CrossMark

ORIGINAL PAPER

Translation, Adaptation, and Preliminary Validation of the Female Sexual Function Index into Spanish (Colombia)

Pablo Vallejo-Medina[1] · Claudia Pérez-Durán[1] · Alejandro Saavedra-Roa[1]

Abstract The Female Sexual Function Index (FSFI) subjectively explores the dimensions of female sexual functioning. This research undertook to adapt and validate the FSFI to Spanish language in a Colombian sample. To this effect, this study was conducted in two steps, namely: (1) cultural adaptation of the scale with the collaboration of seven experts; and (2) preliminary validation of the scale in a sample of 925 participants. Reliability indices were appropriate in this sample, and external validity in relation to other measures showed significant relationships. Findings suggest that the FSFI is reliable and valid in Spanish for a Colombian population. Further research is needed to establish the test–retest reliability and discriminant validity of this Spanish version.

Keywords Female Sexual Dysfunction Index ·
Sexual dysfunction · DSM-5 · Cross-cultural

Introduction

The Female Sexual Function Index (FSFI) was developed by Rosen et al. (2000), with the purpose of exploring subjectively the dimensions involved in female sexual functioning. The creation of the FSFI sought a twofold purpose; on the one hand, it purported to address the lack of reliable instruments for proper measurement of sexual functioning in women. On the other hand, the FSFI aimed at the implementation of research on sexuality in women, including those in menopause. The FSFI features 19 items, distributed in 6 factors. Items 1 and 2 appertain to the Desire factor;

Items 3–6 fall into the Arousal factor; Items 7–10 belong to the Lubrication factor; Items 11–13 fall into the Orgasm factor; Items 14–16 relate to the Satisfaction factor, and Items 17–19 pertain in the Pain factor. Responses range from 0 to 5, or from 1 to 5, depending on the item.

Currently, adaptations of this instrument can be found in different languages: Chinese (Sun, Li, Jin, Fan, & Wang, 2011), Japanese (Takahashi, Inokuchi, Watanabe, Saito, & Kai, 2011), Korean (Lee et al., 2014), Italian (Filocamo et al., 2014), Malayan (Sidi, Abdullah, Puteh, & Midin, 2007), Portuguese (Hentschel, Alberton, Capp, Goldim, & Passos, 2007), Iranian (Mohammadi, Heydari, & Faghihzadeh, 2008), Arabic (Anis, Gheit, Saied, & Al_kherbash, 2011), German (Berner, Kriston, Zahradnik, Harter & Rohde, 2004), and Urdu (Rehman, Asif Mahmood, Sheikh, Sultan., & Khan, 2015), inter alia. It has also been validated with a sample of women diagnosed with mixed sexual dysfunctions (Wiegel, Meston, & Rosen, 2005), orgasmic disorder and hypoactive sexual desire disorder (Meston, 2003), older women (Dargis et al., 2012), and women with breast cancer (Bartula & Sherman, 2015). However, to the extent of our knowledge, the FSFI has not been properly validated in Spanish, albeit it has been widely used in Hispanic samples: García Llana et al. (2015) and Mestre, Lleberia, Pubill, and Espuña-Pons (2015).

Because no adequate adaptation of the scale is available in Spanish language as yet, this study sought to both adapt and validate the Spanish FSFI in a sample of Colombian women.

Method

Participants

The sample consisted of 925 Colombian women aged 18–69 ($M = 28.97$, SD $= 9.98$). Inclusion criteria were the following: being a woman, over 18 years of age, having been involved in sexual

✉ Pablo Vallejo-Medina
  pablo.vallejom@konradlorenz.edu.co

[1] SexLab KL, School of Psychology, Fundación Universitaria Konrad Lorenz, Bogotá D.C. 110221, Colombia

🖉 Springer

activity in the month prior to the evaluation, being Colombian, and living in Colombia. A total of 6115 individuals clicked on the survey link, and of those, 38% (2327) completed the entire survey. A thousand men were excluded, 24 women did not report age or were minors, 103 were not Colombians or were living in another country, and 275 did not engage in sexual activity in the month prior to the evaluation. Average time to complete the survey was 24 min.

Procedure

A team of two translators and seven experts in psychometrics and/or sexuality helped to translate and adapt the FSFI to its Colombian Spanish version.

The translators were responsible for making the linguistic adaptation from English into Spanish, under the guidelines provided by Muñiz, Elosua, and Hambleton (2013), Elosua, Mujika, Almeida, and Hermosilla (2014) and AERA, APA, and NCME (2015). Thus, two independent forward translations were done. After that, a committee formed by translators and specialists in the field with knowledge of Spanish and English agreed on a new version which has cultural closeness between the original form and the adapted one.

In order to evaluate the properties of the items of the adapted version of the FSFI, we relied on seven Colombian psychologists working in the area of human sexuality and/or psychometrics. Five properties of each of the items were evaluated in this stage, as follows: Representativeness (contribution of the item to the female sexual function construct), Ownership (which subdimension the item is more related with), Comprehension (determines whether the item is properly understood in its adapted version), Interpretation (level of ambiguity of the item), and Clarity (how direct and concise the item is). These items were evaluated according to each of the properties with scores ranging from 1 (*Not…*) to 4 (*Very…*) in a Likert scale. Additionally, each of the experts proposed an alternative wording for the items, if they so deemed fit. Sampling was carried out from September 16 to October 30, 2015. The scale was administered by means of the Typeform© platform, which allows to access and respond the scale from any type of electronic device with an Internet connection. Our institutional Lab Facebook© page (*facebook/SexLabKL*) was used to distribute the survey. Duplicity of data was controlled with IP, gender and age. Other studies have already used this methodology with the FSFI, obtaining good results (Crisp, Fellner, & Pauls, 2015).

In order to run an exploratory and a confirmatory factor analysis, the sample was randomly subdivided in two independent samples. Sample A, composed by 369 participants, was used for the exploratory factor analysis (EFA), and the sample B, used for the confirmatory factor analysis (CFA), was made up by 525.

Data Analysis

A table of specifications and the ICaiken program (Merino & Livia, 2009) were used in order to perform qualitative analysis

(Osterlind, 1989) for the items. The latter allows estimation of Aiken's *V* confidence interval (Aiken, 1980, 1985). Any items scoring below .50 in the lower limit (95% CI) of Aiken's *V* interval would be reviewed (Merino & Livia, 2009). The relevant adjustments were made taking into account the comments of the experts.

The Factor 10.4 (Lorenzo-Seva & Ferrando, 2013) was used for calculating the EFA. This was done using the polychoric correlation matrix; the factor extraction was done with the robust unweighted least squares, due to the non-normal distribution (Mardias' test = 36.61), and rotation method used was Varimax. The EQS 6.1 was used for calculating the CFA. The ML robust estimation method was used due to non-normal multivariate data observation (Mardia's test = 57.43). The polychoric matrix was used. The overall fit indices used were the root-mean-square error approximation (RMSEA) and its 90% CI, as well as the comparative fit index (CFI) and the Akaike information criterion (AIC). Values lower than .06 for the RMSEA and higher than .95 for the CFI will be considered good fit (Hu & Bentler, 1999). Lower values in the AIC indicate a better fit.

Measures

Sociodemographic Information

It was evaluated using a semi-structured interview with questions about sex, age, place of residence, years of study, sexual orientation (Kinsey, Pomeroy, & Martin, 1948), religious aspects (belief and attendance to religious services), marital status, wage income, and whether or not the participant had a relationship of at least 6 months.

Female Sexual Function Index (FSFI)

The adapted scale based on the original (Rosen et al., 2000) was used in this study. This scale consists of 19 items, and they are answered on a Likert scale ranging from 0 to 5 or from 1 to 5 depending on the item. A total of 6 factors were isolated (Desire, Arousal, Lubrication, Orgasm, Satisfaction, and Pain). All alphas were higher than .82, and test–retest reliability ranged from (*r* = .79–.86). See Appendix section.

Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/ SES-SF; Carpenter, Janssen, Graham, Vorst, & Wicherts, 2010; Janssen, Vorst, Finn, & Bancroft, 2002a, b)

This short version consists of 14 items. The Spanish adaptation validated by Moyano and Sierra (2014) was used; its items were answered on a Likert scale (1 = strongly disagree; 4 = strongly agree), and they are distributed on an Excitation Scale (SES), as well as two scales related to Sexual Inhibition (SIS1 and SIS2). The SES evaluates sexual arousal derived from social interactions, whils SIS1 and SIS2 evaluate inhibition as associated with fear/threat of underperformance during the sexual encounter and

inhibition due to fear of contextual threats such as STI, or being watched during intercourse, respectively. An example of this item would be: "When I talk to someone on the telephone who has a sexy voice, I become sexually aroused." Original test–retest reliability for SES, SIS1, and SIS2 is .61, .61 and .63. In this study, we observed Cronbach's alpha values of .74, .65 and .57.

Sexual Desire Inventory (SDI; Spector, Carey, & Steinberg, 1996)

The version used was the one validated in Spanish (Moyano, Vallejo-Medina, & Sierra, 2017). This scale consists of 13 items that evaluate sexual desire in three dimensions: with the current partner, with an unknown attractive person and solitary. In the Moyano et al. study, alphas ranged from .80 and .93. The Cronbach alpha values in this study for the above dimensions were .88, .89 and .93, respectively. Following is an example of an item: "How important is it for you to fulfill your sexual desire through activity with a partner?"

Massachusetts General Hospital-Sexual Functioning Questionnaire (MGH-SFQ; Fava, Rankin, Alpert, Nierenberg, & Worthington, 1998)

The version validated in Colombia (Marchal-Bertrand et al., 2016) was used for this study. This is an instrument composed of 5 items, wherein Item 4 is exclusively for men. Each item represents a dimension of sexuality: Desire, Arousal, Orgasm, Erection, and Overall Satisfaction. The response scale is Likert. Equal to 0 or below 2 results in some dimension estimate the possible presence of sexual problems. An example of an item is: "How would you rate your overall sexual satisfaction over the past month?" The Cronbach alpha in this study was .86.

Results

Sample Characteristics

For sociodemographic characteristics, it was observed that 55.60% of the total sample was domiciled in Bogota, 9.0% in Medellin, 3.20% in Cali, 2.50% in Barranquilla and other minor proportions in various cities within the country (Manizales, Cartagena, Bucaramanga, among others). Thus, a total of 94 municipalities were evaluated. Most women in the sample reported earning the minimal wage: COP $ 616,000 (i.e., USD 208.41) or less per month. The religion that was most frequently reported was Catholicism, with a total 676 believers. The mode in this sample was to have completed 16 years of schooling. Most of the women were single, although most of them had been in a relationship for at least 6 months. Almost 20% of the participants reported an orientation different from

Table 1 Sociodemographic characteristics of the sample

	M (SD) or n (%)
Age (in years)	28.97 (10.44)
Years of schooling	
5	2 (.20%)
11	61 (6.60%)
13	73 (7.90%)
14	74 (8.0%)
16	458 (49.50%)
More than 16	238 (25.70%)
Sexual orientation	
Asexual	5 (.50%)
Exclusively heterosexual	750 (81.10%)
2	110 (11.90%)
3	18 (1.90%)
4	8 (.90%)
5	5 (.50%)
6	10 (1.10%)
Exclusively homosexual	14 (1.50%)
At least 6 months in a relationship	
Yes	724 (78.30%)
No	194 (21.0%)
Marital status	
Married	153 (16.50%)
Single	573 (61.90%)
Widow(er)	2 (.20%)
Common-law	138 (14.90%)
Divorced	51 (5.50%)
Minimum Colombian wage per month	307 (33.20%)
Attendance to religious events	
Never	191 (20.60%)
Sometimes a year	347 (37.50%)
Sometimes a month	220 (23.80%)
Once a week	127 (13.70%)
Several times a week	25 (2.70%)
Daily	6 (.60%)

exclusively heterosexual. For more information of the sample, see Table 1.

Qualitative Properties of the Items

The properties of the items were obtained in this study. To this effect, a total of 7 experts in sexuality and/or psychometrics evaluated Representativeness, Ownership, Comprehension, Interpretation, and Clarity. As shown in Table 2, the items are not perfect, but adequate qualitative properties are observed overall. The lower limit of the confidence interval (95% CI) for Aiken's V is greater than .60 in virtually all cases. In categories in which it has been lower, wording has been revised in order to optimize the

Table 2 Properties of the FSFI items

Item	Cat	M	Aiken V	% agreement	Lower 95% CI	Upper 95% CI
1	Rep	4.00	1.00		.85	1.00
	Own			85		
	Com	3.71	.90		.70	.97
	Int	4.00	1.00		.85	1.00
	Cla	3.86	.97		.79	1.00
2	Rep	4.00	1.00		.85	1.00
	Own			100		
	Com	3.71	.90		.70	.97
	Int	4.00	1.00		.85	1.00
	Cla	3.86	.97		.79	1.00
3	Rep	4.00	1.00		.85	1.00
	Own			100		
	Com	3.86	.97		.79	1.00
	Int	4.00	1.00		.85	1.00
	Cla	3.86	.97		.79	1.00
4	Rep	3.86	.97		.79	1.00
	Own			100		
	Com	3.71	.90		.70	.97
	Int	4.00	1.00		.85	1.00
	Cla	3.71	.90		.70	.97
5	Rep	3.57	.87		.66	.96
	Own			85		
	Com	3.43	.80		.59	.92
	Int	3.57	.87		.66	.96
	Cla	3.43	.80		.59	.92
6	Rep	3.57	.87		.66	.96
	Own			85		
	Com	3.43	.80		.59	.92
	Int	3.86	.97		.79	1.00
	Cla	3.29	.77		.55	.90
7	Rep	3.57	.87		.66	.96
	Own			100		
	Com	3.57	.87		.66	.96
	Int	4.00	1.00		.85	1.00
	Cla	3.71	.90		.70	.97
8	Rep	3.86	.97		.79	1.00
	Own			100		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00
9	Rep	3.71	.90		.70	.97
	Own			85		
	Com	3.57	.87		.66	.96
	Int	3.71	.90		.70	.97
	Cla	3.57	.87		.66	.96
10	Rep	3.71	.90		.70	.97
	Own	2.86		85		
	Com	3.86	.97		.79	1.00
	Int	4.00	1.00		.85	1.00
	Cla	3.86	.97		.79	1.00
11	Rep	3.71	.90		.70	.97
	Own			100		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00
12	Rep	3.71	.90		.70	.97
	Own			85		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00
13	Rep	3.71	.90		.70	.97
	Own			70		
	Com	3.86	.97		.79	1.00
	Int	4.00	1.00		.85	1.00
	Cla	3.86	.97		.79	1.00
14	Rep	3.86	.97		.79	1.00
	Own			85		
	Com	3.43	.80		.59	.92
	Int	3.71	.90		.70	.97
	Cla	3.71	.90		.70	.97
15	Rep	3.86	.97		.79	1.00
	Own			85		
	Com	3.86	.97		.79	1.00
	Int	3.86	.97		.79	1.00
	Cla	3.71	.90		.70	.97
16	Rep	3.86	.97		.79	1.00
	Own			100		
	Com	3.86	.97		.79	1.00
	Int	3.86	.97		.79	1.00
	Cla	3.86	.97		.79	1.00
17	Rep	4.00	1.00		.85	1.00
	Own			100		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00
18	Rep	3.86	.97		.79	1.00
	Own			100		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00
19	Rep	3.86	.97		.79	1.00
	Own			100		
	Com	4.00	1.00		.85	1.00
	Int	4.00	1.00		.85	1.00
	Cla	4.00	1.00		.85	1.00

Cat category, *Exp* expert, *Rep* Representativeness, *Own* Ownership, *Com* Comprehension, *Int* Interpretation, *Cla* Clarity

item's category. In addition, the experts have shown over 85% of agreement in terms of Ownership of the items—except in one case. The item experts reached the least consensus on—number 13—thought it is still optimal; 70% of the experts agreed on the dimension it should fall into. Albeit indicators were correct, every comment from the experts was considered in order to improve the wording of the items.

Exploratory Factor Analysis

In this study, and according to Kaiser's criteria, the FSFI is composed by five dimensions, with a clear Arousal–Desire fusion. As in the case of the original validation (Rosen et al., 2000), a six-dimension model was forced in order to isolate Arousal and Desire as two independent factors, due to their theoretical interest. Thus, Table 3 shows six factors which were explored with correct item

Table 3 Exploratory factor analysis of the FSFI

Item	Desire	Arousal	Lubrication	Orgasm	Overall satisfaction	Pain
1	.80					
2	.83					
3	.56	.30			.33	
4	.55	.36			.34	
5	.38	.34		.32		
6	.35	.45		.36	.38	
7		.35	.57			
8			.69			.30
9			.70			
10			.80			
11				.78		
12				.81		
13				.70	.40	
14					.72	
15					.83	
16					.74	
17						.85
18						.80
19						.87

Bold numbers indicate the theoretical position of the item. Loadings lower than .30 have been suppressed

loadings within each factor; only Arousal seems to be slightly unstable. This model explains 80.81% variance.

Confirmatory Factor Analysis

Based on other studies (Anis et al., 2011; Berner et al., 2004; Filocamo et al., 2014; Hentschel et al., 2007; Lee et al., 2014; Mohammadi et al., 2008; Rehman et al., 2015; Sidi et al., 2007; Sun et al., 2011; Takahashi et al., 2011) and/or in the results observed in the EFA, we decided to conduct CFA testing four models. The first model is formed by 6 independent factors; the second model is formed by 6 covariated factors, the third model features the 6 factors grouped in a second-order general factor, and the last model tested was the 5 covariated dimensions. As shown in Table 4, three models had optimal fits in Colombian women; nevertheless, we decided to support and present the standardized weights of the 6 covariated factor model (see Fig. 1), as it has the best indicators in all the indices. Figure 1 also shows that the standardized weights of each item with their respective factor are always above .30 and provide acceptable R^2 values.

Psychometric Properties of the Items

Table 5 shows some of the psychometric properties of the Spanish adaptation of the FSFI. The average response of each item is slightly above the theoretical mean of the response scale (3), and we observed adequate distribution of the responses of the scale with SD between 1 and 2. In addition, the corrected item-total correlations is greater than .30 in all cases, and Cronbach's alpha only improves slightly if the item is removed in item 14. However, alphas are adequate and we do not intend to eliminate this item.

External Validity

Finally, we evaluated the external validity of the scale by correlating the FSFI subdimensions with other scales with which it is theoretically related. Table 6 shows significant and moderate correlations observed between all dimensions of the FSFI. In addition, the correlation of the 6 subscales is also significant and moderate with the scale of the Massachusetts General Hospital-Sexual Functioning Questionnaire (MGH-SFQ). With regard to the SIS-SES, a general trend has been identified—as expected—
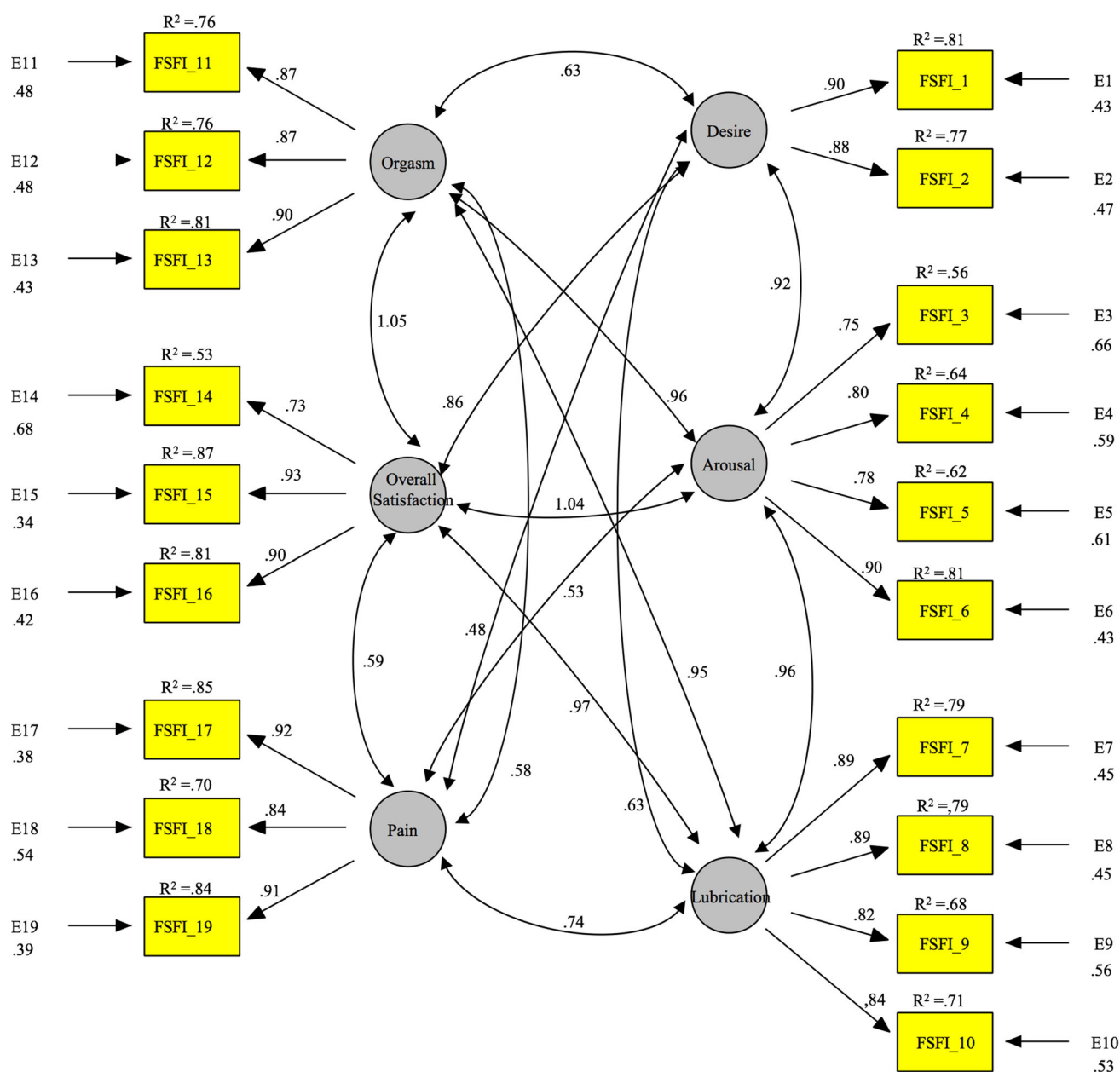
Table 4 Fit indices for the three models tested in the CFA

	S-B χ^2	df	p	CFI	RMSEA	CI RMSEA 90%	AIC
Six independent factors	550.02	146	.00	.976	.076	.070–.083	258.02
Six covariated factors	209.31	131	.00	.995	.036	.026–.044	−52.68
Second-order 6 factors	353.60	145	.00	.988	.055	.048–.062	63.60
Five covariated factors	338.86	137	.00	.988	.056	.048–.063	64.86

S-B χ^2 Satorra Bentler χ^2, df degree of freedom, CFI comparative fit index, RMSEA root-mean-square error of approximation, CI RMSEA 90% confidence interval 90% of the root-mean-square error of approximation, AIC Akaike information criterion

Fig. 1 Six covariated factor model, its standardized loads (λ) and related R^2

where the highest magnitudes have been observed among the subscales of the SIS/SES-SF with the FSFI—Desire. In addition, the general trend—with some exceptions—is to observe positive correlations with the SES, and negative correlations with the SIS. Finally—and following the previous trend—the three dimensions of sexual desire correlate with a greater magnitude with the dimension of Desire of the FSFI, and desire for the beloved partner is the subdimension that shows the most intense positive correlations with the dimensions of the FSFI, followed with the same trend, although with lower correlations with the Solitary Desire. In turn, Desire for an attractive unknown couple is practically not related to the FSFI.

Discussion

The FSFI is the most widely used questionnaire in order to assess the sexual functioning of women. It has been translated into many languages. However, its psychometric properties to date—beyond Cronbach's alpha (Blümel et al., 2004)—have never been evaluated in Spanish-speaking populations, despite being used in these populations. This study undertook to conduct the translation, adaptation and preliminary validation of the FSFI in Colombian women. The psychometric properties support the use of this scale in Spanish, having thereby found adequate construct, content and external validity, in addition to a reliable scale.

Table 5 Mean, SD, and some psychometric properties of the items

Subscale	Item	M (SD)	c_c^{it}	α-item	α	Total M (SD)
Desire	1	3.71 (1.05)	.74	–	.84	7.31 (1.82)
	2	3.60 (.90)	.74	–		
Arousal	3	4.36 (.92)	.63	.83	.84	16.70 (3.16)
	4	3.99 (.87)	.70	.80		
	5	4.05 (1.02)	.67	.81		
	6	4.22 (.97)	.74	.78		
Lubrication	7	4.48 (.89)	.70	.81	.85	17.78 (2.89)
	8	4.55 (.76)	.70	.81		
	9	4.26 (.98)	.71	.81		
	10	4.49 (.79)	.69	.81		
Orgasm	11	3.89 (1.28)	.77	.78	.86	11.80 (3.31)
	12	4.08 (1.09)	.75	.81		
	13	3.83 (1.33)	.72	.83		
Overall satisfaction	14	4.22 (1.07)	.64	.86	.85	12.49 (2.77)
	15	4.17 (1.01)	.78	.73		
	16	4.10 (1.06)	.73	.59		
Pain	17	4.10 (1.10)	.80	.82	.89	12.54 (2.85)
	18	4.20 (1.07)	.74	.87		
	19	4.24 (.96)	.81	.82		

M = mean, SD = standard deviation; c_c^{it} corrected total item correlation; α-item = Cronbach alpha if item is deleted; α = Cronbach alpha

Table 6 Correlations among FSFI factors and other similar measurements

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
FSFI desire (1)	1												
FSFI excitation (2)	.60**	1											
FSFI lubrication (3)	.32**	.59**	1										
FSFI orgasm (4)	.27**	.54**	.49**	1									
FSFI overall satisfaction (5)	.39**	.63**	.48**	.50**	1								
FSFI pain (6)	.23**	.31**	.41**	.27**	.25**	1							
MGH-SFQ (7)	.54**	.68**	.55**	.55**	.66**	.37**	1						
SES (8)	.25**	.07*	.04	.04**	−.05	.01	.69*	1					
SIS1 (9)	−.30**	−.34**	−.25**	−.19**	−.22**	−.20**	−.34**	−.04	1				
SIS2 (10)	−.18**	−.10**	−.03	−.01	−.03*	−.07*	−.07*	−.21**	.27**	1			
IDS partner (11)	.65**	.61**	.40**	.29**	.48**	.22**	.56**	.16**	−.27**	−.13**	1		
IDS attractive (12)	.14**	−.01	−.01	−.05	−.16**	.01	−.06	.59**	−.06	−.20**	.04	1	
IDS lonely (13)	.27**	.13**	.09**	.13**	−.00	.06*	.12**	.43**	−.09**	−.16**	.26**	.42**	1

$* p < .05$; $** p < .01$

This study evaluated the properties of items, including content validity. While it is not common to obtain content validity, the latter is of paramount importance as it provides theoretical evidence on the dimensionality of the scale and Representativeness of the items (Rubio, Berg-Weger, Tebb, Lee & Rauch, 2003). Other researchers—in other cultures—found appropriate indicators of content validity in their adaptations (Kim et al., 2002; Revicki, Margolis, Bush, DeRogatis, & Hanes, 2011; Sidi et al., 2007), as did we. This allows us to progress to construct validity

analysis with certain theoretical guarantees in our adaptation. Furthermore, the items have been found to appear clear, concise, accurate and representative.

The dimensionality of the scale has been replicated in many cultures and female populations (Bartula & Sherman, 2015; Ismail et al., 2014; Opperman, Benson, & Milhausen, 2013; Velten, Scholten, Graham, & Margraf, 2016). The results obtained are consistent with the dimensionality originally proposed. In this Latin American sample, we have been able to replicate the same

dimensionality too, having observed appropriate adjustment for the six-related factors proposed.

We observed construct reliability and validity with some evidence of the psychometric properties of the items, as well as external validity. Firstly, the scores obtained on all items were slightly above the theoretical mean of the scale, which is expected in community population. In addition, we observed appropriate response variability in terms of the *SD*. Corrected item-total correlations are above the problematic threshold (.30). Similarly, the reliabilities of all subscales are optimal and only in one case—item 14—is there a slight improvement observed in alpha, should this item be eliminated. These indicators—together with appropriate qualitative properties of the items already observed—allow us to move forward with confidence to evaluate construct validity.

The last results of this study show a series of relationships that provide the FSFI with external validity. Thus, there have been moderate and significant correlations between all subscales of the FSFI and the overall performance score in the MGH-SFQ, as expected (Ryding & Blom, 2015; Selcuk et al., 2016). With regard to SES, significant and positive correlations were observed with arousal, lubrication and orgasm—albeit in a low-moderate magnitude for desire. Association with overall satisfaction and pain is almost negligible. The SIS1 and SIS2 have shown negative and low correlations with all subscales of the FSFI, although the highest magnitude has been observed with desire. The relationship between the FSFI and the SIS/SES was not expected to be very high, as this is not a measure of sexual functioning (Janssen et al., 2002a, b), yet a significant one. In fact, the SIS/SES-SF is a measure which is more related to sexual desire than it is to Arousal (Pfaus, 2009), though not conspicuously—this has also been observed in our results. Finally, the SDI has also correlated (with a great magnitude) with the Desire scale of the FSFI. All this would indicate a good performance of the Spanish version of the FSFI with respect to other related constructs.

This work has been the first attempt to validate the FSFI in a Spanish-speaking population—Colombia. Thus, further work should be considered in order to fulfill the psychometric work. For example, a clinical sample should be used in the future for divergent validity and test–retest reliability. These results are only applicable to Colombia; therefore, this adaptation should be used with caution in other Spanish-speaking cultures. Future studies should assess invariance between different sexual orientations, as well as the effect of some sociodemographic in female sexual functioning. Notwithstanding these limitations, the current adaptation of the FSFI in a Colombian population appears to be a valid and reliable instrument, suitable for use as an instrument in a clinical setting, and for research with Colombian Spanish-speaking people.

Implications for Practice and/or Policy

The results found in this study reiterate the need for an in-depth understanding of the general aspects of sexual functioning in women. Finding valid and reliable tools to indirectly evaluate human sexuality—especially in women—is a challenge for science today. The availability of an instrument like the FSFI validated and adapted to the Spanish language will be a helpful tool for clinicians and researchers working in the area. Not only will this help lay the foundations of the FSFI as the main tool for evaluating sexual functioning of women—now also in Spanish-speaking contexts—but it will also allow to further explore an area in constant growth—one with many questions which to this date still remain unanswered.

Compliance with Ethical Standards

Ethical Statement This work was reviewed and approved by an independent ethical committee (Research and Ethics Committee of the School of Psychology) of our institution (*Fundación Universitaria Konrad Lorenz*), in pursuance of the 1975 Declaration of Helsinki, as revised in 1983 by the Clinical Research Ethics Committee. It was approved within the document "*Informes de Investigaciones 2014 Acta número 2015-009.*" All participants signed a written informed consent. The ethical committee reviewed the consent procedure, but did not review the informed consent itself.

Appendix

1. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha sentido deseo o interés sexual?

5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces)
1	Casi nunca o nunca

2. Durante las últimas cuatro semanas, ¿cómo calificaría su **nivel** de deseo o interés sexual?

5	Muy alto
4	Alto
3	Moderado
2	Bajo
1	Muy bajo o ninguno

3. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha sentido excitación sexual durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces).
1	Casi nunca o nunca

4. Durante las últimas cuatro semanas, ¿cómo calificaría su **nivel** de excitación sexual durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Muy alto
4	Alto
3	Moderado
2	Bajo
1	Muy bajo o ninguno

5. Durante las últimas cuatro semanas, ¿qué tan **segura** estaba de que se iba a excitar sexualmente durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Muy segura
4	Segura
3	Moderadamente segura
2	Poco segura
1	Casi nada o nada segura

6. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha estado a gusto con su excitación sexual durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces).
1	Casi nunca o nunca

7. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha conseguido estar lubricada ("mojada") durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces).
1	Casi nunca o nunca

8. Durante las últimas cuatro semanas, ¿qué tan **difícil** le ha resultado lubricar ("mojarse") durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
1	Extremadamente difícil o imposible
2	Muy difícil
3	Difícil
4	Un poco difícil
5	Nada difícil

9. Durante las últimas cuatro semanas, ¿con qué frecuencia se **mantuvo** usted lubricada ("mojada") hasta el final de la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces).
1	Casi nunca o nunca

10. Durante las últimas cuatro semanas, ¿qué tan **difícil** fue mantenerse lubricada ("mojada") hasta el final de la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
1	Extremadamente difícil o imposible
2	Muy difícil

3	Difícil
4	Un poco difícil
5	Nada difícil

11. Durante las últimas cuatro semanas, cuando ha tenido estimulación sexual o relaciones sexuales (sola o en pareja), ¿con qué **frecuencia** logró el orgasmo ("se vino")?

0	No he tenido actividad sexual
5	Siempre o casi siempre
4	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
2	Pocas veces (menos de la mitad de las veces).
1	Casi nunca o nunca

12. Durante las últimas cuatro semanas, cuando ha tenido estimulación sexual o relaciones sexuales (sola o en pareja), ¿qué tan **difícil** fue lograr el orgasmo ("venirse")?

0	No he tenido actividad sexual
1	Extremadamente difícil o imposible
2	Muy difícil
3	Difícil
4	Un poco difícil
5	Nada difícil

13. Durante las últimas cuatro semanas, ¿qué tan **conforme** ha estado con su capacidad de lograr el orgasmo ("venirse") durante la actividad o relación sexual (sola o en pareja)?

0	No he tenido actividad sexual
5	Muy conforme
4	Moderadamente conforme
3	Ni conforme ni inconforme
2	Moderadamente inconforme
1	Muy inconforme

14. Durante las últimas cuatro semanas, ¿qué tan **satisfecha** ha estado con el nivel de cercanía emocional durante la actividad sexual con su pareja?

0	No he tenido actividad sexual
5	Muy satisfecha
4	Moderadamente satisfecha
3	Ni satisfecha ni insatisfecha
2	Moderadamente insatisfecha
1	Muy insatisfecha

15. Durante las últimas cuatro semanas, ¿qué tan satisfecha ha estado en sus relaciones sexuales con su pareja?

5	Muy satisfecha
4	Moderadamente satisfecha
3	Ni satisfecha ni insatisfecha
2	Moderadamente insatisfecha
1	Muy insatisfecha

16. Durante las últimas cuatro semanas, ¿qué tan **satisfecha** ha estado con su vida sexual en general?

5	Muy satisfecha
4	Moderadamente satisfecha
3	Ni satisfecha ni insatisfecha
2	Moderadamente insatisfecha
1	Muy insatisfecha

17. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha sentido incomodidad o dolor durante la penetración vaginal?

0	No he tenido penetración vaginal
1	Siempre o casi siempre
2	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
4	Pocas veces (menos de la mitad de las veces).
5	Casi nunca o nunca

18. Durante las últimas cuatro semanas, ¿con qué **frecuencia** ha sentido incomodidad o dolor luego de la penetración vaginal?

0	No he tenido penetración vaginal
1	Siempre o casi siempre
2	La mayoría de las veces (más de la mitad de las veces)
3	Algunas veces (aproximadamente la mitad de las veces)
4	Pocas veces (menos de la mitad de las veces).
5	Casi nunca o nunca

19. Durante las últimas cuatro semanas, ¿cómo calificaría su **nivel** de incomodidad o dolor durante la penetración vaginal?

0	No he tenido penetración vaginal
1	Muy alto
2	Alto
3	Moderado
4	Bajo
5	Muy bajo o ninguno

References

AERA, APA, & NCME. (2015). *Standards for educational and psychological tests*. Washington, DC: American Educational Research Association.

Aiken, L. R. (1980). Content validity and reliability of single items or questionnaire. *Educational and Psychological Measurement, 40,* 955–995. doi:10.1177/001316448004000419.

Aiken, L. R. (1985). Three coefficients for analyzing the reliability and validity of ratings. *Educational Psychological Measurement, 45,* 131–142. doi:10.1177/0013164485451012.

Anis, T. H., Gheit, S. A., Saied, H. S., & Al_kherbash, S. A. (2011). Arabic translation of Female Sexual Function Index and validation in an Egyptian population. *Journal of Sexual Medicine, 8,* 3370–3378. doi:10.1111/j.1743-6109.2011.02471.x.

Bartula, I., & Sherman, K. A. (2015). Development and validation of the Female Sexual Function Index adaptation for breast cancer patients (FSFI-BC). *Breast Cancer Research and Treatment, 152,* 477–488. doi:10.1007/s10549-015-3499-8.

Berner, M. M., Kriston, L., Zahradnik, H. P., Härter, M., & Rohde, A. (2004). Überprüfung der gültigkeit und zuverlässigkeit des deutschen Female Sexual Function Index (FSFI-d) = validity and reliability of the German Female Sexual Function Index (FSFI-d). *Geburtshilfe und Frauenheilkunde, 64,* 293–303. doi:10.1055/s-2004-815815.

Blümel, J. E., Binfa, L., Cataldo, P., Carrasco, A., Izaguirre, H., & Sarrá, S. (2004). Índice de Función Sexual Femenina: un test para evaluar la sexualidad de la mujer. *Revista Chilena de Obstetricia y Ginecología, 69,* 118–125.

Carpenter, D. L., Janssen, E., Graham, C. A., Vorst, H., & Wicherts, J. (2010). The Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/SES-SF). In T. D. Fisher, C. M. Davis, W. L. Yarber, & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 236–239). London: Routledge.

Crisp, C. C., Fellner, A. N., & Pauls, R. N. (2015). Validation of the Female Sexual Function Index (FSFI) for web-based administration. *International Urogynecology Journal, 26,* 219–222. doi:10.1007/s00192-014-2461-3.

Dargis, L., Trudel, G., Cadieux, J., Villeneuve, L., Préville, M., & Boyer, R. (2012). Validation of the Female Sexual Function Index (FSFI) and presentation of norms in older women. *Sexologies, 21,* 126–131. doi:10.1016/j-sexol.2012.01.002.

Elosua, P., Mujika, J., Almeida, L. S., & Hermosilla, D. (2014). Procedimientos analítico-racionales en la adaptación de tests. Adaptación al español de la batería de pruebas de razonamiento. *Revista Latinoamericana de Psicología, 46,* 117–126. doi:10.1016/S0120-0534(14)70015-9.

Fava, M., Rankin, M. A., Alpert, J. E., Nierenberg, A. A., & Worthington, J. J. (1998). An open trial of oral sildenafil in antidepressant-induced sexual dysfunction. *Psychotherapy and Psychosomatics, 67,* 328–331. doi:10.1159/000012299.

Filocamo, M. T., Serati, M., Li Marzi, V., Costantini, E., Milanesi, M., Pietropaolo, A., … Villari, D. (2014). The Female Sexual Function Index (FSFI): Linguistic validation of the Italian version. *Journal of Sexual Medicine, 11,* 447–453. doi:10.1111/jsm.12389.

García Llana, H., Celadilla Díaz, O., Graça, A. M., Muñoz Gutiérrez, I., Peso Gilsanz, G. D., & Trocoli González, F. (2015). ¿Cuál es la relación entre función sexual y sintomatología ansioso-depresiva en pacientes en diálisis domiciliaria? *Enfermería Nefrológica, 18,* 24–31.

Hentschel, H., Alberton, D. L., Capp, E., Goldim, J. R., & Passos, E. P. (2007). Validação do Female Sexual Function Index (FSFI) para uso em língua portuguesa. *Revista HCPA, 27,* 10–14.

Hu, L. T., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6,* 1–55. doi:10.1080/10705519909540118.

Ismail, A. H., Bau, R., Sidi, H., Guan, N. C., Naing, L., Jaafar, N. R. N., … Midin, M. (2014). Factor analysis study on sexual responses in women with Type 2 diabetes mellitus. *Comprehensive Psychiatry, 55,* S34–S37. doi:10.1016/j.comppsych.2012.12.028.

Janssen, E., Vorst, H., Finn, P., & Bancroft, J. (2002a). The Sexual Inhibition (SIS) and Sexual Excitation (SES) Scales: I. Measuring sexual inhibition and excitation proneness in men. *Journal of Sex Research, 39,* 114–126. doi:10.1080/00224490209552130.

Janssen, E., Vorst, H., Finn, P., & Bancroft, J. (2002b). The Sexual Inhibition (SIS) and Sexual Excitation (SES) Scales: II. Predicting psychophysiological response patterns. *Journal of Sex Research, 39,* 127–132.

Kim, H. Y., So, H. S., Park, K. S., Jeong, S. J., Lee, J. Y., & Ryu, S. B. (2002). Development of the Korean-version of Female Sexual Function Index (FSFI). *Korean Journal of Andrology, 20,* 50–56.

Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia: Saunders.

Lee, Y., Lim, M. C., Joo, J., Park, K., Lee, S., Seo, S., … Park, S. Y. (2014). Development and validation of the Korean version of the Female Sexual Function Index-6 (FSFI-6K). *Yonsei Medical Journal, 55,* 1442–1446. doi:10.3349/ymj.2014.55.5.1442.

Lorenzo-Seva, U., & Ferrando, P. J. (2013). FACTOR 9.2: A comprehensive program for fitting exploratory and semiconfirmatory factor analysis and IRT models. *Applied Psychological Measurement, 37,* 497–498. doi:10.1177/0146621613487794.

Marchal-Bertrand, L., Espada, J. P., Morales, A., Gómez-Lugo, M., Soler, F., & Vallejo-Medina, P. (2016). Adaptación, validación y fiabilidad del Cuestionario de funcionamiento sexual del Hospital General de Massachusetts en una muestra colombiana y equivalencia factorial con la versión en español. *Revista Latinoamericana de Psicologia, 48,* 88–97. doi:10.1016/j.rlp.2016.01.001.

Merino, C., & Livia, J. (2009). Intervalos de confianza asimétricos para el índice la validez de contenido: un programa Visual Basic para la V de Aiken. *Anales de Psicología, 25,* 169–171.

Meston, C. M. (2003). Validation of the Female Sexual Function Index (FSFI) in women with female orgasmic disorder and in women with hypoactive sexual desire disorder. *Journal of Sex and Marital Therapy, 29,* 39–46. doi:10.1080/00926230390154826.

Mestre, M., Lleberia, J., Pubill, J., & Espuña-Pons, M. (2015). Los cuestionarios en la evaluación de la actividad y función sexual en mujeres con incontinencia urinaria y prolapso de órganos pélvicos. *Actas Urológicas Españolas, 39,* 175–182. doi:10.1016/j.acuro.2014.05.008.

Mohammadi, K. H., Heydari, M., & Faghihzadeh, S. (2008). The Female Sexual Function Index (FSFI): Validation of the Iranian version. *Payesh, 7,* 269–278.

Moyano, N., & Sierra, J. C. (2014). Validación de las Escalas de Inhibición Sexual/Excitación Sexual-Forma Breve (SIS/SES-SF). *Terapia Psicológica, 32,* 87–100. doi:10.4067/S0718-48082014000200002.

Moyano, N., Vallejo-Medina, P., & Sierra, J. C. (2017). Sexual Desire Inventory: Two or three dimensions? *Journal of Sex Research, 54,* 105–116. doi:10.1080/00224499.2015.1109581.

Muñiz, J., Elosua, P., & Hambleton, R. K. (2013). Directrices para la traducción y adaptación de los tests: segunda edición. *Psicothema, 25,* 151–157. doi:10.7334/psicothema2013.24.

Opperman, E. A., Benson, L. E., & Milhausen, R. R. (2013). Confirmatory factor analysis of the Female Sexual Function Index. *Journal of Sex Research, 50,* 29–36. doi:10.1080/00224499.2011.628423.

Osterlind, S. J. (1989). *Constructing test items: Multiple-choice, constructed-response, performance, and other formats*. London: Kluwer Academic Publishers.

Pfaus, J. G. (2009). Reviews: Pathways of sexual desire. *Journal of Sexual Medicine, 6,* 1506–1533. doi:10.1111/j.1743-6109.2009.01309.x.

Rehman, K. U., Asif Mahmood, M., Sheikh, S. S., Sultan, T., & Khan, M. A. (2015). The Female Sexual Function Index (FSFI): Translation, validation, and cross-cultural adaptation of an Urdu version "FSFI–U". *Sexual Medicine, 3,* 244–250. doi:10.1002/sm2.77.

Revicki, D. A., Margolis, M. K., Bush, E. N., DeRogatis, L. R., & Hanes, V. (2011). Content validity of the Female Sexual Function Index (FSFI) in pre-and postmenopausal women with hypoactive sexual desire disorder. *Journal of Sexual Medicine, 8,* 2237–2245. doi:10.1111/j.1743-6109.2011.02312.x.

Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., … D'Agostino, R. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex and Marital Therapy, 26,* 191–208. doi:10.1080/009262300278597.

Rubio, D. M., Berg-Weger, M., Tebb, S. S., Lee, E. S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research, 27,* 94–104.

Ryding, E. L., & Blom, C. (2015). Validation of the Swedish version of the Female Sexual Function Index (FSFI) in women with hypoactive sexual desire disorder. *Journal of Sexual Medicine, 12,* 341–349. doi:10.1111/jsm.12778.

Selcuk, S., Kucukbas, M., Cam, C., Eser, A., Devranoglu, B., Turkyilmaz, S., & Karateke, A. (2016). Validation of the Turkish version of the Sexual Health Outcomes in Women Questionnaire (SHOW-Q) in Turkish-speaking women. *Sexual Medicine, 4,* e89–e94. doi:10.1016/j.esxm.2016.01.003.

Sidi, H., Abdullah, N., Puteh, S. E. W., & Midin, M. (2007). The Female Sexual Function Index (FSFI): Validation of the Malay version. *Journal of Sexual Medicine, 4,* 1642–1654. doi:10.1111/j.1743-6109.2007.00476.x.

Spector, I. P., Carey, M. P., & Steinberg, L. (1996). The Sexual Desire Inventory: Development, factor structure, and evidence of reliability. *Journal of Sex and Marital Therapy, 22,* 175–190. doi:10.1080/00926239608414655.

Sun, X., Li, C., Jin, L., Fan, Y., & Wang, D. (2011). Development and validation of Chinese version of Female Sexual Function Index in a Chinese population—A pilot study. *Journal of Sexual Medicine, 8,* 1101–1111. doi:10.1111/j.1743-6109.2010.02171.x.

Takahashi, M., Inokuchi, T., Watanabe, C., Saito, T., & Kai, I. (2011). The Female Sexual Function Index (FSFI): Development of a Japanese version. *Journal of Sexual Medicine, 8,* 2246–2254. doi:10.1111/j.1743-6109.2011.02267.x.

Velten, J., Scholten, S., Graham, C. A., & Margraf, J. (2016). Psychometric properties of the Sexual Excitation/Sexual Inhibition Inventory for Women in a German sample. *Archives of Sexual Behavior, 45,* 303–314. doi:10.1007/s10508-015-0547-8.

Wiegel, M., Meston, C., & Rosen, R. (2005). The Female Sexual Function Index (FSFI): Cross-validation and development of clinical cutoff scores. *Journal of Sex and Marital Therapy, 31,* 1–20. doi:10.1080/009262305 90475206.