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Evaluation of Body Image and Sexual Satisfaction in Women Undergoing Female Genital Plastic/Cosmetic Surgery

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Abstract:	<p>Background: Little prospective data exists regarding the procedures constituting female genital plastic/cosmetic surgery (FGPS).</p> <p>Objectives: To evaluate whether the procedures of labiaplasty and vaginoperineoplasty improve genital self-image image, and evaluate effects on sexual satisfaction.</p> <p>Method: Prospective cohort case-controlled study of 120 subjects evaluated at baseline, 6, 12, and 24 months postoperative, paired with a demographically similar control group. Interventions include labiaplasty, clitoral hood reduction, and/or aesthetic vaginal tightening, defined as perineoplasty + "vaginoplasty" (aka "vaginal rejuvenation.") Outcome Measures include Body Image, Genital Self-Image, Sexual Satisfaction, and Body Esteem.</p> <p>Results: As a group, study patients tested at baseline showing body dissatisfaction, negative genital self-image and poorer indices of sexual satisfaction. Preoperative body image of study patients were in a range considered to be mild-moderately dysmorphic, but matched controls at one and two years; genital self-image scores at entry were considerably lower than controls, but by 2-year follow-up had surpassed control value at entry. Similarly, sexual satisfaction values, significantly lower at entry, equaled at one, and surpassed control values at 2 years. Postoperatively, at all points in time, these differences in body image and genital self-image disappeared, and sexual satisfaction markedly improved. Overall body esteem did not differ between study and control groups, with the exception of the genital esteem quotient, which improved after surgery.</p> <p>Conclusions: Women requesting and completing FGPS, when tested by validated instruments, at entry report sexual dissatisfaction and negative genital self-image. When tested at several points in time after surgery up to two years, these findings were no longer present. When performed by an experienced surgeon, FGPS appears to provide sexual and genital self-image improvement.</p>

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ABSTRACT

Background: Little prospective data exists regarding the procedures constituting female genital plastic/cosmetic surgery (FGPS).

Objectives: To evaluate whether the procedures of labiaplasty and vaginoperineoplasty improve genital self-image, and evaluate effects on sexual satisfaction.

Method: Prospective cohort case-controlled study of 120 subjects evaluated at baseline, 6, 12, and 24 months postoperative, paired with a demographically similar control group. Interventions include labiaplasty, clitoral hood reduction, and/or aesthetic vaginal tightening, defined as perineoplasty + “vaginoplasty” (aka “vaginal rejuvenation.”) Outcome Measures include Body Image, Genital Self-Image, Sexual Satisfaction, and Body Esteem.

Results: As a group, study patients tested at baseline showing body dissatisfaction, negative genital self-image and poorer indices of sexual satisfaction. Preoperative body image of study patients were in a range considered to be mild-moderately dysmorphic, but matched controls at one and two years; genital self-image scores at entry were considerably lower than controls, but by 2-year follow-up had surpassed control value at entry. Similarly, sexual satisfaction values, significantly lower at entry, equaled at one, and surpassed control values at 2 years. Postoperatively, at all points in time, these differences in body image and genital self-image disappeared, and sexual satisfaction markedly improved. Overall body esteem did not differ between study and control groups, with the exception of the genital esteem quotient, which improved after surgery.

Conclusions: Women requesting and completing FGPS, when tested by validated instruments, at entry report sexual dissatisfaction and negative genital self-image. When tested at several points in time after surgery up to two years, these findings were no longer present. When performed by an experienced surgeon, FGPS appears to provide sexual and genital self-image improvement.

Physicians who work with women interested in altering appearance or function of their genitalia soon come to understand how much extremes of size, symmetry, “laxity” or visually self-perceived unattractiveness affects them. Feelings of emotional and psychosexual distress, in addition to functional distress, significantly impact these women.¹ Protrusion of labia minora well beyond the confines of the labia majora, as well as marked redundancy of labia majora have cosmetic, self-esteem, hygienic, sexual and functional ramifications. Those ramifications are commonly cited by women requesting surgery. Physical discomfort and cosmetic concerns are frequently combined, and many women relate feelings of vaginal and perineal laxity detrimental to coital enjoyment and orgasmic facility.¹⁻¹⁶

Female genital plastic/cosmetic surgery (FGPS) has been developed in response to women’s desires to modify the appearance and function of their vulvas and vaginas. A growing literature is accumulating regarding the rationale for choosing FGPS. Although much of this has been retrospective, recent studies have been prospective.¹⁷⁻²¹ A small pilot study published in 2011¹⁷ found significant short term (6-month) resolution of apparent body dysmorphic complaints noted at study entry. Veale et al noted similar findings at 3 months postoperative, using a different testing instrument.²⁰ The relative paucity of research paired with the increasing demand for FGPS provides the impetus for the current study.

Different types of surgery serve different aesthetic or functional purposes.¹¹ Labiaplasty surgically alters the labia minora or majora and can significantly change labial appearance.¹¹ Reduction of the clitoral hood involves size reduction of a perceived hypertrophied or “fleshy” hood. In cases of phimosis, the hood may be separated to provide for emergence of a previously buried glans clitoris. The so-called “vaginal tightening” procedures are essentially modifications of posterior colporrhaphy/perineorrhaphy/perineoplasty procedures. These use a layered closure to re-approximate the levator musculature, strengthen the pelvic floor, minimize width of the genital hiatus, buttress the musculature with rectovaginal fascia, elevate the perineal body to reestablish the downward tilt of the vagina, and repair the introitus, vestibule and perineum in an aesthetic manner.

Modern FGPS techniques have evolved rapidly. Most of the empirical and retrospective research has been collected over the last 15-20 years, focused on a vaguely defined “satisfaction with results” or “sexual enhancement” as the endpoint. Measures of satisfaction, although recorded, were typically insufficient to assess psychological well-being of the patient. In 2000,

Rouzier et al focused on the functional and physical appearance of the vulva after surgery. Questions regarding satisfaction were limited both by the range of topics addressed and by yes/no response options.³ Goodman et al's well-powered but retrospective study of 341 procedures in 258 patients looked at both "patient satisfaction" and "enhancement of sexual function." They found positive outcomes in the great majority: 97% overall satisfaction and sexuality enhancement of 87% for vaginal tightening operations and 67% for labiaplasty.² Other studies have similarly been limited to functional and physical results of FGPS.³⁻¹⁰

Bramwell et al¹⁶ utilized semi-structured interviews to gain insight about psychological well-being of participants; their results revealed important individual variations in motivation, access, and response to surgery that were not detected in earlier research. In particular, most women initially reported feeling their genitals were "abnormal" and expressed the goal of achieving a "normal" (to them) genital appearance as the main reason for surgery.¹ It is important to note that investigations regarding "normalcy" in female genitalia reveal a wide range of variation.¹⁷ Among sexually active women, discomfort with the appearance of their genitals translates into anxiety and inhibitions during sexual activity. A partner's negative reaction was rarely noted by patients as rationale for surgery.²

The current study seeks to explore the relationship of body image, genital self-image, and sexual satisfaction in women seeking genital surgery. It aims to compare body-image perception in women seeking and receiving FGPS with the perception of a control group. Effects of surgery on body image, sexual self-image, and sexual satisfaction were explored, as women seeking FGPS express the desire for improvement in these areas.

METHODS

Subjects

We recruited a consecutive sample of 120 women aged 18 to 63 over a period of 18 months (September 2010-March 2012) who sought and received FGPS at the offices of five surgeons in Davis, CA, Los Angeles, CA, Chicago, IL, and Houston, TX (two of the surgeons are based in Los Angeles, CA). All surgeons have extensive experience conducting FGPS surgeries for cosmetic and functional purposes; each had performed > 500 FGPS procedures at time of study baseline. Women scheduling FGPS were informed about the study by surgeon or staff, and were told its purpose was to explore the impact, if any, of the surgery on body image and sexual

health. All women were seeking care for the various reasons already mentioned. The great majority of women approached (120/124; 96.7%) agreed to participate. IRB approval (Behavioral Research Ethics Board, University of British Columbia, Vancouver, BC, Canada) was granted and all participants were presented with and signed appropriate release forms. The control group was recruited by selecting that patient (new or return) registering next after a recruited study patient, provided that they were within 5 years in age of the preceding study-enrolled patient. These were a convenience cohort from the investigators' gynecology and plastic surgery practices. We chose this method of recruitment in an effort to obtain a loosely matching cohort which would mimic, in age and demographics (since they were from the same practices and age range as recruited study subjects), an "average community cohort." Utilizing this protocol. A total of 50 women agreed to participate as "controls." While participation was excellent among FGPS patients, a much higher percentage of potential control patients declined to participate, and it was not possible to recruit a control group of equal size to the study group. Demographics of both groups are summarized in Table 1.

Subjects were given the questionnaire package to complete in the waiting room prior to their surgery (controls after their office encounter) and later at 6-9 months (Study and Control), 12-15 months (Study), and 23-25 months after surgery (Study). Follow-up was administered via online or hard copy questionnaires. At the time of surgery, women were told they could resume coital sexual activities 4 to 8 weeks postoperatively, as determined by their surgeon. To preserve confidentiality, they were given a unique study ID recorded on all instruments. The completed package was then given to the office's designee, sealed, and mailed to the research office. When the package was received at the research office, all data were entered into a research database.

All subjects completed these instruments: 1) A demographic profile including age, ethnicity, parity, education, relationship status, and satisfaction with present sexual relationship; 2) The Yale-Brown Obsessive-Compulsive Scale, modified for Body Dysmorphic Disorder (BDD-YBOCS)²²; and 3) The Female Genital Self-Image Scale (FGSIS).²³ Participants were additionally invited to complete two additional validated instruments: The Index of Sexual Satisfaction (ISS)²⁴ and the Body Esteem Scale (BES).²⁵ Blank copies of the BDD-YBOS, FGSIS, ISS, and BES are available as Supplementary Material at www.aestheticsurgeryjournal.com.

Main Outcome Measures

Measures of body dysmorphic symptoms, genital self-image, sexual satisfaction, and body esteem were completed at each of the assessment points.

Body Image

Body image was assessed with a modified self-report version of the BDD-YBOC²² a 12-item semi-structured instrument designed to rate severity of body dissatisfaction via reporting of dysmorphic symptoms. The BDD-YBOCS was found to have good test-retest reliability over 1 week, with $r(125) = 0.88$. Internal consistency was also found to be adequate with $\alpha = 0.80$.

Measures of Genital Self-Image

The FGSIS²³ is a 7-item validated self-report instrument for determining genital self-image. Each of the 7 items is rated on a 4-point scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). The scale was found to have sufficient internal consistency with Cronbach's alpha = 0.88 and one factor that explained 59.23% of the variance. The FGSIS was positively and significantly correlated with all the domains on the Female Sexual Function Index (FSFI), including the total score ($r=0.20$, $p<0.001$), with the exception of the Desire domain. (Veale et al's 2013 paper describing the Genital Appearance Satisfaction scale²⁶ was not yet published when this study's protocol was developed.)

Measures of General Sexual Satisfaction

The ISS²⁴ was designed to assess the degree of sexual dissatisfaction in couples (dyads). Twenty-five items are rated on a 5-point Likert scale. The total score ranges from 0-100, with higher scores indicating a greater degree of sexual satisfaction.

Measures of Total Body Esteem

The BES²⁵ is a 35-item scale looking at different aspects of physical appearance and functioning in men and women. A 5-point scale is used to rate each item ranging from [1] strong negative feelings to [5] strong positive feelings. The overall scale correlates well with self-esteem. Higher scores indicate higher body esteem.

A total of 212 procedures were performed on the 120 participants; these are listed in Table 2. Many women had more than one procedure (eg, LP + RCH; PP/VP + LP, etc.) All study and control group values are found in Tables 3-6. To allow for the passage of time, data was collected from controls at entry and 6 months.

Data Analysis

IRB approval was sought and received (data on file). Time periods were compared using t-tests for independent samples to determine the means and standard deviations of the two groups. In many instances the variances were not equal, so a *Satterthwaite* t-test of unequal variances was conducted and results reported. Data were analyzed with the Stata (Statistics/Data Analysis), version 13.0 (StataCorp LP, College Station, TX, USA; Copyright 1985-2015).

RESULTS

Baseline Levels for Study and Control Groups

The two groups were demographically and educationally similar. More Caucasians were in the study group than control. Differences were noted in both “length of current relationship” and “length of longest relationship,” with control patients having a longer relationship status compared with study patients. The ages were similar, with a mean age for the FGPS group of 32.74 years (SD \pm 10.14; range, 18-63 years) and a mean age for the Control group of 33.20 years (SD \pm 9.58; range, 18-58 years), $p=0.78$. Sexual satisfaction was less in the study group, which also contained a higher proportion of unmarried or unpartnered individuals. At baseline, study and control groups differed in some areas; but not in others. Differences were pronounced on the instruments that measured dysmorphic symptomatology, genital self-image, and sexual satisfaction but not in body esteem, with the exception of item #28, “*genitalia*” (Tables 3-6). In all instances, study group participants exhibited dislike of their genitalia.

Effects of FGPS on Body Image

At entry, patients receiving a FGPS procedure scored significantly higher (higher = more “dysmorphic”) in all domains of the BDD-YBOCS than controls ($p<.0001$). Scores for the individual domains of “Preoccupation,” “Behavior,” “Avoidance,” and “Total” (=15.90) of all domains were significantly higher than controls (Total = 6.66) and *in a range considered as*

mildly-moderately dysmorphic according to Phillips criteria²² and the DSM-IV-TR.²⁷ These findings significantly change with time after FGPS surgery. By 1 and 2 years following their procedure, all scores for women receiving FGPS closely mirror the scores of the control population at all postoperative points in time ($p < .0001$) (Table 3; Figure 1).

Effects of FGPS on Genital Self-Image

At entry, the study group scored significantly poorer (lower numbers = lower genital self-image) for genital self-image than the control group (Table 4; Figure 2), but by 6 months, parity was achieved, and it was maintained at 12 months. At 24 months, total study group scores on the FGSIS (24.91) was significantly better than entry, 15.58 ($p < .0001$) and exceeded the control group's scores, 22.10 at entry and 22.50 at 6 months ($p = .005$).

Effects of FGPS on Sexual Satisfaction and Body Esteem

At inclusion, 54% of study participants and 76% of controls elected to complete the Index of Sexual Satisfaction, and 88% of study participants and 86% of controls completed the Body Esteem Scale. For those completing these two additional instruments, the follow-up results roughly paralleled those shown by the two primary instruments.

The ISS numbers paralleled both the BDD-YBOCS and FGSIS. Study patients at entry had statistically significant poorer overall sexual satisfaction as measured by the ISS ($p < .001$), but this figure changed and generally matched the control group at both 6, 12, and 24 months (Table 5; Figure 3). The surgical group showed a significant improvement over entry at 12 and 24 months.

On the BES, scores of the surgical and control groups paralleled each other through time, with the exception of Item #28 on the BES scale, sexual self-esteem. This item scored significantly lower at entry compared with controls ($p < .001$), but significantly improved at 12 and 24 months (Table 6; Figure 4).

Corrections for multiple testing were performed (a Bonferroni correction was applied to produce a familywise error rate of $.0125^{28}$) and did not change any of the p -values.

DISCUSSION

A robust literature exists confirming a direct relationship between a woman's genital self-image and her sexual satisfaction.^{17,21,29-35}

We found, in concordance with both Goodman et al's¹⁷ and Veale et al's studies,²⁰ that the body, genital and sexual dissatisfaction shown by study participants at baseline normalized with time following FGPS. Over time, rates of genital, body, and sexual satisfaction among study participants assumed parity with or improved over rates for the control group.

In both the pilot study and present investigation, we assumed that high levels of preoperative genital dissatisfaction followed by significant lessening after surgery suggest that dissatisfaction with a presumed defect is a motivator for FGPS. Preoperatively, women seeking FGPS had significant body (genital) dissatisfaction, which disappeared following surgery.

To what extent are these findings specific to women seeking cosmetic and functionally-genital procedures as opposed to those seeking other elective cosmetic procedures? Evidence of dysmorphic symptoms in patients undergoing cosmetic procedures is strong, with rates ranging between 6% and 53% depending on the measurement instrument.³⁶ Previous studies report that individuals with true dysmorphia report overall poor outcomes after surgery, including discontent with the procedure, maintenance of body dysmorphic symptoms and, if content with the present surgery, preoccupation with another perceived bodily defect.^{36,37}

Improved sexual satisfaction may be related to improvements in confidence or generally improved self-image,²⁹ such that if a woman perceives she *looks better and/or functions more pleasingly sexually*, she may have more self-confidence and therefore a more satisfying sexual experience. One retrospective study of women undergoing non-genital cosmetic surgical procedures, reported significant improvements in sexual satisfaction and body image.³⁷

The present study notes sustained abatement of body dissatisfaction symptoms following FGPS surgery involving vulva and vagina, suggesting that these women have body dissatisfaction rather than true dysmorphia. Although we did not measure psychiatric functioning in our sample, others have in a similar population¹⁷ of surgical patients and have noted it to be in the normal range. The apparently positive results from surgery do not diminish the crucial importance of careful counseling and screening of women seeking FGPS procedures.

Demographic differences were noted with regard to relationships and satisfaction with current relationship. Controls tended to be in their present relationship longer ($p=.029$) and generally experienced longer relationships ($p=.040$). In the study group, 38.3% were not in a

relationship at the time of their surgery, compared with only 12% of controls. This fact may to some degree account for the significant difference in “Satisfaction with current sexual relationship” noted between the groups. About 83.7% of controls reported satisfaction, compared with only 48.3% of study patients ($p < .0001$). These findings are not unexpected; as women will frequently wait for a time they are not in a sexual relationship to proceed with the genital surgery they have long contemplated.

A practical decision was made to follow controls out for 6 months in time, while study patients were observed for 48 months. As “sham surgery” was not an option, and since controls were other women from the authors practices visiting for a multitude of non-genital plastic-related reasons, and no intervention such as FGPS was undertaken, there appeared no reason to follow longer than 6 months in order to confirm continuity of their scores.

The authors are aware that the BES is presently considered outdated, but it was in use when the recruitment phase began in 2010.

This study is part of a nascent body of evidence-based, prospective literature adding to many retrospective studies, all concordant with the concept that a woman's sexual satisfaction improves with improved body image and function, especially where genitalia are concerned. This data may help inform authors of op-ed articles³⁸⁻⁴³ about the outcome of genital plastic or aesthetic procedures.

Because body and genital dissatisfaction has not heretofore been thought to be improved via surgery, surgeons are often warned against operating on patients with BDD. The inability of the BDD-YBOCS instrument to distinguish between “classical” BDD (which is unresponsive to surgical intervention) and *apparent dysmorphia* in the context of genital concerns was hinted at in our 2011 study¹⁷ and is validated here.

These results emphasize the psycho-sexual intensity surrounding a woman's genitalia and perceptions and function thereof. The conventional doctrine that surgery does not improve body dissatisfaction, sometimes labeled “dysmorphia,” may need rethinking, at least in the domain of genital revision.

A concern that “cognitive dissonance” may be operative in regards to FGPS has been voiced.^{17,44} Whilst this is a legitimate concern with short follow-up periods, one would predict this would be a less likely confounder as patients are followed out in time. The two year follow-up in this group is by far the longest used in a prospective FGPS study.

Only patients actually having surgery were included, as instruments were completed in the waiting room on their day of surgery. Because approximately 96% of women having surgery agreed to participate, the authors feel that the study group is well representative of women contemplating and completing FGPS.

This study benefits from its prospective design, powering, and robust (67%) 1 year follow-up. While the 2-year follow-up rate (47%) suffers from attrition, the one-year statistical trends hold across the board at two years. Although this 2-year rate is not inconsistent with follow-up for elective surgical procedures, the authors are aware that 47% is not robust, and is a weakness of the study. Unfortunately, we have no way to determine rationale (“satisfaction” versus “dissatisfaction”) of patients declining to participate as the study is extended in time. These could include mobility precluding contact and both satisfaction and dissatisfaction with disinclination to review “...old business.” We have no demographic information on the quite small number of women who elected to not participate at entry, and this is a minor limitation. Additionally, the BDD-YBOCS instrument is usually utilized as an observer-administered report of dysmorphic symptomatology. Our utilization of this instrument modified as a self-report may also be considered a limitation of the study.

As noted above, an increasing number of participants were lost to follow-up over time, as is common in clinical studies, especially those involving elective procedures. Patients received follow-up materials at the anniversaries noted above. If they did not respond within 2 weeks, an office representative telephoned the patient, and sent out a repeat email. If data was not returned, this process was repeated one additional time. The demographics of patients lost to follow-up were compared with those who responded at 12 and 24 months, and no significant differences were noted.

Obtaining a control group for women aged 18 to 63 desiring genital rearrangement was a challenge. To avoid additional confounding, we recruited our controls from the same population and time frame as study patients, namely women visiting our gynecology or plastic surgery practices. We admit that the fact that these were women visiting gynecologists and plastic surgeons may demographically skew data, but certainly paralleled the study group. We consider the control group to be loosely matching the study group; a significantly lower percentage of women not undergoing surgery agreed to participate, not unexpected as they had less investment in research involving a surgical procedure that did not apply to them personally. Thus, control

numbers did not match study patients recruited during the baseline entry phase. We acknowledge that the risk of ecological bias is present when a convenience cohort such as ours was chosen in that relationships of groups such as ours does not necessarily hold for individuals. This may be considered a weakness attributed to confounding by the group variable.

It may be argued that women undergoing a surgical procedure are inherently different than a control group that contains no women undergoing genitalia-altering plastic/cosmetic procedures and that this may constitute a confounding bias and that this may be considered a weakness of study design.

We must address our decision to be “lumpers” rather than “splitters” in electing to combine external (vulvar) with the more internal vaginal/perineal procedures. As over half of patients undergoing a vaginal tightening procedure *also had a labiaplasty/clitoral hood reduction*, and since the majority of patients requesting vaginal tightening also related aesthetic image concerns related to introitus/vulvar vestibule appearance, we elected to combine the two subgroups that make up FGPS. We recognize that some may consider this to be a weakness of this study.

CONCLUSION

Increasing numbers of men and women are choosing to electively alter body morphology. Women in increasing numbers are choosing to alter their genital anatomy to gain greater self-esteem, diminish functional discomforts and difficulties, and improve sexual pleasure. As happens with many newer technologies, non-evidence-based marketing campaigns have preceded good medical evidence on outcomes and risks. The extant studies have been mostly retrospective, and editorial opinions unrelated to evidence-based findings have flourished. The data here appear to suggest that there is a form of genital-centric body dissatisfaction that is surgically responsive, and that sexual self-image and “satisfaction” is improved with genital aesthetic and functionally-related surgery. This study enhances the knowledge base on body image and sexuality effects of elective female genital enhancements and adjustments, and is the largest prospective study with the longest follow-up yet in the literature.

Supplementary Material

This article contains supplementary material located online at www.aestheticsurgeryjournal.com.

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For Peer Review

FIGURE LEGEND

Figure 1. Comparison of total BDD-YBOCS. Increased score = greater dysmorphia/negative body image. See also Table 3

Figure 2. Female Genital Self-Image Scale. Increased score = greater genital self-image. See also Table 4.

Figure 3. Index of Sexual Satisfaction. Greater score = increased sexual satisfaction. See also Table 5.

Figure 4. Body Esteem Scale. Increased score = greater body esteem. See also Table 6.

Table 1. Demographics

	FGPS group (N=120) N (%)	Control group (N=50) N (%)	<i>p</i> -value
Age (years) Mean (\pm SD) Range	32.74 \pm 10.14 18-63	33.20 \pm 9.58 18-58	.768
Ethnicity Caucasian Hispanic Asian African-American "Other/mixed race"	96 (80) 12 (10) 4 (3.3) 3 (2.5) 6 (4.2)	33 (60) 5 (10) 9 (18) 1 (2) 2 (4)	Significant group difference (.03): More Caucasian women in study group (80%) than control group (66%)
Relationship status Single/dev/sep/widow "Dating" Married/cohabitating	46 (38.3) 38 (31.7) 36 (30)	6 (12) 17 (34) 27 (54)	Significantly fewer women in the VVA group (61%) were in a relationship compared to women in Control group (88%) (<i>p</i> =.004)
# children	0.83 \pm 1.27	0.96 \pm 1.21	.527
Highest education High school College graduate or some college Post-graduate degree	20 (16.7) 75 (62.5) 25 (20.8)	8 (16) 35 (70) 7 (14)	.359
Mean (\pm SD) length of current relationship (years)	5.04 \pm 7.32	7.97 \pm 8.90	.029
Mean (\pm SD) length of longest relationship (years)	7.46 \pm 6.69	9.95 \pm 8.02	.040
"Are you satisfied with your sexual relationship?" "Yes" "No" N/A	N= 118 57 (48.3) 32 (27.1) 29 (24.6)	N= 49 41 (83.7) 3 (6.1) 5 (10.2)	<.0001

Table 2. Procedures Performed

Procedures	Number performed (%)
Labiaplasty, labia minora	103 (85.8)
Labiaplasty, labia majora	18 (15)
Reduction, clitoral hood (usually performed along with labiaplasty)	70 (58.3)
Perineoplasty (including vaginoplasty [ie, “vaginal rejuvenation”])	21 (17.5)
Total no. of procedures performed on 120 patients (many patients had > 1 procedure)	212

* The most common combinations were perineoplasty/vaginoplasty with labiaplasty, and labiaplasty-minora with labiaplasty-majora.

[AQ: The percentages in column #2 have been adjusted to reflect the number of procedures divided by 120. Please review the revised percentages for accuracy.]

Table 3. YBOCS Study Values Compared With Control Values for Statistical Purposes

Group		BDD "Preoccupation"			BDD "Behavior"			BDD "Avoidance"			BDD "Total"							
Time	N (%) Study	N (%) Control	Study	Control	P-value		Study	Control	P-value		Study	Control	P-value					
Entry	120 (100)	50 (100)	7.62	1.90	<.0001		6.51	2.50	<.0001		1.775	0.32	<.0001					
6 mo.	88 (73.3)	42 (84)	4.05	1.83	<.001		4.78	3.10	.016		1.91	0.12	<.0001					
12 mo.	80 (66.7)	n/a	2.01	n/a	c/w entry	c/w control	2.61	n/a	c/w entry	c/w control	0.29	n/a	c/w entry	c/w control	4.96	n/a	c/w entry	c/w control
					.0001	.727			<.0001	.597			<.0001	.135			<.0001	.900
24 mo.	57 (47.5)	n/a	2.12	n/a	<.0001	.625	3.91	n/a	.001	.272	0.15	n/a	<.0001	.370	5.96	n/a	<.0001	.370

* Equal variances are assumed; higher numbers correlate with dysmorphia

c/w, compared with

Table 4. Female Genital Self-Image Scale Results

Time	N (%) Study	N (%) Control	Study	Control	<i>p</i> - value	
Entry	120 (100)	50 (100)	15.58	22.10	<.0001	
6 mo.	88 (73.3)	42 (84)	21.02	22.50	.104	
12 mo.	80 (66.7)		23.53		c/w entry <.0001	c/w control .192
24 mo.	57 (47.5)		23.94		<.0001	(+) .005

* Equal variances are assumed; improved genital self-image according to instrument parameters increases score

c/w, compared with

Table 5. Index of Sexual Satisfaction

Time	N (%) Study	N (%) Control	Study	Control	<i>p</i> - value	
Entry	65 (100)	38 (100)	92.15	97.56	<.001	
6 mo.	53 (81.5)	31 (81.6)	95.94	93.48	.407	
12 mo.	48 (73.8)		95.08		c/w entry	c/w control
					.007	.204
24 mo.	39 (60.0)		98.17		<.0001	.060

* Equal variances are assumed; increased score implies increased sexual satisfaction

c/w, compared with

Table 6. Body Esteem Scale

Time	N (%) Study	N (%) Control	BES Total Study	BES Total Control	<i>p</i> - value		BES #28 Study	BES #28 Control	<i>p</i> - value	
					c/w entry	c/w control			c/w entry	c/w control
Entry	106 (100)	43 (100)	123.74	122.40	.724		2.21	3.77	<.001	
6 mo.	71 (67.0)	34 (79.1)	124.76	118.82	.145		3.34	3.71	.363	
12 mo.	62 (58.5)		131.28		c/w entry	c/w control	3.95		c/w entry	c/w control
					.066	.04			<.001	.204
24 mo.	46 (43.4)		126.04		.622	.162	4.20		<.001	.015

* Item #28 refers to genitalia; equal variances are assumed; higher numbers indicate body esteem
c/w, compared with.

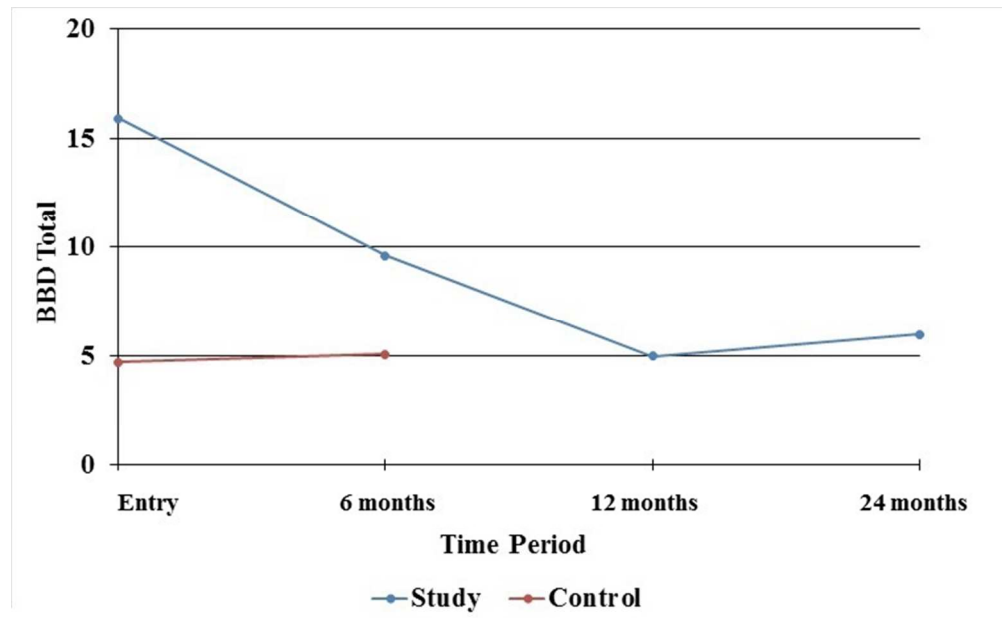


FIGURE 1
160x100mm (120 x 120 DPI)

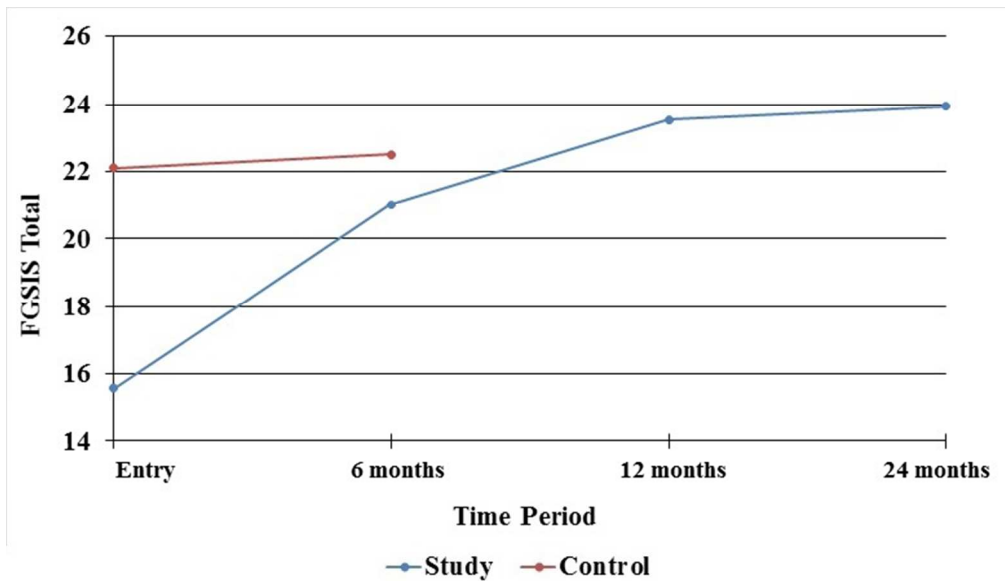


FIGURE 2
164x96mm (120 x 120 DPI)

Peer Review

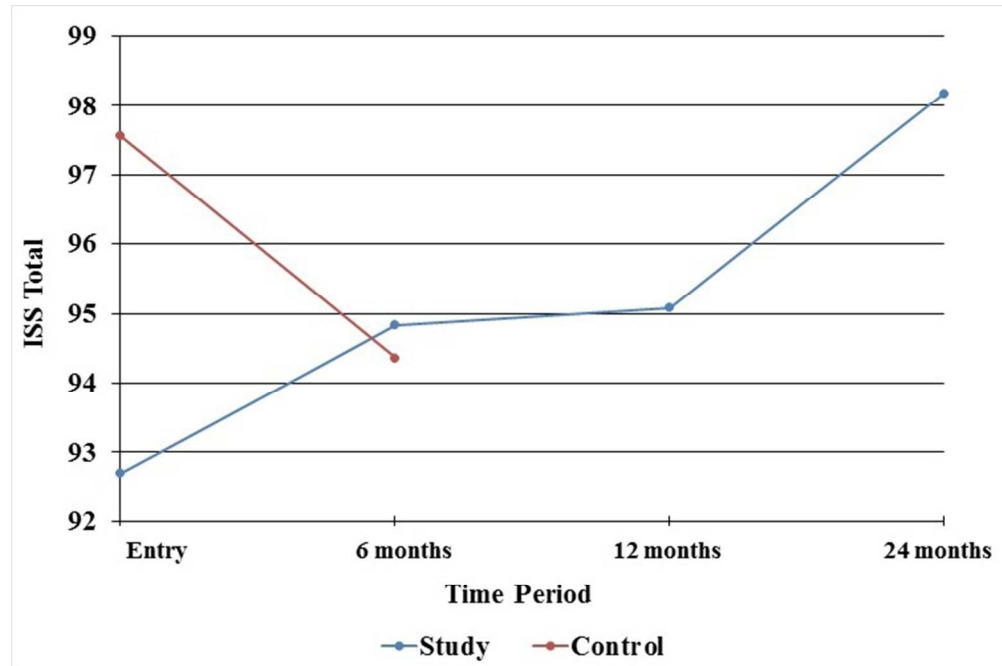


FIGURE 3
159x108mm (120 x 120 DPI)

Review

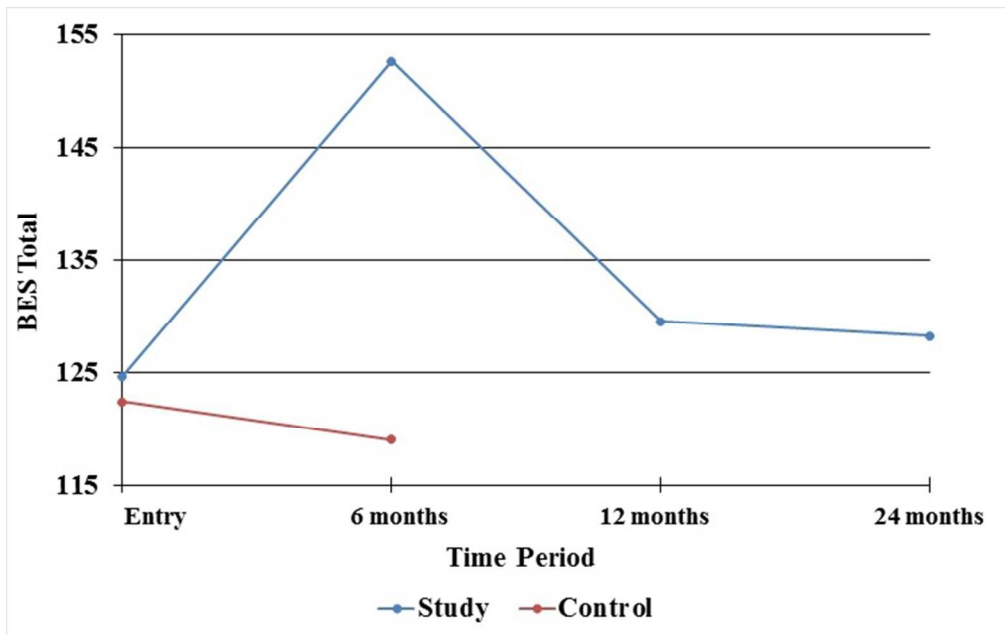


FIGURE 4
157x99mm (120 x 120 DPI)

Review

Body Esteem Scale
Franzios & Shields, 1984

Instructions: On this page are listed a number of body parts and functions. Please read each item and indicate how you feel about this part or function of your own body using the following scale:

1	2	3	4	5
<i>Have strong negative feelings</i>	<i>Have moderate negative feelings</i>	<i>Have no feelings one way or the other</i>	<i>Have moderate positive feelings</i>	<i>Have strong positive feeling</i>
1. Body scent		<u>-Please select-</u>	19. Arms	<u>-Please select-</u>
2. Appetite		<u>-Please select-</u>	20. Chest/breasts	<u>-Please select-</u>
3. Nose		<u>-Please select-</u>	21. Appearance of eyes	<u>-Please select-</u>
4. Physical stamina		<u>-Please select-</u>	22. Cheeks/cheekbones	<u>-Please select-</u>
5. Reflexes		<u>-Please select-</u>	23. Hips	<u>-Please select-</u>
6. Lips		<u>-Please select-</u>	24. Legs	<u>-Please select-</u>
7. Muscular strength		<u>-Please select-</u>	25. Figure or physique	<u>-Please select-</u>
8. Waist		<u>-Please select-</u>	26. Sex drive	<u>-Please select-</u>
9. Energy level		<u>-Please select-</u>	27. Feet	<u>-Please select-</u>
10. Thighs		<u>-Please select-</u>	28. Sex organs	<u>-Please select-</u>
11. Ears		<u>-Please select-</u>	29. Appearance of stomach	<u>-Please select-</u>
12. Biceps		<u>-Please select-</u>	30. Health	<u>-Please select-</u>
13. Chin		<u>-Please select-</u>	31. Sex activities	<u>-Please select-</u>
14. Body build		<u>-Please select-</u>	32. Body hair	<u>-Please select-</u>
15. Physical coordination		<u>-Please select-</u>	33. Physical condition	<u>-Please select-</u>
16. Buttocks		<u>-Please select-</u>	34. Face	<u>-Please select-</u>
17. Agility		<u>-Please select-</u>	35. Weight	<u>-Please select-</u>
18. Width of shoulders		<u>-Please select-</u>		

127x95mm (96 x 96 DPI)

BODY DYSMORPHIC DISORDER MODIFICATION OF THE Y-BOCS (BDD-YBOCS)®

(Adult version)

For each item circle the number identifying the response which best characterizes the patient during the **past week**.

**1. TIME OCCUPIED BY THOUGHTS
ABOUT BODY DEFECT**

How much of your time is occupied by THOUGHTS about a defect or flaw in your appearance [list body parts of concern]?

- 0 = None
 1 = Mild (less than 1 hr/day)
 2 = Moderate (1-3 hrs/day)
 3 = Severe (greater than 3 and up to 8 hrs/day)
 4 = Extreme (greater than 8 hrs/day)

**2. INTERFERENCE DUE TO THOUGHTS
ABOUT BODY DEFECT**

How much do your THOUGHTS about your body defect(s) interfere with your social or work (role) functioning? (Is there anything you aren't doing or can't do because of them?)

- Y/N Spending time with friends
 Y/N Dating
 Y/N Attending social functions
 Y/N Doing things w/family in and outside of home
 Y/N Going to school/work each day
 Y/N Being on time for or missing school/work
 Y/N Focusing at school/work
 Y/N Productivity at school/work
 Y/N Doing homework or maintaining grades
 Y/N Daily activities

- 0 = None
 1 = Mild, slight interference with social, occupational, or role activities, but overall performance not impaired.
 2 = Moderate, definite interference with social, occupational, or role performance, but still manageable.
 3 = Severe, causes substantial impairment in social, occupational, or role performance
 4 = Extreme, incapacitating.

**3. DISTRESS ASSOCIATED WITH THOUGHTS
ABOUT BODY DEFECT**

How much distress do your THOUGHTS about your body defect(s) cause you?

- 0 = None
 1 = Mild, not too disturbing.
 2 = Moderate, disturbing.
 3 = Severe, very disturbing.
 4 = Extreme, disabling distress.

Rate "disturbing" feelings or anxiety that seem to be triggered by these thoughts, not general anxiety or anxiety associated with other symptoms.

For each item circle the number identifying the response which best characterizes the patient during the **past week**.

**4. RESISTANCE AGAINST THOUGHTS
OF BODY DEFECT**

How much of an effort do you make to resist these THOUGHTS?
How often do you try to disregard them or turn your attention away from these thoughts as they enter your mind?

Only rate effort made to resist, NOT success or failure in actually controlling the thoughts. How much patient resists the thoughts may or may not correlate with ability to control them.

- 0 = Makes an effort to always resist, or symptoms so minimal doesn't need to actively resist.
1 = Tries to resist most of time.
2 = Makes some effort to resist.
3 = Yields to all such thoughts without attempting to control them but yields with some reluctance.
4 = Completely and willingly yields to all such thoughts.

**5. DEGREE OF CONTROL OVER THOUGHTS
ABOUT BODY DEFECT**

How much control do you have over your THOUGHTS about your body defect(s)?
How successful are you in stopping or diverting these thoughts?

- 0 = Complete control, or no need for control because thoughts are so minimal.
1 = Much control, usually able to stop or divert these thoughts with some effort and concentration.
2 = Moderate control, sometimes able to stop or divert these thoughts.
3 = Little control, rarely successful in stopping thoughts, can only divert attention with difficulty.
4 = No control, experienced as completely involuntary, rarely able to even momentarily divert attention.

**6. TIME SPENT IN ACTIVITIES
RELATED TO BODY DEFECT**

The next several questions are about the activities/ behaviors you do in relation to your body defects.

Read list of activities below to determine which ones the patient engages in.

How much time do you spend in ACTIVITIES related to your concern over your appearance [read activities patient engages in]?

- 0 = None
1 = Mild (spends less than 1 hr/day)
2 = Moderate (1-3 hrs/day)
3 = Severe (spends more than 3 and up to 8 hours/day)
4 = Extreme (spends more than 8 hrs/day in these activities)

Read list of activities (check all that apply)

- Checking mirrors/other surfaces
 Grooming activities
 Applying makeup
 Excessive Exercise (time beyond 1 hr. a day)
 Camouflaging with clothing/other cover
 (rate time spent selecting/changing clothes,
 not time wearing them)
 Scrutinizing others' appearance (comparing)
 Questioning others about/discussing your
 appearance
 Picking at skin
 Other _____

For each item circle the number identifying the response which best characterizes the patient during the **past week**.

**7. INTERFERENCE DUE TO ACTIVITIES
RELATED TO BODY DEFECT**

overall

How much do these ACTIVITIES interfere with your social or work (role) functioning? (Is there any performance, thing you don't do because of them?)

0 = None

1 = Mild, slight interference with social, occupational, or role activities, but

performance not impaired.

2 = Moderate, definite interference with social, occupational, or role

but still manageable.

3 = Severe, causes substantial impairment in social, occupational, or role performance.

4 = Extreme, incapacitating.

**8. DISTRESS ASSOCIATED WITH ACTIVITIES
RELATED TO BODY DEFECT**

How would you feel if you were prevented from performing these ACTIVITIES?
How anxious would you become?

Rate degree of distress/frustration patient would experience if performance of the activities were suddenly interrupted.

0 = None

1 = Mild, only slightly anxious if behavior prevented.

2 = Moderate, reports that anxiety would mount but remain manageable if behavior is prevented.

3 = Severe, prominent and very disturbing increase in anxiety if behavior is interrupted.

4 = Extreme, incapacitating anxiety from any intervention aimed at modifying activity.

9. RESISTANCE AGAINST COMPULSIONS

How much of an effort do you make to resist these ACTIVITIES?

Only rate effort made to resist, NOT success

0 = Makes an effort to always resist, or symptoms so minimal doesn't need to actively resist.

1 = Tries to resist most of the time.

2 = Makes some effort to resist.

3 = Yields to almost all of these behaviors without attempting to control them, but does so with

*or failure in actually controlling the activities.
How much the patient resists these
behaviors may or may not correlate with
his/her ability to control them.*

some reluctance.
4 = Completely and willingly yields to all
behaviors related to body defect.

10. **DEGREE OF CONTROL OVER COMPULSIVE
BEHAVIOR**

How strong is the drive to perform
these behaviors?
How much control do you have over them?

0 = Complete control, or control is
unnecessary because symptoms are mild.
1 = Much control, experiences pressure to
perform the behavior, but usually able to
exercise voluntary control over it.
2 = Moderate control, strong pressure to
perform behavior, can control it only with
difficulty.
3 = Little control, very strong drive to perform
behavior, must be carried to completion,
can delay only with difficulty.
4 = No control, drive to perform behavior
experienced as completely involuntary
and overpowering, rarely able to even
momentarily delay activity.

For Peer Review

For each item circle the number identifying the response which best characterizes the patient during the **past week**.

11. INSIGHT

Is it possible that your defect might be less noticeable or less unattractive than you think it is?

How convinced are you that [fill in body part] is as unattractive as you think it is?

Can anyone convince you that it doesn't look so bad?

0 = Excellent insight, fully rational.

1 = Good insight. Readily acknowledges absurdity of thoughts (but doesn't seem completely convinced that there isn't something besides anxiety to be concerned about).

2 = Fair insight. Reluctantly admits that thoughts seem unreasonable but wavers.

3 = Poor insight. Maintains that thoughts are not unreasonable.

4 = Lacks insight, delusional. Definitely convinced that concerns are reasonable, unresponsive to contrary evidence.

12. AVOIDANCE

Have you been avoiding doing anything, going any place, or being with anyone because of your thoughts or behaviors related to your body defects?

If YES, then ask: What do you avoid?

Rate degree to which patient deliberately tries to avoid things such as social interactions or work-related activities. Do not include avoidance of mirrors or avoidance of compulsive behaviors.

0 = No deliberate avoidance.

1 = Mild, minimal avoidance.

2 = Moderate, some avoidance clearly present.

3 = Severe, much avoidance; avoidance prominent.

4 = Extreme, very extensive avoidance; patient avoids almost all activities.

Brackets [] indicate material that should be read. Brackets are also used to indicate a pause.

Parentheses () indicate optional material that may be read.

Italicized items are instructions to the interviewer.

Phillips KA, Hollander E, Rasmussen SA, Aronowitz BR, DeCaria C, Goodman WK. A severity rating scale for body dysmorphic disorder: development, reliability, and validity of a modified version of the Yale-Brown Obsessive Compulsive Scale. *Psychopharmacol Bull* 1997;33:17-22.

For Peer Review

FEMALE GENITAL SELF IMAGE SCALE

The following items are about how you feel about your own genitals (the vulva and the vagina). The word **vulva** refers to a woman's external genitals (the parts that you can see from the outside such as the clitoris, pubic mound, and vaginal lips). The word **vagina** refers to the inside part, also sometimes called the "birth canal" (this is also the part where the penis may enter or where a tampon is inserted). Please indicate how strongly you agree or disagree with each statement. Your physician will send you the same questionnaire 6 – 9 months after your surgery. Results will be used for research. Your identity will not be revealed.

Please mark an "X" in the box to indicate how strongly you agree or disagree with each statement.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	I feel positively about my genitals.	---- Please Click HERE to Select ----			
2.	I am satisfied with the appearance of my genitals.	---- Please Click HERE to Select ----			
3.	I would feel comfortable letting a sexual partner look at my genitals.	---- Please Click HERE to Select ----			
4.	I think my genitals smell fine.	---- Please Click HERE to Select ----			
5.	I think my genitals work the way they are supposed to work.	---- Please Click HERE to Select ----			
6.	I feel comfortable letting a healthcare provider examine my genitals.	---- Please Click HERE to Select ----			
7.	I am not embarrassed about my genitals.	---- Please Click HERE to Select ----			

127x95mm (96 x 96 DPI)