Dermatology Practical & Conceptual

Prevalence of Female Sexual Dysfunction Among Psoriatic Females: A Cross Sectional Case Controlled Study

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ABSTRACT

Introduction: Sexual relationships are an integral part of females psychological and physiological wellbeing.

Objectives: The study aimed to identify prevalence and impact of Female Sexual Dysfunction (FSD) in women affected with psoriasis.

Methods: This cross-sectional study was carried out on 150 married females who were interviewed to answer Female Sexual Function Index (FSFI) questionnaire and were divided into two groups: the first group included 100 female patients complaining of psoriasis (50 suffering from moderate psoriasis and 50 with severe psoriasis). The disease severity was graded according to the Psoriasis Area and Severity Index (PASI) while the second group included 50 age matched women who served as controls.

Results: Female sexual dysfunction (FSD) in psoriasis female groups was higher than that in the control group (47%, 24%, $P < 0.05$). The mean total scores of FSFI ranged from 12.30 to 34.20 and were significantly lower in the severe PASI affected group (22.34 ± 5.35) when compared to moderate PASI group (26.24 ± 2.67) or control group (28.79 ± 2.22). In addition, total scores were significantly lower among moderate PASI affected females when compared to control group.

Conclusions: Sexual dysfunction should be routinely investigated in female patients with psoriasis in the case of moderate-severe disease due to its negative impact on quality of life. Further research over the effect of certain interventional programs on FSD should be considered for patients suffering from psoriasis.

Introduction

Psoriasis is a chronic condition that impacts self-perception of oneself. Psychological evaluation is of extreme importance to identify to what extent psoriasis may influence sexual health and to what extent patients are susceptible to psychiatric disorders [1,2].

Psoriasis and Psoriatic arthritis are multifactorial chronic disorders whose etiopathogenesis essentially derive from the alteration of several signaling circuits that affect the functional and structural property of the skin. In fact, the modulation of expression profiles of KRTs in keratinocytes and the consequent alteration of cell-cell and cell-matrix interactions (in which COLs play a fundamental role) contributes to the hyperproliferation of keratinocytes, enhancement of immuno-inflammatory responses with over-production of cytokines by Th_1 and Th_{17} cells, which, ultimately, lead to the dysregulation of epidermis homeostasis [3,4].

Finding of psychiatric morbidity in patients with Psoriasis can be explained by the associated stigma which is frequently experienced by patients. Stigmatization in psoriasis and experiencing social rejection and avoidance for fear of infection or filth is common and rather affects and devastates patients quality of life (QoL). This leads to social embarrassment, withdrawal and low social interactions [5].

Studies have compared the effects of psoriasis on QoL to that of major diseases like cancer and depression. Self-perception and self-acceptance as a desirable human being are significantly distorted among psoriatic patients which negatively impacts all aspects of life [6,7].

Egyptian community is conservative in nature and the topic of sexuality in general remains to be a taboo in many communities and data related to sexual health and dysfunction or its prevalence remains to be under reported. Previous studies reported sexual dysfunction to range between 52.8% and 76.9% among Egyptian females [8-10].

Objectives

The scarcity and rarity of studies identifying the impact of psoriasis on sexual health of Egyptian females led us to perform this cross-sectional observational study to evaluate the frequency and associated factors of FSD in Egyptian women suffering from psoriasis.

Methods

This cross-sectional study was approved by the ethical committee and study review board. After consideration, one hundred and fifty married women were recruited into two groups to answer Female Sexual Function Index (FSFI) questionnaire over a period from January 2022 to October 2022. Group 1 included 100 females diagnosed with psoriasis attending for consultation or regular follow ups at the outpatient clinic and the second control group (group 2) included 50 women not suffering from psoriasis; recruited from hospital staff or attendants with patients at different hospital clinics and who served as controls. Recruited females for the study were instructed and explained the study procedures and signed an informed consent before starting of the study.

Subjects were eligible for inclusion if were females, were 18-40 years old, were married for at least 1 year, and have had a stable marital relationship. As for the psoriatic group, female patients aged 18-40 and with moderate-to-severe plaque psoriasis vulgaris defined as body surface area (BSA) affected ≥ 10% were included. Those with records of mastectomy, oophorectomy, pregnancy or suffering from any gynecological disorders or on an ongoing course of psychotropic medications were excluded. Moreover, those giving history of a sexual disorder among their spouses were excluded.

Study Procedures

All participants underwent the following:

1. History Taking

   Patients data including age, body mass index (BMI), educational level, onset, course and duration of psoriasis, past history of any medications used and durations of use were all identified. Moreover, family history of psoriasis and associated comorbidities (metabolic syndrome, hypertension, diabetes) were all recorded if any.
2. Filling out the Female Sexual Function Index (FSFI) Questionnaire

   Participant females were interviewed privately and confidentially by a female investigator using the and Arabic translated and validated 19- item structured FSFI questionnaire [11-13].

   The FSFI uses six item separate domains to assess sexual functioning in women (desire, arousal, lubrication,

orgasm, satisfaction, pain) with a total score of 26.5 determined as the cutoff score to distinguish between normal and abnormal sexual dysfunction.

3. Calculating Psoriasis Area Severity Index (PASI)

To calculate PASI, the body was divided into four areas (head (H) (10% of a person's skin); arms (A) (20%); trunk (T) (30%); legs (L) (40%). By adding up each areas score a final PASI value is reproduced with a maximum value of 72 which means a 100% body involvement. Scores below 10 mark mild psoriasis and scores above 20 are regarded as severe while scores falling between 10 and 20 are regarded as moderate psoriasis. In the current cross-sectional study, only females aged 18-40 with moderate to severe plaque psoriasis (BSA ≥ 10%) were included.

Statistical Analysis

Statistical package for social sciences (SPSS) 26 was used for providing, mean SD of quantitative data and categorical data. Kruksal-Wallis and Mann-Whitney tests were used for non-parametric data and linear regressions were identifies. P values of less than 0.05 were reported statistically significant.

Results

Socio-Demographic and Metabolic Characteristics

In the present study, female patient ages ranged from 18 to 40 years with a statistically significant increase of age among severe PASI patients (33.51 ± 2.08) when compared to either moderate PASI group (26.32 ± 6.01) or control group (29.84 ± 6.09). No significance in age was determined between moderate PASI females and (P = 0.38) (Table1).

BMI increased significantly among severe PASI psoriatic patients (29.12 ± 2.76) when compared to either moderate PASI patients (26.63 ± 2.87) or control group (23.97 ± 1.39). On the contrary a significant decrease in BMI was observed among moderate PASI females when compared to controls (Table 1).

Disease duration in females suffering from psoriasis ranged from 1 to 27 years and was significantly less in moderate PASI females when compared to those with severe PASI (3.51 ± 2.52 versus 13.12 ± 6.17 respectively; P < 0.001).

Psoriasis patients age at disease onset ranged from 14 to 39 years and was significantly lower among severe PASI group when compared to moderate PASI and control group (P < 0.001).

Table 1. Demographic characteristics of studied subjects.

Age					
	Mean	SD	Minimum	Maximum	P values
Moderate PASI	26.32	6.01	18.00	40.00	P1<0.001 P2 = 0.48 P3 <0.001
Severe PASI	33.51	2.08	28.00	40.00	
Control	29.84	6.09	18.00	40.00	
Total	30.57	6.00	18.00	40.00	
BMI					
	Mean	SD	Minimum	Maximum	P values
Moderate PASI	26.63	2.87	21.40	32.90	P1<0.001 P2 <0.001 P3< 0.001
Severe PASI	29.12	2.76	25.50	37.40	
Control	23.97	1.39	20.40	27.05	
Total	27.03	3.25	20.40	36.98	
Disease Duration					
	Mean	SD	Minimum	Maximum	P
Moderate PASI	3.51	2.52	1.00	11.00	< 0.001
Severe PASI	13.12	6.17	4.00	27.00	
Total	8.09	6.66	1.00	27.00	
Age at disease onset					
	Mean	SD	Minimum	Maximum	P value
Moderate PASI	29.06	4.41	29.00	39.00	<0.001
Severe PASI	21.75	2.34	14.00	36.00	
Total	22.13	7.34	14.00	39.00	

BMI = body mass index; PASI = Psoriasis Area and Severity Index; SD = standard deviation.

Prevalence and Types of FSD

Desire scores ranged from 1.27 to 6 and were significantly lower in those with severe PASI (3.42 ± 1.27) when compared to either those with moderate PASI or controls (4.23 ± 0.64 and 4.99 ± 0.59, respectively) (Table 2).

Arousal scores ranged from 1.46 to 5.38 and were significantly lower in those with severe PASI (3.49 ± 1.03) when compared to either those with moderate PASI or controls (4.47 ± 0.42 and 4.94 ± 0.59, respectively). In addition, there was significantly decreased arousal among moderate PASI females when compared to control group (P < 0.05).

Lubrication decreased significantly among those with severe PASI (3.14 ± 0.79) when compared to moderate PASI group or controls (3.82 ± 0.69; 4.29 ± 0.64 respectively) and was significantly decreased in those with moderate PASI when compared to controls.

Orgasm decreased significantly among those with severe PASI (3.50 ± 0.98) when compared to moderate PASI group

Table 2. Female Sexual Function Index domain and total scores.

Desire					
	Mean	SD	Minimum	Maximum	P values
Moderate PASI	4.23	0.64	2.45	5.48	P1 < 0.001 P2 < 0.001 P3 < 0.001
Severe PASI	3.42	1.27	1.27	4.89	
Control	4.99	0.59	3.67	6.00	
Arousal					
	Mean	SD	Minimum	Maximum	P value
Moderate PASI	4.47	0.42	3.25	5.38	P1 < 0.001*P2 = 0.001*P3 <0.001*
Severe PASI	3.49	1.03	1.46	4.69	
Control	4.94	0.59	3.68	5.73	
Lubrication					
	Mean	SD	Minimum	Maximum	P value
Moderate PASI	3.82	0.69	2.3	5.17	P1 < 0.001 P2 <0.001 P3 = 0.006
Severe PASI	3.14	0.79	1.47	4.24	
Control	4.29	0.64	3.50	5.69	
Orgasm					
	Mean	SD	Minimum	Maximum	P values
Moderate PASI	3.99	0.77	2.30	5.10	P1 = 0.007 P2 < 0.001 P3 = 0.017
Severe PASI	3.50	0.98	1.60	4.60	
Control	4.42	0.58	2.80	5.80	
Satisfaction					
	Mean	SD	Minimum	Maximum	P value
Moderate PASI	5.19	0.40	4.10	5.50	P1 = 0.90(ns) P2 = 0.75(ns) P3=0.86 (ns)
Severe PASI	5.08	0.67	3.20	5.40	
Control	5.14	0.32	4.30	6.00	
Dyspareunia (painful intercourse)					
	Mean	SD	Minimum	Maximum	P values
Moderate PASI	4.61	0.55	3.50	6.00	P1 <0.001 P2 < 0.001 P3 = 0.007
Severe PASI	4.88	0.68	3.20	6.00	
Control	3.94	0.97	1.70	5.20	
Total score					
	Mean	S. D	Minimum	Maximum	P value
Moderate PASI	26.24	2.67	20	29.70	P1 < 0.001 P2 < 0.001 P3 = 0.015
Severe PASI	22.34	5.35	12.30	28.30	
Control	28.79	2.22	22.30	34.20	

FSD = female sexual dysfunction; ns = not significant; PASI = Psoriasis Area and Severity Index; SD = standard deviation.

Table 3. Incidence and prevalence of female sexual dysfunction in the studied groups.

Incidence of female sexual dysfunction in studied groups									
		Moderate PASI		Severe PASI		Control		Total	
		N	%	N	%	N	%	N	%
FSD	Positive (< 26.55)	18	36.0%	29	58.0%	12	24.0%	59	39.3%
	Negative	32	66.0%	21	42.0%	38	76.0%	91	60.7%
P values		P1 = 0.008; P2 = 0.013, P3 <0.001							
Prevalence of FSD among psoriatic patients versus controls									
		Psoriatic (100)			Control group (50)			P value	
		N	%		N	%			
FSD	FSD (<26.55)	47	47.0		12	24.0%		< 0.001*	
	No FSD	53	53.0		38	76.0%			
Risk estimate		Odds ratio = 1.33, 95% CI (1.16- 1.52)							

CI = confidence interval; FSD = female sexual dysfunction; PASI = Psoriasis Area and Severity Index.

or controls (3.99 ± 0.77 and 4.42 ± 0.58, respectively) and was significantly decreased in those with moderate PASI when compared to controls.

Satisfaction scores showed no significant difference among all study groups despite being lower among psoriatic patients.

Dyspareunia was significantly reduced in control group (3.94 ± 0.97) when compared to Severe PASI group (4.88 ± 0.68) or moderate PASI group (4.61 ± 0.55). In addition, pain score was insignificantly lower in moderate PASI patients when compared to the severe PASI group.

Considering the total FSFI score which ranged from 12.30 to 34.20, a significant reduction was observed among severe PASI females (22.34 ± 5.35) when compared to either moderate PASI patients or controls (26.24 ± 2.67 and 28.79 ± 2.22, respectively) and in moderate PASI females when compared to the control group.

Female sexual dysfunction determined by a cutoff score < 26.55 was significantly higher in patients with severe PASI (58.0%) when compared to moderate PASI patients or control group (36.0% and 24.0%, respectively). In addition, there was significant increase of FSD among moderate PASI patients compared to controls (Table 3).

Risk Factors for FSD

Psoriasis regardless of its severity (odds ratio 1.33; CI 1.16-1.52) significantly affected 47.0% of females compared to 24.0% among controls and was determined a risk factor for FSD.

Patients complaining of FSD had a significantly earlier disease onset with longer duration when compared with normal controls while BMI showed no significant correlation.

Running logistic regression to examine if any of significant associations is a risk factor when considering all factors together, age, and age of onset of psoriasis, although showed significant associations, none of them showed to be a risk factor for FSD (P = 0.78 and P = 0.64, respectively), while psoriasis severity and its duration were risk factors for development of FSD in the studied females (P < 0.001 and P = 0.04, respectively) (Table 4).

Table 4. Logistic regression analysis for prediction of sexual dysfunction.

Predictors	β	P
Age	-1.76	0.78
Duration	0.27	0.04
Psoriasis severity	17.89	< 0.001

Conclusions

Sexual health is essential for physical and psychological well-being. A number of factors had been related to sexual dysfunction among patients suffering from psoriasis, yet the exact mechanism remains to be fully elucidated [4,5].

In our study model using FSFI, we identified the prevalence of sexual dysfunction to be significantly higher in both severe and moderate PASI groups (52.0 and 30.0%, respectively) than in the control group (10%). This finding is consistent with results obtained by *Nassar et al*. who found the prevalence of FSD to be higher among psoriatic females than controls and determined the existence of a correlation between psoriasis severity and FSD [15].

A major systemic literature review of sexual dysfunction in patients with psoriasis, psoriatic arthritis as well as rheumatoid arthritis assessed 1472 females with ages ranging from 23 to 62 years and found prevalence rates in all studies to vary from 22.6% to 71.3%. An Italian multicenter case control study demonstrated a higher prevalence of sexual

dysfunctions in moderate-severe psoriatic patients aged below 46 years when compared to healthy controls [16].

In the present study, the prevalence of sexual dysfunction in the control group (24.0%) is slightly lower than the values found in other studies with healthy Egyptian women, where prevalence varied from 30% to 34.7%. This could be explained by the different epidemiological profiles of the study groups and the fact that women with chronic diseases, except for arthritis, or chronic drug use were not excluded [17,18]. Sexual difficulties among different ethnic groups can be related to difference in culture, habits as well as religious attitudes. In our Egyptian community, the conservative beliefs and traditions can influence discussing sexual problems openly and could result in underreporting the existence of any especially among rural communities due to perceived cultural and religious restraints.

We demonstrated a significant difference between psoriasis group and control group regarding desire, arousal, lubrication, orgasm, satisfaction and pain domain scores. This comes in agreement with a number of studies that demonstrated significant sexual dysfunction affection among all domains in psoriatic patients [19-22]. This was in contrary to Khaled et al. who reported no significant difference between psoriasis group and control group regarding desire, arousal, lubrication, and pain domain scores [17].

Our results indicated that psoriatic females with FSD had a significantly older age, longer disease duration, and earlier age of disease onset when compared to those with no FSD. This was verified and agreed on by a number of researchers who indicated that older women with earlier onset of psoriasis demonstrated a lower sexual dysfunction and are at more risk of poor sexual quality of life [17,23,24]. This was not the case with other studies that reported no significant relation between age of psoriatic female patient and sexual activity (with P = 0.3; P = 0.7) [15,19,25].

Although our findings showed a significant negative association between BMI and FSD among psoriatic patients when compared to controls, this correlation was statistically insignificant (P = 0.20) when correlating predictor factors to development of FSD among psoriasis patients. Our finding agrees with previous studies that could not consolidate an association between BMI and sexual functions [5,6]. While other contradicting results showed a recognizable negative correlation between BMI and sexuality [6]. It is worth mentioning that our results could have been affected by lack of hormonal check-up, investigations for insulin resistance, metabolic syndrome as well as failure of assessment of blood flow to the genitalia as well as the small sample size.

Our findings regarding the association between impaired sexual function and severity of psoriasis were consistent with previously published data [26-30]. In contrary to our results, Turel et al showed no significant correlation between PASI score and sexual activity (with P = 0.4) [19].

A recent metanalysis of eight studies including 563 women with psoriasis and 525 controls identified significantly impaired sexual function in women with psoriasis compared to controls, suggesting that routine assessment of sexual health may be beneficial [31].

Identifying and communication about a subject historically regarded a taboo in middle eastern culture is a major strength of this study. The only reliance on a questionnaire and lack of hormonal or clitoral doppler sonography in a limited population sample is a limitation to the current study.

Sexual health and dysfunction and their impact on quality of life should be part of the integral routine investigation for females complaining of psoriasis. Further research over the effect of certain interventional programs on FSD should be considered for patients suffering from psoriasis. Larger multicenter studies investigating the sexual well-being of females affected by chronic conditions should be considered for better assessment and understanding how such condition could impact and hinder their quality of life and provide insights on how to alleviate any dysfunctions.

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