

Validation of the Cosmetic Procedure Screening (COPS) Questionnaire in the Greek language

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Abstract

Practitioners in cosmetic and aesthetic treatment practices are likely to unknowingly work with patients with Body Dysmorphic Disorder (BDD). Screening questionnaires to identify the disorder in Greece are lacking. The purpose of this study was to validate a Greek version of the Cosmetic Procedure Screening (COPS) questionnaire, a self-report measure of how the respondents feel about their appearance, before an aesthetic intervention. The COPS was translated into Greek and was completed by 216 adult females from several areas of Attica (four private beauty centers, three dermatology clinics, five plastic surgery clinics, and Thrasio General Hospital of Elefsina) who pursued a cosmetic procedure. Participants also completed the Perceived Stress Scale (PSS-14). The Greek version of the COPS questionnaire demonstrated high internal consistency (Cronbach's α of 0.856) with corrected item's total range 0.468 to 0.687. Two of the factors explained 58.98% of total variance. Twenty (9.26%) women had a possible diagnosis of BDD (80% were unmarried, 95% had no children, 80% had university education). An increase in perceived stress levels was associated with an increase in the likelihood of being diagnosed with BDD (Pearson's $r=0.726$). The Greek version of the COPS questionnaire is a valid instrument that can be used by professionals to screen adult women for BDD.

Introduction

Body Dysmorphic Disorder (BDD) is a psychiatric condition which is not well-known, nor has been investigated for long as other established psychiatric disorders. However, before the disorder's first inclusion in the 3rd edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), case reports of individuals with characteristics of the disorder did appear in the cosmetic surgery literature (APA, 1980). Edgerton *et al.* described patients who were preoccupied with "minor deformities" as well as others who could not be satisfied with the cosmetic surgery result and returned for additional procedures (Edgerton *et al.*, 1960; Knorr *et al.*, 1967). Similar findings were reported in the field of dermatology research (Cotterill *et al.*, 1981). Thus, it

appears that clinicians involved with cosmetic surgical treatments were familiar with some of the characteristics of the condition before its formal recognition as a diagnostic entity in the psychiatry literature.

The incidence of BDD increases among patients who seek aesthetic medical treatments. Studies that have examined BDD regardless of the type of treatment, consistently suggest that 5% to 15% of patients have some form of the disorder (Sarwer *et al.*, 1998; Aouizerate *et al.*, 2003; Vulink *et al.*, 2006), while other authors that conducted clinical interviews of patients, report higher rates, up to approximately 20% of patients (Altamura *et al.*, 2001; Vargel *et al.*, 2001; Bellino *et al.*, 2006). Others have investigated the presence of BDD in people who sought dermatological treatment. Among these studies, the rates of BDD were quite similar to those in patients

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interested in purely aesthetic treatments, ranging from 8.5% to 15% (Uzun *et al.*, 2003; Bowe *et al.*, 2007).

According to the systematic review of Veale *et al.* who aimed to determine the prevalence of BDD in different settings and the differences between the sexes, the total prevalence in the category of aesthetic dermatology was 9.2% with women (14.7%) outnumbering men (7.1%), total prevalence in the category of general cosmetic surgery was 13.2% with men (15.3%) outnumbering women (10.9%), and total prevalence in the category of acne treatment clinics was 11.1% without differences between the two sexes (Veale *et al.*, 2016). A meta-analysis conducted one year later by Ribeiro on the prevalence of BDD among plastic surgery and dermatology patients, came to add to the existing literature that 15.04% of plastic surgery patients with a mean age (\pm SD) of 34.54 (\pm 12.41) years had a BDD, while among the dermatological patients, 12.65% had the disorder with an average age (\pm SD) of 27.79 (\pm 9.03) years. The majority of BDD cases in both categories were women (Ribeiro, 2017). In a more recent review by Sarwer, it was typically reported that many individuals underwent cosmetic interventions experiencing strong dissatisfaction with their image, a clinical picture similar to that of BDD and it is speculated that 5-15% of people seeking cosmetic treatment suffer from BDD (Sarwer, 2019). According to the literature so far, there have been increased rates of BDD worldwide among the facilities that deal with aesthetics (Veale *et al.*, 2016).

Body dysmorphic disorder is considered a “silent” psychiatric disorder. Patients are reluctant to discuss their concerns with medical professionals, fearing that their stress originating from their appearance will be disregarded. Therefore, they seek comfort without ever being properly diagnosed (Lai *et al.*, 2010). Their unrealistic expectations maintain their dissatisfaction even after a successful operation, and thus intensify the feeling of discomfort and stress that accompanies them (Castle *et al.*, 2002). A meta-analysis that compared the quality of life of individuals without BDD who underwent cosmetic surgery, pre- and post-operatively, showed that their quality of life at a psychological and practical level had greatly improved post-operatively (Dreher *et al.*, 2016; Wang *et al.*, 2016). However, this does not seem to be the case with BDD patients. Most of them do not see real improvement after a successful aesthetic intervention, which leaves them unhappy and may aggravate the symptoms of the disorder. Therefore, BDD is considered a contraindication for cosmetic medicine treatments (Phillips, 2009; Wang *et al.*, 2016; Higgins *et al.*, 2017; Sarwer, 2019).

An early diagnosis of BDD, facilitated by appropriate diagnostic tools, could play a decisive role in the professional-patient relationship, and would allow the health scientist (dermatologist, plastic surgeon) to adequately predict the needs of the particular patient (Jakubietz *et al.*, 2007; Kyle, 2012).

Data are scarce regarding the prevalence of BDD in such patients in Greece and there is also lack of validated

screening instruments. The Cosmetic Procedure Screening (COPS) questionnaire is a self-report measure based on the DSM-IV criteria (APA, 1994) for BDD, that aims to gather information about how the respondent feels about his/her appearance, before an aesthetic intervention. The aim of the present study was to translate and validate the COPS questionnaire in the Greek language.

Materials, Methodologies and Techniques

Translation procedure

The research team was authorized by Dr. David Veale to validate the Greek version of the COPS questionnaire. A bilingual translation was performed in two directions (forward translation, backward translation). At first the COPS questionnaire was translated from the English into the Greek language by two different Greek native speakers with very good knowledge of English (forward translation). Comparison of the two translations resulted in the 1st version of the questionnaire in Greek, which was re-translated into English by a professional Greek translator (backward translation). The result of this translation was compared with the original questionnaire to record any differences and comments, which were then incorporated into the already existing Greek translation (1st version). As a result of this comparison and the corrections that were needed, a 2nd version of the Greek questionnaire emerged which was applied to a small sample of volunteers to check the understanding and the proper wording of the questions to correct any possible mistakes or omissions. Observations and comments from this test sample were recorded and then incorporated in the 2nd version of the Greek questionnaire. With the completion of the above procedure, the final Greek version of the COPS questionnaire emerged, which was then subjected to a final reliability and validity test.

Participants

The study sample was recruited from several areas of Attica, 4 private beauty centers, 3 dermatology clinics, 5 plastic surgery clinics and the Thriasio General Hospital of Elefsina. Females seeking a cosmetic procedure were included in the study if they were 18 years of age or older and were able to read and write in the Greek language. The study was performed in accordance with the ethical standards of the 1964 Declaration of Helsinki and its later amendments. The study protocol was approved by the Ethics committee of the Thriasio General Hospital (protocol no 405/03-12-2019). Women were informed about the purpose of the study and signed a consent form prior to study entry. All participants completed the Greek version of the COPS questionnaire, the Perceived Stress Scale, as well as a structured questionnaire for socio-demographic characteristics.

Measures

Socio-demographic data: A properly structured questionnaire was used to gather information about the demographic characteristics of the respondents. These included age, location of residence, educational level, employment, marital status, and whether they had children or not.

Cosmetic Procedure Screening (COPS) questionnaire: The COPS questionnaire comprises 10 items. Only items 2 to 10 are scored on a 9-point scale from 0 (least impaired) to 8 (most impaired). The first item defines the features that the person finds unattractive in his/her appearance and is not part of the total score. The remaining 9 items of the COPS questionnaire investigate the extent to which the features reported in question 1 concern the individual and how much stress is caused (distress) by them or make him/her dysfunctional in important areas of life, according to the diagnostic criteria of the BDD.

The questionnaire examines the following: A. the individual's excessive concern for a perceived or existing defect in his/her appearance (questions Q 2,3,4,6), and B. the clinically significant discomfort or dysfunction in social, professional or other important areas of life caused by this concern (questions Q 5,7,8,9,10). The score is achieved by summing Q 2-10. Items 2, 3 and 5 are reversed. The total score ranges from 0 to 72 with a higher score reflecting greater impairment and

symptoms of BDD. Individuals who score 40 or more are likely to have a diagnosis of BDD (Veale *et al.*, 2012).

Perceived Stress Scale (PSS-14): The Greek version of the PSS-14 was used (Andreou *et al.*, 2011). This is a 14-item self-report instrument that measures the degree to which situations in a person's life are reported as stressful or not. The frequency of emotions and thoughts during the previous month is rated on a 5-point Likert scale (from 0 = never to 4 = very often). There are seven positive and seven negative elements, and the total score is calculated by summing the score of each element, after all the positive elements have been reversed (minimum total score = 0, maximum total score = 56). Higher scores indicate a higher level of perceived stress of the person during the last month. PSS-14 was found to have satisfactory internal consistency (Cronbach's alpha=0.85) (Cohen *et al.*, 1983).

Statistical analysis

Descriptive analyses were used to calculate frequencies (%), means (min-max) and standard deviations (SD). The Kaiser-Meyer-Olkin (KMO) statistic and Barlett's Sphericity Test were used to examine sample's adequacy. Exploratory Factor Analysis was performed to identify items' factors. Cronbach's alpha values were calculated to assess internal consistency of the questionnaire. Total scores of the instrument were calculated and the association with demographic characteristics of the sample was explored with One-way ANOVA test.

Table 1. Descriptive characteristics of the study sample.

		Participants N=216	COPS >=40	% BDD cases in category	% BDD cases out of total BDD cases	% BDD cases out of total cases
Age (years)	18-30	67	8	12%	40%	4%
	31-45	107	8	7%	40%	4%
	46+	42	4	10%	20%	2%
Educational level	Primary Education	3	0	0%	0%	0%
	Secondary Education	28	2	7%	10%	1%
	Higher Education	131	16	12%	80%	7%
	Postgraduate Education	54	2	4%	10%	1%
Employment status	Freelancer	45	1	2%	5%	0%
	State Employee	35	5	14%	25%	2%
	Private Employee	99	12	12%	60%	6%
	University Student	21	2	10%	10%	1%
	Retired	3	0	0%	0%	0%
	Unemployed	13	0	0%	0%	0%
Marital status	Married	82	3	4%	15%	1%
	In Relationship	52	10	19%	50%	5%
	Single	60	6	10%	30%	3%
	Separated/ Divorced	22	1	5%	5%	0%
Children	Yes	58	1	2%	5%	0%
	No	158	19	12%	95%	9%

Table 2. Rotated factor loadings of PCA for the 9 items of COPS questionnaire (N=216).

Items	Initial	Extraction
Q02	1.000	.353
Q03	1.000	.713
Q04	1.000	.680
Q05	1.000	.484
Q06	1.000	.726
Q07	1.000	.601
Q08	1.000	.605
Q09	1.000	.645
Q10	1.000	.501
% of Variance		58.98
Cronbach's α		0.88

PCA: Principal Component Analysis, COPS: Cosmetic Procedure Screening, Q: question

Statistical analyses were performed using IBM SPSS version 24.0.

Results

The questionnaire was completed by 216 adult women who pursued a cosmetic procedure. According to the scale of the COPS questionnaire, 9.26% (N = 20) of participating women had a possible diagnosis of BDD. The socio-demographic characteristics of the study sample are presented in Table 1.

The KMO coefficient and Barlett's Sphericity test (χ^2) were first calculated, to examine the adequacy and suitability of the data collected. KMO fit coefficient was 0.88, which verified the sample's adequacy for analysis and χ^2 was 689.586, $P < .001$, which indicated that correlations between items were sufficiently large enough to perform Exploratory Factor Analysis (EFA). EFA was performed with Principal Component Analysis (PCA). With regards to the internal consistency of the questionnaire Cronbach's α was 0.856, with corrected item total range 0.468 to 0.687 which indicates a high internal consistency. Table 2 presents the results of the PCA. Two of the factors had an eigenvalue greater than Kaiser's criterion of 1 and explained 58.98% of the total variance.

Reliability of the COPS questionnaire was explored by internal consistency (Cronbach's α). The average coefficient alpha value was 0.88, quite similar to that observed in the original study. Table 3 presents the means, standard deviations, and Cronbach's α values if items of the scale were deleted.

Associations between COPS scores and the socio-demographic characteristics of the sample were explored and presented in Table 4. Statistically significant correlations ($P < .05$) of BDD were observed with the educational level, the presence or absence of children and the marital status of the participants, while non-

Table 3. Descriptive statistics for the COPS questionnaire.

Item Statistics	Mean	Std. Deviation	Cronbach's α if item deleted
Q02	2.37	1.485	.850
Q03	3.10	1.947	.845
Q04	2.68	2.017	.829
Q05	1.06	1.707	.846
Q06	3.23	1.937	.833
Q07	1.93	2.140	.830
Q08	.51	1.181	.845
Q09	1.60	1.977	.837
Q10	2.56	2.059	.845

COPS: Cosmetic Procedure Screening, Q: question

significant correlations ($P > .05$) were found between the BDD scores and type of employment and age.

A regression analysis was applied to examine the causal relationship between the study quantitative variables (COPS and PSS-14), as shown in Table 5.

According to the regression data there is a statistically significant correlation ($P < .05$) between COPS and PSS-14. More specifically, an increase in perceived stress levels was associated with an increase in the likelihood of being diagnosed with BDD (Pearson's $r = 0.726$).

Discussion

The aim of this study was to validate the COPS questionnaire in the Greek language. Body dysmorphic disorder is characterized by preoccupation with thoughts and behaviours regarding appearance concerns. It is a disabling mental health condition where a perceived physical defect impairs everyday life functioning (Bowyer *et al.*, 2016; Singh and Veale, 2019). BDD is commonly under-diagnosed or mis-diagnosed by physicians and practitioners in cosmetic procedures (Bowyer *et al.*, 2016). Moreover, a large proportion of BDD patients presenting to non-psychiatry-related specialists may not identify themselves as suffering from a mental disorder (Singh and Veale, 2019). Many BDD patients seek dermatological, surgical, or cosmetic interventions trying to correct their perceived defect, and instead of the psychiatric help that they actually need, they receive treatments which often lead to lack of satisfaction with the performed procedure (Bowyer *et al.*, 2016). Among other questionnaires assessing BDD symptoms, the COPS questionnaire is the only one created for patients undergoing cosmetic procedures (Phillips *et al.*, 1997; Phillips, 2005; Phillips, 2009; Phillips, 2017). Compared to the original version, the translated Greek version of the COPS questionnaire

Table 4. One-way ANOVA test with the results of the F-test.

		Sum of Squares	Df	Mean Square	F	Sig.
Age	Between Groups	324.024	2	162.012	1.260	.286
	Within Groups	27381.809	213	128.553		
	Total	27705.833	215			
Source	Between Groups	1028.404	3	342.801	2.724	.045
	Within Groups	26677.429	212	125.837		
	Total	27705.833	215			
Educational Level	Between Groups	1198.979	2	599.490	4.817	.009
	Within Groups	26506.854	213	124.445		
	Total	27705.833	215			
Marital Status	Between Groups	1425.275	3	475.092	3.832	.011
	Within Groups	26280.558	212	123.965		
	Total	27705.833	215			
Kids	Between Groups	820.812	1	820.812	6.534	.011
	Within Groups	26885.021	214	125.631		
	Total	27705.833	215			
Employment Status	Between Groups	375.662	4	93.916	0.725	.576
	Within Groups	27330.171	211	129.527		
	Total	27705.833	215			

showed a lower, however sufficient, value of Cronbach α coefficient (0.91 vs. 0.88, respectively). Nonetheless, the results of convergent validity revealed remarkably similar results to those obtained in the original paper, showing a significant relationship with perceived psychological distress. The Greek validation showed that among the 216 participants, 20 cases had a possible diagnosis of BDD, which corresponds to a percentage of 9.26% that coincides with the existing literature (Veale *et al.*, 2016). The results of this study are also in line with previous literature with regards to the importance of age and marital status. The majority of BDD cases were not in a committed relationship (80% were unmarried and 95% had no children) (Hartmann and Buhlmann, 2017). Interestingly, age did not seem to affect the likelihood of diagnosis as there was no correlation between possible diagnosis of BDD and age of the respondents (Phillips, 2020). The educational level was found to have a statistically significant correlation with the disorder with 80% of BDD possible cases reporting to have university education.

Table 5. Linear Regression.

	B	Std. Error	t	Sig.
Constant	-5.0276	1.6447	-3.0569	.003
PSS-14	0.9418	0.0609	15.4577	.000
Pearson's $r = 0.726$				

PSS-14: Perceived Stress Scale

Screening for BDD is essential in cosmetic surgery practice. To our knowledge, the Greek version of the COPS questionnaire is the first instrument for BDD screening in the Greek language. It is a valid instrument that can be used in cosmetic procedure settings to screen adult women for BDD. It can also be used as an outcome measure after treatment to determine if there is any improvement or persistence in the symptoms of BDD following a cosmetic procedure.

Key Points

- Screening questionnaires for Body Dysmorphic Disorder (BDD) in Greece are lacking.
- The incidence of BDD increases in patients seeking aesthetic/cosmetic treatments.
- The Cosmetic Procedure Screening (COPS) questionnaire is a screening tool for BDD.
- The Greek version of the COPS questionnaire demonstrated high internal consistency.
- The Greek version of COPS can be used for screening adult women for BDD in Greece.

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