



Are Psychopathological Disorders More Prevalent in Patients Seeking Minimally Invasive Cosmetic Procedures? A Case-Control Study

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Introduction

Minimally invasive cosmetic procedures such as Botox and dermal fillers are increasingly popular, but their psychological issues remain understudied. From September 2020 to July 2021, patients undergoing cosmetic procedures (Botox or fillers) or benign lesion removal (pilar cysts or nevi) were enrolled as cases and controls, respectively. Besides collecting their demographic and medical data, all participants completed the 53-item Brief Symptom Inventory (BSI) to assess psychological distress across nine domains.

Case Presentation

A total of 99 patients were evaluated (54 cases, 45 controls). The mean age was 38.70 ± 9.35 years in the case group and 38.31 ± 9.79 years in the control group, without any significant difference ($P=0.507$). Female patients predominated in both groups, comprising 91.0% of cases and 55.6% of controls ($P<0.001$). Educational attainment was higher among cases, with 70.4% holding a university degree or above compared to 53.3% of controls, although this difference did not reach statistical significance ($P=0.081$). Marital

Table 1. Brief Symptom Inventory subscales by type of cosmetic procedure.

BSI Subscale	Dermal Filler vs. Botox (OR [95% CI])	p-value	Botox + Filler vs. Botox (OR [95% CI])	p-value
Somatization	0.80 (0.44–1.33)	0.650	0.74 (0.27–2.02)	0.570
Obsessive–compulsive	1.00 (0.45–2.22)	0.983	0.79 (0.33–1.88)	0.601
Interpersonal sensitivity	0.87 (0.42–1.81)	0.726	0.54 (0.22–1.36)	0.196
Depression	1.27 (0.61–2.64)	0.522	0.65 (0.25–1.65)	0.368
Anxiety	0.82 (0.38–1.75)	0.618	0.56 (0.23 to 1.40)	0.221
Hostility	1.62 (0.68–3.82)	0.270	0.54 (0.19 to 1.52)	0.251
Phobic anxiety	1.00 (0.45–2.24)	0.985	0.77 (0.29–2.04)	0.611
Paranoid ideation	1.01 (0.50–2.02)	0.976	0.78 (0.35–1.73)	0.550
Psychoticism	1.01 (0.42–2.37)	0.979	0.80 (0.44–1.33)	0.650
Global Severity Index	1.01 (0.41–2.49)	0.981	0.60 (0.20–1.79)	0.368

Reference group: Botox only. Odds ratios adjusted for age, sex, education, and marital status. Abbreviation: CI: 95% confidence interval.

status was comparable between groups, with 61.1% of cases and 71.1% of controls being married ($P=0.297$). In terms of clinical presentation, 43% of cases received Botox injections, 31% received dermal filler injections, and 26% received both. Among controls, 51% presented with scalp pilar cysts, and 49% underwent nevi removal.

The Global Severity Index (GSI) median of the BSI questionnaire was 0.66 (IQR: 0.83) in the case group and 0.64 (IQR: 0.77) in the controls, which was not significantly different ($P=0.904$). The results of the Mann-Whitney tests did not show any significant difference in psychological dimensions between cases and controls.

The results of both simple and multiple logistic analyses after adjusting for important confounding factors, including age, sex, education, and marital status, did not show any difference in psychological dimensions and the type of cosmetic or non-cosmetic interventions ($P=0.937$).

A multinomial logistic regression analysis using the Botox group as reference found no significant association between psychological dimensions and type of cosmetic intervention. The global severity index risk ratio for dermal filler recipients was 1.01 (95% confidence interval: 0.41–2.49; $P=0.981$), indicating no psychological difference between groups (Table 1).

Conclusions

Unlike prior studies [1-3] linking minor cosmetic procedures to higher rates of psychological disorders and dissatisfaction, this study found no significant psychopathological difference between patients seeking minimally invasive cosmetic treatments and controls. The discrepancy may stem from differences in procedure type, cultural context, and sex distribution. Minimally invasive interventions appear to attract

a psychologically resilient population. However, limitations include reliance on self-reported BSI data, single-center sampling, and potential psychosocial differences between aesthetic and medical dermatology patients seeking nevus removal. Future research should incorporate clinical interviews, assess prior satisfaction, and explore sociocultural influences, especially digital exposure and gender norms, non-cosmetic motivations, and mental health outcomes.

Our findings did not reveal a higher prevalence of psychopathological disorders in patients seeking minimally invasive cosmetic procedures compared to those asking for non-cosmetic dermatologic surgeries. The findings of the current study are important in the clinical practice of dermatologists regarding their patients' satisfaction following various cosmetic procedures.

Ethical Approval: This study has been approved by the ethics institutional review board of Tehran University of Medical Sciences, Tehran, Iran (Ethical code: IR.TUMS.MEDICINE.REC.1399.620).

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