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Female Sexual Function and Distress before and after Treatment of Moderate and Severe Psoriasis

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ABSTRACT

Background: As a systemic immune-mediated illness, psoriasis must be detected and diagnosed in vulnerable individuals early in order to reduce disease burden and enable early treatment of the disease's symptoms. Due to the rising frequency of despair, anxiety, and suicidal thoughts among psoriasis patients, the effect of psoriasis on psychological and mental health is presently a crucial issue.

Objective: The aim of the current study was to evaluate impact of psoriasis on female sexual function and to study changes that might occur in response to treatment in moderate and severe psoriasis.

Patients and methods: In this case-control study, there were 90 female psoriatic patients and 90 matched controls. The patients underwent thorough history-taking as well as thorough dermatological examination. Using the PASI score, the illness severity was evaluated. The female sexual function index (FSFI) and female sexual distress scale (FSDS) were used to assess sexual function. The assessment was performed before treatment and at 1 month, 2 months and 3 months after treatment.

Results: There was a statistically significant decrease in the disease severity starting from 1 month after treatment. At baseline, there was no statistically significant difference between the 2 groups regarding the components of FSFI (except the total score) that was higher in the cases group ($P<0.001$). However, after treatment all the components of the FSFI were statistically significantly higher in the cases group ($P<0.001$). The FSDS was statistically significantly higher in the cases group before treatment, after 1 month and after 2 months of treatment ($P<0.001$), but after 3 months, there was no statistically significant difference ($P=0.650$).

Conclusion: Psoriasis is associated with impairment of the sexual functions in the affected females. The treatment was associated with improvement in the sexual functions, but the modality of treatment didn't affect the sexual function.

Keywords: Psoriasis, PASI, FSFI, FSDS.

INTRODUCTION

Psoriasis is a widespread autoimmune condition that affects the skin, nails, and joints and is chronic, inflammatory, and T-cell mediated. 2-3% of the population is impacted by it [(1)]. Its primary distinguishing feature is the symmetrical distribution across the body of the red plaques with sharp borders and adhering silvery white scales [(2)].

Psoriasis has a very complicated etiology that is influenced by both hereditary and environmental factors. Due to area and ethnicity, psoriasis incidence and prevalence vary greatly as well [(3,4)].

Psoriasis sufferers frequently experience shame, low self-esteem, and stigmatisation, which can lead them to put off forming a family or having children owing to the risk of passing on the illness. Additionally, it has been said that depression significantly contributes to patients' increased morbidity [(5)].

A difficulty that a person or a couple encounters during any phase of a normal sexual activity, including physical pleasure, desire, preference, arousal, or orgasm, is known as sexual dysfunction (or sexual malfunction or sexual illness). The DSM-5 states that (with the exception of drug or medication-induced sexual dysfunction) a person must experience significant discomfort and interpersonal strain for at least six months in order to be diagnosed with sexual dysfunction [(6)].

Psoriasis is a noticeable skin condition that makes the sufferer feel stigmatised. Many women claim to experience some sort of sexual difficulty that lowers their quality of life (QOL) [(7)].

Other variables include physical manifestations like stinging, pruritus, desquamation, bleeding, psychological conditions like sadness and anxiety, and joint pain. These conditions may all contribute to the high prevalence of sexual dysfunction in psoriasis patients. Additionally, a variety of psoriasis-related comorbidities, including atherosclerosis disease, diabetes mellitus, and metabolic syndrome, might have an impact on sexual activity [(8)].

There are several therapy possibilities. In general, minor disease is treated with topical medications, moderate disease is treated with phototherapy, and severe disease is treated with systemic drugs [(9)].

NBUVB (Narrowband UVB light) and PUVA therapy, which combine psoralen and UVA radiation, are examples of phototherapy [(10)]. In severe instances, including those involving the nails and psoriatic arthritis, systemic medications are employed. Options include methotrexate, retinoids, cyclosporine, and fumarates [(4)].

Although the impact of psoriasis on patients' sexual and mental health has been extensively researched, no studies have attempted to assess the impact of various treatment techniques on these functions.

The aim of the current study was to evaluate impact of psoriasis on female sexual function and to

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study changes that might occur in response to treatment in moderate and severe psoriasis.

PATIENTS AND METHODS

A prospective case-control study was carried out in the Dermatology Department's outpatient clinic at the Mansoura University Hospitals.

The study included 90 sexually active female patients with psoriasis (diagnosed based on the typical clinical picture of psoriasis) and 90 apparently healthy sexually active females as a control group.

We included the cases from 20-40 years with moderate or severe psoriasis which are candidate for either phototherapy or systemic therapy (methotrexate–acitretin). The cases with the following criteria were excluded; age <20 years or >40 years, presence of other disease affecting the sexual functions, systemic chronic diseases (diabetes mellitus, hypertension or liver and renal affections), metabolic abnormalities (hyperlipidemia) or recent drug intake that affect psoriasis or sexuality in the last 3 months.

The cases underwent a clinical examination to rule out any systemic disorders as well as a history taking procedure that included demographic information and a history of the current illness.

Assessment of the disease severity

The psoriasis area and severity index (PASI) score was used to grade the lesions. The PASI weighs the area of involvement and assesses erythema, scaling, and lesion thickness. Patients with psoriasis are divided into three categories according to the psoriasis area severity index score: mild psoriasis (PASI ≤10), moderate to severe psoriasis (PASI >10-<20), and severe psoriasis (PASI ≥20) [(11)].

Assessment of female sexual function

The Female Sexual Function Index (FSFI) questionnaire, a quick, multidimensional, validated tool for assessing FSF during sexual activity, was used in our study to measure female sexuality [(12)]**.** The sexual function domains covered by the FSFI's 19-item questionnaire included: sexual desire, arousal, lubrication, orgasm, pleasure, and pain during sexual activity/conversation.

There were 5 potential responses for each of the 19 questions. Each question and its 5 options were fully explained, and in some cases, the results were given exactly as they were. A score (0–5) was determined. Determining the sexual dysfunction was based on the FSFI's overall score (cutoff=26.55).

The Female Sexual Distress Scale (FSDS) was validated and translated into Arabic [(13)]. The FSDS consists of 12 questions about various sexual distress-related topics, with answers ranging from 0 (never) to 4 (always) [(14)].

An indicator of sexual anguish is the overall score (0–48), with a higher score indicating greater sexual distress. The FSDS has been cross-validated and exhibits satisfactory reliability (Cronbach 0.87–0.93) and test-retest reliability (correlation coefficient 0.74-0.86). Women with sexually linked personal distress can be distinguished from those who have FSD but no distress using a diagnostic cutoff score of 15 or above [(14)].

The cases received treatment for 3 months duration (Methotrexate in 35 cases and acitretin in 55 cases). The cases were assessed regarding the PASI score, FSFI or FSD score.

Ethical approval

This study was ethically approved by the Institutional Review Board of the Faculty of Medicine, Mansoura University. Written informed consent was obtained from all participants. This study was executed according to the code of ethics of the World Medical Association (Declaration of Helsinki) for studies on humans.

Statistical analysis

The collected data were introduced and statistically analyzed by utilizing the Statistical Package for Social Sciences (SPSS) version 26 for windows. Qualitative data were defined as numbers and percentages. Chi-Square test or Fisher's exact test was used to compare two groups using categorical variables. Quantitative data were tested for normality by Kolmogorov-Smirnov test. Normal distribution of variables was described as mean and standard deviation (SD). Independent samples student's t-test was used to compare 2 groups with normally distributed quantitative variables, while Mann-Whitney U-test was used if the data were skewedly distributed. The comparison between two paired groups regarding quantitative parameters with non-normal distribution was done by using paired samples t-test. Numerical data were correlated using Pearson's or Spearman's correlation (r). P value ≤0.05 was considered to be statistically significant.

RESULTS

The age, socioeconomic status, educational attainment and occupation of the two groups did not differ statistically significantly (**Table 1**).

Table (1): Demographic characteristics of the studied groups.

Variable		Study group (n= 90)	Control group (n= 90)	P-value
Age		32.88 ± 5.184	33.96 ± 6.314	0.273
Socioeconomic level	**High**	12.2% (11)	25.6% (23)	0.067
	Intermediate	34.4% (31)	26.7% (24)	
	Low	53.3% (48)	47.8% (43)	
Educational level	**High**	18.9% (17)	28.9% (26)	0.099
	Intermediate	31.1% (28)	18.9% (17)	
	Low	50.0% (45)	52.2% (47)	
Occupation	**Housewife**	68.9% (62)	64.4% (58)	0.247
	Worker	18.9% (17)	14.4% (13)	
	Employee	12.2% (11)	21.1% (19)	

As shown in **Table 2**, the disease duration in the included case ranged from 1 year to 35 years. The highest percentage of the cases showed sudden disease onset. Psoriasis vulgaris was the most common form of the disease in 95.6% of the cases and the scalp is the most affected site (20%). The disease signs included Grattage test (55.6%), Hair affection (50%), Nail pitting (54.4%), longitudinal ridges (38.9%), Sub ungual hyper keratosis (28.9%) and Onycholysis (28.9%).

Table (2): Psoriasis duration, onset, type and treatment in the study group.

Study group (n= 90)		Mean & SD	Median	Range	IQR
Skin lesion duration		7.08 ± 6.216	5.0	1.0 - 35	4.0 - 9.0
Skin lesion onset	**Gradual**	13.3% (12)			
	Acute	31.1% (28)			
	Sudden	55.6% (50)			
Type & site of psoriasis	**Vulgaris**	95.6% (86)			
	Erythromatosis	1.1% (1)			
	Pustular	2.2% (2)			
	Genital	1.1% (1)			
	Scalp	20.0% (18)			
	Nails	3.3% (3)			
Sign of psoriasis	Grattage test	55.6% (50)			
	Hair affection	50% (45)			
	Nail pitting	54.4% (49)			
	longitudinal ridges	38.9% (35)			
	Sub ungual hyper keratosis	28.9% (26)			
	Onycholysis	28.9% (26)			
	Oil test sign	16.7% (15)			

Table 3 shows that there is a statistically significant decrease in the PASI score after treatment starting from 1 month after treatment.

Table (1): Baseline PASI score and its follow-up in the study group.

Study group (n=90)	Mean ± SD	Median	Range	P-value
Baseline	22.67 ± 8.114	22.55	1.8 - 38.4	-
One month	19.65 ± 7.355	20.00	1.7 - 33.6	**<0.001**
Two months	17.44 ± 6.631	17.50	1.5 - 30.9	**<0.001**
Three months	15.40 ± 6.027	15.40	1.2 - 28.1	**<0.001**

As shown in **Table 4**, except for the overall score, which was greater in the cases group (P<0.001), there was no statistically significant difference between the two groups for the FSFI components at the outset. All of the FSFI's components were statistically substantially greater in the cases group following therapy, though. Following therapy, the FSFI score begins to statistically significantly decline 1 month following treatment.

Table (4): Female sexual function index before treatment in patient vs control groups.

Baseline	Study group (n= 90)	Control group (n= 90)	P-value
Before treatment			
Desire	2.75 ± 1.230	2.42 ± 1.286	0.107
Arousal	1.47 ± 1.335	1.18 ± 1.270	0.154
Lubrication	1.48 ± 1.261	1.13 ± 1.172	0.078
Orgasm	2.03 ± 1.584	1.85 ± 1.529	0.367
Satisfaction	1.64 ± 1.418	1.49 ± 1.343	0.487
Pain	1.77 ± 1.357	1.63 ± 1.301	0.537
FSFI	11.15 ± 3.091	9.70 ± 2.970	**0.002**
One month after treatment			
Desire	3.33 ± 1.230	2.42 ± 1.286	**<0.001**
Arousal	2.10 ± 1.410	1.18 ± 1.270	**<0.001**
Lubrication	2.07 ± 1.440	1.13 ± 1.172	**<0.001**
Orgasm	2.54 ± 1.645	1.85 ± 1.529	**<0.001**
Satisfaction	2.24 ± 1.567	1.49 ± 1.343	**<0.001**
Pain	2.27 ± 1.448	1.63 ± 1.301	**<0.001**
FSFI	14.56 ± 3.384	9.70 ± 2.970	**<0.001**
Two months after treatment			
Desire	3.97 ± 1.229	2.42 ± 1.286	**<0.001**
Arousal	2.87 ± 1.488	1.18 ± 1.270	**<0.001**
Lubrication	2.73 ± 1.500	1.13 ± 1.172	**<0.001**
Orgasm	3.13 ± 1.651	1.85 ± 1.529	**0.008**
Satisfaction	2.86 ± 1.518	1.49 ± 1.343	**0.002**
Pain	2.85 ± 1.476	1.63 ± 1.301	**0.005**
FSFI	18.42 ± 3.667	9.70 ± 2.970	**<0.001**
Three months after treatment			
Desire	4.55 ± 1.101	2.42 ± 1.286	**<0.001**
Arousal	3.64 ± 1.432	1.18 ± 1.270	**<0.001**
Lubrication	3.39 ± 1.413	1.13 ± 1.172	**<0.001**
Orgasm	3.72 ± 1.544	1.85 ± 1.529	**<0.001**
Satisfaction	3.51 ± 1.483	1.49 ± 1.343	**<0.001**
Pain	3.45 ± 1.440	1.63 ± 1.301	**<0.001**
FSFI	22.27 ± 3.386	9.70 ± 2.970	**<0.001**
Baseline FSFI score and its follow-up in the study group:			
Baseline	11.15 ± 3.091	-	
One month	14.56 ± 3.384 18	**<0.001**	
Two months	.42 ± 3.667	**<0.001**	
Three months	22.27 ± 3.386	**<0.001**	

Table 5 shows that the FSDS was statistically considerably greater in the cases group before treatment, after one month, and after two months (P<0.001), but there was no statistically significant change after three months (P=0.650). Starting one month following therapy, there is a statistically significant drop in the FSDS score.

Table (5): Change in Female Sexual Distress Score after treatment of the studied groups.

FSD score	Study group (n= 90)	Control group (n= 90)	P-value
Baseline	50.14 ± 8.636	17.40 ± 5.743	**<0.001**
One month	31.74 ± 6.900	17.40 ± 5.743	**<0.001**
Two months	25.42 ± 6.894	17.40 ± 5.743	**<0.001**
Three months	17.81 ± 6.381	17.40 ± 5.743	0.650
Baseline FSD score and its follow-up in the study group:			
Baseline	50.14 ± 8.636	-	
One month	31.74 ± 6.900	**<0.001**	
Two months	25.42 ± 6.894	**<0.001**	
Three months	17.81 ± 6.381	**<0.001**	

As shown in **Table 6**, PASI had a statistically significant negative link with desire and the FSFI, but a statistically significant positive correlation with the FSDS.

Table (6): Correlation between severity of psoriasis with sexual distress severity in the study group.

Variable	Correlation coefficient	P-value
Desire	-0.949	**<0.001**
Arousal	0.094	0.379
Lubrication	-0.095	0.373
Orgasm	0.016	0.877
Satisfaction	-0.020	0.854
Pain	0.046	0.669
Female sexual function index	-0.281	**0.007**
Female Sexual Distress Score	0.785	**<0.001**

As shown in **Table 7**, there was no statistically significant difference in the FSF and FSDS at Baseline, One month, 2 months or 3 months between the psoriasis cases who were treated either with methotrexate of acitretin.

Table (7): Female Sexual Function Index and Female Sexual Distress Score according to type of treatment.

Variable		Methotrexate (n= 35)	Acitretin (n=55)	P-value
FSFI	**Baseline**	11.17 ± 2.955	11.18 ± 3.278	0.988
	One month	14.51 ± 3.373	14.56 ± 3.436	0.947
	Two months	18.34 ± 3.694	18.62 ± 3.729	0.733
	Three months	22.09 ± 3.617	22.40 ± 3.292	0.672
FSD	**Baseline**	50.00 ± 8.941	50.24 ± 8.518	0.900
	One month	31.31 ± 6.300	32.02 ± 7.299	0.640
	Two months	25.40 ± 6.748	25.44 ± 7.047	0.981
	Three months	18.00 ± 5.995	17.69 ± 6.666	0.824

DISCUSSION

In the current study, significant changes in FSFI and FSD were recorded after 4, 8 and 12 weeks compared to the base line levels. We found that there were no significant differences were recorded in FSFI and FSDS with different treatment lines; Methotrexate, PUVA and Acitritin.

There were significant changes in baseline PASI score and follow up after one month (P<0.001), 2 months (P<0.001), and 3 months (P<0.001). There were also significant variations in baseline desire, arousal, lubrication, orgasm, pleasure, and pain between the patient and control groups (P<0.05).

In this study, FSFI and FSDS were significantly correlated with improvement in PASI score. The above mentioned finding means that psoriasis could affect FSFI and FSDS and this effect is related to severity of psoriasis not to the treatment modalities.

There were no significant differences in age, socioeconomic status, educational level, or employment between the patient and control groups (P>0.05).

Our finding in terms of FSFI and FSDS changes is consistent with to **Khaled *et al.* [8],** who found that the PASI score was greater in women with dysfunction than in women who engaged in normal sexual activity (P<0.001), indicating a highly significant relationship between the two. A significantly substantial correlation between PASI grade and sexual dysfunction was also noted by the author, as 100% of women with normal sexual activity were mild grade, whereas women with sexual dysfunction showed 17.9% of severe grade, 57.1% of moderate grade, and 25% of mild grade (P<0.001). The same author also noted a substantial difference between the psoriasis and control groups in terms of the prevalence of sexual dysfunction (*P*=0.027).

In addition, **Molina-Leyva *et al.* [15]** compared the sexual function of psoriasis patients to that of healthy controls; both groups shared the same age, sex, degree of education, marital status, and employment. Psoriasis lesions in the genitalia, buttocks, belly, or lumbar area were strongly associated with sexual dysfunction, according to a subsequent research (P<0.05). Ninety percent of the women who had genital involvement experienced changes in sexual desire, more than 70% of the women who experienced buttocks or lumbar involvement experienced changes in sexual interest, and more than 60% of the women who experienced these changes in sexual excitement.

Additionally, **Mercan *et al.* [16] and Abul Maaty *et al.* [17]** found that FSFI was lower in psoriatic females than in healthy control women, and that the incidence of female sexual dysfunction was higher in these groups.

There was no significant difference among the studied groups regarding the desire and pain domain scores. Female sexual dysfunction was reported by 90% of psoriatic patients compared to just 65% of control groups, according to **Nassar *et al.*'s research [18]**. In the psoriatic group (20.42 ±4.21) FSFI mean was significantly lower than in the control group (23.76±4.85). According to **Hassanin *et al.* [19],** all dimensions of the FSFI, aside from satisfaction, showed a statistically significant decline in psoriasis patients when compared to the control group. In comparison to instances with typical sexual dysfunction, those with sexual dysfunction showed considerably greater anxiety symptoms and scores (but not sadness).

According to a research by **Meeuwis *et al.* [20],** 48.7% of the women with psoriasis experienced FSFI-related sexual dysfunction. Between the women with and without vaginal lesions, the prevalence of sexual dysfunction was divided similarly. About 37.7% of the psoriasis-afflicted women displayed sexual discomfort on the FSDS. When compared to women without current genital lesions, women with current genital lesions displayed considerably higher levels of sexual discomfort (P=0.001).

In agreement with the present study, **Abul Maaty *et al.* [17]**, **Gaikwad *et al.* [21]**, **Guenther *et al.* [22] and Ruiz *et al.* [23]**, and found a significant relationship (P<0.05) between the PASI score and sexual dysfunction. This might be as a result of the severity of the psoriasis and its impact on sexual activity and QOL due to changes in body image. In psoriatic patients, **Nassar *et al.* [18]** also discovered a substantial inverse relationship between FSFI and PASI. On the other hand, **Ermertcan *et al.* [24]** found no evidence of a significant relationship between sexual activity and PASI score (P=0.4).

LIMITATIONS

First, it was thought that conducting this study would be challenging for cultural and religious reasons, particularly in Egypt, a country with a reputation for conservatism. Even for the majority of medical professionals, discussing openly sexual issues in public is still taboo. The patients refused to grant consent because they felt uncomfortable discussing personal subjects, particularly those with sexual overtones. As a result, the sample size was substantially smaller. Second limitation, number of cases with genital affection was relatively few to make statistical analysis in appropriate. The genital affection in psoriasis was reported to have negative impact on female sexuality. Finally, all cases were recorded from a single center.

CONCLUSION

From the current results, we concluded that FSFI, FSDS affected by severity of psoriasis not affected by modality of treatment. This means that psoriasis as a disease could have a negative effect on female sexual function which is related to the severity of disease itself regardless the treatment modality applied and improvement of psoriasis severity by treatment will help the patient to improve their related sexual dysfunction. This will help the clinician to consider the importance of treatment of psoriasis during

management of female sexual dysfunction in such cases suffering from co-morbidity like psoriasis which is known to affect the patient quality of life, including sexual function

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