

## A study of sexual functioning and depression in male psoriasis patients

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### Abstract

**Introduction:** Psoriasis is a recurring, cutaneous- articular, chronic inflammatory disease, resulting from immune and proliferative changes that affect the skin and mucosa. The worldwide incidence is 1-3% and the majority of the patients also have emotional difficulties like anxiety, depression, and sexual dysfunction. These issues along with the extent of body surface area affected have an impact on the quality of life, in particular, the sexual life.

**Aim:** To assess the sexual function of males with psoriasis and to study the relation of different variables with sexual functioning.

**Materials and Methods:** A cross-sectional study of 4 months duration was carried out among male patients with psoriasis who attended the dermatology department at a tertiary care hospital in Andhra Pradesh. Male Patients with any form of psoriasis aged between 25-55yrs diagnosed by the dermatologist and willing to give written informed consent were subjected to study tools like Psoriasis area and severity index (PASI), International Index of Erectile Function scale (IIEF) and Hamilton Depression Rating Scale (HAM-D).

**Results:** 85% prevalence was noted for both depression and sexual dysfunction among patients with Psoriasis and very significant correlations i.e.  $p < 0.005$  was observed with all the study variables.

**Conclusion:** High prevalence of sexual dysfunction and depressive disorder was noted in the study subjects and the result of this study gives an idea about the importance of screening for sexual and psychological disorders in patients suffering from psoriasis.

**Keywords:** Psoriasis, Sexual dysfunction, Depression, PASI, IIEF, HAM-D.

### Introduction

Psoriasis is a recurring, cutaneous- articular, chronic inflammatory disease, resulting from immune and proliferative changes that affect the skin and mucosa. It has a worldwide incidence of 1-3%.<sup>1,2</sup> It can present in all ages, including at birth or in the old age.<sup>3</sup> Skin occupies a surface area of approximately 2 sq. mts and is one of the outlets for emotional expression. Majority of the patients with skin diseases have emotional issues like anxiety, depression, and sexual dysfunction.<sup>4</sup> These problems, along with the extent of body surface area affected, have a significant impact on the quality of life.<sup>5</sup>

One of the aspects related to the quality of life is sexual health. This is a basic need for every individual and is important in maintaining good mental health.<sup>6-7</sup> Sexual health is an integral part of overall health, but physicians seem to underestimate the prevalence of sexual concerns of their patients or feel uncomfortable discussing matters of sexuality with them. Sexual history is an indispensable part of medical history.<sup>8</sup> In recent studies, it has been shown that chronic systemic diseases often affect sexual function.<sup>9-10</sup>

Sexual activity remains central for most men all across their adult lives and into old age, and erectile dysfunction usually leads to a worsening of their sexual experience and can cause significant personal and interpersonal distress at any age.<sup>11</sup>

Psoriasis being a key disease in the cluster of psychocutaneous diseases, with an incidence of 1.02% in India, is a focus for exploration.<sup>6-7</sup> It is reasonable to believe that the presence of psoriatic lesions would cause much stigma and cosmetic concerns, and would have a major impact on one's mental health, relationship with the partner,

and sexual functioning. This association is reflected in a study done in Spain where the prevalence of sexual dysfunction among psoriasis patients was 53.7%,<sup>12</sup> and a study done in India where sexual dysfunction was noted in 40.8%.<sup>13</sup> Given the limited studies in existing literature done on assessing sexual functioning in male psoriasis patients; this study was aimed to investigate the relationship between psoriasis and male sexual functioning and possible psychiatric morbidity such as depression.

### Aims

To assess the sexual function of males with psoriasis.

To investigate the role of depression and psoriasis variables such as severity, duration, and localization on sexual functioning.

### Materials and Methods

This is a cross-sectional study of 4 months duration done among male patients with psoriasis who attended the dermatology department at a tertiary care hospital in Andhra Pradesh. Ethical committee approval was obtained before starting the study

#### Inclusion Criterion

Male Patients with any form of psoriasis aged between 25-55yrs diagnosed by a dermatologist and willing to give written informed consent were included in the study.

#### Exclusion Criterion

Patients suffering with comorbid organic diseases (such as hypertension, diabetes and cardiovascular diseases as noted within the clinical history), past history of any form of psychiatric illness, lifestyle factors (such as chronic smoking and alcohol use) and patients on psoriasis

medications that potentially cause sexual dysfunction (prednisolone, methotrexate, acitretin, etretinate, isotretinoin) were excluded from the study. International Index of Erectile Function (IIEF) Questionnaire being a self-rated scale; patients who could not read English were excluded.

40 male patients who met the eligibility criteria were explained in detail about the study and its procedure and written informed consent was taken from the patients. They were assessed on study tools like Psoriasis area and severity index (PASI) which is a quantitative rating scale for measuring psoriatic lesions based on area coverage and plaque lesions.<sup>14</sup> Sexual functioning was assessed using 15-question International Index of Erectile Function (IIEF) Questionnaire, which is a validated, multidimensional, self-administered scale that has been found useful in the clinical assessment of erectile dysfunction and treatment outcomes in clinical trials. The scale consists of 15 questions that examine the 5 main domains of male sexual functioning like erectile function, orgasmic function, sexual desire, and intercourse satisfaction and overall satisfaction. Each domain is scored 0 or 1 to 5, and higher the score indicates better the sexual functioning and a score of 0 indicates no sexual activity in the previous month.<sup>15</sup> Psychological illness has a large effect on sexual functioning and the expression of sexuality; studies have illustrated that sexual dysfunction is significantly associated with depression.<sup>16,17</sup>

Hence Hamilton Depression rating scale (HAM-D)<sup>18</sup> was used on subjects to determine the patients' level of depression. Although the HAM-D scale consists of 21 items, the scoring is based on the first 17. It generally takes 15-20 minutes to complete the scale and score the results. Eight items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe and nine items are scored from 0-2.

### Statistical Analysis

All statistical analysis was done by using SPSS trial version-16 and MS-Excel 2007. Qualitative variables were expressed as frequencies and percentages and quantitative variables were expressed as mean and standard deviations. Chi-square test was used for examining the categorical data. Correlation and regression analysis were used to explore the relationship between independent and dependent variables. For all statistical analysis  $p < 0.05$  was considered as statistically significant.

### Results

The total number of subjects in the study were 40. The number of subjects suffering from sexual dysfunction was 36. The number of subjects suffering from depressive disorder was also 36. The prevalence of Sexual Dysfunction among subjects was 85% (34/40\*100). The prevalence of Depression among subjects was 85% (34/40\*100).

**Table 1:** Mean and standard deviations of total study parameters

Parameters	N	Minimum	Maximum	Mean	Std. Deviation
Age	40	25	55	35.65	7.608
Duration of Illness (DOI)	40	1	20	6.58	4.679
Total PASI score	40	1.0	38.4	10.288	9.1928
Erectile Function (EF)	40	3	29	12.30	7.930
Orgasmic Function (OF)	40	0	10	4.23	2.380
Sexual Desire (SD)	40	1	10	4.80	2.289
Intercourse Satisfaction (IS)	40	1	15	7.20	3.722
Overall Satisfaction (OS)	40	0	10	4.60	2.590
HAM-D	40	2	46	20.25	12.123

The mean age of the study participants was 35.65 years

**Table 2:** Frequency and percentage distribution of erectile function (EF)

Erectile Function severity		Frequency	Percent
	Mild-Moderate dysfunction	3	7.5
	Moderate dysfunction	10	25.0
	No dysfunction	6	15.0
	Severe dysfunction	21	52.5
	Total	40	100.0

52.5% of the patients had severe erectile dysfunction

**Table 2.1:** Frequency and percentage distribution of depression

Depression Severity	Frequency	Percent
Mild	5	12.5
Moderate	7	17.5
Normal	6	15.0
Severe	9	22.5
Very Severe	13	32.5
Total	40	100.0

32.5% of the patients had very severe depression

**Table 3:** Associations between depression and erectile function (EF) severity

Dep Severity	Severity				Total	P-Value
	mild-moderate dysfunction	Moderate dysfunction	No dysfunction	Severe dysfunction		
Mild	2	3	0	0	5	0.000
Moderate	1	5	0	1	7	
Normal	0	0	6	0	6	
Severe	0	1	0	8	9	
Very Severe	0	1	0	12	13	
Total	3	10	6	21	40	

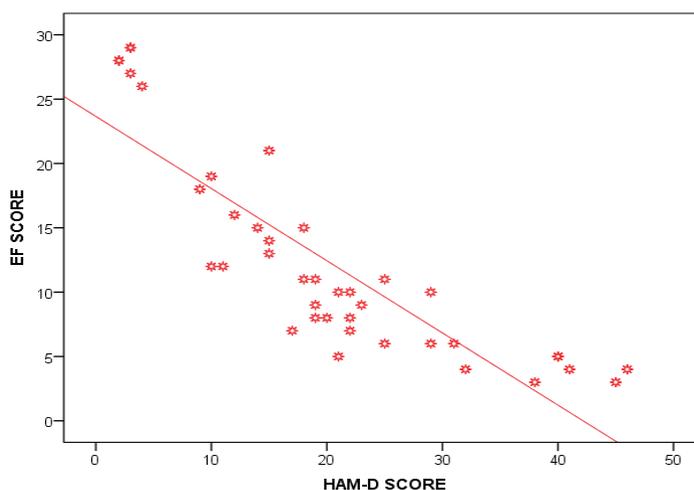
The above table depicts that score on EF was found to be significantly ( $p < 0.05$ ) associated with severity of depression. i.e. as the depression score increased, EF score decreased significantly (meaning erectile dysfunction increased).

**Table 4:** Regression analysis: Erectile function (EF)

Model (EF)	Unstandardized Coefficients		t	P value	R	R <sup>2</sup>	ANOVA P value	95.0% Confidence Interval for B	
	B	Std. Error						Lower Bound	Upper Bound
(Constant)	25.665	1.305	19.667	0.000				23.019	28.312
PASI	0.379	0.155	2.442	0.020	0.893	0.797	0.000	0.064	0.694
HAM-D	-0.787	0.125	-6.278	0.000				-1.041	-0.533
DOI	-0.202	0.147	-1.376	0.177				-0.501	0.096

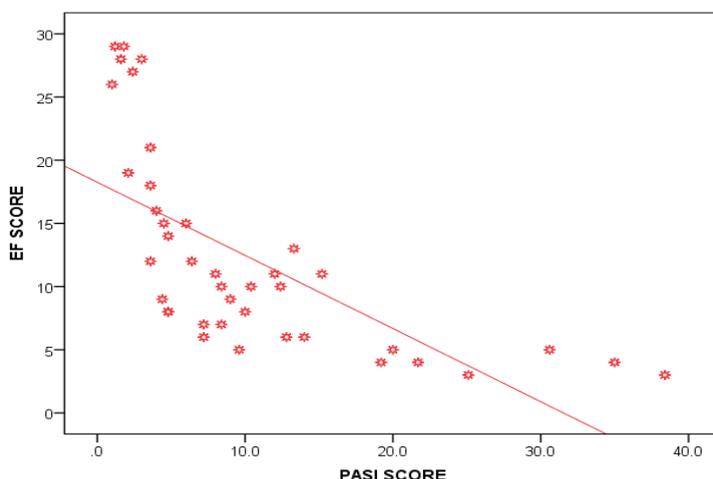
- a. Dependent Variable: EF
- b. Predictors (Constant), DOI, PASI, HAM-D

The above table shows that PASI and HAM-D scores were significant ( $p < 0.05$ ) independent predictors of EF. i.e. PASI and HAM-D scores were influencing the EF to score significantly and 79.7% variation in the EF score was explained by the PASI and HAM-D scores only.



**Fig. 1:** Correlation between HAM-D and EF

The above graph depicts that HAM-D score and EF score were inversely related i.e. as depression severity increased, score on the erectile function scale decreased (note that lower scores on the erectile function scale imply increased erectile dysfunction).



**Fig. 2:** Correlation between PASI and EF

The above graph depicts that PASI score and EF score were inversely related i.e. as psoriasis severity increased, score on the erectile function scale decreased (note that lower scores on the erectile function scale imply increased erectile dysfunction).

**Table 5:** Correlations between PASI score and other parameters

		HAM-D	EF	OF	SD	IS	OS
PASI	Pearson Correlation	0.899	-0.671	-0.631	-0.646	-0.670	-0.696
	P VALUE	0.000	0.000	0.000	0.000	0.000	0.000
	N	40	40	40	40	40	40

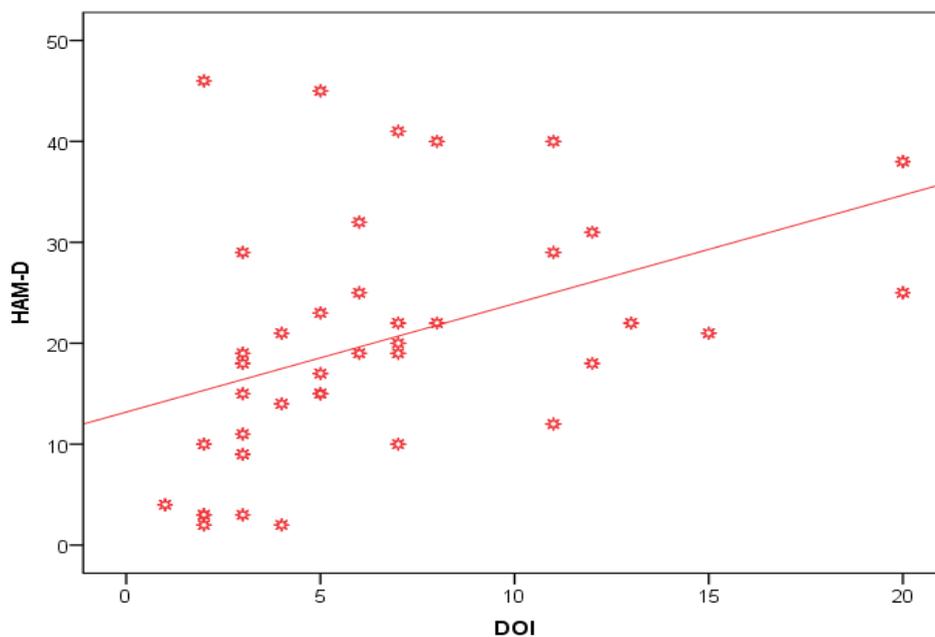
The above table shows that as the PASI score increased, the HAM-D score also increased significantly (PASI and HAM-D scores were significantly positively correlated). And as the PASI score increased; EF, OF, SD, IS and OS scores significantly decreased (PASI and EF, OF, SD, IS and OS scores significantly inversely correlated).

**Table 6:** Regression analysis: Depression

Model (HAM-D)	Unstandardized Coefficients		t	P value	R	R <sup>2</sup>	ANOVA P value	95.0% Confidence Interval for B	
	B	Std. Error						Lower Bound	Upper Bound
(Constant)	5.265	1.477	3.565	0.001				2.273	8.257
Duration of illness(DOI)	0.530	0.172	3.076	0.004	0.920	0.847	0.000	0.181	0.878
PASI	1.118	0.088	12.765	0.000				0.941	1.296

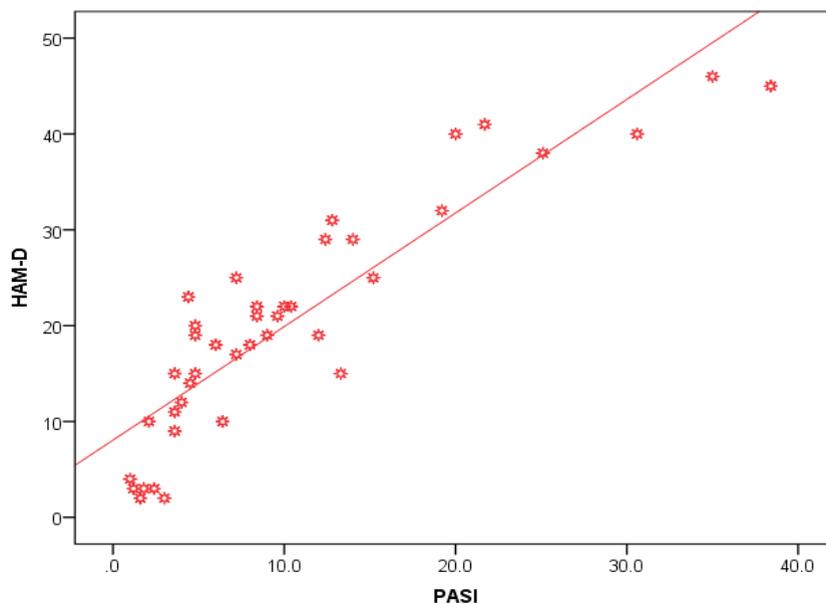
- a. Dependent Variable: HAM-D
- b. Predictors: (Constant), PASI, DOI

The above table shows that DOI and PASI scores were significant ( $p < 0.05$ ) independent predictors of depression. 84.7% variation in the depression score was due to the duration of illness and PASI scores.



**Fig. 3:** Correlation between DOI and HAM-D

The above graph shows that DOI and HAM-D scores were positively correlated, i.e. as the duration of psoriasis increased, depressive scores also increased.



**Fig. 4:** Correlation between PASI and HAM-D

The above graph shows that PASI and HAM-D scores were positively correlated i.e. as the severity of psoriasis increased, depressive scores also increased.

**Table 7:** Correlation between disease localization and erectile function

EF	N	Mean	Std. Deviation	Std. Error	P-Value
Head	7	20.14	7.862	2.972	0.016
Arms	5	16.00	10.512	4.701	
Trunk	11	12.91	7.231	2.180	
Legs	6	9.50	4.370	1.784	

Head, Arms, Trunk & Legs	2	3.00	.000	.000
Arms, Trunk & Legs	2	4.50	.707	.500
Arms & Legs	4	8.00	2.944	1.472
Trunk & Legs	3	8.33	3.786	2.186
Total	40	12.30	7.930	1.254

The above table shows subjects who had psoriatic lesions in more than one area of the body had lesser scores on IIEF scale i.e. greater erectile dysfunction

**Table 8:** Correlation between disease localization with depression

HAM-D	N	Mean	Std. Deviation	Std. Error	P-value
Head	7	8.86	7.198	2.721	0.000
Arms	5	12.60	9.236	4.130	
Trunk	11	17.00	5.899	1.779	
Legs	6	20.50	8.894	3.631	
Head, arms, trunk & legs	2	41.50	4.950	3.500	
Arms, trunk & legs	2	43.00	4.243	3.000	
Arms & legs	4	31.25	6.344	3.172	
Trunk & legs	3	27.00	12.166	7.024	
Total	40	20.25	12.123	1.917	

The above table shows subjects who had psoriatic lesions in more than one area of the body had increased depression scores on the HAM-D scale.

## Discussion

Sexual dysfunction covers “the various ways in which an individual is unable to participate in sexual activity as he or she would wish”. The ICD-10 classification includes sexual dysfunction not caused by organic disorder or disease (F52), and is further categorized as: lack or loss of sexual desire (F52.0), sexual aversion and lack of sexual enjoyment (F52.1), failure of genital response (F52.2), orgasmic dysfunction (F52.3), premature ejaculation (F52.4), nonorganic vaginismus (F52.5), nonorganic dyspareunia (F52.6), excessive sexual drive (F52.7), other sexual dysfunction, not caused by organic disorder or disease (F52.8), and unspecified sexual dysfunction, not caused by organic disorder or disease (F52.9).<sup>19</sup> In our study of 40 patients, sexual dysfunction was noted in 85% of the subjects; the majority (52.5%) had severe erectile dysfunction (Table 2). Inverse correlations were noted between the severity of psoriasis and all the individual domains of sexual function as in IIEF scale i.e. erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction ( $p < 0.000$ ) (Table 5).

Psychological causes, disease severity, and sexual partner concern are some of the factors related to sexual dysfunction in Psoriasis patients. In a study by Molina-Leyva et al,<sup>12</sup> prevalence of sexual dysfunction among psoriasis patients was 53.7%. Gupta et al<sup>13</sup> noted sexual dysfunction in 40.8% of a sample of 120 psoriasis patients. In a recent systematic review which included 15 epidemiological studies; all reported a higher frequency of sexual dysfunction in patients with Psoriasis. The estimated prevalence of dysfunction ranged from 22.6% to 71.3%.<sup>20</sup>

According to the ICD-10, Erectile Dysfunction (ED) is defined as “difficulty in developing or maintaining an erection suitable for satisfactory intercourse”.<sup>19</sup> Of the 85%

patients who had sexual dysfunction in our study, all of them had erectile dysfunction too, and PASI scores and EF scores were inversely related (Fig. 2) i.e. there was higher erectile dysfunction with increase in severity of psoriasis. A study by Cabete et al in psoriasis patients also showed a high prevalence of erectile dysfunction at 61.5%.<sup>21</sup>

In the current study, 85% of the patients suffering from psoriasis had some degree of depressive disorder. Very significant positive correlations ( $p < 0.000$ ) (Table 5) was noted between the severity of psoriasis and depression scores. People suffering from this disease develop social stigma in the way their skin looks which makes them isolated and this brings on depression. This is reflected in existing literature as well where higher rates of depression, shame, anger, social isolation, and suicidal ideation are reported in patients with psoriasis compared with non-affected individuals.<sup>(20- 22)</sup> In one study, anxiety or depression, as assessed by the Hospital Anxiety and Depression Scale, were more likely to affect individuals with Psoriasis (53.7%) compared to controls (21.5%;  $P < 0.001$ ).<sup>18</sup>

Sexual dysfunction, in particular, erectile dysfunction and depressive illness have a strong association. While the relationship between the two is unclear, it is likely to be bidirectional in cause. In our study, as depression scores increased, scores on the sexual function scale decreased significantly ( $p < 0.000$ ) (Table 3) (Fig. 1) i.e. severity of depression and sexual dysfunction were highly correlated. In a study by Fabre et al on the effect of type and severity of depression on sexual functioning in 591 men with Major Depression, the severity of depression was clearly correlated with the severity of sexual dysfunction.<sup>23</sup> Patients reporting sexual dysfunction should be routinely screened for depression, and patients presenting with symptoms of depression should be asked about their sexual health.

In the present study, 79.7% variation was observed in the erectile function score due to the duration of illness, disease severity and depression (Table 4). While depression had the maximum impact on erectile function ( $p=0.000$ ) (Fig. 1), disease severity also had a significant impact ( $p=0.020$ ) (Fig. 2), but the impact of duration of illness was not statistically significant ( $p=0.177$ ).

In the current study, 84.7% variation was noted in depression scores due to the duration of illness and disease severity. Both duration of illness ( $p=0.004$ ) and disease severity i.e. PASI score ( $p=0.000$ ) showed that both have high influence in increasing depression in an individual (Table 6) (Fig. 3) (Fig. 4). Subjects with psoriatic lesions involving more than one area of the body had a greater amount of Erectile Dysfunction (Table 7) and Depression (Table 8). Such patients have a negative perception of their skin, suffer from confidence problems, and develop depression, and hence likely to avoid sexual relationships. Lesion location was a significant predictor of sexual dysfunction, with higher rates of dysfunction in patients with lesions on the genitals, buttocks, abdomen, or lumbar region. These areas have been classified in the literature as Areas of Sexual Impact (ASI). The risk of sexual dysfunction was substantially greater for patients with lesions located on ASI compared to patients where psoriatic lesions were in other areas.<sup>20</sup>

## Conclusion

This study is among a few studies that have been described in the literature showing the relationship between psoriasis and its various variables to sexual functioning. The study's strengths are in ensuring a strict exclusion criterion to exclude any confounding variables that potentially affect sexual function in psoriasis patients. These include psoriasis drugs and comorbid medical illnesses that can cause sexual dysfunction. It has also gone into details about descriptive variables in psoriasis such as duration of illness and lesion localization.

The study concludes that patients suffering from psoriasis are at greater risk of having impairments in their sexual and mental health. High prevalence of sexual dysfunction and depressive disorder was noted in the study subjects. The rates were high compared to other similar studies in the literature. A possible explanation for this is the primary assessors being mental health professionals, depression and sexual dysfunction related symptoms were better captured. The result of this study highlights the importance of screening for sexual and psychological disorders in patients suffering from psoriasis. While the severity of depression and psoriasis independently and significantly affected sexual functioning, the impact of the depression was higher, indicating that the presence of depressive disorder in psoriasis patients was a strong predictor of sexual dysfunction.

Assessments of sexual functioning should be routinely incorporated in patients suffering from psoriasis. International index of erectile function (IIEF) Scale is a useful tool and can be easily administered in routine clinical

practice. Screening for psychological disorders like depression should also be considered as this is quite prevalent in patients suffering from chronic skin diseases particularly in psoriasis patients. Lack of knowledge about psychiatric morbidity in patients suffering from chronic skin diseases may delay the diagnosis and referral of psychiatric illnesses and this, in turn, will have a huge impact on the treatment outcome of patients. Collaboration between dermatologist and psychiatrist is the need of the hour and this approach will be of great help for patients suffering from chronic skin diseases like Psoriasis. A Bio-psychosocial model should be considered in the assessment and management of all patients suffering from the chronic skin disorder.

## Limitations

We acknowledge some limitations in the present study; firstly, the study sample being relatively small, the results from the study can be generalized only with caution. Secondly, stress plays an important role in chronic systemic diseases including chronic skin diseases, psoriasis in particular. This impairs the quality of life of a person, Stress scale, however, was not used in our patients. Thirdly, the study did not take any laboratory data that may contribute to the etiology of sexual dysfunction (e.g. hormonal profile, blood sugar, etc.). Also, certain patient information like daily physical activity, body mass index (BMI), family history, personal history, and spouse interview were not taken into account and could have importance in such studies.

## Acknowledgments

We thank our colleagues Dr. Archana Vinnukota, Asst Professor and Dr. Shvetha Chilikuri, Senior Resident, Dept. of Psychiatry, Gitam Institute of medical sciences and Research, Visakhapatnam, India for their help and support in preparing the article.

**Conflict of Interest:** Nil.

**Source of Funding:** Nil.

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