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The impact of aesthetic treatments on self-esteem. Pilot study

Wpływ zabiegów estetycznych na poczucie własnej wartości. Badanie pilotażowe

ABSTRACT

Self-esteem is a key element of personal perception and interaction with the environment. The awareness of beauty, shaped by social standards and promoted in social media, can motivate people to undergo aesthetic medicine treatments to achieve the desired appearance.

This study aimed to describe changes in self-esteem in people aged 18–50 before and after undergoing aesthetic medicine procedures. The study included men and women who underwent aesthetic interventions (botulinum toxin, hyaluronic acid, or biostimulators).

Significant changes in self-esteem before and after the procedures were identified, and the relationships between the variables were examined using statistical tests. Aesthetic treatment may influence the perception of one's appearance, especially in individuals with high self-esteem before the procedure. H owever, further research is needed to understand the psychological and social implications of these procedures fully.

Keywords: self-esteem, botulinum toxin, hyaluronic acid, biostimulators, aesthetic procedures

STRESZCZENIE

Poczucie własnej wartości stanowi istotny element w sposobie postrzegania siebie oraz w relacjach z otoczeniem. Społeczne standardy urody, wzmacniane przez przekaz mediów społecznościowych, mogą skłaniać do sięgania po zabiegi medycyny estetycznej w dążeniu do określonego wyglądu.

Celem pracy było opisanie zmian w poczuciu własnej wartości u osób w wieku 18-50 lat przed i po poddaniu się zabiegowi medycyny estetycznej. Włączono do niego mężczyzn i kobiety, u których wykonano zabiegi estetyczne (toksyna botulinowa, kwas hialuronowy lub biostymulatory).

Zidentyfikowano istotne zmiany w samoocenie przed i po zabiegach oraz zbadano powiązania między zmiennymi za pomocą testów statystycznych. Zabiegi estetyczne mogą kształtować sposób postrzegania własnego wyglądu, zwłaszcza u osób, które już przed ich wykonaniem cechowały się wysoką samooceną. Jednak konieczne są dalsze badania, aby w pełni zrozumieć psychologiczne i społeczne implikacje tych zabiegów.

Słowa kluczowe: samoocena, toksyna botulinowa, kwas hialuronowy, biostymulatory, zabiegi estetyczne

INTRODUCTION

Self-esteem is the degree of personal satisfaction with their own appearance. It is perceived as self-perception and the level of acceptance towards personal characteristics, and can be influenced by different external, cultural, and social factors. It is not only what a person thinks of themselves but also how they feel and behave in relation to it [1]. Therefore, self-esteem can influence personality and the way in which people interact with their environment, depending on perceptions, thoughts, and feelings that constitute each individual.

The perception of beauty influenced by culture motivates people to undergo aesthetic procedures, including invasive

methods such as plastic surgery and/or non-surgical treatments, which can help a person achieve their desired appearance. This decision is based on the fact that a positive perception of physical appearance can influence a person's confidence and self-assessment. This insight can be altered when compared to social standards determined by social media propaganda; the higher number of posts with photos taken from the right angle and the increasing use of filters, coupled with consumerism promoting beauty products and seeking a sometimes distorted image of the "ideal body", are reasons that can influence people to undergo such procedures [2].

The link between self-esteem and societal beauty stereotypes has grown, especially with the rise of aesthetic procedures. Unlike noninvasive treatments, plastic surgeries involve permanent, higher-risk physical changes [3], and the latter produce more subtle transformations such as wrinkle reduction or skin blemishes. According to Hong [4], aesthetic concerns vary by age groups, with younger groups focusing more on smoother contour and volume reduction, while older groups are more interested in wrinkle reduction.

In recent years, global demand for aesthetic procedures has surged, led by three main trends: botulinum toxin (the most common non-surgical procedure worldwide), hyaluronic acid (with over a 30% rise in injections in 2021), and biostimulators (a novel skin-aging treatment using plasma and growth factors that has revolutionized aesthetic medicine). The use of biostimulators in the cosmetic field is a recent development worldwide, with ongoing advances in techniques and materials. For this reason, no reliable global usage percentages are yet available for this procedure [5].

AIM

This research sought to describe changes in self-esteem in people aged 18-50 before and after undergoing an aesthetic procedure in Colombia in 2023.

MATERIALS AND METHODS

This study was quantitative and employed a longitudinal, descriptive observational design. The fieldwork was conducted during the first half of 2023.

The study population consisted of men and women aged 18-50 who underwent an aesthetic procedure performed by aesthetic doctors in 22 Colombian cities, most of which were associated with the Colombian Scientific Association of Aesthetic Medicine (*Asociación Científica Colombiana de Medicina Estética*, ACICME). The sampling was non-probabilistic by convenience. Participants were recruited through the aesthetic doctors who attended the consultations.

Inclusion criteria were age between 18 and 50 years old, to undergo aesthetic procedures such as botulinum toxin, hyaluronic acid or biostimulators and agreement to the informed consent. Exclusion criteria included individuals who discontinued follow-up (before and after), those who had negative impacts from their first surgical or aesthetic procedure (performed by other professionals or the same treating physician) and were attending for possible resolution, and those who had fillers like biopolymers or fillers unknown to the patient.

The information collection instrument was applied digitally or physically and was self-administered. Its application consisted of two stages: the first, called "before", was conducted in the consultation before the aesthetic procedure, while the second stage, called "after", was conducted at the control appointment after the aesthetic procedure (10-20 days after the treatment).

The instrument consisted of a questionnaire and a scale. The variables considered in the study were classified into three categories: 1) Sociodemographic: sex, age, educational level, place of residence; 2) Related to aesthetic procedures: having undergone any aesthetic procedure previously (if yes, which procedure), or an aesthetic procedure to be performed in the "before" and "after" (botulinum toxin, hyaluronic acid, or biostimulators); and 3) the Rosenberg Self-Esteem Scale (EAR), validated in Colombia in 2016 [6].

The analysis plan was conducted first with descriptive statistics using frequencies and proportions for qualitative variables. Numerical variables were described using measures of central tendency and dispersion. Second, self-esteem was evaluated using the EAR, classified according to the manual scale as follows: high self-esteem from 30 to 40 points (considered normal self-esteem); medium self-esteem from 26 to 29 points (no severe self-esteem problems but needs improvement); and low self-esteem below 25 points (significant self-esteem problems). Third, based on the classification of each measurement, a new variable was generated to verify changes in self-esteem before and after the procedure. Finally, variables potentially associated with changes in self-esteem were explored using statistical tests such as chi-squared, with p-values considered significant when less than 0.05, and multinomial regression tests with risk estimation (OR) and 95% confidence intervals (CI 95%). Before these analyses, the normality of the data distribution was assessed using the Shapiro-Wilk test (or another method if applicable), ensuring the appropriate use of parametric or non-parametric tests.

The study had ethical approval from the Research Ethics Committee of Institución Universitaria Visión de las Américas and was classified as minimal risk research according to Resolution 8430 of 1993 by the Ministry of Health of Colombia.

RESULTS

The study included 191 patients, of whom 81% (n=151) were women. The median age was 35 years, with an interquartile range (IQR) of 30–42. In the surveys conducted before the aesthetic procedure (before), 191 responses were obtained, while 158 responses were collected after the procedure (after).

According to the exclusion criteria established by the study, 53 patients were excluded due to loss in the follow-up survey.

Five geographic areas were included, with the highest participation in Antioquia (n=145; 75.9%), followed by the Coffee Axis (n=20; 10.5%), the Caribbean coast of Colombia (n=13; 6.8%), and others. Botulinum toxin was the most frequently performed procedure (n=140; 73.3%), followed by hyaluronic acid (n=37; 35.1%) and biostimulators (n=27; 14.1%). It is important to note that patients could have undergone more than one aesthetic procedure in the same consultation (table 1).

According to the EAR, a positive change was observed in 5.56% (n=8) of people. There was also a reduction in the number of participants declaring low self-esteem, while the number of patients with high and medium self-esteem increased (table 2).

For the multivariate analysis, cross-checks were performed considering positive changes after an aesthetic procedure as the dependent variable. It was found that having high self-esteem before the aesthetic procedure was a protective variable for presenting positive changes in self-esteem, odds ratio (OR) 0.03 (95% CI <0.01 – 0.08; p<0.001) (table 3).

DISCUSSION

Humans possess the unique ability to forge their own identity and value their physical, personal and professional development. This quality gives rise to the concept of self-esteem, which is influenced by various external factors, including society and social media. Nowadays, these two realms have significantly transformed the perception of self-esteem. What was once considered self-love, self-value, and self-acceptance has been distorted in the 21st century by the pressure to meet unreal beauty standards [7]. According to Sarwer et al. [8], the image of the perfect woman has undergone radical changes; society and social media present her as someone with impeccable physical appearance and exceptional characteristics, which are qualities possessed by only a minority of the population.

Building on this societal context, the link between external appearance, emotional well-being, and aesthetic procedures becomes more evident. The use of non-invasive aesthetic procedures is closely connected to mental health and emotional states, particularly emotions such as anger, fear, sadness, and depression. These emotions often stimulate the

Table 1 Sociodemographic variables and aesthetic procedures.

Variable	Frequency	Proportion (%)
Sex		
Woman	155	81.2
Man	36	18.8
Geographic area		
Antioquia	145	75.9
Coffee region	20	10.5
Colombia Caribbean coast	13	6.8
Altiplano	10	5.2
Others	3	1.6
Educational level		
Undergraduate	83	43.5
Postgraduate	78	40.8
High school	30	15.7
Procedure performed before		
Botulinum Toxin	140	73.3
Hyaluronic acid	67	35.1
Biostimulators	27	14.1
Procedure performed after		
Botulinum Toxin	115	73.2
Hyaluronic acid	52	33.1
Biostimulators	27	17.2

Source: Own elaboration

Table 2 Self-esteem before and after aesthetic procedures.

Self-esteem level	Before n (%)	After n (%)
High	129 (89.5%)	131 (91%)
Low	11 (7.6%)	3 (2%)
Medium	4 (2.7%)	10 (7%)
Total	144	144

Source: Own elaboration

Table 3 Positive changes in self-esteem and relationship with variables of interest.

Variables	Sig.	OR	CI 95% (lower - upper)
Woman	0.64	1.29	0.42 - 3.93
High self-esteem	**<0.01**	**0.03**	**0.01 - 0.08**
Low self-esteem	0.61	1.63	0.24 - 11.07
Previous procedure performed			
Botulinum toxin	0.05	0.38	0.13 - 1.03
Hyaluronic acid	0.38	0.61	0.20 - 1.84
Biostimulators	0.47	1.51	0.48 - 4.72
Procedure performed during the study			
Botulinum toxin	0.27	0.62	0.26 - 1.46
Hyaluronic acid	0.53	1.30	0.56 - 2.98
Biostimulators	0.89	0.92	0.30 - 2.82

Abbreviations: Sig: Significance; OR: odds ratio; 95% CI: 95% confidence interval.

Source: Own elaboration

musculus corrugator supercilli (the muscle that furrows the brow) and procerus muscles in the glabellar region, leading to visible expression lines. Notably, botulinum toxin injections can reduce these lines, which may contribute to a reduction in negative emotions and an increase in positive feelings such as happiness, joy, and optimism [9].

In relation to self-esteem, previous studies have shown that individuals seeking aesthetic procedures often already possess a relatively high level of self-esteem. For instance, in one study, participants reported a mean score of 24.7 out of 40 (61.8%), reflecting an above-average self-esteem level [10]. These findings support the notion that many individuals undergo aesthetic treatments not out of dissatisfaction but rather as a means of enhancement. Furthermore, the significant association between high baseline self-esteem and post-procedure improvements suggests that those who already feel good about themselves may experience further boosts in confidence following treatment.

In the presented study, the results of the logistic regression analysis showed that individuals with high self-esteem were significantly less likely to experience changes in self-esteem following the procedure ($p < 0.01$; OR = 0.03; 95% CI: 0.01–0.08). This strong negative association suggests that participants who already possessed high self-esteem maintained their baseline psychological state regardless of other variables, such as the type of procedure performed or demographic factors. This finding supports the idea that individuals with stable, positive self-perceptions are less susceptible to further fluctuations in self-esteem, possibly because their sense of self-worth is not heavily influenced by external modifications. Therefore, the absence of change in this group should not be interpreted as a lack of benefit, but rather as an indication of psychological stability.

On the other hand, it is important to highlight that 5.56% of participants did experience a positive change in self-esteem post-procedure. This was reflected in a reduction of individuals with low self-esteem and an increase in those classified as having medium or high self-esteem. These findings align with the work of Sarwer et al., who reported that cosmetic procedures can enhance body image and self-esteem. Nevertheless, the effect size observed in the study was modest, which may be attributed to the already high baseline levels of self-esteem among most participants [11]. However, the observed effect size was moderate. This small change may be partly explained by the high baseline levels of self-esteem among the majority of participants, which limited the potential for substantial improvement. It is also important to consider that aesthetic procedures might reinforce existing self-perceptions more than radically transform them, particularly in individuals who already possess a positive self-image [12]. Future studies with more diverse populations and baseline psychological assessments could offer a deeper understanding of the psychosocial impact of such procedures.

In terms of procedure types, it is noteworthy that the most common procedures among participants were botulinum toxin [13], hyaluronic acid, and biostimulators, with botulinum toxin being the most frequently used [14]. These findings are in line with global trends indicating the popularity of non-surgical aesthetic procedures due to their effectiveness and minimal downtime (American Society of Plastic Surgeons, 2021) [15].

Regarding demographic patterns, the findings showed that the majority of participants were women, which aligns with longstanding evidence indicating that approximately 80% of aesthetic procedure recipients are female. This trend underscores the gendered nature of beauty norms and societal pressures surrounding appearance [16, 17].

The study's findings should be interpreted with caution due to certain limitations [18]. The use of non-probabilistic sampling limits the generalizability of the results to the broader population. Additionally, the reliance on self-reported measures may introduce response bias, as participants might underreport or overreport their self-esteem levels [19]. Furthermore, the study's cross-sectional nature precludes causal inferences about the relationship between aesthetic procedures and self-esteem changes [20]. One limitation of the study is that data collection was not carried out directly by the entire research team, but rather by the treating physicians involved in the process. This led to a predominance of patients from the department of Antioquia and the Coffee Region areas, where aesthetic procedures are most commonly performed in Colombia. Additionally, there is limited scientific literature on aesthetic medicine in the country, and reliable data on the frequency of such procedures is scarce. As a result, it was not feasible to calculate a probability-based sample.

Future research should address these limitations by employing probabilistic sampling methods and longitudinal designs to better capture the long-term effects of aesthetic procedures on self-esteem. Moreover, qualitative approaches could provide more profound insights into the personal experiences and motivations of individuals seeking aesthetic enhancements [21].

In conclusion, this study contributes to the growing literature resource on the psychological outcomes of aesthetic procedures [22, 23]. While the findings suggest that aesthetic treatments can positively impact self-esteem, particularly among those with high pre-procedure self-esteem, further research is necessary to fully understand the complex interplay between self-esteem, body image, and aesthetic interventions. As the demand for aesthetic procedures continues to rise, it is crucial to consider the psychological well-being of individuals seeking these treatments and to provide appropriate support and guidance throughout their aesthetic journey.

CONCLUSIONS

There is a certain relationship between aesthetic procedures and self-esteem. Such interventions can have an impact on personal perception, making it essential to recognize the ongoing need for research and exploration in this field to better understand the psychological and social implications. Botulinum toxin stands out as the aesthetic procedure with the most scientific evidence to support its association with self-esteem and self-perception.

CONFLICT OF INTEREST

The authors in this article declare no conflict of interest.
The authors declare no commercial interest that they may have in the subject of study, neither some kind of source of any financial or material support.

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