

Frequency, Motivation, and Beauty Standard Perception Among Male and Female Hair Transplant Patients: A Cross-Sectional Comparative Study

Vera Clinic Academy

Abstract

Background: Hair transplantation remains a male-predominant procedure, though the proportion of female patients has grown in recent years. Men and women differ in hair loss pattern, presenting age, and reported reasons for seeking surgical treatment, yet institutional data directly comparing frequency, motivation, and beauty-standard perception between male and female patients at a single centre remain limited.

Methods: This was a cross-sectional comparative study combining retrospective chart review and a pre-operative patient survey at Vera Clinic, Istanbul, among patients registered for hair transplantation between January 2022 and December 2024. Chart review data were available for 620 patients (452 men, 168 women). Of these, 460 patients (336 men, 124 women; 74.2% response rate) completed a pre-operative survey comprising a single categorical item on motivation and the Perceptions of Beauty Standards Scale (PBSS-8; 0 to 100, higher scores indicating greater perceived exposure to societal beauty standards). Co-primary outcomes were PBSS-8 score and motivation category, each compared by gender using an independent-samples t-test and a chi-square test, respectively. Gender distribution, age, hair loss stage, graft count, and technique were reported descriptively. As an exploratory measure, self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES) and compared between patients who selected self-confidence as their primary motivation and those who selected another category.

Results: Women comprised 27.1% of the chart-review cohort. Mean PBSS-8 score was higher among women than men (64.3 ± 11.2 versus 52.7 ± 12.8 ; mean difference +11.6, 95% CI 9.2 to 14.0, $p < 0.001$). Motivation category distribution differed significantly by gender ($\chi^2(4, N=460)=24.45$, $p < 0.001$): men most frequently cited professional or career reasons (39.9%), while women most frequently cited self-confidence (41.1%). In exploratory analysis, patients who selected self-confidence as their primary motivation had lower RSES scores than those citing other motivations (24.1 ± 5.8 versus 29.4 ± 5.2 ; mean difference -5.3, 95% CI -6.4 to -4.2, $p < 0.001$).

Conclusions: Male and female hair transplant patients at this institution differed significantly in perceived exposure to societal beauty standards and in the reasons cited for seeking treatment. These findings may inform gender-sensitive patient counselling and content development, though the cross-sectional, single-centre design limits causal interpretation.

Keywords: Hair Transplantation; Sex Factors; Motivation; Beauty; Self Concept (Confidence/Self-Image); Self Esteem; Cross-Sectional Studies

Introduction

Androgenetic alopecia affects both men and women, but hair transplantation remains markedly male-predominant. Men and women are classified using distinct staging systems, the Hamilton-Norwood and Ludwig scales respectively, reflecting their differing patterns of hair loss [1,2], and women have been reported to favour donor-preserving surgical approaches that accommodate existing hairstyles during recovery [3]. According to the largest available industry survey, 84.7% of surgical hair restoration patients globally were men in 2024, though the number of female patients grew by 16.5% between 2021 and 2024 [4].

Beyond frequency, men and women appear to differ in their motivations for pursuing treatment and in how hair loss affects their self-perception. A population-based survey of individuals living in the United States found that although fewer women considered undergoing hair transplantation than men, women were willing to pay more for the procedure, and a substantial proportion of respondents reported that progressing hair loss would make them feel less attractive or less confident [5]. However, this survey captured the general public's attitudes rather than the characteristics of actual patients at a treating institution, and it did not assess perceived exposure to societal beauty standards using a validated psychometric instrument.

A validated tool for this purpose, the Perceptions of Beauty Standards Scale (PBSS-8), was recently developed and psychometrically validated to assess how individuals perceive and internalise societal beauty norms [6]. To our knowledge, this scale has not previously been applied to a hair restoration population, nor compared between male and female patients within a single clinical setting.

The aim of this study was to compare the frequency, self-reported motivation, and beauty-standard perception, measured using the PBSS-8, between male and female patients presenting for hair transplantation at a single high-volume centre.

Methods

Study Design and Setting

This was a cross-sectional comparative study conducted at Vera Clinic, Istanbul, Turkey, combining retrospective chart review with a pre-operative patient survey. Data were drawn from patients registered for hair transplantation between January 1, 2022, and December 31, 2024.

Participants

All adult patients who met standard surgical candidacy criteria for hair transplantation and were registered for the procedure within the study window were eligible for chart review. Patients were excluded from the survey-based analyses if they had a documented diagnosis of body dysmorphic disorder, given the potential for this condition to distort appearance-perception measurement, or if fewer than 80% of survey

items were completed. Patients who did not complete the survey were retained in the chart-review analyses but excluded from survey-based comparisons.

Of 620 patients meeting chart-review criteria, 168 (27.1%) were women and 452 (72.9%) were men. Of these, 460 patients (336 men, 124 women) completed the pre-operative survey, corresponding to a response rate of 74.3% among men and 73.8% among women.

Variables

Chart review variables were gender distribution, age, hair loss stage (Hamilton-Norwood for men, Ludwig for women), mean graft count, and surgical technique, all reported descriptively.

Co-primary survey outcomes were: (1) beauty-standard perception, measured using the PBSS-8, a validated 8-item scale scored from 0 to 100 in which higher scores indicate greater perceived exposure to and internalisation of societal beauty standards [6]; and (2) self-reported motivation, assessed using a single item asking patients to select the primary reason for seeking hair transplantation from five mutually exclusive categories (professional or career appearance, self-confidence or personal wellbeing, social or romantic relationships, anti-aging or looking younger, or other). This motivation item was developed for this study and has not been independently validated.

The survey was administered prior to surgery, at the time of initial consultation, to minimise recall bias in reported motivation.

As an exploratory measure, self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES) [7], a validated 10-item instrument scored from 10 to 40, with higher scores indicating higher self-esteem. This measure was included to examine whether patients who identified self-confidence as their primary motivation for treatment differed in measured self-esteem from those citing other motivations, and was not designated as a co-primary outcome.

Denominators

Chart-review percentages are reported as a proportion of the full chart-review cohort (N=620). Survey-based percentages, means, and test statistics are reported as a proportion of, or based on, the survey-completing subgroup (N=460), unless otherwise specified.

Bias

The single-item motivation measure was administered pre-operatively to reduce recall bias, but as an unvalidated, single-category forced-choice item, it cannot capture co-occurring or nuanced motivations. Because the study was conducted at a single centre with an international patient base, the gender distribution and reported motivations may not generalise to other populations or healthcare settings. Technique and age distributions differed descriptively between men and women; as these were not adjusted for statistically, observed gender differences in PBSS-8 score or motivation may be partly attributable to these underlying differences rather than gender per se.

Statistical Methods

PBSS-8 score was compared between men and women using an independent-samples t-test, with results reported as mean difference, 95% confidence interval, and p-value. Motivation category distribution was compared between men and women using a chi-square test of independence. RSES score was compared between patients who selected self-confidence as their primary motivation and all other patients using an independent-samples t-test, as an exploratory analysis. Gender distribution, age, hair loss stage, graft count, and technique are reported descriptively without formal statistical comparison. Analyses were performed in R version 4.3.1. A p-value <0.05 was considered statistically significant.

Ethics

Patients were informed about the purpose of the survey component and provided written informed consent prior to completion. Participation was voluntary, and patients could decline without affecting their clinical care. Chart review data were fully anonymised prior to analysis. This study adhered to the principles of the Declaration of Helsinki.

Results

Chart Review Characteristics

Of 620 patients, 452 (72.9%) were men and 168 (27.1%) were women. Mean age was lower among men than women (33.8 ± 7.9 years versus 38.6 ± 8.4 years). Among men, hair loss stage distribution was Hamilton-Norwood II-III in 158 (35.0%), IV-V in 203 (44.9%), and VI-VII in 91 (20.1%). Among women, Ludwig stage distribution was grade I in 81 (48.2%), grade II in 65 (38.7%), and grade III in 22 (13.1%). Mean graft count was 2950 ± 450 among men and 2380 ± 380 among women. Technique distribution differed by gender: Sapphire FUE was used in 353 (78.1%) of men and 76 (45.2%) of women, and DHI in 99 (21.9%) of men and 92 (54.8%) of women (Table 1).

Table 1. Chart-review characteristics by gender (N=620). Values are reported descriptively; no formal statistical comparison was performed.

Characteristic	Men (N=452)	Women (N=168)
Age, years (mean $\pm$ SD)	33.8 ± 7.9	38.6 ± 8.4
Hair loss stage	Norwood II-III: 158 (35.0%) Norwood IV-V: 203 (44.9%) Norwood VI-VII: 91 (20.1%)	Ludwig I: 81 (48.2%) Ludwig II: 65 (38.7%) Ludwig III: 22 (13.1%)
Graft count (mean $\pm$ SD)	2950 ± 450	2380 ± 380
Technique	Sapphire FUE: 353 (78.1%) DHI: 99 (21.9%)	Sapphire FUE: 76 (45.2%) DHI: 92 (54.8%)

Beauty Standard Perception (PBSS-8)

Mean PBSS-8 score was higher among women than men (64.3 ± 11.2 versus 52.7 ± 12.8 ; mean difference +11.6, 95% CI 9.2 to 14.0, $t=9.48$, $p<0.001$; Table 2). Within each gender, mean PBSS-8 score increased

with hair loss stage: among women, scores were 59.8 for Ludwig I, 66.1 for Ludwig II, and 71.4 for Ludwig III; among men, scores were 48.9 for Norwood II-III, 53.6 for Norwood IV-V, and 58.9 for Norwood VI-VII. This within-gender, stage-related pattern was descriptive only and was not subjected to formal statistical testing.

Table 2. PBSS-8 score by gender (N=460). Higher scores indicate greater perceived exposure to societal beauty standards.

Outcome	Men (n=336)	Women (n=124)	Mean difference (95% CI)	p-value
PBSS-8 score (0-100, mean $\pm$ SD)	52.7 $\pm$ 12.8	64.3 $\pm$ 11.2	+11.6 (9.2 to 14.0)	<0.001

Motivation

Motivation category distribution differed significantly by gender ($\chi^2(4, N=460)=24.45, p<0.001$). Men most frequently cited professional or career appearance (39.9%), followed by self-confidence (25.9%). Women most frequently cited self-confidence (41.1%), followed by social or romantic relationships (22.6%). The full distribution is shown in Table 3 and Figure 1.

Table 3. Self-reported primary motivation for hair transplantation, by gender (N=460).

Motivation category	Men, n (%)	Women, n (%)
Professional / career	134 (39.9%)	22 (17.7%)
Self-confidence	87 (25.9%)	51 (41.1%)
Social / romantic	47 (14.0%)	28 (22.6%)
Anti-aging	51 (15.2%)	18 (14.5%)
Other	17 (5.1%)	5 (4.0%)
Total	336 (100%)	124 (100%)

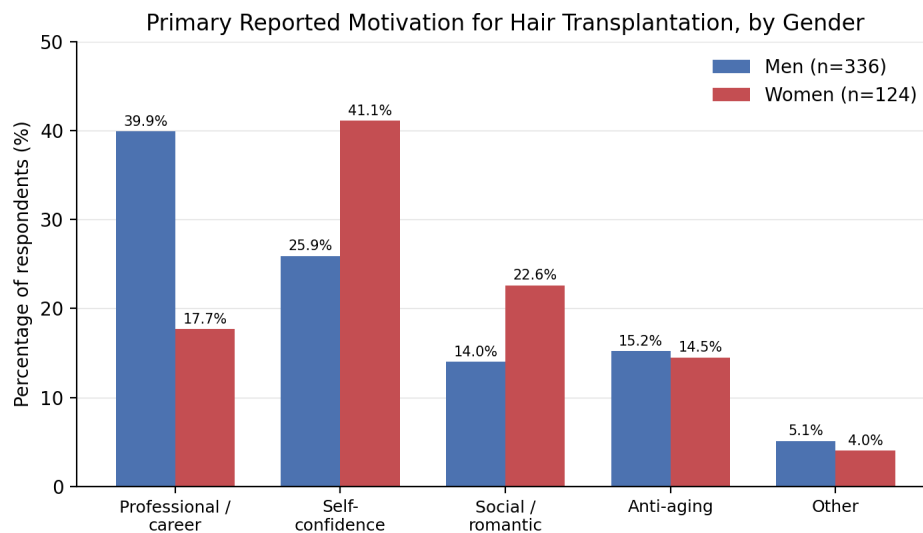


Figure 1. Primary reported motivation for hair transplantation, by gender.

Exploratory Analysis: Self-Esteem and Motivation

As an exploratory analysis, RSES scores were compared between patients who selected self-confidence as their primary motivation (n=138: 87 men, 51 women) and all other patients (n=322). Patients citing self-confidence had lower RSES scores than those citing other motivations (24.1 ± 5.8 versus 29.4 ± 5.2 ; mean difference -5.3 , 95% CI -6.4 to -4.2 , $t=9.26$, $p<0.001$; Table 4).

Table 4. Rosenberg Self-Esteem Scale (RSES) score by primary motivation category (N=460).

Group	n	RSES score (mean $\pm$ SD)	Mean difference (95% CI)	p-value
Selected self-confidence	138	24.1 ± 5.8	-5.3 (-6.4 to -4.2)	<0.001
Selected other category	322	29.4 ± 5.2	—	—

Discussion

In this cross-sectional comparison of male and female hair transplant patients at a single centre, women comprised just over a quarter of the chart-review cohort, reported significantly higher perceived exposure to societal beauty standards, and cited a different primary motivation for treatment than men.

The gender distribution observed in this cohort (72.9% men, 27.1% women) shows a higher proportion of female patients than the 84.7% male, 15.3% female split reported across ISHRS member practices globally in 2024 [4]. This difference may reflect Vera Clinic's international patient base and its dedicated content and technique offerings for female patients, rather than a broader shift in the overall demographic profile of hair transplantation.

The higher PBSS-8 scores observed among women are consistent with prior survey findings that women more frequently report that progressing hair loss would diminish their sense of attractiveness and confidence [5]. The present study extends this observation by applying a validated, general-purpose beauty-standards instrument, rather than hair-loss-specific items, to a treatment-seeking population, and by directly comparing men and women within a single institution rather than surveying the general public.

The gender difference in motivation category, with men more frequently citing professional or career reasons and women more frequently citing self-confidence, parallels earlier findings that men and women may weigh the social consequences of hair loss differently [5]. The stage-related increase in PBSS-8 score observed within both genders, though descriptive only, suggests that perceived exposure to beauty standards may compound as visible hair loss progresses, independent of gender.

The exploratory finding that patients citing self-confidence as their primary motivation had measurably lower self-esteem than those citing other reasons lends some construct validity to this study's unvalidated

motivation item: patients' self-reported category corresponded to an independent, validated psychological measure in the expected direction. This finding is distinct from the PBSS-8 result, which reflects perceived external societal pressure rather than internal self-evaluation, suggesting that beauty-standard perception and self-esteem, while related, capture separate dimensions of patients' experience.

This study has several limitations. Its cross-sectional design precludes causal inference regarding why men and women differ in motivation or beauty-standard perception. The motivation item was developed for this study and has not been independently validated; a single forced-choice category cannot capture overlapping or evolving motivations. Technique and age distributions differed descriptively between men and women, and as these were not statistically adjusted for, the observed gender differences in PBSS-8 score and motivation may be partly attributable to these underlying differences rather than to gender itself. The study was conducted at a single, high-volume international centre, which may limit generalisability to other clinical or cultural settings. Finally, the PBSS-8 was developed and validated in an adolescent Nepalese population [6]; its psychometric performance in an adult, international hair-restoration population has not been separately established. The RSES comparison was exploratory and restricted to a single dichotomised grouping (self-confidence versus other); it was not adjusted for gender, age, or hair loss stage, and should not be interpreted as establishing a causal relationship between self-esteem and motivation.

These findings suggest that male and female hair transplant patients differ meaningfully in their perceived exposure to societal beauty standards and in the reasons they cite for seeking treatment, information that may inform gender-sensitive patient counselling and educational content.

Conclusions

In this single-centre, cross-sectional comparison, women comprised a minority but a substantial proportion of hair transplant patients, reported significantly higher perceived exposure to societal beauty standards than men, and most frequently cited self-confidence, rather than professional appearance, as their primary motivation for treatment. These descriptive and comparative findings may help inform more gender-sensitive patient counselling and content, though prospective, multi-centre research is needed to confirm generalisability.

Declarations

Conflict of Interest:

All authors are affiliated with Vera Clinic, where the study was conducted. The clinic provided patient records, survey infrastructure, and consultation facilities. The authors declare no other competing interests. Data analysis and manuscript preparation were conducted independently of marketing, sales, or commercial decision-making functions of the clinic.

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Data Availability:

De-identified data supporting the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions:

Vera Clinic Academy conceived the study, supervised data collection, performed data extraction and statistical analysis, and drafted the manuscript.

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