

# Subjective outcomes of female genital cosmetic procedures: a prospective study with a median follow-up of 18 months

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## ABSTRACT

**Aims:** To investigate the affects of labiaplasty and/or vaginoplasty on sexual function and satisfaction, as well as the potential to improve body image and genital self-image.

**Methods:** A total of 131 heterosexual sexually active women receiving either a vaginoplasty and/or labiaplasty were included in the study population. Patients were subsequently divided into three groups: labiaplasty (LP) (n=44), vaginoplasty (VP) (n=44), and labiaplasty-vaginoplasty (LVP) (n=43) for statistical evaluation. All participants were administered preoperatively and postoperatively validated questionnaires including Body Image Scale (BIS); Female Sexual Function Index (FSFI), Sexual Quality of Life Questionnaire-Female (SQOL-F), Female Sexual Distress Scale (FSDS), Female Genital Self-Image Scale (FGSIS), and Quality of Sexual Experience Scale (QSES).

**Results:** The median follow-up was 18 months after the female genital cosmetic procedure (FGCP). FGSIS, BIS, SQOL-F, QSES, and FSDS postoperative questionnaires total scores improved significantly in the LP, VP, and LVP groups. FSFI postoperative total scores improved among all groups, but no statistically significant difference was detected in the LP group, unlike the VP and LVP groups. No intraoperative complications occurred. Postoperative complications were detected in 2 (4.5%) women in the LP group and 1 (2.3%) woman in the LVP group. These complications were wound dehiscence (<1 cm) in the labiaplasty line and no reoperation was required.

**Conclusion:** This prospective study determined the curative effect of FGCP on body image, sexual quality, sexual distress, genital image, and sexual function.

**Keywords:** Female genital cosmetic procedure, female genital cosmetic surgery, labiaplasty, sexual function, vaginoplasty

## INTRODUCTION

The popularity of female genital cosmetic procedures (FGCPs) for aesthetic (diminishment of perceived large, irregular, etc.) and/or functional (labial irritation with physical activities, dyspareunia etc.) concerns is increasing. Labia minora reduction or labiaplasty (LP), clitoral hood reduction, labia majora enlargement or reduction, vaginoplasty (VP), and perineoplasty (PP) are some of the commonly conducted FGCPs. FGCPs are thought to enhance sexual satisfaction by increasing penile pressure on the clitoral complex and increase self-esteem by amending the appearance of the external genitalia. Despite the increasing number of FGCPs, the precise outcomes for women are limited and debated.<sup>1</sup>

Self-esteem is a person's whole belief in their own value or worth.<sup>1</sup> It's commonly assumed that performing cosmetic surgery for improving an individual's seems may improve a patient's self-esteem.<sup>1</sup> One of the most often reported motivations for why patients seek out various cosmetic operations is the desire to improve their self-esteem.<sup>1,2</sup>

A recent review of FGCP outcomes across a variety of procedures revealed a beneficial effect on self-esteem.<sup>3</sup>

The intricate physiological process of female sexual function is influenced by biological, societal, and psychological variables. Female sexual function is affected negatively by relationship problems, stress, discomfort with vulvar appearances poor physical health and mental health.<sup>4</sup> Some studies identify a direct relationship between a woman's genital self-image and cosmetic functional improvement in women, but the literature is mostly retrospective.<sup>5,6</sup> In addition FGCPs appear to contribute to cosmetic and functional improvement in women, but the literature is mostly retrospective.<sup>7</sup> More prospective studies and standardized measurements should be performed for definitive and long-term results.

This prospective study aimed to determine the effects of FGCPs on body image, genital self-image, sexual distress, and sexual function and quality.

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## METHODS

We conducted this prospective questionnaire study at a private clinic. Patient inclusion in the study started on 1 January 2022. The last patient was included on 1 November 2022. The questionnaires were administered preoperatively and postoperatively last follow-up. The Kartal Dr. Lütfi Kırdar City Hospital Clinical Researches Ethics Committee approved the study (Date: 03.01.2022, Decision No: 2022/514/240/7). All participants gave written informed consent. It was performed following the ethical standards described in the Declaration of Helsinki.

In the study, three groups were planned according to the cosmetic procedure performed: only the linear resection technique LP group, only the VP group, and the LVP combined group. All procedures were performed by a surgeon (OD) with adequate experience in cosmetic gynecology. The primary outcome was determined as the effect on the FSFI score after the FGCP including LP, VP, or LVP. In this study, the effect of the FGCP on genital self-image, body image, sexual quality, and female sexual distress were defined as secondary outcomes. The sample size was calculated with the G power 3.1 program based on the FSFI questionnaire data in the prospective study of Goodman et al.<sup>6</sup> The sample size determined for each group was 39 women. Since it was predicted that there might be a loss in postoperative follow-up, the patient collection continued until 45 women were included in the study for each group.

Body dysmorphic disease was excluded preoperatively in all patients. Criteria for inclusion were: 18-65 years old heterosexual woman and being a sexually active. Exclusion criteria were: women who had techniques other than linear resection technique labiaplasty, had a psychiatric disease, were pregnant, and with an inability to comprehend the research or the questionnaire forms.

A total of 131 patients who underwent LP (n=44), VP (n=44), and LVP (n=43) were included in the analysis. No response was obtained from 4 women in the postoperative follow-up. Validated questionnaires to measure body image, genital self-image, sexual dysfunction, sexual quality, and sexual distress were performed preoperatively and postoperatively.<sup>8-12</sup> 7-10 days before surgery and the last postoperative follow-up, participants were given the questionnaire pack to complete alone. In addition to the questionnaire forms, we extracted the following information from medical records and by asking face to face: patient's demographic and clinical data (including age, menopausal status, parity and comorbidities), socioeconomic data (including education, income more/equal/less than expenses, number of partners, first sexual intercourse age, and marital status), and intraoperative - postoperative complications.

### Standardized Measures (Questionnaires)

BIS or Body Cathexis Scale (BCS): It is a 5-point Likert-type scale survey consisting of 40 questions adapted to Turkish by Hovardaoglu (1993). It is scored between 40 and 200 points, and higher scores are associated with better body image perception. As the fortieth question measures the view of the genital organ, it was also analyzed separately in the study.

FSFI is a questionnaire with 6 subparameters (desire, arousal, lubrication, pain associated with vaginal penetration, satisfaction, and orgasm) measuring sexual function in women in the last 4 weeks. A score ranging from 0 to 36 is determined to measure sexual function; higher values indicate greater sexual function. The threshold for sexual dysfunction is set at a score below 26.55.<sup>13</sup>

SQOL-F is used to assess the impact of sexual dysfunction on quality of life in women. It is a Likert-type scale consisting of 18 items with answers ranging from 1 = "Strongly disagree" to 4 = "Strongly agree"; higher scores are indicative of a better quality of sexual life.<sup>11</sup>

The FSDS assesses different parameters of distress related to sexual activity in women (13 items, range of 0-52 points). Lower scores indicate less sexual distress.<sup>10</sup>

The FGSIS is a seven-item questionnaire intended for analyzing women's opinions and views regarding their genitalia. It is a survey with 4 answer options (strongly agree, agree, disagree, and strongly disagree), with a minimum of 7 and a maximum of 28 points calculated; higher scores indicate a more positive genital self-image.<sup>14</sup>

QSES: The QSES (7 items, the total score ranging from 7 to 49) was used to assess the quality of sexual experiences. Higher scores correspond to better sexual quality.<sup>15</sup>

### Statistical Analysis

The data collected through the questionnaires were analyzed using IBM SPSS Statistics (version 25; IBM Corporation, Armonk, NY). Demographic variables and specific scale measures were given with the mean, standard deviation, standard error of the mean, median, interquartile range, and frequency for the relevant items. The subjective scale scores were compared using the samples t-test for parametric variables. Statistical significance was defined as  $p < 0.05$ .

## RESULTS

A total of 131 heterosexual sexually active women who either had a vaginoplasty and/or labiaplasty were included in the study population. Patients were subsequently divided into three groups: LP (n=44), VP (n=44), and LVP (n=43) for statistical evaluation. All demographic data including age, body-mass index, parity, menopausal status, and comorbidities are summarized in Table 1. First sexual intercourse age was determined as  $22.55 \pm 4.3$ ,  $23.41 \pm 3.9$ , and  $22.83 \pm 4.6$  in the LP, VP, and LVP groups, respectively ( $p = 0.803$ ). Social and economic data are summarized in Table 2.

	LP (n=44)	VP (n=44)	LVP (n=43)	p-value
Age (year), mean±SD	30.4±7.7	38.3±8.5	38.8±7	<0.001*
BMI (kg/m <sup>2</sup> ), mean±SD	21.6±2.9	26.1±3.1	24.5±4.1	<0.001*
Parity, median±IQR (min-max)	0±0 (0-3)	2±1.5 (0-3)	2±1.25 (0-7)	<0.001*
Post-menopausal, n (%)	4 (9)	5 (11.3)	8 (18.6)	0.063
Comorbidities, n (%)	2 (4.5)	4 (9)	5 (11.6)	0.175
Smoker, n (%)	18 (40.9)	9 (20.4)	17 (39.5)	0.633

LP: Labiaplasty, VP: Vaginoplasty, LVP: Labiaplasty-vaginoplasty, SD: Standard deviation, BMI: Body-mass index, IQR: Inter quantile range

**Table 2. Social/economic data\***

	LP (n=44)	VP (n=44)	LVP (n=43)
<b>Marital status, n (%)</b>			
Single/divorced/widow	13 (29.5)	10 (22.7)	11 (25.6)
Married	31 (70.4)	34 (77.3)	32 (74.4)
<b>Education, n (%)</b>			
Primary and secondary school	8 (18.1)	6 (13.6)	9 (20.9)
High school and more	36 (81.9)	38 (86.4)	34 (79.1)
<b>Occupation, n (%)</b>			
Housewife	16 (36.3)	18 (40.9)	16 (37.2)
Civil servant	20 (45.5)	18 (40.9)	18 (41.9)
Self-employed	8 (18.2)	8 (18.2)	9 (20.9)
<b>Number of partners, n (%)</b>			
Single partner	38 (86.4)	40 (91)	38 (88.4)
Multiple partners	6 (13.6)	4 (9)	5 (11.6)
<b>Economic status, n (%)</b>			
Intake < expense	2 (4.5)	3 (6.8)	5 (11.6)
Intake = expense	32 (72.7)	30 (68.2)	29 (67.5)
Intake > expense	10 (22.7)	11 (25)	9 (20.9)
<b>Family type, n (%)</b>			
Small family	40 (91)	37 (84.1)	38 (88.4)
Large family	4 (9)	7 (15.9)	5 (11.6)

\*No significant difference was found between groups for social/economic data (p>0.005). LP: Labioplasty, VP: Vaginoplasty, LVP: Labioplasty-vaginoplasty

Autologous fat lipofilling to the labia majora was performed for 10 (22.7%), 12 (27.2%), and 36 (83.7%) women in the LP, VP, and LVP groups, respectively. A clitoral hood reduction was performed for 40 (90.9%), 16 (36.3%), and 35 (81.3%) women in the LP, VP, and LVP groups, respectively. No intraoperative complications were found in any group. Postoperative complications were detected in 2 (4.5%) women in the LP group and 1 (2.3%) woman in the LVP group. These complications were minimal dehiscence (<1 cm) in the labioplasty line and no reoperation was required. No postoperative complications were detected in the VP group. No significant difference was detected between the groups in terms of postoperative complication rates (p=0.368).

Preoperative and postoperative questionnaire scores are given in Table 3. The median follow-up was 18 months with a range of 13-26 months (interquartile range=6.5; median follow-up between groups was similar, p=0.984).

FGSIS, BIS, SQOL-F, QSES, and FSDS postoperative questionnaire total scores improved significantly in the LP, VP, and LVP groups. FSFI postoperative total scores improved among all groups, although no statistically significant difference was detected in the LP group, unlike the VP and LVP groups. The comparison of the pre- and postoperative scales is given in Table 3.

There was no significant difference in total scores of preoperative and postoperative FGSIS (p=0.493/0.208), BIS (p=0.078/0.972), FSFI (p=0.635/0.860), and FSDS (p=0.138/0.573) questionnaires between the LP, VP, and LVP groups. The p-values of the differences between the

**Table 3. Comparison of pre-and postoperative scale scores**

	Preoperative		Postoperative		p (z)
	Mean±SD	min-max	Mean±SD	min-max	
<b>BIS</b>					
Genital score <sup>a</sup>	4.45±0.74	2-5	1.89±0.58	1-4	<0.001 (-4.18)
Total score	88.9±7.58	82-120	83.26±2.5	78-88	<0.001 (-3.61)
<b>FSFI</b>					
Desire	2.69±1.32	1.2-5.4	3.17±0.91	1.2-6	0.143 (-1.46)
Arousal	3.14±0.92	0-3.9	3.32±0.84	0-5.7	0.406 (-0.83)
Lubrication	3.13±0.92	0-3.9	3.33±0.84	0-6	0.405 (-0.83)
Orgasm	3.05±1.06	0-4.4	3.42±0.80	0.4-6	0.135 (-1.49)
Satisfaction	3.16±0.94	0-4.8	3.52±1.42	0-6	0.212 (-1.25)
Pain	3.36±0.91	1.2-5.2	3.42±1.12	0-6	0.575 (-0.56)
Total score	18.9±5.54	1.2-21.6	23.93±8.46	0-34.6	0.055 (-1.54)
QSES total score	18.26±12.44	0-28	32.04±26.79	0-115	0.003 (-2.94)
SQOL-F total score	40.13±27.68	0-69	50.04±33.81	0-83	<0.001 (-3.58)
FGSIS total score	11.3±3.46	10-21	21.65±2.84	13-28	<0.001 (-4.13)
FSDS total score	11.48±11.95	0-35	10.39±4.32	0-13	0.001 (-3.23)
<b>BIS</b>					
Genital score <sup>a</sup>	4.5±0.52	4-5	2±0.73	1-4	<0.001 (-5.54)
Total score	88.71±7.89	83-115	83.31±2.02	80-86	0.001 (-3.27)
<b>FSFI</b>					
Desire	3.41±1.08	1.2-5.4	3.2±0.54	2.4-6	0.439 (-0.77)
Arousal	2.95±1.22	0-3.9	3.42±0.48	0-5.7	0.326 (-0.98)
Lubrication	3.02±1.29	0-4.8	3.43±0.47	0-6	0.514 (-0.65)
Orgasm	3.07±1.33	0-4.4	4.02±0.90	0-6	0.048 (-2.11)
Satisfaction	3.19±1.47	0-5.2	4.17±0.91	1.2-5.6	0.035 (-2.05)
Pain	3.23±1.34	0-5.2	4.01±0.90	0-6	0.075 (-1.82)
Total score	16.94±8.59	1.2-26.4	24.96±5.88	7.2-34.9	0.012 (-2.51)
QSES total score	27±8.32	0-42	39.56±12.24	0-49	0.001 (-3.22)
SQOL-F total score	58.31±19.36	0-88	67.93±20.38	0-86	0.004 (-2.86)
FGSIS total score	12.12±3.7	10-21	21.44±2.88	14-28	<0.001 (-3.52)
FSDS total score	23.56±15.46	0-71	9.8±4.75	2-13	0.001 (-3.34)
<b>BIS</b>					
Genital score <sup>a</sup>	4.16±0.68	3-5	1.95±0.62	1-4	<0.001 (-5.54)
Total score	85.55±3.47	81-98	83.26±2.09	80-87	0.001 (-3.27)
<b>FSFI</b>					
Desire	3.11±1.18	1.2-5.4	3.36±0.81	0-6	0.311 (-1.01)
Arousal	2.97±1.08	0-3.9	3.49±0.76	0-6	0.012 (-2.51)
Lubrication	3.12±1.04	0-4.8	3.49±0.75	0-6	0.039 (-2.07)
Orgasm	3.05±1.15	0-4.4	3.7±0.86	0-6	0.006 (-2.74)
Satisfaction	3.14±1.29	0-5.2	3.6±0.87	0-6	0.017 (-2.40)
Pain	3±1.13	0-5.2	3.7±0.85	0-6	0.003 (-2.93)
Total score	17.75±7.29	1.2-26.2	23.64±6.53	6.4-34.6	0.001 (-3.31)
QSES total score	26.47±6.7	0-42	41.77±13.54	0-98	<0.001 (-5.11)
SQOL-F total score	59.07±7.76	49-86	69.3±16.04	0-86	<0.001 (-2)
FGSIS total score	10.85±21.8	10-17	20.55±3.03	12-28	<0.001 (-5.53)
FSDS total score	21.22±6.94	2-38	11.51±6.9	0-45	<0.001 (-5.09)

SD: Standard deviation, min: Minimum, max: Maximum, BIS: Body Image Scale, FSFI: Female sexual function index, QSES: Quality of Sexual Experience Scale, SQOL-F: Sexual quality of life questionnaire-female, FGSIS: Female Genital Self-Image Scale, FSDS: Female Sexual Distress Scale, a: BIS question 40 - Genital organ score

preoperative LP, VP, and LVP groups of the SQOL-F and QSES questionnaires were <0.001 and 0.001. p-values of postoperative differences were 0.004 and 0.032, respectively.



## DISCUSSION

A variety of surgical procedures including LP, perineoplasty, VP, and vaginal rejuvenation are conducted alone or in combination to improve genital appearance and/or sexual performance. However, benefits have not been proven by systematic reviews or randomized controlled studies to date using current guidelines.<sup>16</sup> This prospective study explored the relationship between body image, genital self-image, sexual distress, and sexual satisfaction in women seeking LP and/or VP. The FGSIS, BIS, SQOL-F, QSES, and FSDS postoperative questionnaire total scores improved significantly in the LP, VP, and LVP groups. However, although FSFI postoperative total scores improved among all groups, no statistically significant difference was detected in the LP group, unlike the VP and LVP groups.

The main motivations for an FGCP are improvement in appearance and better self-esteem and sexual life. Doğan et al.<sup>17</sup> reported that about half of patients stated they were affected by the media and advertisements. Social media, in addition to print publications and ads, play a major role in spreading awareness about cosmetic surgery.<sup>18</sup> As demonstrated in the review and meta-analysis, an FGCP can have a positive effect on women's self-esteem, although inconsistencies in study measurements and methods limit their results.<sup>1</sup> However, the general opinion regarding the guidelines is that there is inadequate evidence to support FGCPs as a way to improve sexual satisfaction and/or self-image. In addition, proof of both the safety and efficacy of these procedures is lacking.<sup>16</sup> As authors, we think that women should not be given information about possible effect of sexual function or self-image by the preoperative surgeon. In this study, the questionnaire preoperative and postoperative mean scores did not change for a small number of participants in all three groups.

Recently, a large number of studies have reported different results regarding the safety and complication rates of different FGCPs.<sup>7,19</sup> In the study of Köle et al.,<sup>7</sup> complication rates were reported as 1.2% after the composite labiaplasty technique, 3% in W-shaped resection, and 0.8% in Z-plasty. Women should be informed and counseled about potential complications in FGCPs, including scarring, infection, hypersensitivity or loss of sensation, wound dehiscence, and dyspareunia.<sup>20</sup> In this study, minimal dehiscence of the labiaplasty line was detected in 3 of 131 women, but reoperation was not required. We think that the reason why this complication rate is low is due to the fact that it was performed by the same person who is experienced in cosmetic genital surgery.

### Standard Measurement Outcomes

Chappel et al.<sup>4</sup> showed that self-perceived vulvar appearance ratings were associated with FSFI scores and women who were uncomfortable with their vulvar appearance had lower FSFI scores than those satisfied with their vulvar appearance. In the study of Goodman et al.,<sup>6</sup> in which the pre- and postoperative FSFI scores of 33 women who underwent vulvovaginal aesthetic surgery were compared, FSFI satisfaction scores increased significantly after surgery and there was a 3.5-point improvement in the FSFI total score ( $p=0.03$ ). The FSFI questionnaire findings showed an improvement of at least

5 points in all three groups. However, this improvement was statistically significant only in the VP and LVP groups. The reason why the improvement in the FSFI score was not significant in the LP group may be due to the small number of samples or the fact that only a labiaplasty did not increase the penile pressure on the clitoral complex.

Research investigating the relationship between genital self-image and female sexual dysfunction (FSD) found a negative correlation between the degree of sexual distress and a positive genital self-image.<sup>21</sup> Benabe et al.<sup>22</sup> reported that the FSDS score reduced by 1.24 units for every unit rise in the FGSIS score, suggesting that a higher genital self-image perception may reduce levels of sexual distress. Hailparn et al.<sup>23</sup> in their study using the FGSIS questionnaire before and after LP surgery, they found that postoperative scores were statistically higher (10 points higher). They found that LP had a positive impact on their perception of their genitals and improved their quality of life. These findings correlate with the present study, in which an inverse relationship between female genital self-image and sexual distress was observed. The FGSIS total score increased by approximately 10 points in all groups, while the FSDS total scores decreased between 2 and 14 points in this study.

In a comparative study conducted in Iran (FSFI, FGSIS, and SQOL-F questionnaires were administered to the participants only preoperatively) worse questionnaire scores were obtained in those who requested FGCPs. In addition, the findings suggest that there is a relationship between the search for aesthetic genital surgery and female sexual function, body image, and female sexual quality of life.<sup>24</sup> Although the preoperative FGSIS scores (range of 10.8-12.1) and SQOL-F scores (range of 40-59) in our patients who underwent FGCPs were lower than the study in Iran, the postoperative effect was examined in the present study and the positive effect of FCGS was statistically significant. In addition, this study determined BIS total score, BIS genital score, and QSES total scores improved significantly. We found, in concordance with both Şahin et al.<sup>26</sup> and Doğan et al.,<sup>25</sup> that the body, genital, and sexual dissatisfaction shown in women who received FGCPs at baseline normalized with time following the FGCP.

In this study, we used validated questionnaires because there were no standard measurement questionnaires in the literature, which limited the comparison of the present study results with the literature. In addition, although there were patients who underwent autologous fat lipofilling and clitoral hood reduction in the study, these procedures were not included in the analysis. In future studies, studies with larger sample sizes can be conducted in which the effect of additional surgical procedures can be investigated.

This study contributes to the literature on the FGCP effect and is a prospective study with a median follow-up of 18 months. A total of 131 women were included in the study and the effects of the FGCPs were analyzed separately for LP, VP, and LVP. Although this prospective study determined the curative effect of FGCP on body image, sexual quality, sexual distress, genital image, and sexual function, it is clear that more studies are needed on this subject.

## CONCLUSION

The popularity of FGCP for aesthetic and/or functional concerns is increasing.<sup>1</sup> This prospective study determined the curative effect of FGCP on body image, sexual quality, sexual distress, genital image, and sexual function. However, the general opinion about the guidelines is that there is insufficient evidence to support that FGCPs improve self-image and/or sexual satisfaction.<sup>16</sup>

## ETHICAL DECLARATIONS

### Ethics Committee Approval

The study was carried out with the permission of the Kartal Dr. Lütfi Kırdar City Hospital Clinical Researches Ethics Committee (Date: 03.01.2022, Decision No: 2022/514/240/7).

### Informed Consent

All patients signed and free and informed consent form.

### Referee Evaluation Process

Externally peer-reviewed.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Financial Disclosure

The authors declared that this study has received no financial support.

### Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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