FSD SEXUAL DYSFUNCTION

Sexual Desire, Depressive Symptoms and Medication Use Among Women With Fibromyalgia in Flanders

Roel Van Overmeire, PhD,[1] Lara Vesentini, PhD,[1] Stephanie Vanclooster, PhD,[1] Emilie Muysewinkel, MSc,[2] and Johan Bilsen, PhD[1]

ABSTRACT

Background: Fibromyalgia (FM) is associated with sexual dysfunction, though much less is known about the sexual desire, and especially dyadic and solitary sexual desire, among women with fibromyalgia.

Aim: To investigate on the one hand the global sexual desire, the dyadic sexual and solitary sexual desire, and on the other hand the association with depressive symptoms, fibromyalgia symptoms and medication use among women with fibromyalgia in Flanders, Belgium.

Methods: An online survey was spread through the Flemish league for Fibromyalgia Patients to be completed by women with fibromyalgia. The sexual desire inventory-2 (SDI-2) was used to measure sexual desire (global, dyadic, solitary), the VASFIQ for fibromyalgia symptoms, and the PHQ-2 for depressive symptoms, while also including questions on demographic factors (time since FM, age) and medication usage (antidepressants, pain medication, sleeping medication).

Main Outcome Measure: Global sexual desire, dyadic sexual desire and solitary sexual desire were studied in relation to depressive symptoms, medication use and fibromyalgia symptoms.

Results: One hundred and three women with FM answered the survey. Depressive symptoms were significantly associated with a lower global, dyadic and solitary sexual desire, as was the use of antidepressant medication. The association between solitary sexual desire and depressive symptoms disappeared when controlled for antidepressant medication. Age, fibromyalgia symptoms nor time since diagnosis were significantly associated with any form of sexual desire.

Conclusion: Depressive symptoms and antidepressant medication, and not fibromyalgia symptoms, were associated with decreased sexual desire of women with FM. As antidepressant medication and depressive symptoms are associated with a decreased sexual desire, more attention should be paid towards the mental health issues associated with fibromyalgia, as well as the prescription of antidepressant medication. This study is the first to investigate sexual desire among women with fibromyalgia in Flanders, and one of the few internationally to have done so. It is limited by its cross-sectional design, and for not providing information on men with FM. **Van Overmeire R, Vesentini L, Vanclooster S, et al. Sexual Desire, Depressive Symptoms and Medication Use Among Women With Fibromyalgia in Flanders. Sex Med 2022;10:100457.**

Key Words: Fibromyalgia; Sexual Desire; Depression

Received June 4, 2021. Accepted October 9, 2021.

[1]Mental Health and Wellbeing Research Group, Department of Public Health, Vrije Universiteit Brussel, Ixelles, Belgium;

[2]Interuniversity Centre for Health Economics Research, Department of Public Health, Vrije Universiteit Brussel, Ixelles, Belgium

https://doi.org/10.1016/j.esxm.2021.100457

INTRODUCTION

Fibromyalgia (FM) is a nonjoint rheumatic disorder that can have various chronic health effects such as musculoskeletal pain, sensitive painful point on the bodies, stiffness, acute pain waves and fatigue.[1] It affects around 2.31% of the population of Europe, the majority of which are women.[1,2] FM has been associated with mental health problems such as depressive

symptoms,[3–6] but also with sexual dysfunction.[4–7] Sexual dysfunction mainly entails a decreased sex drive, a reduced intensity of orgasms and genital pain.[8] This sexual dysfunction can be associated with symptoms of FM (eg, chronic pain can lead to more difficulties in intercourse) and mental health (eg, depressive symptoms are associated with sexual dysfunction).[9] Furthermore, the sexual dysfunction among women with FM can also be associated with low relationship satisfaction.[10] Thus, sexual dysfunction among women with FM is complex, as there are both physical and psychological factors.[5]

Few studies have focused on one of the aspects of sexual dysfunction, more specifically sexual desire, and the different types of sexual desire including solitary (eg, desire to masturbate) and dyadic sexual desire (eg, desire to have sexual intercourse). Studies have shown that this sexual desire is generally lower among women with FM, though a few studies found that while women with FM suffer from a decreased intensity of orgasms, and increased pain during intercourse, that does not necessarily mean that their sexual desire is decreased.[11] Thus, the cause of the possibly decreased sexual desire among women with FM remains unclear.[5,6] One study by López-Rodríguez et al.[8] found an association between FM and the different types of sexual desire, though this association appeared to be weak. Furthermore, the study also showed that antidepressants might play a role. A review by Bazzichi et al.[12] did not indicate a link between FM and sexual desire, but between depressive symptoms associated with FM and sexual desire. However, the possible relation between depressive symptoms and sexual desire must be further investigated.[5] Considering the few studies focusing only on sexual desire (global, solitary as well as dyadic sexual desire), this study will look into the association between FM symptoms, depressive symptoms, use of medication, and sexual desire among women with FM. As previous qualitative research has indicated that sexuality is important for women with FM, it is key to find out whether depressive symptoms can be related to a lower sexual desire.[13] A more profound understanding of these relationships could result in improved intervention campaigns and provision of information provided for women diagnosed with FM.

Thus, how is sexual desire (global, dyadic, and solitary) associated with depressive symptoms, fibromyalgia symptoms and medication use among women with fibromyalgia in Flanders, Belgium?

METHOD

Population and Data Collection

In this cross-sectional study, an online survey in Qualtrics was distributed in Flanders (Belgium) among female members of the only Flemish organisation for people with FM: "the Flemish Liga for Fibromyalgia patients" (VLFP; in Dutch: Vlaamse Liga voor Fibromyalgie Patiënten), with approximately 400 members.

The survey was spread by the VLFP that launched a call through social media and their website. Cookies were used to avoid multiple answers from the same respondent. Data were collected between March 1st and April 1st, 2021.

Participants were excluded from analysis when (i) they did not fully complete the survey, (ii) they indicated to be male or non-binary, and (iii) they indicated to have FM but did not receive a formal diagnosis.

Measures

The Sexual Desire Inventory-2 (SDI-2) was used to investigate sexual desire in our study population. The SDI-2 is a questionnaire consisting of 14 questions specifically about sexual desire. An example of one of these questions is "When you have sexual thoughts, how strong is your desire to engage in sexual behavior with a partner?" Possible answers could range from 0 to 7 or 0 and 8, where a lower number means that this is seldom desired by the respondent, a higher number means more often. In the current study, this global sexual desire score per respondent ranges from 0 to 112 and has a Cronbach's Alpha of 0.936. It has 2 subscales: a dyadic sexual desire scale ($\alpha = 0.910$), which is calculated by the sum of items 1−8 (range: 0−62) and a solitary sexual desire scale ($\alpha = 0.779$), calculated with the sum of items 9 −11 (range: 0−23).

The Patient Health Questionnaire-2 (PHQ-2) was used to measure depressive symptoms. ($\alpha = 0.882$). This scale has only 2 broad questions with scores ranging from 0 to 6. The cut-off score can be found at 3 with a score of 3 or more indicating a likelihood of a major depressive disorder. The PHQ-2 has shown to have good specificity and sensitivity values for the screening of depression.[14]

To assess the degree of FM, the VASFIQ scale was used ($\alpha = 0.762$). This scale consists of 7 questions, each linked to a visual analogue scale (VAS). An example of a question is "How bad has your pain been?" The respondent was asked to indicate their level of pain on a numberless line with the left part representing "no pain" and the right part "very severe pain." The VASFIQ has been shown to accurately screen for global FM symptoms.[15]

Another well-known factor that possibly contributes to the experience of sexual desire is medication use. This assumption has been explored with questions on the use of antidepressants, sleep medication and pain medication. Respondents were questioned about the frequency of their use of these medication types in the past 2 weeks, indicating a score on a 4-point Liker scale (ranging from "not at all" to "almost every day"). The period of 2 weeks was chosen to allow the participants to make a quick estimation of their doses.

Demographic factors were considered. First, age, which was measured using categories with a range of 9 years. The large range was chosen to decrease the chance of small-cell risk, as the population we were studying is relatively small. As we had no prior knowledge about the FM-population in Belgium, and thus did not have insight into how the population was divided in

terms of age, we chose fixed ranges (instead of for example 18−25; 26−35, et cetera). Second, gender was measured as to exclude nonfemales. Third, home situation was first assessed broadly (eg, children and partner, living alone), to have more information about the population, after which it was recategorized for analyses to "living with a partner" and "living without a partner," so that it was possible to look at the difference in sexual desire between these groups. Fourth, the time since the moment of receiving a FM diagnosis was assessed starting from a diagnosis less than a month ago to more than 5 years ago. This was recategorized for analyses to more or less than 5 years ago.

Analysis

Assumptions for linear models were tested using Kolmogorov-Smirnoff tests, Levine tests, P-P plots and multicollinearity tests. In addition, non-parametric tests were used when necessary. First, for the descriptive part of the result section, a Pearson chi-square was performed to look into the association between screening positive for possible major depressive disorder and antidepressant usage. Second, Pearson correlations were performed testing the associations between the VASFIQ, SDI-2 (global, solitary, dyadic) and PHQ-2. Next, we calculated Spearman correlations between SDI-2 scores (global, solitary, dyadic), when someone gained a diagnosis, and age. Independent *t*-tests were carried out on global, solitary and dyadic sexual desire taking into account 2 categories: living more or less than 5 years with fibromyalgia and living with or without a partner. Additionally, we performed Kendall-Tau correlations on the subgroups of respondents who tested positive for possible major depressive disorder, and those who did not test positive. For these groups, we looked at the correlations between antidepressants use and sexual desire (global, dyadic and solitary). Finally, we performed multivariable linear regressions with global sexual desire, dyadic sexual desire and solitaire sexual desire as the 3 outcomes, while using time since diagnosis of FM, antidepressant use, PHQ-2 and VASFIQ as predictors. R^2 are always adjusted R^2. Analyses were performed with IBM SPSS 26.0 (SPSS Inc, Chicago, IL).

Ethics

The aim, procedures and/or different steps and rights of participation of this study were explained in detail on the introduction screen of the survey. Participants were informed that the data they provided by completing the surveys would be used for scientific publications, for which they were asked to give consent. This research has been approved by the ethical commission of the UZ/VUB (B.U.N. 1432021000409).

RESULTS

In total, 133 respondents started to complete the survey. In total 30 respondents were excluded as they did not fit the inclusion criteria. Fifteen respondents did not fully complete the survey; 8 respondents never received a formal diagnosis of fibromyalgia; 6 respondents were men, and 1 respondent was nonbinary. After exclusions, the data of 103 respondents were included in the study (Table 1).

The majority of the remaining respondents were between 38 and 57 years old (68%). Approximately half of them had received their FM diagnosis more than 5 years ago (49.5%). Most respondents had either a partner (33%) or a partner and children (40.8%). The average global sexual desire score was 27.13 (out 112) (±19.3), dyadic sexual desire score was 16.7 (out of 62) (±12.23) and solitary sexual desire score was 4.89 (out of 23) (±4.38). In total, 44.7% qualified for having a possible major depressive disorder.

A Pearson chi-square showed that there was no association between screening for possible major depressive disorder and usage of antidepressants ($P = .061$) (Table 2).

Table 1. Characteristics of respondents (N = 103)

Variables	N	%
Age		
18-27	2	1.9
28-37	16	15.5
38-47	31	30.1
48-57	39	37.9
58-67	13	12.6
68-77	2	1.9
When have you had a diagnosis of fibromyalgia?	6	5.8
Less than a mo	9	8.7
One mo and less than 6 mo ago	8	7.8
6 mo and less than 1 y	29	28.2
1 and less than 5 y	51	49.5
5 y and more		
Home situation: You live. . .		
Together with a partner	34	33.0
Together with a partner and children	42	40.8
Together with children	8	7.8
Alone	11	10.7
With parents/grandparents/other family	4	3.9
Other	4	3.9
PHQ-categories		
<3 depression	57	55.3
≥3 depression	46	44.7
Variables	Mean	±SD
VASFIQ score	49.17	10.48
Desire		
Global desire	27.13	19.3
Solitary desire	4.89	4.38
Dyadic desire	16.7	12.23
Depressive symptoms		
PHQ-2	2.9	2.05
Medication use		
Antidepressants	1.81	.924
Pain killer	2.41	.760
Sleeping medication	1.78	.885

Table 2. Association between possible major depression disorder (MDD) and antidepressant usage

	No MDD	MDD	*P*-value
Antidepressant usage			.061
Never	36	19	
Sometimes	4	8	
Often	17	19	
Total	57	46	

The global sexual desire score was significantly correlated with PHQ-2 ($r = -.236$; $P = .016$). No significant correlation has been found for global sexual desire and VASFIQ ($r = -.027$; $P = .788$). Spearman correlations showed a significant correlation with antidepressant use ($r_s = -.288$; $P = .004$), but not with pain medication ($r_s = -.008$; $P = .935$) and sleeping medication ($r_s = -.130$; $P = .191$). Also, we did not find a significant relation with age ($r_s = -.141$; $P = .155$) or with time since diagnosis ($r_s = .063$; $P = .529$).

Independent *t*-tests showed that having received a diagnosis of FM more or less than 5 years ago did not have significantly different means for global sexual desire (M = 26.21 (±18.45) - 28.06 (±20.27); $P = .580$), which was also the case for having a partner or not (M=24.29 (±19.89) − 28.13 (±19.12); $P = .474$).

Dyadic sexual desire was significantly correlated with PHQ-2 ($r = -.234$; $P = .018$), and not VASFIQ ($r = -.027$; $P = .788$), age ($r = -.179$; $P = 0.07$), time since diagnosis ($r_s = .058$; $P = .562$), pain medication ($r = -.028$; $P = .782$) or sleeping medication ($r_s = -.125$; $P = .207$). There was however a significant correlation with antidepressant use ($r_s = -.254$; $P = .010$) (Table 3). There was no association found for time since diagnosis (M=16.17 (±17.01) − 17.21 (±12.45); $P = .572$) and having a partner (M = 13.74 (±11.51) − 17.75 (±12.38); $P = .209$) (Table 4).

Solitary sexual desire was significantly correlated with PHQ-2 ($r = -.213$; $p = .030$) and antidepressant use ($r = -.262$; $p = .008$), but not for VASFIQ ($r = -.049$; $P = .620$). Likewise, we did not find a significant correlation for age ($r_s = -.043$; $P = .669$), time since diagnosis ($r_s = .068$; $P = .492$), pain medication ($r_s = .033$; $P = .740$) and sleeping medication ($r_s = -.115$; $P = 249$) (Table 3). There was no association identified for time since diagnosis (M=4.65 (±3.96) − 5.14 (±4.8); $P = .534$) and having a partner (M=5.19 (±4.72) − 4.79 (±4.29); $P = .568$) (Table 4).

Additionally, 2 Kendall Tau correlations were performed. For the group of respondents who tested positive for possible major depressive disorder (N = 46), the relationships between antidepressant usage and the forms of sexual desire were as follows: global sexual desire ($\tau = -.070$; $P = .557$), dyadic sexual desire ($\tau = -.005$; $P = .967$) and solitary sexual desire ($\tau = -.136$; $P = .268$). For the group respondents who did not test positive (N = 57), these correlations between antidepressant usage and the forms of sexual desire were as follows: global sexual desire ($\tau = -.333$; $P = .002$), dyadic sexual desire ($\tau = -.336$; $P = .002$) and solitary sexual desire ($\tau = -.248$; $P = .025$).

Linear regression models showed that both PHQ-2 and antidepressant use is predictive of global sexual desire and dyadic sexual desire, while controlling for time since diagnosis and VASFIQ. Only antidepressant use was predictive of decreased solitary sexual desire, while PHQ-2 was not significant (Table 5).

DISCUSSION

This study investigated sexual desire and its association with depressive symptoms, symptoms of FM and medication use among women with fibromyalgia. The results of this study showed that symptoms of depression and antidepressant medication were associated with a decreased sexual desire (global, dyadic and solitary sexual desire), while symptoms of fibromyalgia are not. We did not identify such a relation between depressive symptoms and solitary sexual desire when studied in a multivariable regression with antidepressant use included.

This study was the first to study sexual desire among women with FM in Flanders and to focus on its association with depressive symptoms. The main strength of this study is that it is, to our knowledge, the first study to investigate both solitary and dyadic sexual desire among women with FM in Flanders focusing on its association with depressive symptoms. In addition, even though the sample used in this study was small, most existing national and international studies on FM and sexuality use a lower number of participants. We should recognize that the study was limited by its cross-sectional design that hinders the possibility to draw causal conclusions. Additionally, we acknowledge that our exclusive study of female patients with FM represents a gender bias. Furthermore, in order to improve the response rate, we reduced the time to complete the survey, by including some brief scales or questions, while leaving out other questions. For example, the PHQ-2, while a good screening tool, can lead to overestimations of depressions (considering that it only measures 2 symptoms). Similarly, the question on medication use concerned the last 2 weeks, even though some medication, such as antidepressants, might take up to a month to have an effect. This was done to allow easy and quick estimations for the participants, but was less accurate than asking about the dose and the frequency during a longer period. Related to this, it should be noted that there are many different factors at play in women with fibromyalgia that we were not able to take into account. For example, while we found no difference in sexual desire between those with or without a partner, we have no insight in the relationship satisfaction, despite that this will also play a role in the sexual desire.[10,16]

Despite these limitations, the results from this study have yielded a number of important findings.

Table 3. Associations between sexual desire and other variables

	Global SD	Dyadic SD	Solitary SD	PHQ-2	VASFIQ	Antidepressant	Painkiller	Sleep medication	Age	Time since diagnosis
Global SD	1	.952***	.887***	-.236*	-.027	-.288**	-.008	-.130	-.141	.063
Dyadic SD		1	.724***	-.234*	.001	-.254*	.028	-.125	-.179	.058
Solitary SD			1	-.213*	-.049	-.262**	.033	-.115	-.043	.068
PHQ-2				1	.466***	-.275**	-.008	-.006	-.068	-.256**
VASFIQ					1	.104	.031	.055	-.098	-.142
Antidepressant						1	.171	.307**	.006	-.137
Painkiller							1	.213*	.137	.239*
Sleep medication								1	.141	-.066
Age									1	.349***
Time since diagnosis										1

SD = Sexual desire.
*$P < 0.05$.
**$P < 0.01$.
***$P < 0.001$.

First, our sexual desire scores obtained studying women with FM are very similar to the scores found in the study by López-Rodríguez, et al.[8] that also studied sexual desire among women with FM. This study also used the SDI-scale and found an average score of 26.33 (27.13 in our study), which was found to be significantly lower than a control group (47.92).

Second, in contrast to the study of López-Rodríguez, et al.[8] no significant correlation was found between symptoms of FM and sexual desire. This finding might have been due to the use of a different FM-scale (FIQR) or to geographical differences as the impact of FM symptoms has been found to be generally higher in southern countries.[17] Even though symptoms of FM undoubtedly contribute to sexual dysfunction in general, their association with sexual desire in individuals with FM might be overestimated. This can explain why one study found that despite women with FM experiencing a lot of pain, this did not necessarily mean they had a decreased sexual desire.[11] Similarly, Matarín Jiménez et al.[10] showed that sexual desire remains an important aspect of the lives of people with FM, despite their reported pain during sexual intercourse.

Third, depressive symptoms were common among women with FM in Flanders (Belgium), as almost half of the respondents met the cut-off suggested for further treatment for a major depressive disorder. Furthermore, this occurrence of depressive symptoms was moderately correlated with having FM, further confirming the association between FM and depressive symptoms.[1,7] In addition, our results indicated that depressive symptoms in women with FM were (weakly) associated with a decrease in global, dyadic and solitary sexual desire. These findings were consistent with those from previous studies exploring the relation between depressive symptoms and sexual dysfunction.[5,12,18]

Fourth, antidepressant medication was found to go together with a decreased sexual desire (global, dyadic and solitary), in line with other studies.[8,18] Furthermore, only antidepressant medications were found to statistically predict the decrease of solitary sexual desire, as demonstrated by a regression accounting for FM symptoms, time since diagnosis and depressive symptoms performed in this study. In addition, antidepressant use was not correlated with forms of sexual desire among people who screen positive for possible major depressive disorder, while antidepressant use among people who did not test positive, was significantly correlated with all forms of sexual desire. This indicates that both depressive symptoms and antidepressant use were separately associated with lower sexual desire. As was noticed in the study by López-Rodríguez et al.,[8] other forms of medication were not associated with sexual desire. However, considering that mental health has been suggested to be at the basis of fibromyalgia, it might be that the participants had depressive symptoms before the diagnosis of fibromyalgia. This means that the participants might have been taking antidepressants and then developed sexual desire problems even before the diagnosis. This is part of the earlier mentioned limitation of the cross-sectional

Table 4. Association between fibromyalgia diagnosis, relationship and sexual desire (global, dyadic, solitary)

	Mean values					
	Global sexual desire	*P*-value	Dyadic sexual desire	*P*-value	Solitary sexual desire	*P*-value
Fibromyalgia diagnosis		.580		.572		.534
<5 y (N = 52)	26.21 (18.45)		16.17 (12.01)		4.65 (3.96)	
5 y or more (N = 51)	28.06 (20.27)		17.24 (12.45)		5.14 (4.8)	
Relationship		.474		.209		.568
Not in relationship with partner (N = 27)	24.29 (19.89)		13.74 (11.51)		5.19 (4.72)	
In relationship with a partner (N = 76)	28.13 (19.12)		17.75 (12.38)		4.79 (4.29)	

design of the present study. This antidepressant usage was correlated, as was pain medication usage, with sleeping medication usage. It might therefore be that there was also a combined effect of different medications.

In conclusion, these results show that women in this sample diagnosed with FM in Flanders (Belgium) often had depressive symptoms, and that both these symptoms and the treatment for these symptoms could be related to a lower sexual desire. Besides global sexual desire, the depressive symptoms were associated with dyadic sexual desire, but not solitary sexual desire after controlling for other variables. Furthermore, pain and sleep medications were not associated with the women's sexual desire. Especially among women who use antidepressants, the relationship with sexual desire was clear. Finally, these findings suggested that the association of FM and sexual desire was not direct, but indirect through the associated depressive symptoms, or through antidepressant usage. Further studies can zoom in on the effects of therapy, by exploring possible changes in the relation between depressive symptoms and sexual desire. Studies should also take into account relationship satisfaction.

Table 5. Multivariable linear regression model with sexual desire as outcome

	B	SE	R^2	P
Outcome: global sexual desire			.088	.012
Constant	29.600	13.143		.027
FM-duration	.528	1.606		.743
VASFIQglobal	.021	0.020		.295
PHQ-2	-2.104	1.079		.045
Antidepressant use	-5.029	2.082		.018
Outcome: dyadic sexual desire			.078	.019
Constant	17.268	8.360		.042
FM-duration	0.026	1.022		.980
VASFIQglobal	.018	.013		.163
PHQ-2	-1.551	.668		.026
Antidepressant	-2.631	1.324		.046
Outcome: solitary sexual desire			.075	.023
Constant	5.184	3.010		.045
FM-duration	.296	.368		.423
VASFIQglobal	.003	.005		.556
PHQ-2	-.345	.247		.166
Antidepressant use	-1.154	.477		.017

ACKNOWLEDGMENTS

We wish to thank the Vlaamse Liga voor Fibromyalgie Patiënten to help with distributing the online survey. Furthermore, we wish to thank all participants for investing their time in the study.

Corresponding Author: Roel Van Overmeire, Mental Health and Wellbeing Research Group, Department of Public Health, Vrije Universiteit Brussel, Ixelles, Belgium. Tel: +32498601752; E-mail: roel.van.overmeire@vub.be

Conflict of Interest: The authors report no conflicts of interest.

Funding: None.

STATEMENT OF AUTHORSHIPR.V.O. and J.B. conceived and performed experiments. R.V.O., L.V., E.M. and S.V. wrote the manuscript. R.V.O., L.V., S.V., E.M. and J.B. provided expertise and feedback.

REFERENCES

1. Bair MJ, Krebs EE. Fibromyalgia. **Ann Internal Med 2020;172:ITC33.**
2. Cabo A, Cerdá G, Trillo J. Fibromyalgia: Prevalence, epidemiologic profiles and economic costs. ***Med. Clin (Barc)* 2017;149:441–448.**
3. Løge-Hagen JS, Sæle A, Juhl C, et al. Prevalence of depressive disorder among patients with fibromyalgia: Systematic review and meta-analysis. **J Affect Disord 2019; 15:1098–1105.**
4. Collado-Mateo D, Olivares PR, Adsuar JC, et al. Impact of fibromyalgia on sexual function in women. **J Back Musculoskelet Rehabil 2020;33:355–361.**
5. Besiroglu MDH, Dursun MDM. The association between fibromyalgia and female sexual dysfunction: A systematic review and meta-analysis of observational studies. **Int J Impot Res 2019;31:288–297.**

6. Kayhan F, Küçük A, Satan Y, et al. Sexual dysfunction, mood, anxiety, and personality disorders in female patients with fibromyalgia. **Neuropsychiatr Dis Treat 2016;16: 349–355.**
7. Mutti GW, de Quadros M, Cremonez LP, et al. Fibromyalgia and sexual performance: A cross-sectional study in 726 Brazilian patients. **Rheumatol Int 2021;41:1471–1477.**
8. López-Rodríguez MM, Fernández AP, Hernández-Padilla JM, et al. Dyadic and solitary sexual desire in patients with fibromyalgia: A controlled study. **J Sex Med 2019;16:1518–1528.**
9. Kayhan F, Küçük A, Satan Y, et al. Sexual dysfunction, mood, anxiety, and personality disorders in female patients with fibromyalgia. **Neuropsychiatr Dis Treat 2016;12:349–355.**
10. Kalichman L. Association between fibromyalgia and sexual dysfunction in women. **Clin Rheumatol 2009;28:365–369.**
11. Shaver JL, Wilbur J, Robinson FP, et al. Women's health issues with fibromyalgia syndrome. **J Women's Health 2006;15:1035–1045.**
12. Bazzichi L, Giacomelli C, Rossi A, et al. Fibromyalgia and sexual problems. **Reumatismo 2012;64:261–267.**
13. Matarín Jiménez TM, Fernández-Sola C, Hernández-Padilla JM, et al. Perceptions about the sexuality of women with fibromyalgia syndrome: A phenomenological study. **J Adv Nurs 2017;73:1646–1656.**
14. Carey M, Boyes A, Noble N, et al. Validation of the PHQ-2 against the PHQ-9 for detecting depression in a large sample of Australian general practice patients. **Aust J Prim Health 2016;22:262–266.**
15. Boomershine CS, Emir B, Wang Y, et al. Simplifying fibromyalgia assessment: The VASFIQ brief symptom scale. **Therapeutic advances in musculoskeletal dis 2011;3:15–226.**
16. Rowland DL, Kolba TN, McNabney SM, et al. Why and how women masturbate, and the relationship to orgasmic response. **J Sex Marital Ther 2020;46:361–376.**
17. Ruiz-Montero PJ, Segura-Jimenez V, Alvarez-Gallardo IC, et al. Fibromyalgia impact score in women with fibromyalgia across Southern, Central, and Northern areas of Europe. **Pain physician 2019;22:E511–E516.**
18. Basson R, Gilks T. Women's sexual dysfunction associated with psychiatric disorders and their treatment. **Women's health (London, England) 2018;14:1745506518762664.**