



Turkish Adaptation of Female Sexual Distress Scale-R: A Validity and Reliability Study

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Abstract

While female sexual disorders are highly prevalent in Turkey, the percentage of the women seeking help on the issue is extremely low. Hence, we believe there is a need for a simple instrument to diagnose female sexual disorders. The aim of this study was to define the validity and reliability of the Female Sexual Distress Scale-R in Turkish and to determine its cutoff point according to the Female Sexual Function Index. The scale was administered to 214 women aged 19–63 years and living in Ankara. For the reliability analysis of the scale, internal consistency, split half analyses was used. To test the validity of the scale, exploratory and confirmatory factor analyses were used. To define the breakpoint, ROC curve analysis was used. The Cronbach alpha value of the scale is .96; the Guttman split half value is .094. For the validity study, Kaiser–Meyer–Olkin was found to be .93 and Bartlett’s sphericity was $\chi^2=2440$; $p<0.001$. A single factor model that explains 66.78% of the total variance was obtained. The fit indexes were $\chi^2/df=2.351$, RMSEA=0.079, CFI=0.970, IFI=0.970, GFI=0.923, and NFI=0.949. The item-total correlations were defined as .621–.837. The scale has a high negative correlation with FSFI and its per sub-dimensions. In the ROC analysis, the area under the curve was defined to be .76, and the breakpoint was 7.5. The sensitivity of the scale was 71%, specificity was 70%, positive prediction power was .786, and negative prediction power was .679. It was concluded that the Turkish-language version of FSFS-R is a valid and reliable instrument in identifying female sexual disorders.

Keywords Female · Sexual disorders · Turkey · Sensitivity · Specificity

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Introduction

Sexuality is one of the principal elements of human life that features physiological, biological, mental and sociocultural aspects. It is a relationship in the private realm with its emotional intimacy, gratifying intercourse and reproductive function. Sexuality is one of the principal human needs and rights, and it cannot be isolated from other fields of life (WHO 2016). On the other hand, humans are social beings; thus, human sexuality is restricted by social codes, moral values and taboos. Sexuality is influenced by many factors such as society's perspectives on sexuality, the education of woman and man, the knowledge and use of contraceptive methods, pregnancy, menopause, andropause and the problems related to reproductive system (Erenel et al. 2011, 2015; Taylor and Gosney 2011; Nappi and Nijland 2008). Moreover, all the factors affecting health have an influence on its subgroups, sexual health, and their sexual feelings and functions.

Sexual disorders are defined as personal distress and difficulty in interpersonal relations caused by decrease and deterioration in sexual desire and psycho-physiological changes that create the sexual response loop (Srivastava et al. 2008; Marthol and Hilz 2004). They also have an important effect on the state of mind, the sense of self, and life quality. They may cause emotional stress and communication issues. Sexual disorders are an important women's health issue.

Female sexual dysfunction (FSD) includes sexual desire disorders, sexual arousal disorders, orgasm disorders, dyspareunia, vaginismus, sexual repulsion disorders, and non-coital genital pain disorders. The prevalence of female sexual disorder varies from country to country, region to region and culture to culture. Studies conducted in different countries show that female sexual disorders prevalence varies between 39 and 73.3% (Shifren et al. 2008; Bagherzadeh et al. 2010; Hullfish et al. 2009). In the studies carried out in Turkey, the prevalence of FSD has been found between 28.6 and 68.8% (Ege et al. 2010; Erbil 2011; Çayan et al. 2004; Erenel and Kılınc 2013; Erenel and Kitiş 2011).

Studies demonstrate that many women do not seek help for their sexual problem though sexual problems have important negative effects over women's health and life quality (Bagherzadeh et al. 2010; Buvat et al. 2009; Vahdaninia et al. 2009; Moreira et al. 2005). People abstain from admitting their sexual problems and instead convey it as a health problem to health professionals, as in many other countries in the Middle East, due to cultural pressure and sexuality being considered taboo (Moreira et al. 2005; Mercer et al. 2003; Moreira et al. 2008; Nicolosi et al. 2005). Delaying seeking help prolongs the treatment process and may cause the disorder to become chronic. We believe that sexual disorders in women should be detected without delay, be treated to resolve the issue and reduce their probable negative effects.

It seems that women are in need of comfortable ways to express their sexual problems and receive professional help. One way to do this is to use a self-report scale. A number of scales have been developed and in use to measure sexual disorders in women (Rosen et al. 2000; Kaplan et al. 1999), but these scales are relatively long, difficult to understand and answer, and so they are not easy enough

for use in social and professional settings. However, Female Sexual Distress Scale-R (FSDS-R) is a practical alternative as it is concise and easy to complete (Derogatis et al. 2002). Therefore, this study aims to adapt Female Sexual Distress Scale-R to Turkish language and to establish validity and reliability of this adaptation.

Method

The psychometric study was conducted with the women enrolled in municipal sports and art courses in three districts of provincial Ankara between October 2015 and February 2016. The required permission was granted for Turkish translation and distribution of the Female Sexual Distress Scale by the Dr. Leonard Derogatis et al., who developed the scale. The adaptation process took place in two steps: (Step 1) The scale was translated into Turkish, and, the reviewers evaluated its content validity. (Step 2) The scale's psychometric features were assessed.

The study was approved by the Ethical Commission of Gazi University (Number: 77082166-604.01.02-39521). The study started after the official permissions by Ankara Metropolitan Municipality and provincial municipalities were granted. Informed consent was obtained from the participants.

Step I: Construction Turkish Version of the Scale

Translation

FSDS scale was translated into Turkish independently by researchers competent in English (they are native Turkish speakers), and the resulting translations were compared. A final version was cooperatively produced. The scale was retranslated into the original language by a different person who can speak the two languages well (Varkevisser et al. 2003).

Content Validity

Ten experts evaluated the translated version of the scale's content validity. The experts ranked each item (1 = not suitable; 2 = need revision; 3 = requires minor revision; 4 = perfectly suitable), and then its content validity index (CVI) was calculated based on ranking (Karakoç and Dönmez 2014). A > 80 content validity score was evaluated as good degree.

Step II: Psychometric Validity Assessment of the Scale

Research Setting

The study was conducted with the women enrolled in municipal sports and art courses in three districts of provincial Ankara. The reason for selecting different regions was the economic and cultural differences between regions.

Sample Selection

There are some recommendations to ensure the sample size adequately for validity and reliability analyses. One of these recommendations is that the sample size should be 10 times more than the number of the total items in the scale (Karakoç and Dönmez 2014; Arafat et al. 2016). We needed at least 130 women according to this recommendation. We reached 260 volunteers using simple random method for the administration; however, 214 women who completed all the forms were included in the analyses. The inclusion criteria were being over 18, sexually active, literate, not being pregnant or in the postpartum period. The demographic features of the participants are given in Table 1.

Table 1 Detailed features of participants

	Mean	SD	Min	Max
Age	37.21	.67	19	63
Number of pregnancies	2.34	1.57	0	12
Number of living children	1.88	1.03	0	5
		Number		%
Education status				
Primary school		62		29
Elementary school		32		15
High school		55		25.7
University		48		22.4
Master and above		17		7.9
Working status				
Employed		65		30.4
Not employed		139		69.6
Chronic diseases				
Yes		52		24.3
No		162		75.7
Thinking about having sexual problems				
Yes		24		11.2
No		190		88.8
Using contraception methods				
Use		163		76.2
Not use		51		23.8

Instruments

In the study, Demographic Information Form, Female Sexual Distress Scale-Revised FSDS-R form in Turkish and Female Sexual Function Index (FSFI) for parallel test reliability were administered to the participants individually.

Demographic Information Form

It has ten questions that identify the age of the participants and their spouses, woman's education levels, employment statuses, income levels, their obstetric histories, use of contraceptive methods and their sexual problems.

Female Sexual Function Index (FSFI)

The scale is a 19-item Likert-type scale that evaluates sexual disorders in women. It was developed by Rosen et al. (2000). The validity and reliability analyses of the scale in Turkish were carried out by Oksuz and Malhan (2006). The scale in Turkish has a Cronbach alpha coefficient of .95, test-retest reliability is .75-.95. This scale identifies sexual problems and function in the last 4 weeks of the participants. The scale has six sub-dimensions: (1) sexual desire, (2) arousal, (3) lubrication (wetness), (4) orgasm, (5) satisfaction, and (6) discomfort. Questions 1-2 of the scale are about sexual desire; questions 3-6 arousal; questions 7-10 lubrication; questions 11-13 query orgasm; question 14-16 query sexual satisfaction, and questions 17-19 about discomfort. The sub-dimensions are scored between 0-6 or 1-6. The raw score of each sub-dimension is multiplied by a pre-defined factor load of that sub-dimension, constituting the weighted score. The sum of weighted scores varies between 2 and 38 for the whole scale. Higher scores mean better functioning. It is considered that having a score lower than the median in a category signifies dysfunction in that particular sexual category, while having lower than 25 in total signifies a sexual dysfunction (Oksuz and Malhan 2005).

The Female Sexual Distress Scale-Revised (FSDS-R)

This self-report scale was originally developed by Derogatis, Pyke, McCormack, Hunter and Harding in 2002 in the United States, to evaluate women with sexual dysfunction. While filling out the scale, the women are asked to choose the number that defines the frequency of discomfort of the sexual problem she has had in the last 30 days. In the society where this 13-item 5-point Likert-type scale was developed, women receiving 11 or higher points are deemed to have sexual disorders. The possible scores to be received are between 0 and 52 (Derogatis et al. 2002).

The validity and reliability of the original FSDS-R scale were assessed in a prospective methodological study conducted in 27 centers in North America, featuring 296 women. In the study by Derogatis et al., the Cronbach alpha coefficient of the original form of the scale varies between .87 and .93 (Derogatis et al. 2008). The study sample was comprised of women aged 18-50, with hypo-active sexual disorder, female sexual

disorder, or with no sexual disorder. The women were called on the phone, at the beginning of the study, on the 7th day and on the 28th day to fill out the scale.

Data Collection

The forms were shuffled each time they were administered to avoid the order effect in data collection. Piloting was carried out with 20 women outside the study group to test the comprehensibility of the demographic information form and the scale's instructions. The forms were used for the study after necessary corrections were made.

The study data was collected during working hours by a research assistant in women's health nursing. The demographic information forms were filled by the researcher during face-to-face interviews with the participants, while the scales were filled by the participants under the researcher's supervision, after necessary clarifications were made. It took nearly 20 min for a participant to complete the forms.

Data Analysis

The data were analyzed by the Statistical Package for the Social Sciences (SPSS) 21 software and Lisrel SSI. To define the reliability of the scale, internal consistency (Cronbach's Alpha), and split half test reliability analyses were carried out. The construct validity of the scale was examined via Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The sampling adequacy for factor analysis was tested via Kaiser–Meyer–Olkin. Its compliance with factor analysis was tested via Bartlett's test of Sphericity and it was found out to be compliant (Table 2).

The factor loads of the scale items were evaluated and the distinctive level of items was tested by item-total test correlation coefficients. The relationship between the FSDS-R and the reference test FSFI was examined by the Pearson correlation analysis. In order to define the cutoffs of FSDS-R in measuring sexual disorder, the ROC curve method was used (Akgül and Çevik 2005).

The ROC curve is a statistical method developed to assess the sensitivity and specificity of a diagnostic test in a more objective manner. In the evaluation of a test's diagnosis power, the area under the ROC curve was assessed and probable cutoff scores were defined. Higher values indicate better distinction. The closer the obtained value is to 1, the more distinctive the measurement tool is. The accuracy of a test is assessed under three categories per area under the ROC curve. A value higher than 0.9 indicates high accuracy, 0.7–0.9 indicates mid-level accuracy, and 0.5–0.7 indicates low accuracy (Hajian-Tilaki 2013). The width of the area under the ROC curve signifies the difference between the measurement values of healthy and unhealthy people; therefore, it is important (Kanik and Erden 2003; Alpar 2016). The test with better measurement features is the test with the closest ROC curve to the top-left corner. In the ROC curve,

Table 2 Test results evaluating the adequacy of the data for PCA

Kaiser–Meyer–Olkin = .93			
Bartlett's sphericity	$\chi^2 = 2440.16$	Degree of freedom = 78	$p = 0.000$

the diagonal line starting from the XY intersection point (0 point) and connecting the X1 and Y1 points is considered to be the reference line. A test close to the ROC curve close to this reference line is a worthless test (Hajian-Tilaki 2013). In the ROC curve, as the true positive ratio increases, the false positive ratio increases (Dirican 2001). In this regard, the most acceptable test is the test with a high true positive ratio (sensitivity) and a low false positive value (1-specificity).

Results

Participant Demographics

The average age of the participants was $37.21 \pm .67$; 29% of them were primary school graduates and about 70% were unemployed; 88% did not think they had any sexual problems and 76% reported that they were not using any contraceptive methods. Whether the scale data were affected by the education level of participants was investigated and no significant difference according to participants' education level and the scaled education level was found $F(df_{between}, df_{within}) = .389; p = 0.817$.

Validity Analysis (EFA and CFA) of the FSDS-R

Construct Validity

The data distribution was examined through the frequency analysis by using SPSS. All the missing values were extracted. Kaiser–Meyer–Olkin (KMO) coefficient was calculated and the Bartlett's Sphericity test was applied to determine whether the sample size was sufficient and the data was suitable for factor analysis. The KMO coefficient, which was found to be 0.93, and the Bartlett's Sphericity test value ($\chi^2 = 2440.16$, $df = 78$, $p = 0.000$) was statistically significant (Table 2). Data was evaluated for the EFA and CFA. The percent of the explained variance by model was 66.78% and $\chi^2 = 293.58$, $p = 0.000$ (Table 3). Because only one factor was obtained, the rotation technique was not used. All the inter-item correlations were $> .542$ and p value was considered < 0.001 . The item-total correlations were between .621 and .837, and the eigenvalues of the items vary between .663 and .860 (Table 3). CFA was applied to evaluate whether the 13-item structure of the scale was verified. The items with a statistically insignificant t value were also examined. The regression coefficients of items were between 0.63 and 0.85. The path diagram is shown in Fig. 1. All t values about items were statistically significant ($t > 1.96$). The fit indexes were $\chi^2/df = 2.351$, RMSEA = 0.079, CFI = 0.970, IFI = 0.970, GFI = 0.923, and NFI = 0.949.

Table 3 Item-total correlations and eigenvalues of FSDS-R

Items	Corrected item-total correlation (r)	Cronbach's alpha if item deleted	Eigenvalue
Item 1	.793	.954	.860
Item 2	.760	.855	.832
Item 3	.784	.954	.831
Item 4	.771	.954	.827
Item 5	.786	.954	.825
Item 6	.837	.953	.817
Item 7	.804	.954	.800
Item 8	.816	.953	.800
Item 9	.785	.954	.798
Item 10	.621	.958	.791
Item 11	.806	.953	.790
Item 12	.813	.953	.780
Item 13	.772	.954	.633

Principal component analysis (extraction method) is applied. The model statistics is $\chi^2 = 293.58$, the class interval is 65; $p = 0.000$ and the declared variance is 66.78%

Criterion Validity

Because of its validity and reliability in Turkish, FSFI was used as a reference test in assessing the validity of FSDS-R. FSFI evaluates sexual problems and sexual function over the past 4 weeks (Oksuz and Malhan 2005). The maximum score that can be obtained from FSFI is 38. The higher score indicates better sexual function. There was a negative and statistically significant correlation ($p < 0.001$) between FSDS-R and FSFI total score ($r = -.521$) and all sub-dimensions (desire $r = -.496$; arousal $r = -.456$; lubrication $r = -.428$; orgasm $r = -.458$; satisfaction; $r = -.556$ and pain $r = -.273$) (Table 4).

Reliability Analysis of the FSDS-R

Inter-Item Consistency

Item analysis was conducted for reliability evaluation of the FSDS-R. EFA and CFA were used to define the factor structure of the scale, in the extraction model, a two-factor structure was found. In this two-factor structure, the first factor explains 64.5% of the total variance, while the second factor explains a variance of 3.5%. Therefore, a single factor structure comprised of high eigenvalues (.633–.860), explaining approximately 66.78% of total variance is obtained (Table 3). Accordingly, all the items of the scale in the present study had a

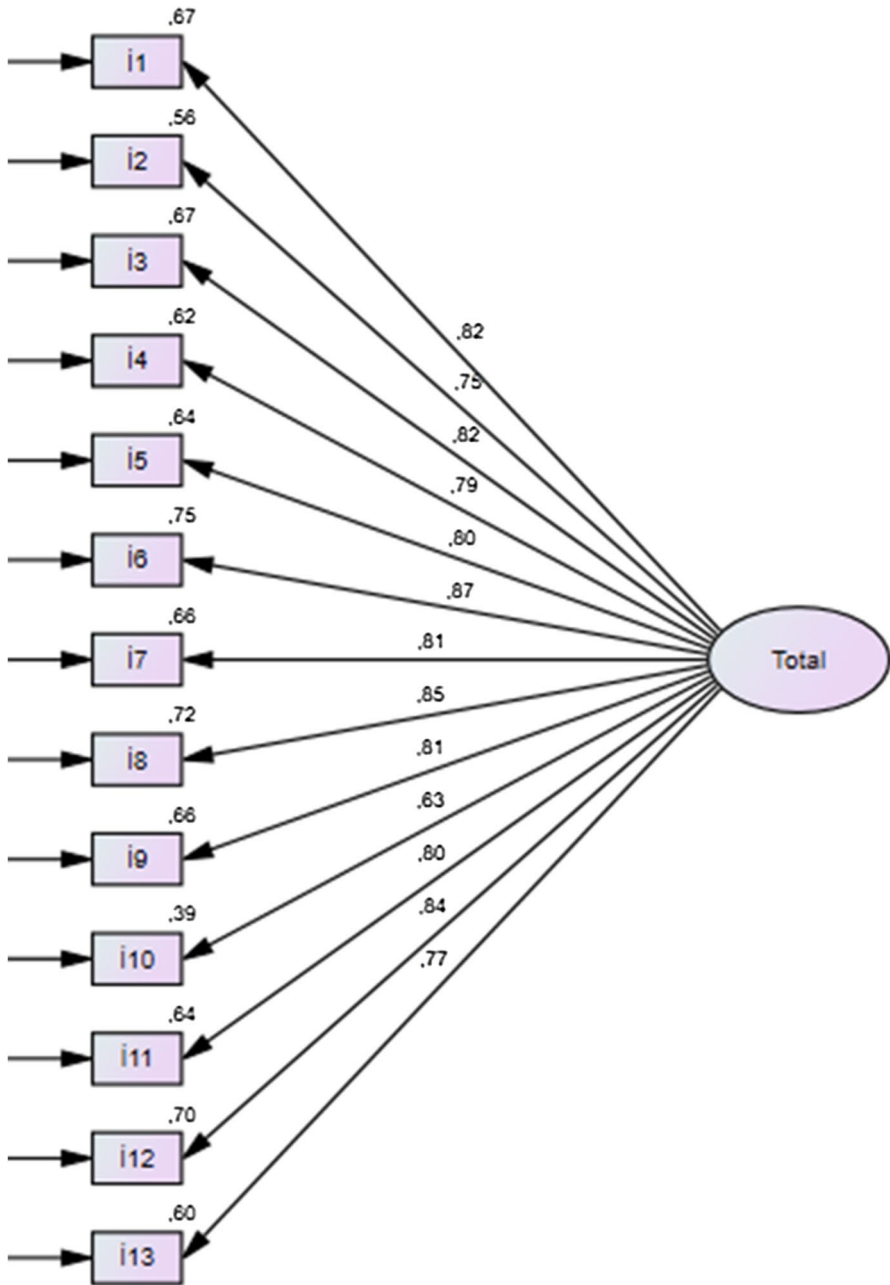


Fig. 1 The path diagram of the FSDS-R

Table 4 Correlation analysis of FSFI and its sub-dimensions between FSDS-R

	Total FSFI	FSFI desire	FSFI arousal	FSFI lubrication	FSFI orgasm	FSFI satisfaction	FSFI pain
FSDS-R	-.521*	-.496*	-.456*	-.428*	-.458*	-.556*	-.273*

*Significant in $p < 0.001$ level

sufficiently high eigenvalue and they had to stay in the scale. The correlations of the scale with its items were (.621 and .837) (Table 3).

Internal Consistency: Cronbach's Alpha

FSDS-R Turkish's reliability was evaluated by internal consistency and split half test. Cronbach's Alpha internal consistency of the Scale was .96, the Spearman Brown coefficient was .95, and the Guttman split-half coefficient was .94 (Table 5).

Results Regarding FSDS-R's Measurement Features

The area under the ROC curve was found to be .76; the standard error was .33, and in 95% confidence interval the lower-higher threshold was found to be 0.69–0.82 (Fig. 1).

In order to identify the probable cutoff scores according to the ROC curve, five cutoffs starting by 5.5 (5.5; 6.5; 7.5; 8.5; 9.5) were defined and the sensitivity and 1-specificity values per point were given in Table 6.

$$\text{False negative ratio (1-sensitivity)} = 0.29$$

$$\text{False positive ratio (1-specificity)} = 0.30$$

For the 7.5 positive prediction power was (true positive/true positive + false positive)=0.786; and negative prediction power was (true negative/true negative + false negative)=0.679.

Discussion

This study was planned to define the construct validity, psycholinguistic validity, and reliability of the Turkish version of the FSDS-R, originally developed by Derogatis et al. The secondary objective of the study was to evaluate the measurement feature of the FSDS-R in the same dataset, so that FSFI would be taken as the reference test. Fifty-six percent of the women participating in the study had high school or higher education and eighty-four percent of the women had sufficient income level (Table 1).

Table 5 Internal consistency and Split half reliability tests of FSDS-R

Internal consistency of scale	Cronbach alpha coefficient	.96
Split half test reliability	Guttman split half coefficient	.94
	Spearman brown coefficient	.95

Table 6 Sensitivity and specificity of FSDS-R according to different cutoff scores

Cutoff scores	With sexual dysfunction n = 114 (FSDS < 25)		Without sexual dysfunction n = 100 (FSDS ≥ 25)		Sensitivity %	Specificity %
	True positive	False negative	False positive	True negative		
5.5	87	27	38	62	76	62
6.5	83	31	33	67	73	67
7.5	81	33	30	70	71	70
8.5	77	37	26	74	68	74
9.5	75	39	21	79	68	79

The 7.5 cutoff point provides the most acceptable sensitivity (71%) and specificity (70%) values

Validity

The validity of a measurement tool refers to its ability to measure a variable to be measured. The factor analysis is conducted to determine the construct validity of the scale (Büyüköztürk 2002). The KMO coefficient and the Bartlett's sphericity test are important because they show that the sampling is large enough and the data are suitable for factor analysis. The KMO coefficient is a method used to determine whether the size of the data and sampling are suitable for analysis. While the observed values in the range of ($\chi^2/df < 3$; $0 < RMSEA < 0.05$; $0.97 \leq NNFI \leq 1$; $0.97 \leq CFI \leq 1$; $0.95 \leq GFI \leq 1$ and $0.95 \leq NFI \leq 1$) indicates a perfect model fit, the values in the range of $3 < \chi^2/df < 5$; $0.05 < RMSEA < 0.08$; $0.95 \leq NNFI \leq 0.97$; $0.95 \leq CFI \leq 0.97$; $0.90 \leq GFI \leq 0.95$ and $0.90 \leq NFI \leq 0.95$ is considered to be acceptable (Kline 2005a, b; Sümer 2000). The fit statistics of the Scale were $\chi^2/df = 2.351$, $RMSEA = 0.079$, $CFI = 0.970$, $IFI = 0.970$, $GFI = 0.923$ and $NFI = 0.949$. According to Kline and Sümer it can be said that the model had an acceptable fit.

The factorial structure of FSDS-R in Turkish was examined and found that the coefficients of the relationship between the observed variables and the factor were sufficient. Considering the compliance statistics calculated by CFA, it was decided that the previously determined structure of the scale was highly compatible with the collected data (Fig. 1). The regression coefficients and t values were significant ($t > 1.96$) and the model was confirmed.

In order to evaluate the measurement features of the FSDS-R, its correlation with the reference scale FSFI and its sub-scales were measured. All the correlations were statistically significant in the negative direction (Table 4). The FSFI was evaluated per a total score of 38 points, and lower scores indicate the presence of a sexual disorder. Since higher scores indicate a possible sexual disorder in the FSDS-R, the correlation between two scales is expected to be in negative direction. It is important that all the correlations are statistically significant as both instruments measure similar conditions.

Reliability

Regarding the reliability of the Turkish version of the scale, the Cronbach alpha coefficient was found .96, the split-half test reliability was .95, and the Spearman Brown coefficient was .94. In a simultaneous study by Aydın et al. (2016) with our study on FSDS-R's Validity and Reliability in Turkish, the Cronbach alpha coefficient was found as 0.98. In scales, if the reliability coefficient is between .80 and 1 it is deemed perfect, and .50–.80 is considered to be mid-level reliable (Tan 2009). Accordingly, the reliability coefficients obtained in this study for the FSDS-R were considerably high.

The scale was structured by data extraction model. The second factor explains less than 5% of total, the single factor structure of the scale is preserved (Karasar 2009). If the factor analysis is used, total variance at the proportion of 2/3 explained by variables is considered sufficient. The percentage of the variance explained by the scale items is not good but sufficient for such social studies (Büyüköztürk 2002). In the selection of the scale items, regardless of their signs, the eigenvalues of .60 and higher are deemed to be high, and the eigenvalues of .30–.59 are deemed to be mid-level (Büyüköztürk 2002). The correlation of the scale with its items was high (Table 3). Every single item in the scale was compliant with the scale and had sufficient measuring power.

ROC Curve Analysis

The ROC curve analysis was conducted to calculate the optimal cutoff score of the FSDS-R in distinguishing women with sexual disorders and without sexual disorders, and its potential strengths and weaknesses regarding its use in more advanced clinics and studies were discussed. Accordingly, the Turkish version of the FSDS-R with .76 of the area under the ROC curve has mid-level accuracy (Fig. 2). In this study, the closest point to 1 was observed to be 6.5. However, the right way to follow to define the cutoff score in a more objective manner was to identify the sensitivity and specificity values of the cutoff in distinguishing unhealthy and healthy people, taken from above and under the ROC curve in certain intervals. When the cutoff point is taken too low, the measurement tool may detect all unhealthy people despite selecting some of the healthy; while taking it too high may reduce healthy people selected as unhealthy may run the risk of selecting some of the unhealthy ones as healthy (Kanık and Erden 2003). Therefore, the most ideal way seemed to take the point where the sensitivity and specificity values of the scale were the closest to the cutoff point. While determining the cutoff point, the severity of the health issue to be monitored or diagnosed would be taken into account. In monitoring a disease with low prevalence, the cutoff point is taken high to prevent the increase in monitoring costs by detecting too many false positives, while in severe diseases with high prevalence; the breakpoint may be preferred to be low not to miss any diseased person (Hajian-Tilaki 2013).

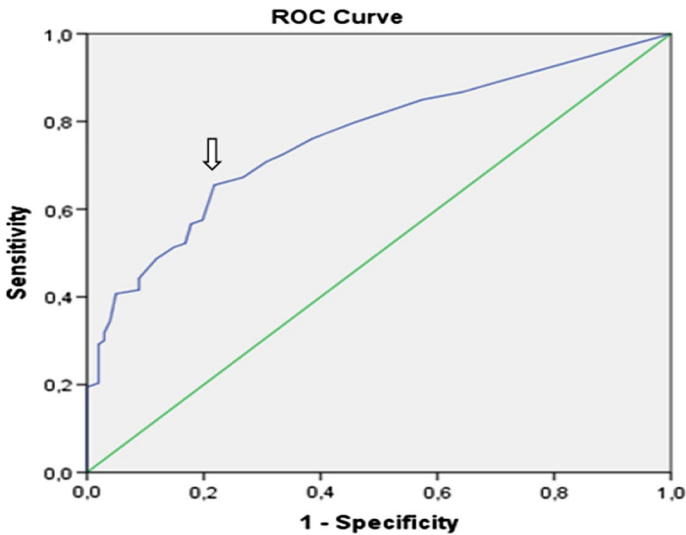


Fig. 2 The distribution of FSDS-R scale points per reference test (FSFI) scores

For the FSDS-R, the sensitivity and specificity values were defined per five different cutoff points, starting from 5.5 (Table 6). The obtained values suggest that the 7.5 cutoff point provides the most acceptable sensitivity and specificity values. When the cutoff for the FSDS-R was taken as 7.5, compared to FSFI, it detected 71% of the people with possible sexual disorders and 70% of people without any sexual disorders accurately (Table 6). In the FSDS-R, higher values indicate FSD. In the study by Derogatis et al., the cutoff score for the original version of the scale is 11 and the values of 11 and over are highly effective in distinguishing people with and without sexual disorders (Oksuz and Malhan 2006). In another Turkish study, the cutoff score for the scale was found as 11.5 by Aydın et al. (2016). The difference of the cutoffs between the two studies carried out in the same culture may be associated with the groups studied. Aydın et al. (2016) has a much wider exclusion criteria in their study (depression history, chronic diseases, obesity, use of some medication and hormones, major gynecological operations) and included the working group into the study by separating them into groups of with and without sexual disorders according to the DSM-V categorization, while our study only had pregnancy and afterbirth as exclusion criteria for healthy women. This may explain the difference (Aydın et al. 2016).

In conclusion, the Turkish version of the FSDS-R is a valid and reliable instruments to identify possible sexual disorders among women in Turkey. The scores above the 7.5 cutoff scores will present the opportunity to distinguish those with FSD and improve them sexually and thus their life quality by taking measures. The scale is concise, easily answerable, with simplicity in scalability, which makes it convenient for the users in the field and for those with FSD. The instrument also helps researchers detect FSD prevalence in society, and the cultural,

social, and personal factors affecting FSD. However, it is recommended that the cutoff points should be studied with larger female samples.

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Author Contributions YK, AŞE designed the study and methodology. EAG recruited the sample. The data have been analyzed by YK and EAG. All the authors have read and approved the final manuscript.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflicts of interest.

Ethical Approval All procedures (surveys) performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. An application was made to the Ethical Commission of Gazi University for ethical evaluation of the study and the ethical approval was granted (ethical approval number: 77082166-604.01.02-39521). The study started after the official permissions by Ankara Metropolitan Municipality and provincial municipalities were granted. The permission was granted for Turkish translation and distribution of the Female Sexual Distress Scale by the Dr. Leonard Derogatis who created the scale.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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