

# Relationship between female genital self-image and sexual function: cross-sectional study

## Abstract

**Introduction:** We verified the relation between sexual function and genital self-image in practicing physical activity women in gyms

**Materials and Methods:** Cross-sectional study with 421 women (18-60 years), physical exercise practitioners, not pregnant. Excluded participants who did not meet completely the FSFI questionnaires (Female Sexual Function Index) and the FGSIS (Female Genital Self-Image Scale). Data collection was conducted through self administered questionnaires, filled individually containing sociodemographic and clinical information, the FSFI and the FGSIS.

**Results:** We analyzed 384 women with the highest average age in exclusively female gym ( $40.26 \pm 8.32$  years) with respect to, of both sexes ( $31.8 \pm 9.7$ ) ( $p < 0.01$ ). When comparing the FSFI and the FGSIS it found a statistically significant difference ( $p < 0.01$ ). A correlation ( $R = 0.32$ ) was found between the FSFI and the FGSIS with a  $p < 0.01$ . When comparing the reliability of the FSFI and FGSIS answers, it was found an alpha Cronbach coefficient of 0.96 and 0.83 respectively. In multiple regression analysis it was observed the influence of genital self-image in sexual function ( $p < 0.01$ ), and the influence of sexual function in genital self-image ( $p < 0.01$ ).

**Conclusion:** The results suggest that practicing physical activity women with adequate sexual function have more positive genital self-image.

**Keywords:** Body image, Women's sexuality, Women's health, Sexual dysfunction, Genital self-image, Women, Physical activity

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## Introduction

The exposure of the female body through media outlets has shown natural differences in the external genital anatomy, creating comparisons and arousing a search for the "perfect vagina" among the women.<sup>1,2</sup> Due to this process, the Genital Cosmetic field started to emphasize its products and research toward the female genital area, even though there are no anatomical definitions as a normality pattern.<sup>1</sup> The search for beauty surgical procedures in the genital region is increasing, as shown in the latest survey by the British Association of Aesthetic Plastic Surgeons that reports a staggering 31% increase in uptake of cosmetic surgery where women accounted for 92% of this uptake.<sup>3</sup> The main surgical procedure is the labiaplasty, supported by the discomfort or its bad appearance when women wear tight clothes, for instance, when practicing sports.<sup>2,4</sup>

The female sexual function represented by sexual response and characterized by the desire, arousal, orgasm and resolution phases; may be influenced by psychosocial and physiological aspects. A sexual dysfunction (SD) occurs when one of the phases is compromised. SD is multifactorial in its etiology and contains a complex physiopathology. It's relation with anxiety and the exposure of physical and emotional factors makes the need to do activities that provide physical and mental wellbeing plausible.<sup>5</sup>

Physical activity has many proven benefits that prevent cardiovascular dysfunction, obesity, among others, however there is an unknown pelvic floor threshold response for practitioners. It is known that the predominance of urinary incontinence increases on women who practice exhausting physical activity - up to 80% in

trampoline athletes.<sup>6</sup> With the assistance of the International Physical Activity Questionnaire (IPAQ), a study evaluated the level of physical activity in women between 45 to 65 years old verified that the activity appears to have a positive influence on sexual function.<sup>7</sup> It described that women who work out before sexual intercourse have an increase in sexual desire.<sup>8</sup> However, it is not yet reported the relation between sexual function and female genital self-image.

The present study attempted to address these limitations. We verified the relation between sexual function and genital self-image in women regularly registered in gyms. We also analyzed the ambience influence, if the gym was exclusively for females, or if there were men attending the gym. Our hypothesis was that a more favorable genital image would correlate to an adequate sexual function; furthermore, we assumed that the genital self-image would be more positive in women.

## Materials and methods

This cross-sectional study was conducted at several gyms located in the cities of Salvador and Lauro de Freitas (Brazil), from February to July 2016. Inclusion criteria were women (18 to 60 years old), non-pregnant, and practicing physical activity. The subjects were excluded from the study if they did not complete the questionnaires (either FSFI or FGSIS).

Women were invited by the students trained to administer to join the study and the self-applied questionnaires were given to participants in a quiet and reserved place. The investigation initially included socio demographic information (age, education, marital status and

income); clinical information (body mass index - BMI, delivery, hormone use, reproductive period, and the number of gynecological and pelvic surgeries). The BMI was classified according to WHO: underweight, normal, overweight and obesity.<sup>9</sup> The gyms were chosen according to gender: “both gender” – when there were both men and women registered; and “female only” – when there were only women registered.

The sexual function was evaluated by the FSFI, which is a questionnaire that has already been translated and validated to the Portuguese (Brazilian) language, it is self-applied, and indicated to clinical and epidemiological studies.<sup>10,11</sup> It is composed of 19 questions and the possibilities of answers receive a score from zero to five, in an increasing order in relation to the specific function evaluated. However, in the questions about pain, the score is quantified inversely. FSFI's total score varies from 2 to 36 points, represented by the sum of the scores of each domain multiplied by a factor that equalizes the influence of each considerable score on the total score.<sup>10,11</sup> It is divided into 6 domains: desire, arousal, lubrication, pain, excitement and orgasm. This instrument does not indicate the phase of the sexual response that might be modified, yet, values equal or under 26 indicate sexual dysfunction.<sup>12-14</sup>

The genital self-image was evaluated by the FGSIS, which is composed of seven questions and has an answer scale of four points in decreasing order (completely agree, agree, disagree, completely disagree). The total score may vary from 7 to 28 points; higher scores indicate a more positive genital self-image. The scale's author recommends that the absence of an answer justify the exclusion of the questionnaire analysis.<sup>15-18</sup> The FGSIS was translated and validated for some countries of occidental and oriental culture and is considered a reliable measure.<sup>16-18</sup> So far the questionnaire has not been validated in Brazil, but can be found in a process of validation. To attend the necessities to evaluate the genital self-image in the present study, the authors translated the scale themselves.

The FSFI's domains were the dependent variables (sexual desire, sexual arousal, vaginal lubrication, orgasm, sexual satisfaction and pain), besides the gym's model. The independent variables were the social demographic information (age, education, marital status, income); clinical information (BMI in kg/m<sup>2</sup>, delivery, use of hormones, reproductive period and number of gynecological and pelvic surgeries); and the FGSIS. In the multivariate analysis, the FGSIS was a dependent variable. The Winpepi calculator performed the sample calculation (<http://www.brixtonhealth.com/pepi4windows.html>) for an estimated ratio using as the main outcome the sexual function (the 2002 study by Abdo and colleagues was referred).<sup>19</sup> The estimated ratio was of 30% (estimated predominance of women with sexual dysfunction), acceptable difference of  $\pm 5\%$ , a confidence level of 95%, with power 80%, in a total of 323 participants, with 10% of possible losses, it was necessary a total of 355 women.

The Statistical Package for Social Sciences (SPSS) software, version 14.0 for Windows was used to make the database and the descriptive and statistical analysis. In the descriptive analysis, the categorical variables (BMI, type of gym, education, marital status, income, delivery, hormone use, menopause, pelvic surgery, genital surgery, sexual function) were presented in absolute frequency and quantitative variables (age, genital self-image, sexual function) by mean and standard deviation.

The FSFI's total score was considered in means of number and also categorized according to its cutoff in adequate sexual function (ASF) and sexual dysfunction (DS) - values equal or below 26 indicate DS.

The FGSIS was considered numerically. The Independent t-test was used to compare the average between the FGSIS, the general score value and the FSFI's domains among the types of gyms. Pearson's correlation identified the connection between FSFI and FGSIS. Reliability analyses were conducted on each scale (FGSIS and FSFI) to assess internal consistency, using Cronbach's alpha coefficient as an indicator of this reliability.<sup>20</sup> The social demographic and clinical variables between the collected data were analyzed by the Independent t-test for numeric variables, and the Chi-square test was used for categorical variables. For the dependent variable “sexual function” the multivariate analysis was conducted. Initially, the univariate analysis was performed between the independent variables (age, BMI, medication/hormones, menopause, pelvic and genital surgery and FGSIS with sexual function). After, the variables with statistical significance ( $p < 0.10$ ) were selected for multivariate analysis (multiple regression). For this analysis the dependent variable “genital self-image” was performed: initially, the univariate analysis between the independent variables (age, BMI, medication/hormones, menopause, pelvic and genital surgery and FSFI with genital image). Then the univariate analysis the variables with statistical significance ( $p < 0.10$ ) were selected for multivariate analysis (multiple regression logistic). In the final model of regression it was considered  $p < 0.05$ .

### Ethical aspects

The Bahiana School of Medicine and Health Ethics and Research Committee approved this study (n. 14425813.9.0000.5544), accepted 01.15.2014. Following the Helsinki's Declaration, informed consent was obtained from all participants.

### Results

The initial sample was composed of 421 women that practiced physical activity, in which 37 participants were excluded because did not respond completely the FSFI and FGSIS questionnaire (Figure 1). A total of 384 women were analyzed, with an average age of  $34 \pm 10.1$  years. There was a verified heterogeneity on the clinical and the social demographic characteristics when the variables of two models of gyms were compared, with the exception of the values found for the use of medication/hormones and the history of genital surgery (Table 1).

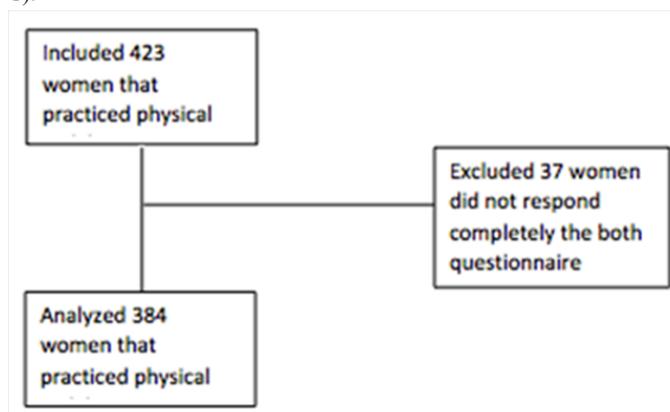


Figure 1 Flow Diagram of participants.

When comparing the categorical FSFI (DS and FSA) with the mean total score of the FGSIS, there was a significant statistic difference found ( $p < 0.01$ ). Women with FSA showed higher FGSIS scores (Table 2). When comparing the reliability of the FSFI and FGSIS answers, it was found an alpha Cronbach coefficient of 0.96 and 0.83 respectively.

**Table 1** Clinical and social demographic general characteristics

Variables	General	Both gender (n=249) N (%)	Female only (n=135) N (%)	(p-value)
<b>Age</b>	34.8±10.1	31.8±9.7	40.3±8.3	<0.01*
<b>BMI</b>				
Underweight	4 (1.1)	3 (1.2)	1 (0.8)	0.04**
Normal	253 (68.8)	177 (73.4)	76 (59.8)	
Overweight	88 (23.9)	50 (20.7)	38 (29.9)	
Obesity	23 (6.3)	11 (4.6)	12 (9.4)	
<b>Marital status</b>				
Single	180 (47.1)	165 (66.5)	15 (11.2)	<0.01**
Married	189 (49.5)	77 (31.0)	112 (83.6)	
Divorced	13 (3.4)	6 (2.4)	7 (5.2)	
<b>Education</b>				
College graduate complete	280 (73.1)	184 (73.9)	96 (71.6)	<0.01**
Some college (incomplete)	69 (18.0)	53 (21.3)	16 (11.9)	
High school diploma	32 (8.4)	11 (4.4)	21 (15.7)	
Less than high school	2 (0.5)	1 (0.4)	1 (0.7)	
<b>Delivery</b>				
No	211 (55.7)	183 (74.4)	28 (21.1)	
Caesarian section	123 (32.5)	42 (17.1)	81 (60.9)	<0.01**
Vaginal	28 (7.3)	10 (4.0)	18 (13.5)	
Caesarian section & vaginal	17 (4.5)	11 (4.5)	6 (4.5)	
<b>Medication/hormones</b>				
Yes	92 (28.2)	61 (26.6)	31 (32.0)	0.33**
<b>Menopause</b>				
Yes	44 (11.8)	20 (8.3)	24 (18.3)	<0.01**
<b>Pelvic surgery</b>				
Yes	53 (14.1)	28 (11.4)	25 (18.9)	0.05**
<b>Genital surgery</b>				
Yes	15 (4.1)	7 (2.9)	8 (6.2)	0.12**

n: number of participants; BMI: Body Mass Index; p: value of significance of the study

\*Independent t-test. \*\*Chi-square test.

Source: main author.

**Table 2** Relationship between sexual function and genital self-image

FGSIS (Gym type)	Adequate Sexual Function n(%)	sexual dysfunction** n(%)	p-value
FGSIS Geral (Mean ±SD)	301 (78%) 24,3±3,2	83 (22%) 22,1±3,3	<0,01
FGSIS Female (Mean ±SD)	100 (74%) 24,5±3,2	35 (26%) 22,0±3,3	<0,01
FGSIS Mixed (Mean ±SD)	201 (80%) 24,2±3,2	48 (20%) 22,2±3,4	<0,01

FSFI: Female Sexual Function Index; FGSIS: Female Genital Self-Image Scale; n: number of participants; SD: Standard Deviation; p: value of significance of the study (Independent t-test).

Analyzing a correlation between FSFI and FGSIS, the value of R was 0.32 – indicating a weak and positive correlation with  $p<0.01$ . When considering the places of the two types of gym participants, a weak and positive correlation was maintained in both (Table 3). Comparing the mean values of FSFI domains' total score, and FGSIS's total score among the places with different kinds of gym frequenter, women that attended a mixed type of gym (both gender), presented a higher score on the desire domain when compared to women that attended a gym exclusive for women ( $p<0.01$ ). The FGSIS's mean values were exactly the same (Table 4).

Analyzing the multiple regression logistic between the independent variables with sexual function, it was observed the influence of genital

self-image with statistic significance. In the multiple regression logistic what the outcome was the genital self-image, the sexual function revealed a statistical significance (Table 5 & 6).

## Discussion

To our knowledge this is the first study that evaluates the relationship between genital image and sexual function in women that practice physical activity. The fact that they are practicing physical activity did not modify the positive correlation between sexual function and genital self-image. This result corroborates with other reports that used the same instruments of this study (FGSIS and FSFI) to evaluate the association between sexual function and female genital

self-image; that also found a more positive perception of the genital area in women with adequate sexual function.<sup>13,15</sup> Andersen<sup>21</sup> revealed that the more positive the genital self-image, the higher the protector factor for sexual dysfunctions.<sup>21</sup> The situation can be justified due to

the fact that women who are confident about their emotions and about their female genital beliefs, may have an influence on their sexual experiences, represented on the phases of sexual response, either desire, arousal or orgasm.<sup>19</sup>

**Table 3** Correlation between sexual function, genital self-image and gym models

Gym type	Correlation of coefficient (FGSIS vs FSFI)	p-value
Female (n=135)	0.39	<0.01
Mixed (n=249)	0.29	<0.01

FSFI: Female Sexual Function Index; FGSIS: Female Genital Self-Image Scale; n: number of participants; SD: Standard Deviation; p: value of significance of the study (Pearson's correlation).

**Table 4** Comparison between the total score and the FSFI's domains, and the FGSIS's total score, between the gym types

GYM	General (Mean±SD)	Both Gender (Mean±SD)	exclusively Female (Mean±SD)	independent t-test (p-value)
FSFI Desire	4.0±1.0	4.1±0.9	3.8±0.9	<0.01
FSFI Arousal	4.6±1.0	4.7±1.0	4.5±0.9	0.12
FSFI Lubrication	5.0±1.0	5.1±1.0	5.0±1.0	0.80
FSFI Orgasm	4.8±1.1	4.8±1.0	4.9±1.1	0.40
FSFI Satisfaction	5.1±1.2	5.1±1.2	5.1±1.1	0.91
FSFI Pain	5.2±1.1	5.2±1.2	5.3±1.1	0.36
FSFI Total	28.7±4.5	28.8±4.5	28.5±4.4	0.53
FGSIS 7 Total	23.8±3.7	23.8±3.7	23.8±3.4	0.99

FSFI: Female Sexual Function Index; FGSIS: Female Genital Self-Image Scale; n: number of participants; SD: Standard Deviation; p: value of significance of the study (Independent t-test).

**Table 5** Multiple regression analysis between independent variables and sexual function

Independent variable	Independent variable coefficient (â)	(p-value)	R-square
FGSIS	0.41	<0.01	0.11
BMI	-0.11	0.13	0.00
Medication-Hormones	0.46	0.37	0.07

FGSIS: Female Genital Self-Image Scale; BMI: Body Mass Index; p: value of significance of the study (Multiple regression).

**Table 6** Multiple regression analysis between independent variables and genital self-image

Independent variable	Independent Variable coefficient (â)	(p-value)	R-square
FSFI	0.23	<0.01	0.10
Age	0.03	0.13	0.01
Medication-Hormones	-0.53	0.19	-0.01

FSFI: Female Sexual Function Index; p: value of significance of the study (Multiple regression).

The presence of the opposite gender in the same place where the women performed their physical activity did not influence their genital self-image. However there was interference on the sexual response in the desire phase. The score values on the FSFI desire domain were higher in women registered at gyms with both gender frequenters, and single women with lower mean age (approximately 32 years old). This fact was reinforced by studies' descriptions that the biggest problem in married women living in a stable union was the decrease in desire.<sup>22,23</sup> The answer for this is based on single women being more sexuality motivated by the instinctive predisposition to search for sexual intercourse and to find passion in the relationships.<sup>22,23</sup> Women in stable and long-lasting relations generally present the influence of physical and mental fatigue due to working hours, domestic functions and those related to motherhood, besides the professional activities.<sup>24</sup>

The present study analyzed, in a multivariate way, the influence of independent variables, like BMI, use of hormones and age, either on the sexual function and genital self-image. It was revealed that even if there is interference of these variables, the sexual function and genital self-image are related, in spite of the low correlation. Women classified as obese preferred gyms exclusive for women. However the body mass index did not influence sexual function or genital self-

image. This statement goes against Esposito et al.,<sup>25</sup> where the score of sexual function was significantly lower in women with overweight than in normal weight.<sup>25</sup> The physical activity of all participants may be the answer why obesity does not influence sexual function and genital self-image, since physical exercise may cause a positive body perception and predisposes to a satisfactory and pleasurable sexual life.

The information collected in the gyms revealed that women's BMI was normal and the satisfaction with body image, favored by the positive genital self-image and the practice of physical activity, may have led to the feeling that they are sexually desired. According to Satinsky et al.,<sup>26</sup> women with positive body perception are more self-confident and predisposed to have a pleasurable and satisfactory sexual life.<sup>26</sup> Kanter et al.<sup>27</sup> pointed that there is an association between sexual dysfunction and dissatisfaction (both physical and mental), as well as a decrease in well being.<sup>27</sup> They also believe that the pelvic floor muscle may be negatively affected by the body weight, favoring a possible SD.<sup>27</sup> This statement may be reinforced by age range in the study (18-75 years old), since there was significant difference in both groups for BMI and sexual function.<sup>26,28</sup> In the present study, SD frequency represented 22% of women with an average age of 35

years old, and most of them were college graduates. Similarly, there are Prado and colleagues, who found 21.9% of SD in women (18 to 45 years old), with different social and economic levels, in the state of Sergipe/Brazil.<sup>12</sup> The equivalence of frequency may be explained by the similarity in the age of the groups studied in view of the fact that, in another study in the city of Natal/Brazil, the age range was 40 to 65 years old and the amount of SD was 67%.<sup>29</sup>

Preliminary studies have been contributing to quantify by means of questionnaires, the self-perception of the female genital region, for example the Female Genital Self Image Scale (FGSIS). This is a reliable measurement method and validated in other places and translated to different languages.<sup>15,18</sup> In Brazil, even though the questionnaire has not yet been validated for the Portuguese/Brazilian version, the present study revealed a high reliability through the alpha de Cronbach that enables the evaluation of genital image in the Brazilian population.

### Implications for practice and/or policy

There were limitations on this study, such as the subjects' inference in multivariate regression: when referred as "hormones" they are only assumptions since the information about the women's clinical condition by dosing the seric hormones, or about the type and posology of the medications consume, wasn't collected.

In spite of a weak correlation, we found that women who practiced physical activity presented a genital self-image that interacts positively with the sexual function. Future studies are necessary to compare sedentary and physically active women as well as stratify the types and levels of physical activity for IPAQ.

### Conclusion

We concluded that practice physical activity women with adequate sexual function have more positive genital self-image.

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### Financial Disclaimer

None.

### Conflicts of interest

None.

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