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ROYAL FREE COSMETIC AWARENESS AND RISK (ROFCAR) QUESTIONNAIRE: AN TALIAN VALIDATION STUDY

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Cosmetic surgery is increasingly popular, particularly in Italy, where beauty holds cultural importance. However, achieving psychological satisfaction postsurgery is not guaranteed, especially for patients with unrealistic expectations or psychological vulnerabilities. Addressing the need for a practical and effective screening tool for Italian clinical contexts, this study validated the Italian version of the Royal Free Cosmetic Awareness and Risk (RoFCAR) questionnaire, designed to assess psychological readiness in patients seeking cosmetic procedures. An exploratory factor analysis (EFA) with 131 participants identified four key factors — Body Dysmorphic Disorder, Self Confidence, Worry, and Social Avoidance — as relevant to surgical satisfaction. Additionally, regression analysis using the Symptoms Checklist-90-Revised (SCL-90-R) clarified how broader psychological symptoms predict RoFCAR factors, deepening the understanding of psychological risk. The RoFCAR questionnaire demonstrated reliability and construct validity, confirming its suitability as an efficient screening tool in Italian clinical settings to identify patients who may need further psychological support for optimal outcomes.

Keywords: Cosmetic surgery; Psychological screening; Body Dysmorphic Disorder; Preoperative assessment; Validation study.

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In a world increasingly focused on perfection, cosmetic surgery has become a widespread cultural phenomenon, especially in Italy, where sensitivity to beauty is deeply rooted in history and art. While cosmetic procedures aim to enhance physical appearance, the psychological well-being of individuals

undergoing surgery is often overlooked. Even when physical results meet expectations, emotional satisfaction is not guaranteed, particularly when unrealistic expectations or psychological vulnerabilities are present. Given the importance of assessing patients' psychological preparedness for cosmetic surgery, tools for pre-procedural screening are essential. This study introduces the Italian version of the Royal Free Cosmetic Awareness and Risk (RoFCAR) questionnaire, designed to evaluate psychological readiness and identify risk factors in patients considering cosmetic surgery. Our research fills a gap in the literature on the mental health implications of cosmetic procedures and aims to improve patient care in Italy's expanding aesthetic industry by focusing on the psychological aspects of cosmetic transformation.

Background

The pursuit of beauty has been a driving force throughout history, evolving from ancient self-adornment practices (e.g., Davies, 2020) to modern cosmetic procedures (e.g., Alam & Dover, 2001; Bonell et al., 2021). Initially seen as a benign pursuit influenced by evolutionary factors, the desire to enhance appearance has developed into a societal issue, with increasing rates of body image distress in affluent nations (e.g., Grogan, 2021; Rumsey & Harcourt, 2012). Fragmented research and the lack of standardized frameworks exacerbate the challenge of addressing appearance-related concerns effectively (e.g., Rhode, 2010), along with insufficient training for healthcare professionals (e.g., Bessell et al., 2012). The pervasive exposure to idealized beauty standards through media and advertising (e.g., Mills et al., 2017; Tiggemann, 2014) has contributed to the rising popularity of cosmetic procedures, particularly among women (e.g., Aesthetic Society, 2022; Honelová & Vidovićová, 2023). These unattainable beauty ideals, reinforced by digital manipulation tools like Photoshop (e.g., McBride et al., 2019), promote a societal association between physical attractiveness, youthfulness, and success (e.g., Rhode, 2010). Aggressive marketing of cosmetic products and procedures (Ho, 2005) further intensifies the pressure to conform to these unrealistic standards, despite the associated risks and costs (e.g., Grogan, 2021; Sarwer et al., 2005). Globally, demand for cosmetic procedures continues to grow (e.g., Pearlman et al., 2022; Tijerina et al., 2020), driven by a mix of aesthetic desires and psychosocial factors (e.g., Atiyeh et al., 2020; Frederick et al., 2007).

The International Society of Aesthetic Plastic Surgeons (ISAPS) reported that 15.8 million surgical and 19.1 million nonsurgical procedures were performed worldwide in 2023 (ISAPS, 2024), with a 40% increase over the past four years (ISAPS, 2021). In Italy, 757,442 aesthetic procedures were performed in 2023, with breast augmentation (38,949 procedures) and botulinum toxin injections (194,335 procedures) being the most common surgical and nonsurgical interventions, respectively (ISAPS, 2024).

Psychological factors are crucial in determining satisfaction with cosmetic surgery (e.g., Sarwer et al., 1998b). Many patients seek surgery to boost self-esteem and confidence (e.g., Clarke et al., 2012; von Soest et al., 2009), but may not experience the expected benefits, even when surgical outcomes are technically successful (e.g., Thomas et al., 2001). Identifying patients at risk of poor psychological outcomes postsurgery is essential to improving care and satisfaction (Milothridis, 2020). Key psychological risk factors include unrealistic expectations, inappropriate motivations, underlying mental health issues, and broader psychological vulnerabilities (Brunton et al., 2014).

Unrealistic expectations are among the most common psychological risk factors: while many patients seek cosmetic procedures for psychosocial benefits (Sarwer, 2006), they may hold unrealistic beliefs about what surgery can accomplish (Honigman et al., 2004). Even with successful surgical outcomes, patients may experience distress and dissatisfaction if expected psychosocial improvements (e.g., elevated

social status) do not materialize (Honigman et al., 2004). Systematic reviews highlight a strong association between unrealistic expectations and poor psychological outcomes (e.g., Brunton et al., 2014; Honigman et al., 2004). Clarifying patient goals before surgery (e.g., Honigman et al., 2004; Sarwer & Didie, 2002) is essential for setting realistic expectations and avoiding perfectionist ideals (Clarke et al., 2014).

Motivations for cosmetic surgery, whether intrinsic (e.g., improving self-confidence) or extrinsic (e.g., pleasing others), also influence patient satisfaction (Clarke et al., 2014). Research shows that patients motivated by intrinsic factors tend to be more satisfied with surgical outcomes than those driven by external pressures (e.g., Beale et al., 1980; Wright & Wright, 1975). Inappropriate motivations, such as seeking surgery to resolve broader life issues, increase the risk of dissatisfaction postoperatively (Sarwer & Didie, 2002).

Body Dysmorphic Disorder (BDD) is another major risk factor (e.g., Sarwer et al., 1998a; Veale et al., 2003). Affecting 5-15% of cosmetic surgery patients — much higher than the 1-3% prevalence in the general population (Sarwer & Spitzer, 2012) — BDD is characterized by excessive preoccupation with perceived appearance flaws (American Psychiatric Association, 2013). BDD is generally incompatible with cosmetic procedures (Sarwer & Spitzer, 2012), as symptoms tend to persist or worsen after surgery (e.g., Phillips et al., 2001; Crerand et al., 2010). Psychological and pharmacological treatments have proven more effective in reducing BDD symptoms than surgery (e.g., Ipser et al., 2009; Phillips, 2010).

Beyond BDD, broader psychological vulnerabilities, such as depression and anxiety, also impact surgical outcomes (Bascarane et al., 2021). Furthermore, healthcare providers often overlook the influence of anxiety related to specific physical features on postoperative satisfaction during patient assessments (Williamson et al., 2018), highlighting the need for proper training to recognize and address appearance-related distress (Persson et al., 2018). In cases where psychological treatment is needed but not provided before surgery, there can be negative consequences for both the patient and the surgeon (Bascarane et al., 2021).

Psychological screening is thus essential to minimize postsurgical dissatisfaction and distress (Chouliara et al., 2020; Milothridis, 2020). Effective screening enables providers to better understand patient needs and set realistic expectations (e.g., Dhaliwal et al., 2021; Paraskeva, 2013), reducing emotional and financial burdens for both patients and providers (Ericksen & Billick, 2012). Preoperative assessments also ensure patients are aware of potential risks and side effects like short-term swelling and permanent scarring (e.g., Castle et al., 2002; Mandy, 2009). National guidelines from the UK National Collaborating Centre for Mental Health (2006) and the Italian Association of Aesthetic Plastic Surgery (AICPE, 2015) recommend psychological screening for cosmetic surgery patients, along with referral pathways to ensure at-risk individuals are adequately prepared for surgery (Goodwin et al., 2010).

Several validated self-report questionnaires are currently used to assess the psychological state of patients seeking cosmetic surgery, although these tools often focus on detecting specific psychiatric conditions (e.g., Wildgoose et al., 2013). Reviews (e.g., Bascarane et al., 2021; Wildgoose et al., 2013) show frequent use of established clinical scales to assess: (1) broad psychiatric disorders, such as the MINI-International Neuropsychiatric Interview-Plus (MINI-Plus; Sheehan et al., 1998) or the Structured Clinical Interview for DSM Disorders-5 (SCID-5; First, 2015); (2) specific psychiatric conditions, particularly the BDD, using tools like the Body Dysmorphic Disorder Questionnaire (BDDQ; Phillips et al., 1995), which has 100% sensitivity and 89% specificity in surgical settings (Phillips et al., 1995), as well as depressive symptoms via the Beck Depression Inventory-II (BDI-II; Beck et al., 1996); and (3) clinical outcomes, with instruments such as the Derriford Appearance Scale-59 (DAS-59; Harris & Carr, 2001) and its 24-item short form (DAS-24; Carr et al., 2005), or the PREoperative FAcial Cosmetic surgery Evaluation (PreFACE; Honigman et al., 2011). While valuable, these tools are often lengthy and time-consuming, requiring trained mental health professionals for administration, limiting their practicality in routine

cosmetic surgery consultations (Wildgoose et al., 2013). The RoFCAR questionnaire was developed to meet the need for a concise, user-friendly tool that covers a broader range of psychological risk factors (Paraskeva et al., 2014). Created by researchers and clinicians at the London Royal Free Hospital (RoF) and the Centre for Appearance Research (CAR), the RoFCAR questionnaire consists of just nine questions and can be self-administered, making it distinct from other focusing solely on conditions like BDD or anxiety (Paraskeva et al., 2014). Currently undergoing feasibility and acceptability testing (Paraskeva, 2013), the RoFCAR questionnaire assesses key psychological risks — such as unrealistic expectations, body image concerns, and surgery motivations — across diverse patient populations, without being limited to specific cosmetic procedures (Paraskeva et al., 2014). Its one-page format enhances its accessibility for clinical use, enabling healthcare providers to screen patients effectively while collecting comprehensive psychological and medical data (Paraskeva et al., 2014).

Overview of the Study

This cross-sectional study aims to validate the Italian version of the RoFCAR questionnaire to ensure its relevance and effectiveness for Italian patients undergoing cosmetic treatments. We will evaluate the internal structure and psychometric properties of the questionnaire, focusing on its ability to detect psychological risk factors predictive of poor postsurgical outcomes. We hypothesize that the Italian RoFCAR questionnaire will demonstrate strong psychometric properties, with a factor structure reflecting key psychological risks such as unrealistic expectations, inappropriate motivations, and body image concerns. Additionally, we expect the RoFCAR questionnaire and its subscales to correlate with psychological symptoms measured by the Symptoms Checklist-90-Revised (SCL-90-R; Derogatis, 1994), confirming its sensitivity to various forms of psychological distress. The findings will support the integration of the RoFCAR questionnaire into routine clinical consultations, improving patient care and postsurgical outcomes in Italian cosmetic industry.

Methods

Participants and Procedure

The study sample consisted of 131 participants (M_{age} = 38.73 years, SD_{age} = 14.18), recruited from individuals seeking cosmetic procedures at private practices and public hospitals in Northern Italy. This group comprised 100 women (76%) and 31 men (24%). Participants underwent a variety of body modification procedures, representing a broad range of cosmetic surgeries: mastoplasty (30%), rhinoplasty (18%), maxillofacial surgery (13%), blepharoplasty (9%), liposuction (9%), otoplasty (6%), lifting (5%), abdominoplasty (5%), and other procedures (5%). In terms of occupation, 41 participants (31.3%) held highly specialized roles, 27 (20.6%) were in executive office positions, 9 (6.9%) had nonspecialized jobs, 5 (3.8%) worked in commercial services, and 2 (1.5%) reported other professions. The remaining 34 participants (26.0%) were not part of the workforce: 23 (17.6%) were students, 5 (3.8%) housekeepers, 3 (2.3%) unemployed, and 3 (2.3%) retired. Additionally, 13 individuals (9.9%) did not specify their occupation. All participants provided informed consent and completed the assessment tools before undergoing their interventions.

Measures

Royal Free Cosmetic Awareness and Risk (RoFCAR) questionnaire. The RoFCAR questionnaire is a 9-item self-report questionnaire developed to assess psychological readiness and to identify potential risk factors in patients seeking cosmetic surgery. It is designed for independent completion by patients in about five minutes, either before or during their initial consultation. The questionnaire includes a brief sociodemographic section, collecting information such as age, gender, and the type of cosmetic surgery requested. Items 1 to 6 assess psychological concerns related to the feature the patient wants to modify, such as noticeability, worry about the perceived defect, self-consciousness, avoidance of activities, and self-confidence. Responses are scored on a 11-point Likert scale (ranging from 0 = *not at all* to 10 = *extremely* or *completely*), where higher scores reflect greater psychological concern. Notably, Items 4 and 5 are divided into three subquestions each (e.g., 4a, 4b, 4c), with 4a and 5a inquiring whether the perceived physical defect affects the patient's work activities. These subitems also include a "not applicable" (N/A) option for those to whom these questions do not apply (e.g., retired individuals or housekeepers). Items 7 and 8 (English version, see Table 1) assess how often patients check their appearance and the amount of time they spend looking in the mirror daily. Item 9 (English version) is an open-ended question aimed at exploring patients' expectations and motivations for undergoing surgery, encouraging reflection on how they anticipate their life to change postprocedure. We translated the questionnaire from English to Italian using the back-translation method to ensure both linguistic and conceptual equivalence. The original English items and their Italian translations are provided in Table 1. Since the RoFCAR questionnaire is still undergoing validation across different populations, standard reliability values, such as Cronbach's alpha, are not yet available in the literature. Internal consistency and other psychometric properties for the Italian version of the tool will be calculated as part of the ongoing validation study.

Symptoms Checklist-90-Revised (SCL-90-R). The SCL-90-R (Derogatis, 1994; Italian validated version, Prunas et al., 2012) is a widely used self-report measure of psychological distress and psychopathology (Dang et al., 2021). It was included in this study to assess broader psychological functioning in participants and to validate the RoFCAR questionnaire's capacity to identify individuals with psychological vulnerabilities that may impact postoperative outcomes. The SCL-90-R consists of 90 items evaluating 10 psychological dimensions: somatization (SOM), obsessive-compulsion (O-C), interpersonal sensitivity (INT), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), paranoid ideation (PAR), psychoticism (PSY), and sleep disturbances (SLEEP). Each item is rated on a 5-point Likert scale (0 = *not at all* to 4 = *extremely*), with higher scores reflecting more severe symptoms. In addition to the symptomatic dimensions, the Global Severity Index (GSI) is calculated, representing the average score across all answered items and serving as an overall indicator of psychological distress. Mean scores of 1.00 or higher in each dimension are generally considered clinically relevant. In this study, 102 out of 131 participants completed the SCL-90-R, with missing data primarily due to incomplete responses to this long instrument. The SCL-90-R demonstrated high reliability, with a Cronbach's alpha of .96 for the overall scale. The 10 subscales showed levels of reliability ranging from good (O-C: α = .81; DEP: α = .82) to acceptable (SOM: α = .78; INT: α = .78; ANX: α = .77; PAR: α = .73; SLEEP: α = .76), questionable (HOS: α = .68; PSY: α = .68), and poor (PHOB: α = .58). Despite the variability, these values are consistent with psychometric standards for clinical research (George & Mallery, 2018; Nunnally, 1978), which provide clear benchmarks for interpreting reliability coefficients. According to these established guidelines, coefficients are classified as excellent (> .90), good (.80-.90), acceptable (.70-.80), questionable or adequate (.60-.70), poor (.50-.60), and unacceptable (< .50).

TABLE 1
The English and the Italian version of the RoFCAR questionnaire

Number	Item	RoFCAR (English version)	RoFCAR (Italian version)
1	RoFCAR1	With regard to the feature for which you requested surgery: How noticeable is it now?	Quanto si nota adesso il particolare per cui richiedi la visita?
2	RoFCAR2	How much do you worry about it now?	Quanto ti preoccupa?
3	RoFCAR3	How self-conscious of your appearance do you feel now?	Quanto ti senti sicuro/a del tuo aspetto fisico ora?
4	RoFCAR4_a	To what extent do you AVOID your work life because of your appearance?	Quanto tendi ad EVITARE le normali attività, a causa del tuo aspetto fisico: lavoro?
5	RoFCAR4_b	To what extent do you AVOID your social life because of your appearance?	Quanto tendi ad EVITARE le normali attività, a causa del tuo aspetto fisico: vita sociale?
6	RoFCAR4_c	To what extent do you AVOID your sexual and intimate life because of your appearance?	Quanto tendi ad EVITARE le normali attività, a causa del tuo aspetto fisico: vita sessuale/intima?
7	RoFCAR5_a	With regard to self-confidence, how confident do you feel in relation to the following: at work?	Rispetto alla sicurezza in te stesso/a, quanto ti senti sicuro/a rispetto: lavoro?
8	RoFCAR5_b	With regard to self-confidence, how confident do you feel in relation to the following: social life?	Rispetto alla sicurezza in te stesso/a, quanto ti senti sicuro/a rispetto: vita sociale?
9	RoFCAR5_c	With regard to self-confidence, how confident do you feel in relation to the following: sexual and intimate life?	Rispetto alla sicurezza in te stesso/a, quanto ti senti sicuro/a rispetto: vita sessuale/intima?
10	RoFCAR6	To what extent do you feel the need to check your appearance in the mirror?	Quanto senti la necessità di controllare il tuo aspetto fisico allo specchio?
11	RoFCAR7	How many times a day do you check your appearance?	Quante volte al giorno controlli come appari?
12	RoFCAR8	On a typical day, how long do you spend looking in the mirror?	In un giorno qualsiasi, quanto tempo passi davanti allo specchio?
13	RoFCAR9	In what ways do you expect your life to be different after surgery?	In che modo ti aspetti che la tua vita sarà diversa dopo l'intervento?

Note. RoFCAR = Royal Free Cosmetic Awareness and Risk questionnaire.

Data Analysis

Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were computed for each item. Skewness and kurtosis values falling between –2 to +2 were considered acceptable, ensuring normal univariate data distribution.

To explore the factor structure of the 12 close-ended RoFCAR items, we conducted an exploratory factor analysis (EFA). Prior to performing EFA, we verified that item correlations exceeded .30 (Hair et al., 2010), Bartlett's test of sphericity was significant (indicating that the correlation matrix was not an identity matrix), and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was above .60, confirming the suitability of the data for subsequent analyses. The minimum residual method (Comrey, 1962) was applied for EFA, combined with Promax oblique rotation under the assumption that the resulting factors would be

correlated. Parallel analysis was employed to retain factors with eigenvalues exceeding those expected by chance (Patil et al., 2017). Factor loadings above .50 were deemed significant for interpretation, following recommendations from Stevens (2012) for moderate sample sizes, ensuring that retained items exhibited strong relationships with their respective factors (Guadagnoli & Velicer, 1988). Additionally, multiple regression analyses were performed to investigate the predictive role of each SCL-90-R symptom dimension on the psychological risk factors captured by the RoFCAR questionnaire, which may influence postoperative outcomes, controlling for age and gender. All statistical analyses were performed using SPSS (Version 26), while the psych package (Revelle, 2024) in R-studio was used for EFA.

RESULTS

All RoFCAR items demonstrated a good distribution, as reflected in the descriptive statistics reported in Table 2.

TABLE 2
Mean, standard deviation, skewness, and kurtosis for each of the 12 close-ended items of the RoFCAR questionnaire

Item number	Mean	Standard deviation	Skewness	Kurtosis
1	7.74	2.16	–1.18	1.31
2	6.65	2.56	–0.71	–0.04
3	5.56	2.19	–0.65	0.01
4	1.17	2.23	1.83	2.23
5	2.42	3.02	0.89	–0.49
6	2.69	3.38	0.85	–0.74
7	7.62	2.12	–1.11	1.19
8	7.12	2.03	–1.00	1.21
9	6.58	2.53	–0.95	0.52
10	6.03	2.74	–0.58	–0.45
11	4.68	2.74	0.34	–0.90
12	3.85	2.28	0.73	–0.06

Note. The 12 numbered items in this table correspond to the close-ended questions of the RoFCAR questionnaire. For reference to the full set of items, including the open-ended item (RoFCAR9), see Table 1.

The suitability of the data for EFA was supported by a statistically significant Bartlett's test, $\chi^2(66) = 639.28$, $p < .001$, and a Kaiser-Meyer-Olkin (KMO) value of .67, which exceeded the recommended threshold of .50 (Hutcheson & Sofroniou, 1999).

Parallel analysis suggested a four-factor solution, accounting for 57% of the total variance: the first and second factors explained 16% each, the third 13%, and the fourth 12% of the variance. The eigenvalues, presented in Table 3, indicated that the relative importance of the factors was quite similar. Convergent validity was supported by factor loadings exceeding .50 for all items, except Item 3, which loaded at .37 but was retained in Factor 2 due to its conceptual similarity with the other items in that factor, which address self-confidence issues. Divergent validity was confirmed by the absence of cross-loadings, except for Item

9, which showed a positive loading on Factor 2 and a slightly lower, negative loading on Factor 3. Inter-factor significant correlations ranged from |.20| to |.43|, indicating that factors were generally interrelated. However, while correlations between Factor 4 and Factor 1 (.20) and Factor 3 (.43) were positive, negative correlations were reported between Factor 2 and Factor 3 (–.43) and Factor 4 (–.35). The communalities (i.e., the proportion of variance each item shares with all the other items) ranged from .23 to .98, indicating that items were moderately to strongly related to the factor set.

Based on item content, the factors were named as follows: Body Dysmorphic Disorder (BDD) for Factor 1 (Items 10, 11, 12), Self Confidence (SC) for Factor 2 (Items 3, 7, 8, 9), Worry (W) for Factor 3 (Items 1, 2, 6), and Social Avoidance (SA) for Factor 4 (Items 4, 5). Cronbach's alpha showed good internal consistency for BDD (α = .83), acceptable consistency for SC (α = .78) and SA (α = .76), but poor consistency for W (α = .59).

TABLE 3
EFA results for the RoFCAR questionnaire

Item	Factors				Communality
	Factor 1 (BDD)	Factor 2 (SC)	Factor 3 (W)	Factor 4 (SA)	
11	**.93**	–.11	–.14	.00	.84
12	**.83**	–.04	.08	–.06	.69
10	**.61**	.15	.02	.15	.46
8	–.08	**.91**	.01	–.04	,84
7	–.07	**.68**	.07	–.09	.47
9	.04	**.54**	–.49	.17	.65
3	.01	**.37**	–.17	–.09	.27
6	–.11	–.13	**.69**	.18	.71
1	.05	.14	**.61**	–.05	.31
2	.06	.10	**.51**	–.01	.23
5	.02	–.06	.08	**.94**	.98
4	–.08	.06	.08	**.63**	.41
Eigenvalues	1.95	1.91	1.55	1.49	
	Factor correlations				
Factor 1 (BDD)	–				
Factor 2 (SC)	.07	–			
Factor 3 (W)	.13	–.43***	–		
Factor 4 (SA)	.20*	–.35***	.43***	–	

Note. EFA = exploratory factor analysis; RoFCAR = Royal Free Cosmetic Awareness and Risk questionnaire; BDD = Body Dysmorphic Disorder factor (RoFCAR); SC = Self Confidence factor (RoFCAR); W = Worry factor (RoFCAR); SA = Social Avoidance factor (RoFCAR). The 12 numbered items correspond to the close-ended questions of the RoFCAR questionnaire; for the full questionnaire, including the open-ended item (RoFCAR9), see Table 1. Numbers in bold indicate factor loadings above the threshold of .45, used to determine item retention, except for Item 3, retained in Factor 2 for conceptual relevance.
*p < .05; **p < .01; ***p <.001.

Regression analysis results examining the predictive role of the SCL-90-R, controlling for age and gender, are presented in Table 4 for the GSI and for each symptom dimension (SOM, OC, INT, DEP, ANX, HOS, PHOB, PAR, PSY, and SLEEP). For the BDD factor, no significant associations were found with age, gender, or GSI; however, there were a marginal positive association with O-C (β = .33, p = .097) and a marginal negative association with INT (β = –.29, p = .082). For the SC factor, a significant positive association with age (β = .28, p = .002) and no statistically significant association with gender were observed, while GSI was a significant negative predictor (β = –.34, p < .001). Additionally, SC was negatively associated with INT (β = –.42, p = .004); it also showed a marginal negative association with SOM (β = –.23, p = .083) and a marginal positive association with HOS (β = .25, p = .068). For the SA factor, age showed a marginal negative association (β = –.19, p = .052), although this did not reach significance, and no association was found with gender. GSI was a significant positive predictor (β = .24, p = .015). Social Avoidance was also positively associated with INT (β = .35, p = .029) and showed a marginal positive association with O-C (β = .33, p = .088), though the latter was not significant. For the W factor, age was negatively associated (β = –.19, p = .039), while GSI was positively associated (β = .32, p = .001). A marginal positive association with female gender (β = .16, p = .084) was observed, but this did not reach statistical significance.

TABLE 4
Multiple regression analysis investigating the impact of the Global Severity Index (GSI) of SCL-90-R (Model 1) and all SCL-90-R symptom dimensions (Model 2), controlling for age and gender, on each RoFCAR factor (N = 102)

Predictor	RoFCAR factors			
	BDD	SC	W	SA
Model 1				
Age	–.09	.28**	–.19*	–.19*
Gender (1 = Female, 0 = Male)	.10	–.11	.16~	–.05
GSI	.14	–.34***	.32**	.24*
R^2	.04	.24***	.19***	.11*
Model 2				
Age	–.12	.24*	–.17~	–.19~
Gender (1 = Female, 0 = Male)	.15	–.08	.16~	–.04
SOM	–.20	–.23~	.05	–.02
O-C	.33~	.09	.19	.33~
INT	–.29~	–.42**	.24	.35*
DEP	.11	–.17	–.13	–.08
ANX	–.07	.01	.03	.02
HOS	.08	.25~	.03	–.12
PHOB	.07	–.04	–.07	–.07
PAR	.04	.11	.07	–.19
PSY	.07	–.02	–.01	.05
SLEEP	–.01	–.01	.00	–.02
R^2	.12	.36***	.22*	.19~

Note. RoFCAR = Royal Free Cosmetic Awareness and Risk questionnaire; BDD = Body Dysmorphic Disorder factor (RoFCAR); SC = Self Confidence factor (RoFCAR); W = Worry factor (RoFCAR); SA = Social Avoidance factor (RoFCAR); GSI = Global Severity Index (SCL-90-R); SOM = somatization (SCL-90-R); O-C = obsessive-compulsion (SCL-90-R); INT = interpersonal sensitivity (SCL-90-R); DEP = depression (SCL-90-R); ANX = anxiety (SCL-90-R); HOS = hostility (SCL-90-R); PHOB = phobic anxiety (SCL-90-

R); PAR = paranoid ideation (SCL-90-R); PSY = psychoticism (SCL-90-R); SLEEP = sleep disturbances (SCL-90-R). The values in the table are standardized coefficients (β).
~$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Discussion

This study aimed to validate the Italian version of the RoFCAR questionnaire and assess its utility in identifying psychological risk factors for patients undergoing cosmetic surgery. The results suggest that the RoFCAR questionnaire is a reliable tool for use in Italian clinical settings, particularly given its brevity and suitability for fast-paced cosmetic consultations.

The EFA revealed four distinct factors — Body Dysmorphic Disorder (BDD), Self Confidence (SC), Social Avoidance (SA), and Worry (W) — highlighting key psychological dimensions relevant to assessing patients' readiness for surgery. This factor structure aligns with theoretical frameworks that underscore the psychological complexities faced by individuals seeking cosmetic surgery (e.g., Brunton et al., 2014; Wildgoose et al., 2013). Moreover, the communality and factor correlation coefficients indicate that the items are sufficiently related to the set of factors and that the factors themselves are interrelated, thereby supporting the presence of coherent, underlying constructs. However, while Cronbach's alpha values for the BDD, SC, and SA factors were acceptable to good, the slightly lower internal consistency of the W factor suggests that this dimension requires further refinement in future studies.

Notably, the inclusion of BDD as a distinct factor underscores the significant role of body image disturbances in patients seeking cosmetic enhancements, as highlighted in previous studies (e.g., Sarwer & Spitzer, 2012; Sarwer et al., 1998a). This finding supports the growing consensus that body image concerns and psychological difficulties should be a central focus during presurgical consultations (e.g., Milothridis, 2020; Sarwer, 2006). However, the small positive association between BDD and SC, although not statistically significant, contrasts with existing literature linking low Self Confidence to BDD (e.g., Donyavi et al., 2015), indicating that further investigation is necessary to clarify this relationship. In contrast, the positive association between BDD and SA aligns with evidence showing that BDD relates with significantly impaired social functioning (Hollander & Aronowitz, 1999). Additionally, the positive association between SA and W echoes findings from Honigman et al. (2004), indicating that both social avoidance and appearance-related concerns are critical markers for detecting heightened appearance-related distress or diagnosing BDD. Similarly, the negative associations between SC and both SA and W align with prior research showing that individuals with lower self-confidence tend to avoid social interactions (Geist & Hamrick, 1983) and experience heightened concerns about their appearance (Harris & Carr, 2001). These interconnections highlight the complex interplay of psychological factors shaping patients' readiness for undergoing cosmetic surgery.

Our regression analyses, which examined the predictive role of the SCL-90-R dimensions on the RoFCAR factors while controlling for age and gender, provide further insights into these psychological dynamics. Although many findings were only marginally significant, they still offer important clues about the relationships between broader psychological distress and specific dimensions of cosmetic surgery-related psychological readiness.

For instance, Body Dysmorphic Disorder (BDD) was marginally predicted by O-C symptoms, supporting prior research identifying obsessive beliefs as a core feature of BDD (e.g., Phillips & Dufresne, 2000). Though not fully significant, this suggests that patients with obsessive tendencies may hyperfocus on perceived physical flaws, underscoring the importance of presurgical psychological interventions like cognitive-behavioral therapy to mitigate these tendencies (e.g., Phillips & Dufresne, 2000). On the other hand, the marginally negative association of BDD with INT contrasts with previous studies showing that interpersonal difficulties are common in BDD patients (e.g., Jazi et al., 2023; Kelly et al., 2014). This divergence

raises the possibility that obsessive preoccupations may override interpersonal concerns in some patients, but further research is needed to explore this hypothesis.

Self Confidence (SC) was negatively predicted by GSI, reinforcing the idea that individuals with higher global psychological distress tend to exhibit lower self-confidence (Geist & Hamrick, 1983). SC was also negatively associated with INT, suggesting that higher interpersonal difficulties relate with lower confidence in one's appearance (Harris & Carr, 2001). Additionally, the marginal negative association between SC and SOM aligns with research showing that individuals with more psychosomatic complaints tend to report lower self-confidence (e.g., Epstein et al., 1999; Hiller et al., 2006). Conversely, the marginal positive association between SC and HOS could indicate that feelings of anger or hostility might serve as a protective mechanism for one's self-image (e.g. Kernis et al., 1989); however, this relationship requires further exploration to clarify how hostility influences self-confidence.

Worry (W) was significantly predicted by GSI, implying that individuals experiencing higher global psychological distress are more prone to worrying about their appearance. This finding is consistent with previous research showing that general psychological distress exacerbates appearance-related concerns (e.g., Bianchini et al., 2013; Jáuregui Lobera & Bolaños Ríos, 2011).

Social Avoidance (SA) was also significantly predicted by GSI, suggesting that individuals with heightened psychological distress tend to avoid social interactions due to fears of judgment based on their appearance (Frederick et al., 2007). Moreover, SA was significantly predicted by INT, highlighting the role of interpersonal sensitivity in driving social withdrawal among patients seeking cosmetic surgery. This finding aligns with research indicating that individuals who are highly sensitive to how others perceive them are more likely to avoid social interactions due to fear of judgment or rejection (e.g., Alden & Taylor, 2004). As Park and Pinkus (2009) noted, heightened sensitivity to appearance-related rejection can exacerbate feelings of inadequacy and prompt withdrawal from social situations. Additionally, the marginally positive predictive value of O-C for SA suggests that obsessive tendencies may further exacerbate social withdrawal in individuals seeking physical enhancements, as noted in OCD literature, where social withdrawal due to obsessive preoccupations contributes to greater impairment (e.g., Parker, 2003; Schmoll, 2011).

Age emerged as a significant predictor for both SC and W, revealing that older patients are more likely to approach cosmetic surgery with greater comfort regarding their appearance and report fewer appearance-related concerns. These findings challenge the assumption that older individuals are more vulnerable to societal beauty standards and pressures (e.g., Hsu & Zimmer, 1988; Zerbe, 2003), suggesting instead that they may approach cosmetic surgery from a more secure psychological foundation (Honigman et al., 2004). Meanwhile, the marginal positive association between female gender and W indicates that women may experience higher levels of appearance-related concern, consistent with broader literature on gender differences in body image dissatisfaction (e.g., Tiggemann, 2014). These findings provide critical insights into the complex interplay of psychological factors that can impact postsurgical satisfaction, underscoring the key role of comprehensive psychological assessments in preoperative consultations to help align patient expectations with achievable, positive outcomes.

Limitations and Conclusion

This study, while promising, has limitations that future research should address to strengthen the RoFCAR questionnaire's validation in Italian clinical settings. The sample's small size limited our ability to conduct confirmatory factor analysis (CFA), following the EFA, and the predominantly female sample

reflects demographic realities among cosmetic surgery patients (ISAPS, 2024). Future studies should aim for larger, more gender-balanced samples to validate the structure identified in the EFA through CFA and examine gender-based differences in psychological risk factors related to cosmetic surgery.

Furthermore, regional sampling limited generalizability, as Italian cultural attitudes toward cosmetic surgery may vary. Future research should include diverse Italian population and explore the applicability of the RoFCAR questionnaire to nonsurgical practices (e.g., injectables treatments), which are increasingly popular (Salvatore et al., 2023).

Additionally, the validation process focused solely on the 12 close-ended items of the translated RoFCAR questionnaire, excluding the open-ended item (Item 9), which has significant potential to capture critical factors such as patient expectations and motivations for cosmetic surgery — key predictors of post-operative satisfaction. Future research could include qualitative methods to analyze responses to Item 9, providing a more nuanced understanding of patient expectations and motivations, thus enhancing the tool's applicability in presurgical evaluations.

Addressing these limitations — particularly sample size and composition, broader cultural representation, and inclusion of qualitative analysis — will strengthen the RoFCAR questionnaire's efficacy in identifying psychological risk among cosmetic surgery patients across diverse settings.

In conclusion, this study successfully demonstrates that the Italian RoFCAR questionnaire is a reliable and valid tool for assessing psychological readiness in patients seeking cosmetic surgery. Its brevity and practicality address a gap in current screening options, which are often too cumbersome for routine use (e.g., Brunton et al., 2014; Wildgoose et al., 2013). Although further research is needed to confirm the tool's psychometric structure and properties across diverse populations and settings, the RoFCAR questionnaire has strong potential as a valuable tool for clinicians to assess psychological risks and support successful outcomes in cosmetic procedures. For instance, patients presenting lower scores on Self Confidence (SC) and higher scores on the other dimensions, particularly Body Dysmorphic Disorder (BDD), could be identified as less prepared for cosmetic procedures and at greater risk of experiencing unsatisfactory surgical outcomes. This highlights the utility of the RoFCAR questionnaire in guiding targeted presurgical interventions to align patient expectations with achievable results, ultimately improving both patient satisfaction and overall surgical success.

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