The Female Genital Self-Image Scale (FGSIS): Results from a Nationally Representative Probability Sample of Women in the United States

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ABSTRACT

Introduction. Over the past two decades, an expanding body of research has examined women's and men's genital self-image. Support for the reliability and validity of the 7-item Female Genital Self-Image Scale (FGSIS) has been found in a convenience sample of women.

Aims. The purpose of this study was to assess the reliability and validity of the FGSIS, its model of fit, and its association with women's scores on the Female Sexual Function Index (FSFI) in a nationally representative probability sample of women in the United States ages 18 to 60. A second purpose was to assess the temporal stability of the scale in a subset of this sample.

Methods. A nationally representative sample of 3,800 women ages 18 to 60 were invited to participate in a cross-sectional Internet-based survey; 2,056 (54.1%) participated.

Main Outcome Measures. Demographic items (e.g., age, race/ethnicity, marital status, sexual orientation, geographic region), having had a gynecological examination in the past year, having performed a genital self-examination in the past month, frequency of masturbation in the past month, vibrator use in the past month, the FGSIS, and the FSFI.

Results. An abbreviated 4-item version of the scale, the FGSIS-4, was a better fit to the data than the original 7-item scale. Women's scores on the FGSIS-4 were significantly related to vibrator use, frequency of masturbation, having had a gynecological exam in the past year, having performed genital self examination in the past month, and all FSFI subscales.

Conclusion. Most of the participants felt generally positively about their genitals and female genital self-image was significantly related to female sexual function, women's sexual behavior and their sexual and genital healthcare behaviors. In addition, the FGSIS-4 has evidence of reliability, validity, and temporal stability in a nationally representative probability sample of women in the United States. **Herbenick D, Schick V, Reece M, Sanders S, Dodge B, and Fortenberry JD. The female genital self-image scale (FGSIS): Results from a nationally representative probability sample of women in the United States. J Sex Med 2011;8:158–166.**

Key Words. Female Genital Self-Image; Female Sexual Function; Vulva; Vagina; Genital Self-Examination

Introduction

Over the past two decades, several studies have measured women's and men's feelings and beliefs about their own genitals or genitals more globally [1–6]. An understanding of what have been called attitudes toward genitals, genital perceptions, and genital self-image is increasingly important given the range of ways that people interact with or make choices about their own or others' genitals. For example, the topic of circumcision of male infants' genitals is hotly contested among clinicians, public health professionals, and political and advocacy groups [7,8]. Female genital

circumcision—sometimes described as female genital cutting or mutilation—is an even more controversial topic in some societies [9,10]. At the same time that genital circumcision of infants and children in some African countries has been debated internationally, elective genital surgeries for adolescent and adult women—many of them cosmetic in nature—have been increasing in number and visibility in Western countries such as the United States, amid controversy [11–13]. A reliable and valid measure of female genital self-image may be useful to researchers as well as clinicians, who may see women in relation to concerns about genital odor, appearance, or function.

Previous research has demonstrated that female genital self-image is related to women's engagement in sexual behaviors such as vibrator use and receptive cunnilingus, in addition to sexual function as reflected by scores on the Female Sexual Function Index (FSFI) [6]. Although several researchers have proposed scales to measure female genital self-image or perceptions, no one measure is widely in use. This may reflect the limited, and relatively recent, attention to the study of women's genitals or female genital self-image. Alternatively, it may reflect concerns about the potential problems related to the internal validity of previously presented scales.

For example, one female genital self-image scale (FGSIS) includes several items that, by virtue of being double-barreled (i.e., asking about more than one thing), conflict with well-established recommendations of scale measurement [2,14]. Other items in this scale assess events that occurred during a person's childhood or adolescence, and thus may call into question whether the scale is intended to measure genital self-image as a state or a trait. Also, such items may be problematic because of the difficulty inherent in attaching a valence to the potential influences of early development in terms of current self-perception. Another scale, first developed to measure male genital self-image, was later adapted to measure female genital perceptions [1,3]. However, the neutral response option is frequently endorsed on all items, suggesting possible respondent discomfort with a sensitive topic [14] or a lack of salience or relevance of the item for many individuals. A scale developed by Reinholtz and Muehlenhard lacks items that reflect women's perceptions of the appearance or function of their genitals, themes that may not have been culturally salient at the time the study was conducted but that have particular relevance in contemporary times [5].

Given the varied ways that researchers have measured the construct of female genital self-image, a rational-empirical approach was recently applied in the development of a new 7-item scale called the FGSIS [6]. Sufficient support was established for the reliability, validity, and predictive capacity of the scale and it was demonstrated that women's scores on the FGSIS were significantly and positively correlated with all domains of sexual function as measured by the FSFI with the exception of the Desire domain. However, the initial psychometric assessment of the FGSIS did not assess the temporal stability of the scale. Also, scale administration was limited to a convenience sample of women.

Aims

The purpose of this study was to assess the reliability and validity of the FGSIS, its model of fit, and its association with women's scores on the FSFI in a nationally representative probability sample of women in the United States ages 18 to 60. A second purpose was to assess the temporal stability of the scale in a small subset of this sample.

Methods

This study was conducted in two phases that consisted of: (i) an administration of the FGSIS in a national sample of women aged 18 to 60; and (ii) a second administration of the FGSIS to a random subset of the initial sample of women for the purpose of assessing the temporal stability of the scale. The Institutional Review Board at the first author's institution approved all methods and protocols associated with this study.

Main Survey

The seven FGSIS items were administered as part of a population-based cross-sectional survey of 2,056 women aged 18–60 years in the United States through an existing research panel from Knowledge Networks (Menlo Park, CA, USA). Knowledge Networks has established research panels based on random digit dialing methods that provided a nonzero probability selection of U.S. households with a telephone and that are statistically adjusted monthly based on updates from the U.S. Census Bureau. Knowledge Networks data collection occurs via the Internet; all participants

in the Knowledge Networks panel are provided with Internet access and hardware if needed. Panels from Knowledge Networks have been sampled for numerous health-related research studies, which have provided support for the validity of these methods for obtaining a nationally representative sample of the U.S. population [15–20].

A total of 3,800 women, all members of Knowledge Networks' panels, were invited to participate in a study described as being about sexual enhancement products. These individuals received up to three e-mail invitations or reminders and one telephone reminder. Of those women invited to participate, 2,338 (61.5%) responded to the recruitment message, with 2,056 women (87.9%) consenting to participate. This resulted in a response rate of 54.1%.

Retest

Approximately 2 weeks following their completion of the main survey, the FGSIS items were administered to a small, randomly selected subsample of women (n = 58) who completed the larger survey. There were a total of 75 items in this survey; the remaining items were primarily related to participants' sexual health and wellness, and their behaviors and attitudes about sexual enhancement products, and are presented elsewhere [18–20].

Main Outcome Measures

Participants completed a comprehensive measure of questions about their sociodemographics (e.g., age, relationship status, sexual orientation, education), health behaviors (e.g., whether they had a gynecological exam in the previous year and whether they performed a genital self-examination in the previous month), and their sexual behaviors (e.g., frequency of masturbation in the previous month and lifetime vibrator use). The results of these variables may be found in Table 1. Additionally, participants completed the following two measures:

FSFI

The 19-item FSFI is a commonly used measure that assesses the sexual function domains of desire, arousal, lubrication, pain associated with vaginal penetration, satisfaction, and orgasm and provides a total score, with higher scores indicating more positive sexual function (e.g., higher scores on the pain subscale indicate no or less pain). Sufficient reliability and validity of each subscale and the total scale have been established [21–23].

FGSIS

The 7-item FGSIS assesses women's feelings and beliefs about their own genitals (items are displayed in Table 2) using a 4-point response scale (Strongly Agree, Agree, Disagree, Strongly Disagree). The scale has established reliability and validity in a convenience sample [6]. Respondents' scores on each item are summed for a total sum score ranging from 7 to 28, with higher scores indicating more positive genital self-image.

Analysis

All analyses were conducted using SPSS version 17.0 (SPSS Inc., Chicago, IL, USA) and AMOS 17.02 [24]. In order to maximize the generalizablity of the findings to the general population of U.S. women, poststratification data weights were used to reduce variance and correct for sampling bias [25]. Poststratification adjustments were based on current U.S. Census data on national distributions for age, race, gender, Hispanic ethnicity, education, and location within the United States. Participant and scale frequencies were investigated using descriptive statistics. Based on the type of data, we investigated bivariate relationships between the individual scale items and several other variables (e.g., sociodemographic, sexual health), using an independent samples *t*-test, analysis of variance with a Scheffe Posteriori test, or Pearson Product Moment Correlation. Construct validity was established based upon a confirmatory factor analysis conducted using structural equation modeling. The temporal stability of the scale was assessed using correlation analysis between time 1 and time 2 measures.

Based on the scale author's recommendations, the FGSIS was constructed by summing all variables [6]. Thus, because a missing data point would erroneously reduce the participant's summative score, participants with missing data (n = 29) were excluded from the analyses.

Results

Descriptive Statistics

In general, participants reported a relatively positive view of their genitals with approximately 75% of the sample reporting that they "agreed" to

Table 1 Weighted participant sociodemographic characteristics by mean FGSIS Scores

	Total sample		FGSIS (N = 1,973)		FGSIS-4 (n = 1,981)	
			Mean	ANOVA	Mean	ANOVA
	N	%	(95% CI)	F	(95% CI)	F
Age				1.85		1.87
18–24	210	10.6	21.56 (20.89, 22.23)		12.16 (11.76, 12.56)	
25–34	545	27.5	21.01 (20.65, 21.38)		11.82 (11.60, 12.04)	
35–44	467	23.6	21.53 (21.17, 21.90)		12.16 (11.94, 12.39)	
45–54	469	23.7	21.11 (20.73, 21.49)		11.97 (11.74, 12.21)	
55–64	290	14.6	21.65 (21.15, 22.16)		12.25 (11.95, 12.55)	
Ethnicity				9.71***		8.38***
White, non-Hispanic	1,311	66.2	21.06^{A} (20.85, 21.27)		11.89^{A} (11.76, 12.02)	
Black, non-Hispanic	260	13.1	22.82^{B} (22.21, 23.43)		12.88^{B} (12.52, 13.24)	
Other, non-Hispanic	115	5.8	21.32^{A} (20.60, 22.04)		12.04^{AB} (11.58, 12.49)	
Hispanic	272	13.7	21.02^{A} (20.39, 21.64)		11.90^{A} (11.53, 12.27)	
Multiracial, non-Hispanic	23	1.2	22.23^{AB} (20.38, 24.08)		12.57^{AB} (11.42, 13.72)	
Sexual orientation				0.46		0.41
Heterosexual/straight	1,855	93.9	21.30 (21.11, 21.50)		12.03 (11.91, 12.15)	
Homosexual/gay or lesbian	37	1.9	21.13 (19.51, 22.74)		12.15 (11.22, 13.08)	
Bisexual	69	3.5	21.91 (20.84, 22.98)		12.37 (11.72, 13.03)	
Other	15	0.8	21.47 (19.96, 22.98)		11.98 (11.02, 12.94)	
Marital status				3.35**		4.17***
Married	982	49.6	21.36^{AB} (21.11, 21.62)		12.07 (11.92, 12.23)	
Widowed	25	1.3	22.42^{AB} (20.76, 24.09)		12.74 (11.72, 13.77)	
Divorced	218	11.0	21.09^{AB} (20.54, 21.63)		11.86 (11.53, 12.20)	
Separated	41	2.1	21.22^{AB} (19.76, 22.68)		12.17 (11.28, 13.06)	
Never married	499	25.2	20.87^{A} (20.45, 21.30)		11.73 (11.48, 11.99)	
Living with partner	215	10.9	22.20^{B} (21.65, 22.76)		12.62 (12.29, 12.96)	
Education				0.86		0.38
Less than high school	217	11.0	21.43 (20.74, 22.13)		12.10 (11.69, 12.50)	
High school	549	27.7	21.08 (20.73, 21.44)		11.96 (11.74, 12.18)	
Some college	628	31.7	21.47 (21.12, 21.83)		12.11 (11.89, 12.32)	
Bachelor's degree or higher	586	29.6	21.30 (21.00, 21.61)		12.00 (11.82, 12.19)	
Metro				0.32		0.32
Non-Metro	304	15.3	21.08 (20.66, 21.51)		11.90 (11.63, 12.16)	
Metro	1,677	84.7	21.35 (21.14, 21.56)		12.06 (11.93, 12.19)	
Location				3.71**		3.71**
Northeast	360	18.2	21.40^{AB} (20.97, 21.83)		12.08^{AB} (11.82, 12.34)	
Midwest	442	22.3	20.97^{A} (20.55, 21.38)		11.82^{A} (11.58, 12.07)	
South	713	36.0	21.69^{B} (21.37, 22.01)		12.27^{B} (12.07, 12.46)	
West	465	23.5	20.99^{AB} (20.60, 21.38)		11.85^{AB} (11.61, 12.08)	
Religion				0.15		0.13
Christian	1,677	84.8	21.36 (21.16, 21.57)		12.07 (11.95, 12.20)	
Jewish	20	1.0	22.22 (20.26, 24.18)		12.52 (11.30, 13.75)	
Muslim	5	0.2	23.65 (16.46, 30.85)		13.39 (9.08, 17.71)	
Hindu	12	0.6	21.32 (18.98, 23.66)		12.13 (1.65, 10.59)	
Buddhist	6	0.3	18.12 (10.48, 25.76)		4.16 (0.16, 6.13)	
None	257	13.0	20.92 (20.39, 21.45)		2.55 (2.61, 0.06)	
Children in home				0.42		0.63
None	1,307	66.0	21.36 (21.12, 21.59)		12.07 (11.93, 12.21)	
One or more	673	34.0	21.22 (20.89, 21.55)		11.97 (11.77, 12.17)	
Pregnant				0.62		0.89
Not pregnant	1,938	97.9	21.30 (21.11, 21.50)		12.03 (11.92, 12.15)	
Currently pregnant	42	2.1	21.64 (20.12, 23.16)		12.09 (11.15, 13.03)	
Menopause				0.60		0.40
Not in menopause	1,479	74.9	21.28 (21.06, 21.51)		12.01 (11.87, 12.14)	
In menopause	495	25.1	21.40 (21.03, 21.78)		12.12 (11.90, 12.35)	

Significant values *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$, indicate a difference between the groups on the FGSIS or FGSIS-4. Divergent letters (e.g., A and B) indicate significant differences between groups.

"strongly agreed" with each of the statements ($M = 21.31$, SD = 4.31), with significant differences reported based on race/ethnicity, marital status, and the region of the United States in which participants lived at the time of the survey (Table 1). Means, standard deviations, and correlations between individual FGSIS items are presented in Table 2.

Table 2 Intercorrelations among FGSIS items

FGSIS items	M	SD	1	2	3	4	5	6	7
1. I feel positively about my genitals	3.1	0.72	—	0.82***	0.62***	0.63***	0.66***	0.49***	0.65***
2. I am satisfied with the appearance of my genitals	3.0	0.76	—	—	0.63***	0.62***	0.62***	0.48***	0.64***
3. I would feel comfortable letting a sexual partner look at my genitals	3.0	0.83	—	—	—	0.52***	0.51***	0.53***	0.60***
4. I think my genitals smell fine	3.0	0.75	—	—	—	—	0.63***	0.46***	0.57***
5. I think my genitals work the way they are supposed to work	3.2	0.71	—	—	—	—	—	0.47***	0.58***
6. I feel comfortable letting a healthcare provider examine my genitals	3.0	0.82	—	—	—	—	—	—	0.66***
7. I am not embarrassed about my genitals	3.0	0.79	—	—	—	—	—	—	—

***$P < 0.001$. Participants rated the degree with which they agreed with the statements from 1 (strongly disagree) to 5 (strongly agree).

Construct Validity

The fit of items to the one-factor model suggested in the original presentation of the FGSIS [6] was tested using confirmatory factor analysis using maximum likelihood estimation. All items loaded significantly onto the factor (0.62–0.88), with the factor accounting for between 39 and 78% of the item variance (see Table 3). The significant chi-square, χ^2 (14, 1,973) = 593.31, $P < 0.001$, indicated that the model was not the best fit of the data. However, because chi-square values may be influenced by large sample sizes or high intercorrelations between variables [26], the fit of the model to the data was also assessed by comparing several goodness-of-fit indicators to pre-established criteria. As seen in Table 3, the Comparative Fit Index (CFI) and Incremental Fit Index (IFI) were below the typically accepted 0.95 cutoff and the Root Mean Square Error of Approximation (RMSEA) was above the 0.05 cutoff, indicating that the model was not a good fit for the data.

Table 3 Weighted factor loadings and fit indices for the original and alternative model

Model	Original	Alternative
Items		
I feel positively about my genitals	0.88	—
I am satisfied with the appearance of my genitals	0.87	0.83
I would feel comfortable letting a sexual partner look at my genitals	0.73	0.75
I think my genitals smell fine	0.73	0.73
I think my genitals work the way they are supposed to work	0.75	—
I feel comfortable letting a healthcare provider examine my genitals	0.62	—
I am not embarrassed about my genitals	0.77	0.78
Fit indices		
df	14	2
χ^2	593.31***	10.33*
CFI	0.932	1.00
IFI	0.93	1.00
RMSEA	0.15	0.05

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

In order to improve the fit of the model, the modification indices were examined to explore whether the removal or addition of paths would improve the fit of the overall model. The modification indices suggested the addition of three correlated error terms from items 1 to 2, 4 to 5, and 6 to 7. Correlated error terms indicate that two items are redundantly measuring the same construct or that they are both measuring a construct not included in the model [27]. Due to similarity of the items, it was theorized that the correlated error terms for these items indicated redundancy. Therefore, using theoretical and statistical recommendation guidelines, items 1, 5, and 6 were removed in order to increase the parsimony of the model.

The remaining four items exceeded the minimum number of indicators necessary per factor [28]. Upon analysis of the modified four-item model, the chi-square, χ^2 (2, 1,973) = 10.33, $P < 0.05$, remained significant. However, this was expected due to the large sample size. In support of the fit of the model, the other fit indices all met recommendations (see Table 3), indicating that the alternative model was a good fit of the data. Finally, the fit of the alternative model was compared to the fit of the original model in order to assess if the alternative model was a significantly better fit than the original model. The difference between the χ^2 values for the two models was 582.98 with 12 degrees of freedom, indicating that the adjusted model was a significantly better fit of the data than the original hypothesized model ($P < 0.001$). Participants' mean score on the abridged version of the FGSIS, the FGSIS-4, was 12.04 (SD = 2.60).

Internal Reliability

Confirming findings from the factor analysis that there was redundancy among the items, the Cronbach alpha for the original 7-item scale was quite

Table 4 Intercorrelations between the FGSIS and sexual function

Item	1	2	3	4	5	6	7	8
1. FGSIS Revised	—	0.12***	0.20***	0.16***	0.14***	0.15***	0.15***	0.19***
2. FSFI Arousal	—	—	0.58***	0.91***	0.91***	0.54***	0.50***	0.93***
3. FSFI Desire	—	—	—	0.48**	0.44***	0.34***	0.41***	0.62***
4. FSFI Lubricant	—	—	—	—	0.90***	0.56***	0.42***	0.90***
5. FSFI Orgasm	—	—	—	—	—	0.50***	0.42***	0.86***
6. FSFI Pain	—	—	—	—	—	—	0.37***	0.67***
7. FSFI Satisfaction	—	—	—	—	—	—	—	0.65***
8. FSFI Total Scale	—	—	—	—	—	—	—	—

***$P < 0.001$.

high ($\alpha = 0.91$). When items 1, 5, and 6 were deleted in order to ensure that the items were distinct, the Cronbach alpha dropped to ($\alpha = 0.86$), indicating a reduction in redundancy among the items.

Predictive Validity

As with the original scale, the predictive validity of the FGSIS-4 was assessed in relation to women's experiences with masturbation, gynecological care, and genital self-examination. The participant's score on the FGSIS-4 was significantly related to the participant's sexual and genital healthcare behaviors such that participants who had a gynecological exam within the previous year, $t(1,974) = 4.38$, $P < 0.001$, and genital self-examination within the previous month, $t(865.66) = 6.09$, $P < 0.001$, reported more positive perceptions of their genitals than their counterparts. Similarly, a higher score on the FGSIS-4 was correlated with a higher frequency of masturbation, r $(1,979) = 0.06$, $P < 0.01$. Participants who reported never using a vibrator scored significantly lower ($M = 11.82$, SD = 2.63) on the FGSIS-4 than participants who reported using a vibrator within the previous 30 days ($M = 12.34$, SD = 2.53), $F(3) = 4.71$, $P < 0.01$. Finally, as seen in Table 4, participants' scores on the FGSIS-4 were positively related to their scores on the FSFI with participants who reported more positive genital perceptions reporting higher scores on the FSFI domains of arousal, desire, lubricant, orgasm, satisfaction, and pain (indicating less pain).

Temporal Stability

Of the 58 participants who participated in the second phase of data collection, three participants were eliminated because they failed to complete all FGSIS items and one additional participant was eliminated due to an irregular data pattern (absolute agreement on all scale items at one time point and absolute disagreement on all scale items at the other time point).

The correlation between these 54 participants' pre- and post-scores on FGSIS-4, $r\ (54) = 0.78$, $P < 0.001$, indicated acceptable test–retest reliability with significant pre- and post-scores between individual items. The change score between time 1 and time 2 ($M = -0.02$, SD = 1.69) indicated minimal changes over time (see individual items in Table 5).

Discussion

This study tested the FGSIS in a nationally representative probability sample of women ages 18 to 60 in the United States. An abbreviated 4-item version of the scale, the FGSIS-4, was found to be a better fit than the original 7-item scale for the measurement of female genital self-image. However, either version of the scale may be useful to clinicians or researchers depending on their needs.

For example, the longer version of the scale includes an item related to individuals' comfort allowing a healthcare provider to view their genitals, the measurement of which may be clinically useful for some patients to complete. It also includes an item about individuals' perceptions of the way that their genitals "work," the completion

Table 5 Temporal Stability between FGSIS-4 Items ($n = 54$)

	Change Score		
FGSIS Items	M	SD	Test–retest
1. I am satisfied with the appearance of my genitals	0	0.43	0.78***
2. I would feel comfortable letting a sexual partner look at my genitals	0.07	0.58	0.70***
3. I think my genitals smell fine	0.06	0.49	0.75***
4. I am not embarrassed about my genitals	–0.15	0.66	0.62***

***$P < 0.001$.

of which may provide insight to clinicians whose patients or clients have questions or concerns about their sexual function that they may not have mentioned. However, the short form of the FGSIS, at only four items, is well situated to provide a brief, reliable, and valid scale measurement of women's feelings and beliefs about their genitals. Given its brevity, it provides a quick and useful measure that clinicians who provide care related to sexual medicine may find to be of use.

Women's scores on the FGSIS-4, like their scores on the longer version in a previous study, were found to have statistically significant relationships to measures of female sexual function as measured by the FSFI. This may suggest that women's feelings and beliefs influence their experiences of, among other factors, sexual arousal, desire, or orgasm. Alternatively, it may suggest that women's sexual experiences influence how they feel about their genitals, or that there is a third construct (such as "erotophilia," or an overall positive affective-evaluative orientation toward sexuality) that is linked to both genital self-image and sexual function. Women's scores on the FGSIS-4 were also related to their frequency of masturbation, having had a gynecological exam in the past year, having performed a genital self-examination in the previous month, and having used a vibrator in the past month. Given that women who had participated in each of these behaviors had higher scores on the FGSIS-4 as compared to women who had not, it appears that the FGSIS-4 has predictive capacity and that women's feelings and beliefs about their genitals may be related to their comfort or willingness to participate in behaviors that provide close contact with or viewing of their genitals.

A major strength of this study is that the FGSIS, which was developed and validated previously among a convenience sample of women, was administered to a nationally representative probability sample of women ages 18 to 60 in the United States, thus making the findings generalizable to the larger population of women in this age group in the United States. This study also represents an improvement over the initial assessment of the FGSIS, which consisted of an administration of the FGSIS to a convenience sample of women who had attended an in-home sex toy party, and who may have been different from other women in terms of their interest in or access to sexuality related products. The use of confirmatory analysis in this study also allowed for the exploration of other versions of the FGSIS, and a more concise model, with an improved fit to the data, was found.

A limitation of this study is that, given space considerations, other FGSIS were not assessed, which would have allowed us to assess the convergent validity of the FGSIS or the extent to which it might be an improvement over other scales. Future research might explore these possibilities. In addition, the present study was limited by those women who agreed to participate (54.1% of those who were sent a recruitment email), which may have been influenced by the survey being described as relating to sexual enhancement products.

Further research is needed to assess the reliability and validity of the FGSIS-4 in adolescent and older populations and among women who live in other countries, particularly given the diverse range of cultural beliefs and practices related to female genitals. In addition, further research is needed to assess the utility of the FGSIS among women who receive treatment for vulvovaginal health conditions such as vulvar cancer or vulvar intraepithelial neoplasia, as some treatments may affect the appearance or function of women's genitals or their overall feelings about their genitals or sexuality [29–31]. Health status was not assessed in this study although future research might explore the intersections between FGSIS and various medical conditions that are relevant to genital characteristics such as function, appearance, or odor. The FGSIS may also provide useful insights about the feelings and beliefs of women who elect to have genital surgery for personal, cosmetic, or other medical reasons.

Images of women's genitals are, in some ways, more visible than they were in earlier generations due to greater access to, and an expanded range of, sexually explicit images on the Internet and available through other media. However, images of women's genitals may be limited or narrow in their representations, as demonstrated in a 2009 study that found that recent issues of *Playboy* magazine depicted women's labia minora as minimal in size and pubic hair as sparse [32]. In addition, the widespread marketing and availability of feminine hygiene products and the availability of masturbation sleeves for men that resemble the vulvas of adult film actresses may also influence how women feel about their genitals. Clinicians, educators, and researchers who are interested in examining women's perceptions of their genitals before and after exposure to marketing related to such products or curricula related to women's bodies may

find the FGSIS-4 to be a useful measure in their work.

Conclusion

In summary, the short version of the FGSIS was found to be reliable and valid in a nationally representative probability sample of women in the United States. In addition, female genital self-image was found to be significantly related to female sexual function and also to women's sexual behavior and their sexual and genital healthcare behaviors.

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Statement of Authorship

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