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The Bee Cosmetic Surgery Scale—A Clinical Tool for Assessing the Psychopathological, Psychosocial, and Decision-Making Factors Involved in Accepting Cosmetic Procedures

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Abstract: The Bee Cosmetic Surgery Scale (BCSS) is a novel clinical tool designed to assess the psychopathological, psychosocial, and decision-making factors involved in accepting cosmetic procedures. This prospective, multicenter study aimed to propose and validate the BCSS, which considers aesthetic aspects, personal pathological history, and psychopathological implications leading to the acceptance of invasive or non-invasive aesthetic interventions. The study included 281 participants aged 18–66 years, divided into three groups: non-invasive cosmetic surgery (NICS), invasive and non-invasive cosmetic surgery (INICS), and individuals who had not undergone cosmetic surgery (NCS). Participants were randomly selected from patients visiting plastic surgery services and various medical services in Oradea, Romania, between October 2022 and March 2024. The BCSS comprises 20 items with Likert-type responses, ranging from one to five. The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure perceived social support. The BCSS aims to elucidate the patient's desire for aesthetic procedures, whether it stems from an impulsive act, warrants a longer decision-making period, or necessitates addressing psychological or psychiatric conditions before scheduling the procedure. The scale enables cosmetic surgeons to assess whether the patient has been adequately informed and understands the risks and complications associated with the cosmetic surgical procedure.

Keywords: cosmetic surgery; psychosocial factors; decision-making; psychopathological history; scale validation; aesthetic procedure; patient assessment

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1. Introduction

Cosmetic surgery is often seen as a method of enhancing social interactions. It is sometimes viewed by certain people as a technique for fulfilling societal standards and garnering attention or praise. Cosmetic surgery is one of the most common surgeries worldwide, and its use is rising [1,2].

Access to international medical information facilitates the education of patients, including those who opt for invasive or non-invasive cosmetic procedures [2]. This enables them to make informed decisions, feel secure and comfortable, and experience a high level of predictability, thereby enhancing their well-being [1,3]. The motivation of individuals

pursuing cosmetic surgery is both physical and psychological. Socially, those who opt for cosmetic surgery hope for positive physical changes, and aesthetic procedures can help facilitate social or emotional changes [2,3].

For a cosmetic intervention to be successful, it must represent the optimal balance between science, the art of plastic surgery, and the patient's expectations, as well as positive communication between the surgeon and the patient [4,5]. There is limited knowledge about the psychological state of individuals who seek cosmetic surgery or about potential psychological changes following the surgical procedure [4–7].

The aim of this study is to propose and validate a new scale that takes into account decision-making, psychosocial factors, and psychopathological history in the acceptance of both invasive and non-invasive cosmetic surgery. The hypothesis is that the Bee Cosmetic Surgery Scale (BCSS) effectively assesses the psychological, social, and decision-making factors influencing patients' acceptance of cosmetic procedures. This tool aims to elucidate the patient's desire for aesthetic procedures, whether it stems from an impulsive act, whether it warrants a longer decision-making period, or whether the aesthetic issue stems from a psychological or psychiatric condition that necessitates being first addressed through psychological counselling or possibly psychiatric treatment, before scheduling the aesthetic procedure.

2. Materials and Methods

2.1. Participants

The study included a total of 281 participants aged between 18 and 66 years (M = 36.79; SD = 11.35), of whom 191 were women (68%) and 90 were men (32%). The participants were divided into three distinct groups: Group 1: non-invasive cosmetic surgery (NICS), consisting of 93 participants (33.1%); Group 2: invasive and non-invasive cosmetic surgery (INICS), consisting of 94 participants (33.5%); and Group 3: individuals who had not undergone cosmetic surgery (NCS), consisting of 94 participants (33.5%).

In this prospective, multicentre study, participants from Groups 1 and 2 were randomly selected from all patients who visited plastic surgery services at the Emergency County Hospital Bihor, Oradea; Pelican Hospital, Oradea; "Raze Medical Center" Clinic, Oradea; and "Darzas Aesthetic" Clinic, Oradea. Participants from Group 3 were randomly selected from patients who sought various medical services, specifically dental services, at the "Raze Medical Center" Clinic, Oradea, and the "Dr. Voita Gheorghe Florin" Medical Office, Oradea, during the period from October 2022 to March 2024. Research participants (N = 281) were considered eligible after being informed about the purpose of the study and agreeing to sign the informed consent document (Table 1).

Table 1. Demographic data of the groups.

Variables		CENI (N = 93)	CEINI (N = 94)	NCI (N = 94)	*p*
Marital Status	Unmarried Married Divorced Cohabiting Widowed	38 (40.9%) 45 (48.4) 8 (8.6%) 2 (2.2%) 0	31 (33%) 47 (50%) 14 (14.9%) 1 (1.1%) 1 91.1%)	46 (48.9%) 37 (39.4%) 7 (7.4%) 4 (4.3%) 0	0.192
Background Environment	Rural Urban	15 (16.1%) 78 (83.9%)	14 (14.9%) 80 (85.1%)	32 (34%) 62 (66%)	0.002
Ethnicity	Romanian Hungarian	83 (89.2%) 10 (10.8%)	82 (87.2%) 12 (12.8)	84 (89.4%) 10 (10.6%)	0.875
Education	Vocational School High School University Education	8 (8.6%) 15 (16.1%) 70 (75.3%)	5 (5.3%) 22 (23.4%) 67 (71.3%)	12 (12.8%) 18 (19.1%) 64 (68.1%)	0.336

Note: The Chi-square test, also known as the Freeman–Halton extension of Fisher's exact test, has a *p*-value of less than 0.05.

Inclusion criteria were as follows:

- participants who have had at least one cosmetic surgery, facial dysmorphia, or congenital facial pathology.
- participants aged 18 years or older at the time of the examination.
- participants who have signed the informed consent form.

The exclusion criteria were as follows:

- participants who refused to participate in the study.
- age under 18 years.
- uncontrolled mental illnesses.
- participants with allergies to Botox or hyaluronic acid.
- participants treated with anticoagulants.
- pregnancy or breastfeeding.

The following organisational chart shows the evolution of participant selection for the study (Figure 1).

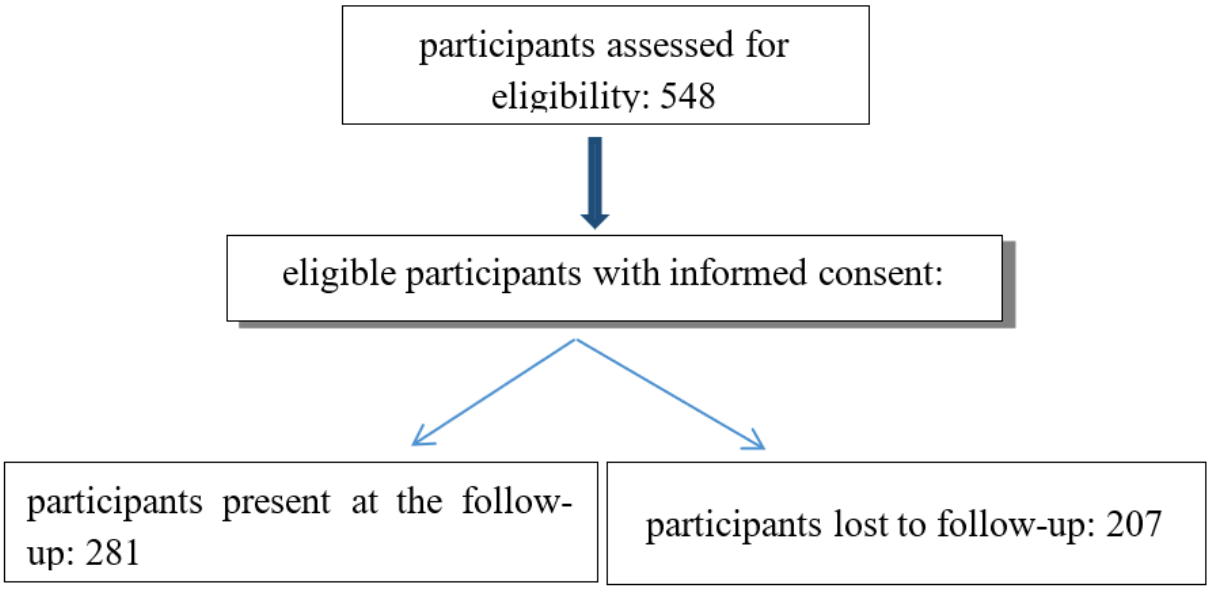

Figure 1. Organization chart for the selection of participants.

Of all the patients evaluated, 548 were considered eligible. They were briefly informed about the purpose of the study and asked to participate after signing an informed consent form. The study included 488 subjects who signed the informed consent form, but excluded 207 subjects who did not meet the inclusion criteria, leaving a study population of 281 patients.

Based on the presence or absence of cosmetic procedures, the study divided the participants into three homogeneous groups.

Group NICS, consisting of 93 participants (33.1%), includes non-invasive interventions such as lip augmentation (Figure 2), cheek augmentation, chin augmentation, and jawline augmentation; Botox injections in the glabellar area, orbicularis (Figure 3), masseter, frontal area, and mesotherapy; or a combination of multiple non-invasive aesthetic procedures, such as lip augmentation, Botox injections in the glabellar area, and mesotherapy.

Figure 2. Lip augmentation with 0.5 mL hyaluronic acid.

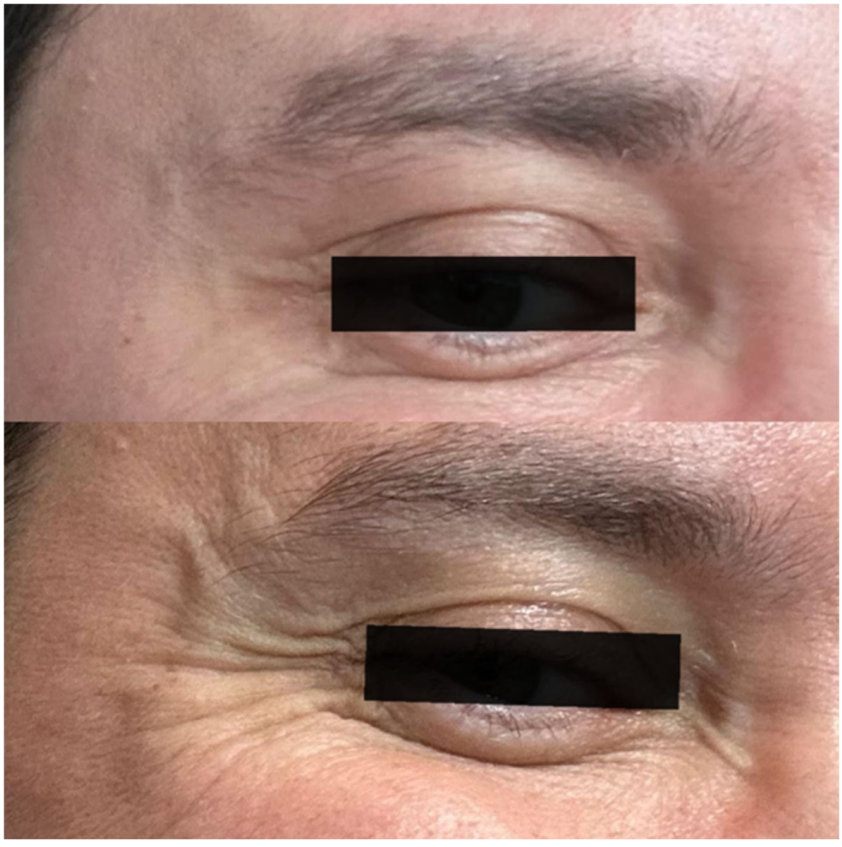

Figure 3. Botox injection in the orbicularis area.

Group INICS, consisting of 94 participants (33.5%), includes patients who have undergone both non-invasive and invasive cosmetic procedures. The non-invasive procedures are the same as those in the previous group, while the invasive procedures include rhinoplasty (Figure 4), facelift, blepharoplasty, otoplasty, fat augmentation, breast augmentation, and other procedures.

Figure 4. Rhinoplasty using the closed technique.

Group NCS, consisting of 94 participants (33.5%), includes individuals who, at the time of completing the questionnaires, had not undergone any type of non-invasive or invasive cosmetic surgery procedure.

2.2. Instruments

The Bee Cosmetic Surgery Scale (BCSS) is proposed as a clinical tool that takes into account both aesthetic aspects and the patient's personal pathological history, as well as the psychopathological implications leading to the acceptance of an invasive or non-invasive aesthetic intervention. Furthermore, after completing this scale, the cosmetic surgeon can assess whether the patient has been adequately informed and understands the risks and complications that may arise from the cosmetic surgical procedure. The scale comprises 20 items featuring Likert-type responses, ranging from 1 to 5, with 1 denoting "never" and 5 signifying "always".

The Multidimensional Scale of Perceived Social Support (MSPSS) [8] measures the extent to which an individual perceives social support from three sources: significant others, family, and friends. MSPSS is a brief and easy-to-administer self-report questionnaire containing twelve items rated on a seven-point Likert scale, with scores ranging from "strongly disagree" (1) to "strongly agree" (7). MSPSS has proven to be psychometrically robust across various samples and has demonstrated excellent internal reliability and excellent test–retest reliability [9,10].

The Multidimensional Body–Self Relations Questionnaire (MBSRQ) [11] is a 69-item self-report inventory designed to assess the attitudinal aspects of body image construction

(Cash, 2000). Most items measure agreement (from 1 = strongly disagree to 5 = strongly agree), satisfaction (from 1 = very dissatisfied to 5 = very satisfied), or frequency (from 1 = never to 5 = very often). The weight self-classification scale includes five specific response options (from 1 = very underweight to 5 = very overweight).

Hudson (1982) developed the Self-Esteem Index (SEI) [12], a 25-item inventory, to measure the self-perception and self-evaluation component of self-concept, which is the total sum of one's own and others' opinions about oneself [13,14]. According to Hudson (1982), the Cronbach's alpha coefficient was 0.93, and the test–retest reliability coefficient was 0.92 [12].

2.3. Validation of the Method

To validate the BCSS, we first tested the reliability of the scale using Cronbach's alpha to assess internal consistency across the 20 items. We also conducted exploratory factor analysis (EFA) to examine the underlying structure of the BCSS and establish its construct validity. We correlated BCSS scores with the Multidimensional Scale of Perceived Social Support (MSPSS), hypothesising that higher perceived social support would relate to higher BCSS scores. The results showed a significant positive correlation (r ranging from 0.14 to 0.76, $p < 0.05$), supporting the BCSS's validity in assessing psychosocial influences.

2.4. Responses and Interpretation of the Scale

Participants' responses are presented as numbers on a Likert scale from 1 to 5, where 1 represents "never" and 5 represents "always". The results from the 20 items on the BCSS are summed to produce a total score, which serves as an indicator of the utility of this scale in assessing acceptance of cosmetic surgical procedures. The total score on the BCSS can range from 20 to 100 points. The BCSS includes three sub-scales: decision-making (10 items), social impact (7 items), and psychopathological history (3 items).

Interpretation of the Bee Cosmetic Surgery Scale (BCSS)

SPSS statistically analysed the data collected from the research participants (N = 281), forming the basis for a discussion on data accuracy and the utility of the three sub-scales. The discussion involved cosmetic surgeons, clinical psychologists, and psychiatrists who reached a scientific consensus on the conceptualization and application of the scale. Based on the discussions and statistical data, it was agreed that the total score on the BCSS, as well as the three sub-scales, can serve as useful indicators in the decision-making process for cosmetic surgeons.

2.5. Statistical Methods

The preliminary analysis of the recorded data for the scales used in the research indicates a Gaussian distribution, as determined by the Kolmogorov–Smirnov test. According to statistical norms, the symmetric distribution of the data suggests using parametric tests to compare the results. In the next step, the mean values and standard deviations (SD) were calculated for the three participant groups. The significance thresholds considered statistically relevant were set below 0.05.

The demographic characteristics of the participants were analysed using the Chi-square test or the Freeman–Halton extension of Fisher's exact test. The correlation matrix analysis revealed a positive correlation among the BCSS items, and Bartlett's test of sphericity demonstrated statistical significance. The reliability of the BCSS was estimated using Cronbach's alpha coefficient. Exploratory factor analysis (EFA) was employed to explore the factor composition. The Kaiser–Meyer–Olkin (KMO) method was used to test the adequacy of the sample. Additionally, Varimax rotation was applied in EFA to allow for varying degrees of factor correlation. The Statistical Package for the Social Sciences (SPSS) was used to perform the statistical data analysis. The confirmation of important factors in the BCSS through EFA, as well as the concurrent validation of the scale using statistical methods (SPSS), will support the utility of the proposed instrument in research.

2.6. Ethical Considerations

The study was approved by the Institutional Review Board and the Ethics Committee of the County Emergency Hospital Bihor, Oradea, Romania (No. 27783/17 August 2023 and 28868/28 August 2023), Pelican Hospital, Oradea (440/19 July 2023), and the management of the clinics: "Raze Medical Center", "Darzas Aesthetic", and the Medical Office "Dr. Voita Gheorghe Florin", Oradea, Romania.

The World Medical Association's Declaration of Helsinki guided the conduct of the research. Participation in the study was voluntary, following the acquisition of written informed consent from the research participants for the accurate collection of information and processing of data.

3. Results

3.1. Demographic Data

Table 1 displays the formation of three homogeneous groups based on size. Participants in the CENI group (N = 93) predominantly come from an urban environment (83.9%) and have a high educational level (75.3%). Marital status shows similar percentages between unmarried individuals (40.9%) and married individuals (48.4%) pursuing non-invasive cosmetic procedures.

The CEINI group (N = 94) primarily comes from an urban environment (85.1%) and has a high educational level (71.3%). Among participants seeking CEINI interventions, 50% are married, while a smaller proportion are unmarried (33%). The third group, consisting of NCE participants (N = 94), predominantly comes from an urban environment (66%). Table 1 reveals that 68.1% of participants hold a university degree.

3.2. Validation of the BCSS Instrument

Throughout the research, the study presented a sample of 281 female participants, most of whom resided in urban areas and had a high level of education.

Our objectives were to validate the BCSS and establish normative data for the population. Table 2 presents the items and instructions for using the BCSS.

Table 2. Items of the Bee Cosmetic Surgery Scale (BCSS).

Nr.	Items	1	2	3	4	5
1.	I believe that improving my physical appearance through surgery will significantly enhance my happiness and self-esteem.	1	2	3	4	5
2.	I have experienced persistent discomfort or sadness related to my physical appearance.	1	2	3	4	5
3.	I have experienced a negative self-image that has significantly impacted my personal or professional relationships.	1	2	3	4	5
4.	I find it difficult to feel comfortable in social situations due to my physical appearance.	1	2	3	4	5
5.	I believe that a significant change in my physical appearance will resolve many of my emotional or life issues.	1	2	3	4	5
6.	I have discussed my reasons for pursuing cosmetic surgery with a mental health professional.	1	2	3	4	5
7.	I experience pressure from societal beauty standards to alter my physical appearance.	1	2	3	4	5
8.	I have tried other methods (therapy, counseling, personal development, etc.) to address issues related to my physical appearance before considering cosmetic surgery.	1	2	3	4	5
9.	I have previously experienced mental health conditions or disorders, such as depression, anxiety, and eating disorders, which are related to my body image.	1	2	3	4	5
10.	I believe that altering my physical appearance will also affect how I feel about myself or in relation to others.	1	2	3	4	5
11.	Have realistic expectations regarding the results of cosmetic surgery.	1	2	3	4	5
12.	I have thoroughly researched the risks and potential complications associated with the cosmetic procedure I am considering.	1	2	3	4	5
13.	I am satisfied with how I look and do not feel the need to change my physical appearance.	1	2	3	4	5
14.	I have discussed the decision to undergo cosmetic surgery with friends or family.	1	2	3	4	5
15.	I am emotionally ready for the recuperation phase following cosmetic surgery.	1	2	3	4	5
16.	I understand that cosmetic surgery may not resolve all of my personal or emotional concerns.	1	2	3	4	5
17.	Have a support system (family, friends, etc.) that will help me during the recovery period.	1	2	3	4	5
18.	I am satisfied with my overall appearance, and this surgery is about enhancing certain features rather than addressing deep emotional issues.	1	2	3	4	5
19.	I have considered alternative methods or therapies to address my concerns before deciding on cosmetic surgery.	1	2	3	4	5
20.	I am aware that cosmetic surgery carries certain risks, and I am mentally prepared to accept any unexpected outcomes.	1	2	3	4	5

Instructions: Please rate the following statements based on how strongly you agree or disagree with each item, selecting the most appropriate number on the scale from 1 to 5 (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always).

Our focus was on the initial statistical indicators; therefore, in Table 3, we present the means and standard deviations for each item and the total BCSS score according to the type of group. We observe that the means for the CENI and CEINI groups are fairly similar, compared to the lower means for the NCE group, indicating a high degree of adequacy of the recorded data.

Table 3. Items, means, and standard deviations of the BCSS.

Items	CENI (N = 93)		CEINI (N = 94)		NCE (N = 94)	
	M	SD	M	SD	M	SD
BCSS1	3.4086	1.18171	3.7766	1.27974	2.1170	1.08614
BCSS2	2.2258	1.12413	2.5745	1.43302	1.8511	0.96115
BCSS3	1.9247	1.04504	2.3830	1.33687	1.8298	.99069
BCSS4	1.8710	1.13469	1.8936	1.14974	1.7872	0.98234
BCSS5	2.0323	1.16518	2.3830	1.52475	1.8404	1.08065
BCSS6	1.3226	0.86176	1.5532	1.17882	1.5851	0.93221
BCSS7	2.0538	1.21015	2.4362	1.45586	1.9468	1.23015
BCSS8	1.3548	0.93999	1.5532	1.09365	1.6383	0.93729
BCSS9	1.6559	1.13726	1.5957	1.08081	1.6489	1.01290
BCSS10	2.4301	1.23709	2.8830	1.35088	2.0851	1.17921
BCSS11	4.1075	1.13695	4.3085	1.04754	2.7979	1.23201
BCSS12	3.5376	1.40310	4.0638	1.19864	2.0319	1.23089
BCSS13	3.7312	1.24359	3.4468	1.34098	3.2340	1.57552
BCSS14	3.4194	1.44706	3.5638	1.43353	2.0319	1.23089
BCSS15	3.6667	1.46208	4.4255	0.82292	2.0745	1.32988
BCSS16	4.2903	0.99543	4.4574	0.93515	2.9043	1.55936
BCSS17	4.0215	1.19763	3.9574	1.25222	3.2447	1.63751
BCSS18	4.2366	1.06728	4.3723	0.95020	3.2979	1.56459
BCSS19	3.7097	1.47869	3.6170	1.53179	3.0638	1.50131
BCSS20	4.1828	1.09292	4.5213	0.79958	3.1170	1.58526

Note: m = mean; SD = standard deviation.

3.3. Factorial Structure of the BCSS

We consider that the BCSS represents a suitable method for examining the expectations of individuals undergoing aesthetic medical procedures, both clinically and statistically. Examination of the correlation matrix showed that the 20 items of the BCSS are positively intercorrelated.

Bartlett's test of sphericity is statistically significant $\chi^2 = 3332.610$, $p < 0.001$, which justifies the use of exploratory factor analysis (Table 3). We assessed the adequacy of the sample using the Kaiser–Meyer–Olkin (KMO) method, which yielded a value of 0.882. This value indicates that the sample of 281 individuals met the statistical conditions for conducting exploratory factor analysis (Table 4). For each variable, the values indicate a high degree of fit for the sample.

Table 4. Baseline indicators for exploratory factor analysis of the BCSS.

KMO and Bartlett Test		
Kaiser–Meyer–Olkin for Measuring the Suitability of the Group		0.882
Bartlett sphericity test	χ^2	3332.610
	Df	190
	p	0.001

In Figure 5, we present the graphical representation of each factor out of the 20 possible factors shown on the x-axis, with the self-reported values on the y-axis. Using the Varimax

method, we identified the factors that contribute to an appropriate solution for the BCSS. Thus, Figure 1 identifies three factors that account for 62.419% of the data's variance (Table 5). We observe a strong correlation among the first factors (5.694–5.210), which aligns with methodological standards for the development and validation of scales.

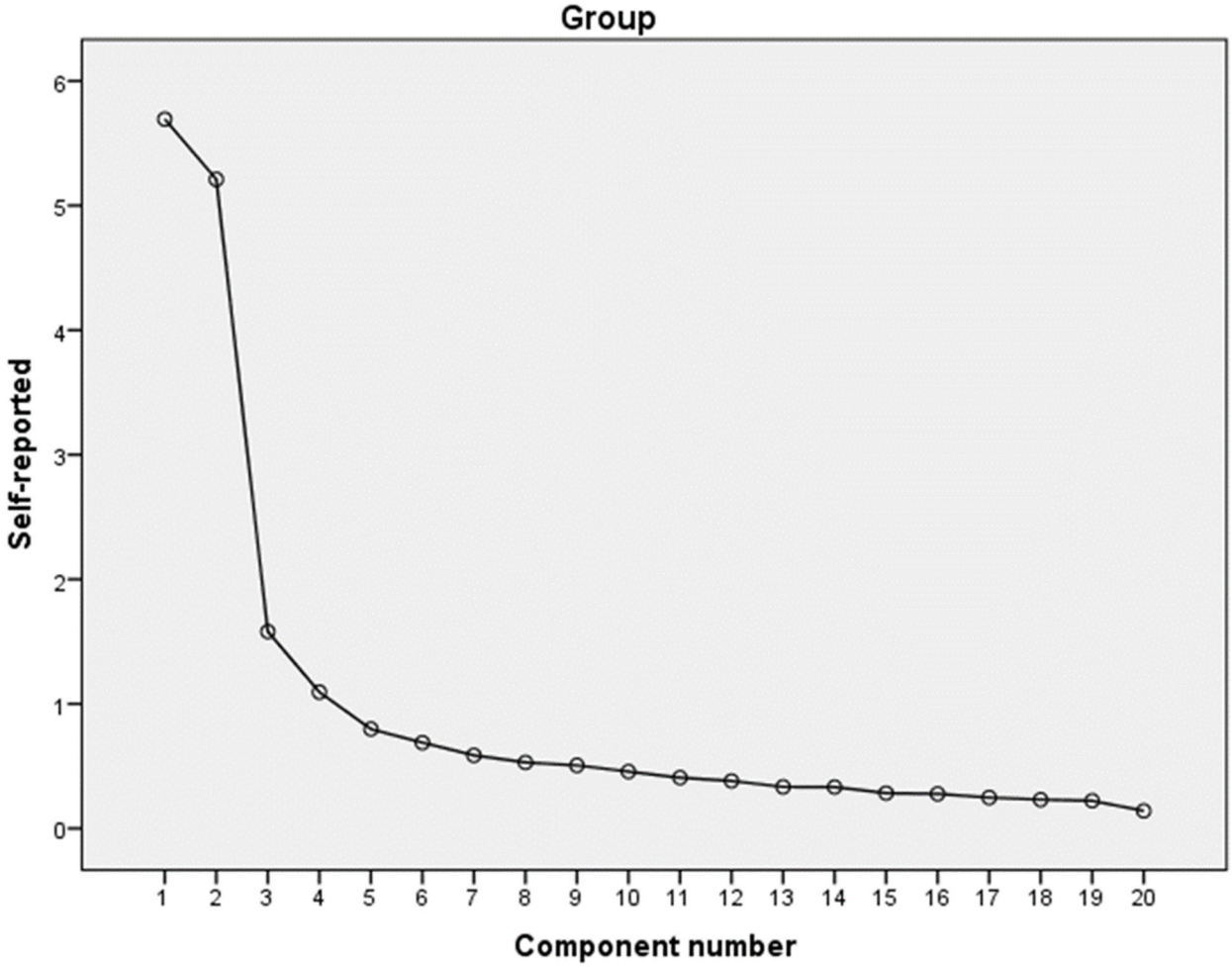

Figure 5. Graphical representation of self-reported value intensities for BCSS.

Table 5. BCSS factor composition and explained variance.

Item	Total	Eigenvalues % from Variables	% Cumulative	Total for Varimax Rotation
BCSS1	5.694	28.468	28.468	5.694
BCSS2	5.210	26.049	54.517	5.210
BCSS3	1.580	7.901	62.419	1.580
BCSS4	1.095	5.473	67.892	
BCSS5	0.798	3.990	71.882	
BCSS6	0.689	3.444	75.326	
BCSS7	0.587	2.934	78.260	
BCSS8	0.530	2.648	80.908	
BCSS9	0.506	2.530	83.438	
BCSS10	0.456	2.281	85.720	
BCSS11	0.407	2.037	87.757	
BCSS12	0.381	1.906	89.663	
BCSS13	0.333	1.667	91.330	
BCSS14	0.332	1.659	92.989	
BCSS15	0.284	1.418	94.407	
BCSS16	0.277	1.387	95.793	
BCSS17	0.248	1.239	97.033	
BCSS18	0.231	1.156	98.188	
BCSS19	0.222	1.109	99.297	
BCSS20	0.141	0.703	100.000	

The factorial model matrix is shown in Table 6. It shows that the BCSS items can be grouped into three main factors, which is in line with what was expected from the theory at the start.

Table 6. Factorial model matrix for BCSS.

Rotated Component Matrix			
	Component		
	1	**2**	**3**
BCSS1		0.706	
BCSS2		0.763	
BCSS3		0.754	
BCSS4		0.672	
BCSS5		0.750	
BCSS6			0.817
BCSS7		0.653	
BCSS8			0.818
BCSS9			0.693
BCSS10		0.754	
BCSS11	0.653		
BCSS12	0.742		
BCSS13	0.464		
BCSS14	0.716		
BCSS15	0.754		
BCSS16	0.745		
BCSS17	0.660		
BCSS18	0.771		
BCSS19	0.680		
BCSS20	0.805		

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalisation. Factor 1 (10 items) Decision-Making: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20; Factor 2 (7 items) Psychosocial Impact: 1, 2, 3, 4, 5, 7, 10; Factor 3 (3 items) Psychopathological History: 6, 8, 9.

3.4. Internal Consistency and Reliability of the Instrument

The statistical analysis of internal consistency shows that BCSS has excellent reliability, with the correlation between the items and the total score (ranging from 0.14 to 0.76) being significant at the $p < 0.05$ level.

Factor 1 (decision-making) has a coefficient $\alpha = 0.884$, indicating the ability to capture 88.4% of individuals who decide to undergo specific aesthetic surgery procedures. Factor 2 (psychosocial impact) shows a reliability coefficient $\alpha = 0.893$ (89.3%), which clarifies the reasons why people undergo aesthetic interventions (Table 7).

Factor 3 (psychopathological antecedents) has a reliability index of $\alpha = 0.831$ (83.1%), indicating a high degree of alignment between theoretical constructs and participants' responses. The total BCSS score can be considered ($\alpha = 0.847$) a useful indicator for the medical specialist to determine whether the patient is well informed and aware of the risks and complications that may follow cosmetic procedures.

Future research will largely clarify whether clinical and experimental support for the recorded coefficients is possible.

The correlation of the three identified factors with the total BCSS score indicates, in line with our expectations, an association between the BCSS score and decision-making regarding aesthetic treatments ($r = 0.766$; $p < 0.001$), as well as with Factor 2, named "psychosocial impact" ($r = 0.664$; $p < 0.001$) of aesthetic intervention. Additionally, we observe a positive association between the BCSS score and Factor 3 ($r = 0.418$; $p < 0.001$), named "psychopathological antecedents", which captures relevant aspects of potential mental health issues.

Table 7. Reliability of the BCSS instrument.

BCSS	m	SD	Min.	Max.	α Cronbach	α Cronbach Based on Standardised Item
Factor 1 (decision-making)	35.80	10.05	10	50	0.884	0.885
Factor 2 (psychosocial impact)	15.91	6.84	7	35	0.893	0.897
Factor 3 (psychopathological antecedents)	4.63	2.65	3	15	0.830	0.831
BCSS total	56.34	13.36	20	89	0.847	0.846

Legend: m = Mean; SD = Standard Deviation.

3.5. Discriminant Validity

In the final part of the research, we investigated the relationship between BCSS and the perception of social support, on the one hand, and the relationship between BCSS and self-esteem on the other. We also present the relationship between BCSS and body image in Table 8, conceptualising it as an individual's attitudinal disposition towards their physical self.

Table 8. Correlations between BCSS subscales, social support, body image, and self-esteem.

	MSPSS-Fam	MSPSS-Fr	MSPSS-SO	MSPSS-Total	MBSRQ-AE	MBSRQ-AO	MBSRQ-BAS	ISE
Factor 1: Decision-making	0.205 **	0.304 **	0.245 **	0.298 **	0.153 **	0.190 **	0.113	−0.170 **
Factor 2: Psychosocial Impact	−0.296 **	−0.128 *	−0.235 **	−0.254 **	−0.337 **	0.054	−0.287 **	0.325 **
Factor 3: Psychopathological Antecedents	−0.273 **	−0.141 *	−0.228 **	−0.248 **	−0.115	0.082	−0.090	0.292 **
BCSS total	−0.052	0.135 *	0.019	0.045	−0.080	0.187 **	−0.080	0.096

Note: *$p < 0.01$, **$p < 0.001$; MSPSS-Fam—Family; MSPSS-Fr—Friends; MSPSS-SO—Significant Others; MSPSS-total—Multidimensional Scale of Perceived Social Support; MBSRQ-AE—Appearance Evaluation; MBSRQ-AO—Appearance Orientation; MBSRQ-BAS—Body Areas Satisfaction; ISE—Index of Self-Esteem.

Decision-making (Factor 1) regarding undergoing aesthetic interventions is positively associated with the perception of support from family (r = 0.205; $p < 0.01$), friends (r = 0.304; $p < 0.01$), significant others who can provide scientific and quality support (r = 0.245; $p < 0.01$), and overall social support (r = 0.298; $p < 0.01$).

For psychosocial impact (Factor 2), we observe a distancing from support from family (r = −0.296; $p < 0.01$), friends (r = −0.128; $p < 0.05$), and significant others (r = −0.235; $p < 0.01$).

Psychopathological antecedents (Factor 3), as well as psychotherapeutic treatments in some cases, are negatively associated with the perception of social support in contexts where the individual is predominantly and irrationally pursuing aesthetic surgical interventions (Table 8).

Physical self encompasses not only a person's physical appearance, but also their body's competence and biological integrity, or "health/illness", making it a relevant aspect in the decision to pursue aesthetic surgical interventions. Self-evaluation of appearance is associated with decision-making (r = 0.155; $p < 0.01$) as well as the degree of investment in one's appearance (MBSRQ-AO) (r = 0.190; $p < 0.01$).

An increase in the psychosocial impact of physical aesthetics leads to a decrease in body satisfaction (r = −0.287; $p < 0.01$). Decision-making (Factor 1) shows a negative relationship with self-esteem (r = −0.170; $p < 0.01$) from a statistical perspective, as lower scores on the ISE indicate higher self-esteem.

On the other hand, the psychosocial impact (Factor 2) is associated with a decrease in self-esteem (r = 0.325; $p < 0.01$) as well as with psychopathological antecedents (Factor 2) (r = 0.292; $p < 0.01$), which confirms other studies in the field regarding fluctuations in self-esteem.

Based on theoretical assumptions, we investigated the extent to which the three predictors effectively estimate self-image in individuals who are oriented towards aesthetic surgical interventions.

In Table 9, we observe differences between the estimates provided based on the regression equation using the three predictors compared to the mean results [F(3, 280) = 16.790; $p < 0.001$]. The multiple determination coefficient, representing the percentage of variance in self-image explained by the combined effect of the predictors (decision-making, psychosocial impact, and psychopathological history), indicates an R^2 of 0.154. The predictors account for 15.4% of the variance.

Table 9. Multilinear regression equation for predicting self-image.

Model	Unstandardized Coefficients		Standardised Coefficients	t	*p*
	B	Eroare Std.	Beta		
(Constant)	68.218	5.382		12.676	0.001
Factor 1 Decision-Making	−0.384	0.123	−0.174	−3.117	0.002
Factor 2 Psychosocial Impact	0.846	0.215	0.261	3.929	0.001
Factor 3 Psychopathological Antecedents	1.131	0.556	0.135	2.036	0.043

Note: Dependent Variable: Index of Self-Esteem.

Analysing the *t*-test (Table 9), we find that predictors contribute to estimating self-image. The predictor "decision-making" has a negative unstandardized coefficient, indicating an indirect relationship with self-image ($\beta = -0.174$; $t = -3.117$; $p < 0.002$). Therefore, the decision to undergo specific surgical procedures is associated with an increase in self-image, while "psychosocial impact" ($\beta = 0.261$; $t = 3.929$; $p < 0.001$) and "psychopathological antecedents" ($\beta = 0.135$; $t = 2.036$; $p < 0.043$) are associated with a decrease in self-esteem among individuals who are deeply dissatisfied with their own body.

In Table 10, we propose a reference standard based on the initial group of 281 research participants.

Table 10. Descriptive statistics of BCSS instrument.

		Decision-Making	Psychosocial Impact	Psychopathological Antecedents	BCSS Total
Mean		35.80	15.91	4.63	56.34
SD		10.05	6.84	2.65	13.36
Minimum		10	7	3	20
Maximum		50	35	15	89
Percentiles	25	10–30	7–10	1–3	20–50
	50	31–37	11–14	4–6	51–58
	75	38–44	15–21	7–9	59–65
	100	45–50	22–35	10–15	66–89

Interpretation of the BCSS total score:

a. 66–100 points: decisive commitment; the patient is ready to undergo the aesthetic surgical intervention.
b. 59–65 points: The patient needs additional information before deciding whether to accept the cosmetic intervention.
c. 51–58 points: It is recommended to postpone the aesthetic intervention and evaluate the options.

d. 20–50 points: A psychological or psychiatric consultation is recommended before proceeding with the surgical intervention.

4. Discussion

Aesthetic surgery is becoming increasingly popular worldwide [15]. Some researchers have speculated that one reason for the rise in popularity of aesthetic surgery is that it has already shed the stigma that was previously associated with it [16–18]. This research documents attitudes towards patients undergoing aesthetic surgery and examines the role of social contact in explaining these attitudes [16]. Since many patients who undergo aesthetic surgery expect an improvement in their social relationships, these findings have important implications for their subjective well-being [2,5,15].

Aesthetic surgery is often regarded as a method of improving social relationships [19]. Additionally, Park et al. [20] showed that negative comments from others about someone's appearance trigger interest in aesthetic surgery, particularly for individuals who are sensitive to social rejection [20–22]. Similarly, Sherry et al. [23] reported that some people view aesthetic surgery as a way to meet the expectations of others and to attract attention or admiration. The sociological dimension of the decision-making process in the case of cosmetic surgery is emphasised also by Couper et al. who concluded that satisfaction in interpersonal interactions and emotion regulation depends significantly on the patient's body image. Couper et al. further state that psychological intervention benefits patients pre- and post-operatively, or, in some cases, even prevents the surgery altogether. This study highlights the importance of psychological evaluation before cosmetic surgery [24]. Cheraghian et al. also brings attention to psychological characteristics of patients that want to undergo cosmetic surgery. Their results showed that 45.2% of the participants had abnormal health status, and emphasised that personality and psychological characteristics need to be addressed before cosmetic surgery [25].

Unlike previous scales that assess cognitive beliefs, this scale explicitly evaluates decision-making commitment, the psychosocial impact of appearance, and psychopathological history that might drive the desire to change one's appearance or, conversely, to avoid aesthetic surgery [26].

In an effort to assess attitudes beyond this important yet limited dimension, we aimed to establish a measurement method that also captures the extent to which individuals embrace aesthetic surgery based on their motivation. We focused on three sources (decision-making, psychosocial factors, and psychopathology) and sought to measure acceptance of both aesthetic surgery and non-invasive cosmetic treatments.

In our study, after developing the BCSS items, we observed that they have adequate reliability in line with methodological standards. The correlation between the items and the total BCSS score is statistically significant, indicating the usefulness of these items for assessing the need for cosmetic intervention.

The use of the Cronbach's alpha coefficient estimated the reliability of the BCSS. The total BCSS score, as well as the scores for the three sub-scales, yielded a coefficient indicating good internal consistency, as shown in Table 6.

The obtained data support the discriminant validity of the BCSS, as presented in Table 8, where it is associated with the MSPSS, MBSRQ, and ISE scales. We believe that the statistical results presented in the study provide evidence for the psychometric robustness of the BCSS. We developed this scale to assess patients' attitudes toward aesthetic surgical procedures in alignment with other scales that have attempted to capture the reasons why patients pursue specialised aesthetic interventions [26].

The BCSS can be used as a research tool for assessing orientation toward aesthetic surgical interventions and by medical departments. This scale was designed as a clinical tool for aesthetic practitioners, providing an easy classification of attitudes towards one's own body, societal perceptions, and expectations regarding the intervention. This scale has the advantage of being multidimensional, taking into consideration psychosociological and psychopathological history, offering a better understanding of the motivation behind

cosmetic surgery compared to the other scales. This will provide an aid for the surgeons to identify whether a patient's desire for cosmetic surgery is impulsive, or if psychological conditions need addressing before the surgery. Also, another important advantage is that BCSS is applicable for both invasive and non-invasive cosmetic surgery.

Important aspects still need to be refined, so we consider it necessary to conduct studies that include additional data and validations involving testing and retesting. Furthermore, we attempted to address these aspects by using the BCSS among individuals who undergo CENI, CEINI, and NCI.

5. Limitations of the Study

The most significant of this research's limitations is the small size of the groups and the application of the scale to a heterogeneous population (differences in age, education, ethnicity, religion, and cultural context), which was too small for a clear analysis. A separate analysis of other categories would hypothetically lead to more nuanced conclusions. Another limitation is that the study was conducted only in one geographic region of our country, which does not allow for outstanding extrapolation at the national level.

Another limitation is that the study did not explore the influence of cultural factors on attitudes toward cosmetic surgery, which can significantly vary across different communities. Cultural context can play a crucial role in shaping individuals' perceptions of beauty and the acceptability of cosmetic procedures. Also, factors such as economic status, access to healthcare, and personal relationships that could influence attitudes toward cosmetic surgery were not controlled.

The connection between acceptance of cosmetic surgery and self-esteem could be examined with greater specificity, both regarding invasive and non-invasive procedures. On the other hand, the extent to which individuals embrace bodily changes could influence not only their self-perceptions but also their perceptions of others who have undergone or considered but decided against cosmetic surgical procedures.

The study does not address long-term outcomes or changes in attitudes following cosmetic procedures, which are essential for understanding the lasting impacts of these interventions.

6. Conclusions

The Bee Cosmetic Surgery Scale (BCSS) represents a measurement method that captures the extent to which individuals accept cosmetic surgery based on their motivation to pursue it. In our study, the BCSS items were developed, and the scale shows adequate reliability in line with methodological standards. The items and total BCSS score are statistically significantly correlated, indicating the usefulness of these items for evaluating the need for cosmetic intervention. The link between acceptance of cosmetic surgery and self-esteem could be examined with greater specificity, both for invasive and non-invasive procedures. On the other hand, the extent to which individuals embrace bodily changes could influence not only their self-perceptions but also their perceptions of others who have undergone or considered but decided against cosmetic surgical procedures.

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