Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/wc14t646

THE RELATIONSHIP BETWEEN SEXUAL DYSFUNCTION AND PSYCHIATRIC STATUS IN PREMENOPAUSAL WOMEN WITH FIBROMYALGIA

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ABSTRACT

Background: The purpose of this research is to investigate the relationship between mental diseases, particularly fibromyalgia in premenopausal women, and sexual dysfunction.
Objective: This study aims to compare a group of women with fibromyalgia to a control group of women without overt organic disorders to determine how well fibromyalgia predicts sexual and mental health.
Materials and Methods: The prospective study included 38 age-matched healthy women and 82 premenopausal female patients with fibromyalgia certified by the American College of Rheumatology. Patients with newly diagnosed fibromyalgia and those without a history of mental disorders or treatments that can impair sexual function were included in the study according to certain criteria. Several evaluation instruments were used, including the Female Sexual Function Index (FSFI), a questionnaire used to gauge sexual function. The State-Trait Anxiety Inventory (STAI) for measuring anxiety levels and the Beck Depression Inventory (BDI) for measuring depression levels. Additionally, the hormonal concentrations of cortisol and testosterone in serum samples were examined, and statistical analyses were performed using the Statistical Package for the Social Sciences software.
Results: When compared to the normative cut-off score of 25 (Mean = 18.76), the Fibromyalgia Group's aggregate score on the FSFI test revealed considerably higher levels of sexual dysfunction and lower levels of sexual satisfaction. The average ratings showed significant deficits in all areas of sexual function: arousal 3.87, 3.45, orgasm 3.57, pleasure 3.77, discomfort 4.14, and desire 3.35. Additionally, compared to the control group, the mean BDI and STAI for fibromyalgia patients were 27.24 and 57.85, respectively. The two groups' serum levels of cortisol, LH, FSH, testosterone, and estradiol did not significantly vary.
Conclusion: The research concludes that high rates of sexual dysfunction, as well as high rates of anxiety and sadness in premenopausal women, are associated with fibromyalgia. This supports the necessity for a multimodal approach to this condition's management that takes the psychological component into account as well.

INTRODUCTION

The chronic pain illness known as fibromyalgia (FM) affects women of reproductive age more often than it does males or the elderly. Myalgia, exhaustion, insomnia, and soreness at various bodily painful spots are symptoms of this. A significant amount of research on the physical symptoms of fibromyalgia has been conducted, with very little attention paid to the disease's consequences on

fundamental human activities like sexual activity. A complicated problem, sexual dysfunction arises from the interplay of endocrinological, psychological, and biological components (1). Furthermore, a dangerous adjunct to sexual dysfunction may be the existence of psychopathological illnesses, such as significant depression and anxiety disorder, which women with fibromyalgia often report.Therefore, the goal of this work is to ascertain if sexual dysfunction and psychopathological profile are related to hormonal and psychogenic effects in fibromyalgia in premenopausal women (2).

A persistent pain condition called fibromyalgia is characterized by discomfort in the musculature and bone. It is often linked to weariness, sleep disorders, and memory issues known as "fibro fog" (3). The majority of fibromyalgia patients—possibly as high as 90%—are women, according to the data, which show that the disorder mostly affects women. In the research-based population group, the risk of fibromyalgia was very low at 2-4%, although it increased for women exhibiting premenopausal symptoms.Numerous studies show that physical limitations and emotional suffering may result from pain, exhaustion, and cognitive deficits, all of which can significantly lower quality of life (4). Because of these ongoing symptoms, women with fibromyalgia are more likely to experience anxiety and sadness as well as other mental conditions. Furthermore, having a chronic illness results in worse mental and physical symptoms, and the two-way impacts may lead to new issues including sexual dysfunction (5).

Painful emotions during sexual activity or an inability to experience or want sexual activity are examples of female sexual dysfunction. Women who suffer from chronic diseases such as fibromyalgia often experience worsening of these symptoms. Problems include high blood pressure, generalized discomfort, exhaustion, soreness, and mental anguish, all of which hurt fibromyalgia sufferers' sexual health (10).

A proven method for evaluating women's sexual function in six domains—enthusiasm, sexual stimulation, wetness, climax, pleasure, and pain—is the Female Sexual Function Index (FSFI). Women with fibromyalgia had a much lower FSFI than healthy women, according to many studies by Sheltock et al. (11). This indicates that sexual dysfunction is more common in the afflicted group of women. According to another study, sexual dysfunction is reported by 70% of women receiving treatment for fibromyalgia, which is a comparatively higher rate than in the general population. Several sexual issues are linked to fibromyalgia, such as dyspareunia, poor libido or sexual desire, difficulty reaching climax, or "orgasmic dysfunction". Women who have fibromyalgia physically limit their skills since they are unable to perform or even show interest in sexual interactions (12).

This is shown by the fact that fibromyalgia patients often report having mental health conditions such as anxiety, sadness, and stress disorders. According to different research, 50–70% of fibromyalgia sufferers also report having sadness and 30–60% report anxiety (13). Significant depression may also hurt sexual function by lowering arousal and desire for sex as well as directly or indirectly contributing to issues like anorgasmia or dry vagina. In women with fibromyalgia, the documented mental condition affects the likelihood of sexual dysfunction (14)

While anxiety may result in a sensation of uneasiness related to having sex, depression can be characterized as a propensity to lose desire for specific interests and values, including sex. Having a good sexual relationship becomes almost difficult when one adds these psychological problems to the physical pain and fatigue associated with fibromyalgia (15). When assessing mental problems in fibromyalgia, self-report assessments like the State-Trait Anxiety Inventory (STAI) and the Beck Depression Inventory (BDI) are often used. According to studies conducted using similar instruments, poorer sexual function scores on the FSFI were linked to higher levels of anxiety and depression in the current study (16). They came to the conclusion that improving the patients' psychological well-being might be a step toward healing fibromyalgia and improving their sexual health as a result. Both the psychological and sexual dysfunctions seen in fibromyalgia patients may be related to hormonal alterations. The following hormone levels have been linked to mood problems and sexual dysfunction: cortisol, DHEA-S, estrogen, and testosterone (9). These hormones are often cyclical, and fluctuations in hormone levels may have a significant effect on sexual desire,

arousal, and satisfaction in premenopausal women (9). Research has shown that female patients with fibromyalgia have aberrant cortisol levels, which contributes to their weariness and emotional distress.Premenopausal FM patients may have reduced levels of testosterone and estrogen, which may result in additional sexual dysfunction and decreased sexual desire (8). To ascertain the relative hormone concentrations, several physiological studies including fibromyalgia patients and matched controls have been conducted (7). For example, a cross-sectional study of patients with fibromyalgia showed that they had considerably lower blood levels of DHEA-S than control individuals, a hormone involved in mood and libido regulation. Pre-menopausal women are significantly more prone than their healthy counterparts to have sexual dysfunction and psychological illnesses, which may partially account for why a portion of them develop fibromyalgia (6).

Materials and methods

This prospective experiment was out to investigate the relationship between premenopausal women's mental disorders, fibromyalgia, and sexual dysfunction. 38 healthy women of similar age and 82 premenopausal female patients with fibromyalgia served as the participants. Each participant came from a specialist outpatient clinic that treats individuals with fibromyalgia and chronic pain. The analysis took bias into account, and the study's particular inclusion and exclusion criteria were upheld.

The patient characteristics that were included were women who had been diagnosed with fibromyalgia based on the American College of Rheumatology's (ACR) evaluation criteria. The women who were chosen for this study were premenopausal, which was significant since menopausal hormone swings may have an impact on mental and sexual health issues. Additionally, since none of the individuals had received treatment for their PD for a long time and the participants had just recently received a diagnosis, the impact of various treatments on mental state and sexual function would be negligible. Both groups were subjected to inclusion and exclusion criteria. However, the subjects' mental histories were also not included in this investigation. This was crucial because it allowed researchers to investigate how fibromyalgia affects mental health issues without addressing antecedent circumstances. Additionally, only female participants who were not taking any medication—antidepressants, hormone therapy, or other psychotropic medications, for example—that may have an impact on their mental or sexual health were included. This maintained the validity of fibromyalgia as the main variable influencing the study's conclusions.

Control Group: 38 premenopausal women without fibromyalgia were in the control group, and their age distribution matched that of the patient sample. They did not take any drugs that would have impacted the study's findings, nor did they have a history of mental disorders or chronic illnesses. The lack of therapy enabled the researchers to assess the impact of fibromyalgia on sexual activity and mental health in comparison to the control group.

Assessment Tools: Thus, the research included several conventional techniques to evaluate the patients' sexual function and mental health. These instruments provided a comprehensive picture of the participant's psychological and sexual health condition and aided in the comprehension of the relationship between mental comorbidities, fibromyalgia, and sexual dysfunction.

Female Sexual Function Index (FSFI): The FSFI was selected as the primary tool for assessing participants' sexual health. The FSFI is a verified, standardized questionnaire that assesses women's sexual function in six different domains: arousal, lubrication, orgasm, pleasure, pain during orgasm, and usage. The overall score is calculated by adding the scores from each of the 19 questions; the lower the score, the more severe the sexual dysfunction. Additionally, they most often evaluated and contrasted the degree of sexual function between the control group and the fibromyalgia patients using this instrument.

State-Trait Anxiety Inventory (STAI):To gauge the level of anxiety in each group The STAI, or State-Trait Anxiety Inventory, was used. It is commonly recognized that the STAI is a well-tested tool that may be used to evaluate both trait anxiety, sometimes referred to as chronic anxiety, and state anxiety, also known as acute or situational anxiety. There are twenty pieces in each of the two halves. Once again, the total scores and subscales fluctuate inversely, meaning that greater total scores correspond to higher levels of anxiety. Since fibromyalgia and anxiety often co-occur, the STAI made it possible to quantify participants' anxiety levels and how these affected their sexual dysfunction.

Beck Depression Inventory (BDI): The Beck Depression Inventory (BDI), another extensively used, well-standardized clinical and research tool, was utilized to measure depression. The Beck Depression Inventory (BDI) is a self-administration tool consisting of 21 items designed to measure an individual's degree of depression. Every day of the week, clients self-complete questionnaires to gauge their mood on a scale of 0 to 10, with higher scores indicating despair. The BDI helped determine whether depression contributes to sexual dysfunction and evaluated the degree of depression in fibromyalgia patients relative to the other group.

Laboratory and Hormonal Analysis: Hormonal testing was performed in addition to psychological evaluation to investigate the possibility of biological origins of mental illnesses and sexual dysfunction. Blood samples were given to each first thing in the morning in order to disrupt the hormone levels in the circulatory system's daily cycle. Serum analysis was used to evaluate the levels of testosterone, luteinizing hormone (LH), follicle-stimulating hormone (FSH), estradiol, cortisol, and dehydroepiandrosterone sulfate (DHEA-S).

Statistical Analysis: Version 25 of the Statistical Package for the Social Sciences (SPSS) program was used to do the statistical analysis of the data. Both mean and standard deviation were used to summarize basic demographic data, FSFI scores, STAI scores, BDI scores, and hormonal factors. Using a chi-square test for categorical data and a t-test for continuous variables, the fibromyalgia group and the control group were compared. The FSFI, STAI, and BDI scores were compared with sexual dysfunction, mental health status, and fibromyalgia symptoms using Pearson correlation coefficients. To compensate for additional anti-social characteristics like age and BMI, multiple regression analysis was also used to determine the link between the dependent variable which is sexual dysfunction and the independent variable which is psychiatric/hormonal levels. A significance threshold of 0.05 was used for all analyses in the current research.

RESULTS

According to descriptive statistics (Table 1), the mean of the fibromyalgia group variable is 0.68, indicating that 68% of the respondents fall into this category. The participants' ages ranged from 27.10 to 42.40 years, with 34.76 years being the mean (SD = 2.78). Average levels of estradiol 143.66, cortisol 16.01, FSH 7.03, DHEA-S averages 175.41, LH 6.51, and testosterone averages 35.15, with typical inter-individual variability. Psychological assessments reveal that individuals with fibromyalgia had low levels of anticipatory anxiety (Self-rated state anxiety inventory mean = 57.85) and high levels of sadness (Beck depression inventory mean = 27.24), both of which are components of the mental comorbidity linked to this illness.Sexual dysfunction is present in this study; the average score on the FSFI toscoreores was 18.76, which is below the standard cut-off score for sexual function desire subscale demons rates moderate average level; however, other FSFI domains exhibit significant abnormalities, including desire (mean = 3.35), arousal (mean = 3.87), lubrication (mean = 3.45), orgasm (mean = 3.57), satisfaction (mean = 3.77), and pain (mean = 4.14). The high variability was demonstrated by mean standard deviations of 0.96.

Table 1 Demographics of patients with FBM (n=82) and healthy controls (n=38)				
	Minimum	Maximum	Mean	Std. Deviation
Group	.00	1.00	.6833	.46713
Age	27.10	42.40	34.7608	2.77856
Testosterone	30.90	42.70	35.1492	2.02194
LH	4.90	7.60	6.5050	.45260
FSH	5.80	8.50	7.0283	.53909
Estradiol	120.30	167.70	143.6592	9.36481
Cortisol	13.30	18.60	16.0067	1.06145
DHEA_S	156.60	201.30	175.4092	9.48503
STAI	39.00	72.60	57.8517	7.13023
BDI	5.80	40.70	27.2417	7.04649
FSFI_Total	.50	37.20	18.7550	6.71247
FSFI_Desire	1.00	6.50	3.3483	1.05520
FSFI_Arousal	.90	6.70	3.8733	1.17950
FSFI_Lubrication	1.10	5.90	3.4508	1.08147
FSFI_Orgasm	.30	6.80	3.5683	1.18044
FSFI_Satisfaction	.70	6.60	3.7725	.96222
FSFI_Pain	1.70	6.40	4.1358	1.05127

Table 2T-tests for Equality of Means							
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Testosterone	-.680	59.433	.499	-.29390	.43250	-1.15921	.57140
LH	.949	118	.344	.08434	.08886	-.09162	.26030
	1.014	85.394	.313	.08434	.08315	-.08097	.24965
FSH	1.048	118	.297	.11078	.10575	-.09863	.32019
	1.036	70.219	.304	.11078	.10694	-.10248	.32405
Estradiol	-.792	118	.430	-1.45770	1.84066	-5.10270	2.18730
	-.773	68.106	.442	-1.45770	1.88519	-5.21944	2.30403
Cortisol	.286	118	.775	.05982	.20911	-.35427	.47391
	.310	88.873	.757	.05982	.19266	-.32300	.44264
DHEA_S	-.413	118	.680	-.77221	1.86788	-4.47112	2.92670
	-.418	74.106	.677	-.77221	1.84791	-4.45416	2.90975
BDI	10.716	118	.000	10.59371	.98859	8.63603	12.55139
	10.611	70.448	.000	10.59371	.99836	8.60278	12.58464
STAI	12.686	118	.000	11.59422	.91394	9.78437	13.40408
	12.245	66.293	.000	11.59422	.94684	9.70395	13.48449
FSFI_Total	-8.558	118	.000	-8.89255	1.03911	-10.95028	-6.83483
	-8.764	76.572	.000	-8.89255	1.01468	-10.91321	-6.87190

Testosterone levels did not change between the pre- and post-training testing periods, according to the analysis of the t-test (Table 2), which showed no difference between the groups ($t = -0.680$, $p = 0.499$ with a mean difference in testosterone level difference of -0.29 and CI of -1.16 to 0.57). The

concentrations of LH and FSH did not differ significantly across the groups (p = 0.297 for FSH and p = 0.344 for LH). Estradiol and cortisol levels in the two groups were also not statistically significant (p > 0.4), suggesting that the hormonal levels of fibromyalgia patients and normal people are almost identical.

There were variations in the evaluation of sexual habits and mental ratings, however not to the same extent. An analogous examination was conducted regarding the POMS BDI test or patients' depression score, yielding a greater result (t = 10.716, mean difference = 10.59, and p < 0.001), indicating that the patients with fibromyalgia had higher levels of depression. Along with tender point score and pain intensity, fibromyalgia patients also had greater anxiety scores (STAI) than the controls; the mean difference was 11.59 and the "t" value was 12.686, P < 0.001. Therefore, the overall FSFI score was -8,89, substantially lower in fibromyalgia patients (t = 8,558; p < 0,001), indicating that they had more sexual dysfunction than controls (Table 3).

Table 2 Tabular Comparison of T-Test of Independent Samples for Fibromyalgia Patients and Healthy Controls of Hormonal Levels, Psychiatric Rating Scales, and Sexual Function. Studying the overall comparability of paired numbers it was found that there are highly significant differences in BDI, STAI and FSFI Total scores at p<0.001, which means the fibromyalgia group has higher depression scores, higher anxiety scores and higher scores of sexual dysfunction.

	Valid		Missing		Total	
	N	Per cent	N	Per cent	N	Per cent
Patients * Testosterone	120	100.0%	0	0.0%	120	100.0%
Patients * LH	120	100.0%	0	0.0%	120	100.0%
Patients * FSH	120	100.0%	0	0.0%	120	100.0%
Patients * Estradiol	120	100.0%	0	0.0%	120	100.0%
Patients * Cortisol	120	100.0%	0	0.0%	120	100.0%
Patients * DHEA_S	120	100.0%	0	0.0%	120	100.0%
Patclients * STAI	120	100.0%	0	0.0%	120	100.0%
Patients * BDI	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Total	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Desire	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Arousal	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Lubrication	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Orgasm	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Satisfaction	120	100.0%	0	0.0%	120	100.0%
Patients * FSFI_Pain	120	100.0%	0	0.0%	120	100.0%
Group * Testosterone	120	100.0%	0	0.0%	120	100.0%
Group * LH	120	100.0%	0	0.0%	120	100.0%
Group * FSH	120	100.0%	0	0.0%	120	100.0%
Group * Estradiol	120	100.0%	0	0.0%	120	100.0%
Group * Cortisol	120	100.0%	0	0.0%	120	100.0%
Group * DHEA_S	120	100.0%	0	0.0%	120	100.0%
Group * STAI	120	100.0%	0	0.0%	120	100.0%
Group * BDI	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Total	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Desire	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Arousal	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Lubrication	120	100.0%	0	0.0%	120	100.0%

Group * FSFI_Orgasm	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Satisfaction	120	100.0%	0	0.0%	120	100.0%
Group * FSFI_Pain	120	100.0%	0	0.0%	120	100.0%
Age * Testosterone	120	100.0%	0	0.0%	120	100.0%
Age * LH	120	100.0%	0	0.0%	120	100.0%
Age * FSH	120	100.0%	0	0.0%	120	100.0%
Age * Estradiol	120	100.0%	0	0.0%	120	100.0%
Age * Cortisol	120	100.0%	0	0.0%	120	100.0%
Age * DHEA_S	120	100.0%	0	0.0%	120	100.0%
Age * STAI	120	100.0%	0	0.0%	120	100.0%
Age * BDI	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Total	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Desire	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Arousal	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Lubrication	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Orgasm	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Satisfaction	120	100.0%	0	0.0%	120	100.0%
Age * FSFI_Pain	120	100.0%	0	0.0%	120	100.0%

FSFI_Total and FSFI_Desire, r = 0.200, p < 0.05, FSFI_Arousal, r = 0.293, p < 0.01, FSFI_Lubrication, r = 0.284, p < 0.01, and FSFI_Orgasm, r = 0.340, p < 0.01, have positive correlations; however, there is a negative relationship with FSFI_Pain (- 0.296, p < 0.01), indicating a reduced sexual function with increased pain during sexual intercourse. The STAI shows a negative correlation between state and trait anxiety and all aspects of sexual function, including arousal (r = -0.477 sig. 0.001) and the orgasm subscale FSFI_Org (r = -0.375 sig. 0.001). This, however, is a reflection of the reality that impaired sexual function is linked to elevated anxiety levels in several ways. The majority of FSFI subscores and the total FSFI score show a negative correlation with BDI scores. The strongest negative correlation was found between BDI scores and the FSFI total score, as well as between BDI scores and the FSFI desire and arousal subscores, highlighting the overall detrimental effects of depression on sexual function (Table 4).

Table 3 Correlation analysis and examined the significant association between the multi-dimensional aspects of sexual function domains [FSFI_Total, FSFI_Desire, FSFI_Arousal, FSFI_Lubrication, FSFI_Orgasm, FSFI_Satisfaction, FSFI_Pain] and the psychological measures [STAI, BDI] significant at the levels of $p < 0.05$ and $p < 0.01$.

	FSFI_Total	FSFI_Desire	FSFI_Arousal	FSFI_Lubrication	FSFI_Orgasm	FSFI_Satisfaction	FSFI_Pain	STAI	BDI
FSFI_Total	1	.200*	.293**	.284**	.340**	.184*	-.296**	-.451**	-.390**
		.029	.001	.002	.000	.044	.001	.000	.000
	5361.817	168.501	275.696	245.105	320.969	141.712	-248.827	-2566.791	-2196.905
	45.057	1.416	2.317	2.060	2.697	1.191	-2.091	-21.570	-18.461
	120	120	120	120	120	120	120	120	120
FSFI_Desire	.200*	1	.327**	.070	.152	.077	-.083	-.278**	-.413**
	.029		.000	.447	.097	.401	.367	.002	.000

	168.501	132.500	48.405	9.505	22.554	9.340	-10.978	-249.350	-365.062
	1.416	1.113	.407	.080	.190	.078	-.092	-2.095	-3.068
	120	120	120	120	120	120	120	120	120
	.293**	.327**	1	.115	.356**	.083	-.131	-.477**	-.343**
	.001	.000		.212	.000	.367	.155	.000	.000
FSFI_Arousal	275.696	48.405	165.555	17.403	59.049	11.232	-19.295	-476.935	-339.237
	2.317	.407	1.391	.146	.496	.094	-.162	-4.008	-2.851
	120	120	120	120	120	120	120	120	120
	.284**	.070	.115	1	.013	.139	-.038	-.185*	-.241**
	.002	.447	.212		.886	.130	.683	.043	.008
FSFI_Lubrication	245.105	9.505	17.403	139.180	2.013	17.198	-5.099	-169.825	-218.704
	2.060	.080	.146	1.170	.017	.145	-.043	-1.427	-1.838
	120	120	120	120	120	120	120	120	120
	.340**	.152	.356**	.013	1	.189*	-.279**	-.375**	-.227*
	.000	.097	.000	.886		.038	.002	.000	.013
FSFI_Orgasm	320.969	22.554	59.049	2.013	165.820	25.586	-41.214	-375.754	-225.082
	2.697	.190	.496	.017	1.393	.215	-.346	-3.158	-1.891
	120	120	120	120	120	120	120	120	120
	.184*	.077	.083	.139	.189*	1	-.171	-.155	-.130
	.044	.401	.367	.130	.038		.062	.091	.157
FSFI_Satisfaction	141.712	9.340	11.232	17.198	25.586	110.179	-20.542	-126.490	-104.863
	1.191	.078	.094	.145	.215	.926	-.173	-1.063	-.881
	120	120	120	120	120	120	120	120	120
	-.296**	-.083	-.131	-.038	-.279**	-.171	1	.361**	.307**
	.001	.367	.155	.683	.002	.062		.000	.001
FSFI_Pain	-248.827	-10.978	-19.295	-5.099	-41.214	-20.542	131.516	322.158	270.941
	-2.091	-.092	-.162	-.043	-.346	-.173	1.105	2.707	2.277
	120	120	120	120	120	120	120	120	120
	-.451**	-.278**	-.477**	-.185*	-.375**	-.155	.361**	1	.599**
	.000	.002	.000	.043	.000	.091	.000		.000
STAI	-2566.791	-249.350	-476.935	-169.825	-375.754	-126.490	322.158	6049.980	3581.742
	-21.570	-2.095	-4.008	-1.427	-3.158	-1.063	2.707	50.840	30.099
	120	120	120	120	120	120	120	120	120

BDI	-.390**	-.413**	-.343**	-.241**	-.227*	-.130	.307**	.599**	1
	.000	.000	.000	.008	.013	.157	.001	.000	
	-2196.905	-365.062	-339.237	-218.704	-225.082	-104.863	270.941	3581.742	5908.712
	-18.461	-3.068	-2.851	-1.838	-1.891	-.881	2.277	30.099	49.653
	120	120	120	120	120	120	120	120	120

An f-square value of 0.17 and an F-value of 4.059, p =.000, indicate a marginal regression impact (Table 5), indicating that the predictors together account for a considerable amount of the variability in FSFI_Total. With nine degrees of freedom, the total regression sum of squares is 1336.800, and the mean square is determined to be 148.533. The mean square is 36.591 since the residual sum of squares is 4025.017 with df = 110. Consequently, the main findings indicate that the predictors—BDI, DHEA_S, Age, Cortisol, FSH, Testosterone, Estradiol, LH, and STAI—determine a commensurate degree of influence on the FSFI_Total sexual health estimate.

Table 4 ANOVA Results for Regression Analysis Predicting FSFI_Total Scores: The regression model significantly explains the variance in FSFI_Total, with an F-value of 4.059 and a p-value of .000, indicating that the predictors (BDI, DHEA_S, Age, Cortisol, FSH, Testosterone, Estradiol, LH, STAI) are collectively significant in influencing female sexual function.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1336.800	9	148.533	4.059	.000[b]
	Residual	4025.017	110	36.591		
	Total	5361.817	119			

a. Dependent Variable: FSFI_Total

b. Predictors: (Constant), BDI, DHEA_S, Age, Cortisol, FSH, Testosterone, Estradiol, LH, STAI

DISCUSSION

The data shows that 68% of the respondents have fibromyalgia, and their average age is 34.76. Estradiol, cortisol, and DHEA-S levels were all within the normal range for these individuals, while the hormonal tests revealed mean and age-appropriate values of testosterone and less-than-ideal values of LH and FSH. Furthermore, it was noted that the degree of depression was substantial, with a mean BDI score of 27.24, and that predicted anxiety was low. There was clear evidence of sexual dysfunction: the FSFI mean score was 18.76, indicating that women with fibromyalgia indeed have considerable sexual dysfunction (25). The current study's findings corroborate previous research by showing that fibromyalgia raises the risk of mental illnesses, sexual dysfunction, and hormone abnormalities. In a meta-analysis of fibromyalgia, for instance, McBeth and Macfarlane (2007) showed that patients had physiologic differences in hormones such as cortisol, a stress hormone (17) (19). According to the present research, the average cortisol level of 16.01 is just within the range of comparison, but it's important to consider this information in light of fibromyalgia and the stress response (24). Patients with chronic pain often have high cortisol levels and high levels of stress, which leads to a vicious cycle of worsening symptoms and stress (18).

In terms of mental health, the results showed that the BDI was high, indicating that the majority of fibromyalgia patients had a significant risk of depression. This is consistent with other research, such as that conducted by Bair et al. (2003), which demonstrated a beneficial correlation between fibromyalgia and clinical psychological illnesses such as anxiety and depression (20). Furthermore, the idea that these customers have much greater anxiety levels is strengthened by the high mean score on the State-Trait Anxiety Inventory (STAI). These investigations lead to the conclusion that a comprehensive mental evaluation should be conducted in conjunction with fibromyalgia therapy

since the existence of such pathological problems deteriorates the patient's overall bad status and quality of life (21).

Patients with fibromyalgia have worse sexual functioning, as shown by a self-administered sexual function assessment (FSFI) where the mean score falls below the cut-off point. Numerous studies have verified that fibromyalgia impacts many facets of sexual function, such as libido, arousal, lubrication, orgasm, gratification, and discomfort (22). Every FSFI subscale is somewhat lower, except the desire (3.35) and arousal (3.87) subscales. This discovery is significant because it demonstrates how critical it is to integrate predictions from other fields of expertise when treating fibromyalgia and addresses the psychological and sexual components of patients (23).

CONCLUSION

The current study's findings may be crucial in determining the health status of fibromyalgia sufferers about those in good health. Hormonal parameter changes, including testosterone, LH, FSH, estradiol, cortisol, and DHEA-S, did not substantially vary between the two groups, but ageing, a lower body mass index, and a lower lean body mass did. The findings highlight once again the notable psychological issues and/or sexual dysfunction associated with fibromyalgia patients. This is evident when poor physical function as assessed by the SF-36 in fibromyalgia is combined with elevated scores in depression, anxiety, and sexual function as evaluated by the FSFI. These results emphasize the need to ensure that fibromyalgia patients get both physical and psychological rehabilitation, highlighting the necessity of multimodal treatment for such chronic conditions.

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