outcome Measures

Body Dysmorphic Disorders

Key Points

- Careful patient selection in septorhinoplasty is critical to good patient outcomes

- The Body Dysmorphic Disorder Questionnaire (BDDQ) is a validated questionnaire that can be used to screen for Body Dysmorphic Disorder (BDD) in patients presenting for septorhinoplasty

- Female patients generally have higher post-operative satisfaction rates following septorhinoplasty

- Male patients screening positive or borderline for BDD have poor post-operative satisfaction following septorhinoplasty

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.
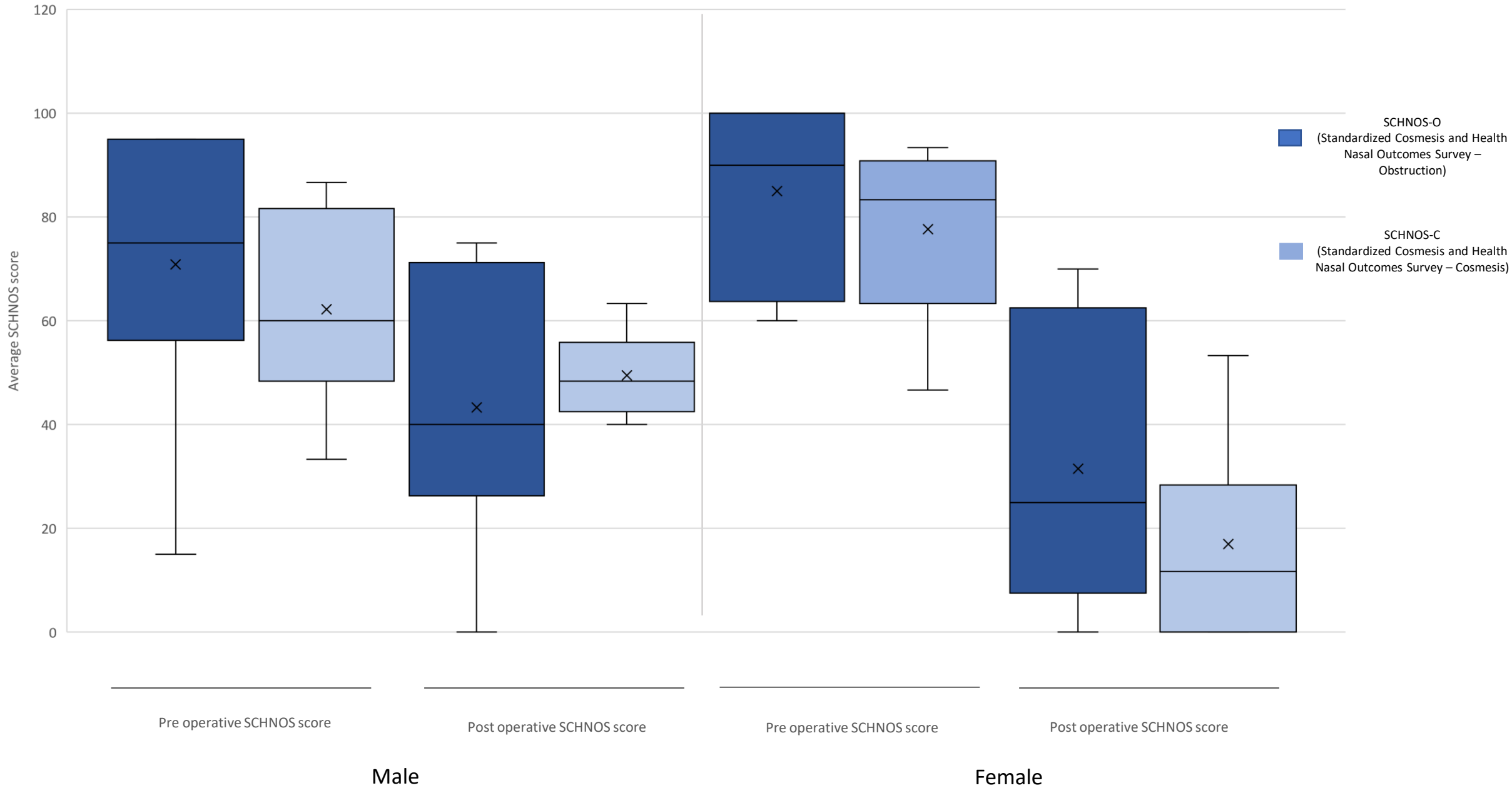
Figure legends

Figure 1 : Standardized Cosmesis and Health Nasal Outcomes Survey – Obstruction (SCHNOS-O), Standardized Cosmesis and Health Nasal Outcomes Survey – Cosmesis (SCHNOS-C) and Body Dysmorphic Disorder Questionnaire (BDDQ)

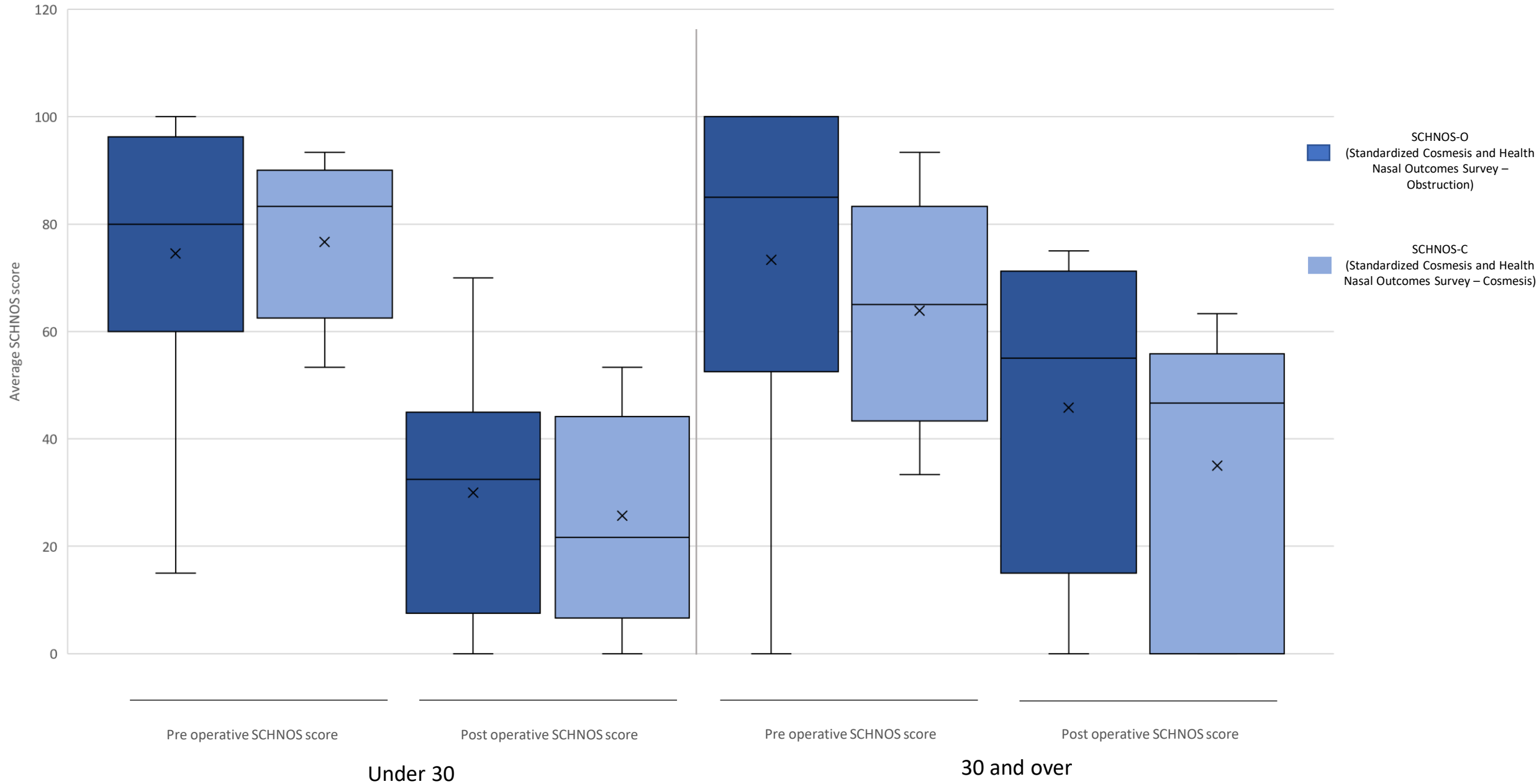**Figure 2** : Pre- and postoperative SCHNOS in septorhinoplasty and control groups

Figure 3: Pre- and postoperative SCHNOS by gender
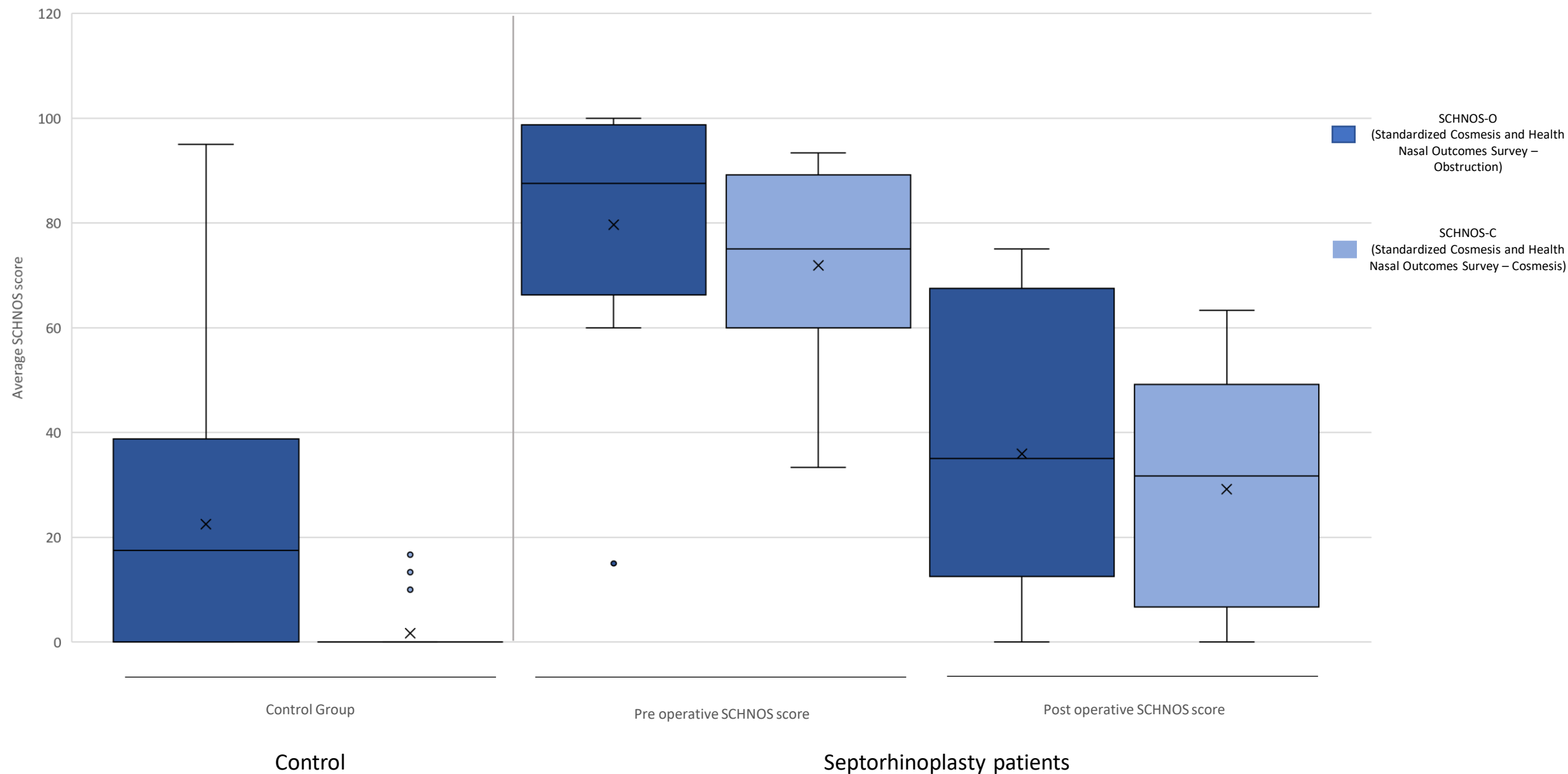
Figure 4: Pre- and postoperative SCHNOS by age

Pre- and postoperative SCHNOS by gender

Pre- and postoperative SCHNOS by age

Pre- and postoperative SCHNOS in septorhinoplasty and control groups

SCHNOS – O Score

1. Having a blocked or obstructed nose (0-5)
2. Getting air through my nose during exercise (0-5)
3. Having a congested nose (0-5)
4. Breathing through my nose during sleep (0-5)

SCHNOS-C score = (Σitem scores/20) x100
Maximum 100 points

SCHNOS – C Score

5. Decreased mood and self esteem due to my nose (0-5)
6. The shape of my nasal tip (0-5)
7. The straightness of my nose (0-5)
8. The shape of my nose from the side (0-5)
9. How well my nose suits my face (0-5)
10. The overall symmetry of my nose (0-5)

SCHNOS-C score = (Σitem scores/30) x100
Maximum 100 points

Body Dysmorphic Disorder Questionnaire (BDDQ)

1. Are you worried about how you look?   **Yes/No**

   If yes: Do you think your appearance problems a lot and wish you could think about them less?   *Yes/No*

NOTE: If you answered 'No' to either of the above questions, you are finished with this questionnaire. Otherwise please continue.

2. Is your main concern with how you look that you aren't thin enough or are too fat?   Yes/No

3. How has this problem with how you look affected your life?
   - *Has it often upset you a lot?*   *Yes/No*
   - *Has it often gotten in the way of doing things with friends, dating, your relationships with people, or your social activities?*   *Yes/No*

   - *Has it caused you any problems with school, work or other activities?*   *Yes/No*
   - *Are there things you avoid because of how you look?*   *Yes/No*

4. On an average day, how much time do you spend thinking about how you look? (Total during the day)
   a) Less than 1 hr   b) 1-3 hrs per day   c) >3hrs per day