

# Prevalence of Psychiatric Comorbidities in Patients with Psoriasis: A Cross-sectional Study from a Tertiary Care Hospital in Eastern India

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## ABSTRACT

**Background:** Psoriasis has been known to be associated with various psychiatric comorbidities like depression, anxiety, adjustment disorder, persistent stress, and impaired sexual and marital life.

**Aim:** The aim of this study was to find out the prevalence of psychiatric comorbidities in patients with psoriasis.

**Methods:** One hundred and forty-nine consecutive patients with psoriasis fulfilling the inclusion criteria got examined by a senior consultant dermatologist. Sociodemographic and clinical pro forma were filled in. Following informed consent, the patients were assessed for severity of the condition by Psoriasis Area and Severity Index score and were screened for the presence of psychiatric comorbidities by a validated Bengali version of the screening tool Self-Reporting Questionnaire 20 (SRQ 20). Subjects were administered in succession with Bengali version of Self-Reporting BDI (Beck Depression Inventory) (already validated), Hamilton Anxiety Scale, and SKINDEX 61 (interviewer-rated) for evaluating the depression, anxiety, and psychiatric morbidities under the guidance of a consultant psychiatrist.

**Results:** In index study, a majority of the subjects (98%) had a mild degree of anxiety symptoms. In BDI, the majority of the subjects had minimal depression, whereas near about two-fifths of the subjects had mild to severe depression. As per SRQ assessment of psychopathology, the majority of subjects (57.71%) had psychiatric disorder. Around two-thirds male and half of the female subjects, respectively, were SRQ positive. On SKINDEX-61, the majority of the subjects responded affirmatively in a decreasing order of frequency in the following domains: embarrassment, discomfort, fear, anger, physical limitation, depression, and cognitive impairment. Severity of psoriasis had a significant positive correlation with depression severity grades and the presence or absence of psychopathology. The index study also revealed that the number of body sites involved in psoriasis had a significant positive correlation with depression severity.

**Conclusion:** Psoriasis was associated with significant psychiatric comorbidities, and those need to be addressed.

**Keywords:** Anxiety, Depression, Psoriasis, Psychiatric comorbidities.

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## INTRODUCTION

Psoriasis is a chronic disease of multiple etiology and autoimmune pathogenesis, characterized by erythematous, dry, circumscribed silvery scaly plaques of various sizes. The common sites of predilection are extensor surfaces of the limbs (elbow, knee), scalp, nails, pre-sacral, and umbilical region. Itching, burning, and irritation are the common symptoms. There are several variants of psoriasis like plaque, guttate, pustular, erythrodermic, inverse, scalp, nail, and palmo-plantar psoriasis.

Psoriasis affects 2 to 3% of the population of the world.<sup>1</sup> However, USA and Canada are having highest prevalence of 4.6 to 4.7%, and Asia is having prevalence of 0.4 to 0.7%.<sup>1</sup> Several studies were done in India, which found that the incidence of psoriasis patients is 0.8 to 5.6%.<sup>2</sup> It is twice more common in males than in females. Most patients develop psoriasis in the 3rd or 4th decade of their life.<sup>3</sup> But psoriasis can first appear at any age, from infancy to eighth decade of life. Two peaks in age of onset mostly noted: one at 20 to 30 years of age and second at 50 to 60 years of age.<sup>4-6</sup>

Even in the old testaments, psoriasis was a disease, which was stigmatized by the society and was confused and synonymous to leprosy. Naturally, this led to various psychiatric comorbidities like depression, anxiety, adjustment disorder, persistent stress, and impaired sexual and marital life. Not rarely extreme level

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of psychiatric emergency like suicidal tendency was reported among sufferers. It is a disease that robs an equal opportunity of employment to the sufferer leading to economic constraints and has a tremendous negative impact on well-being and quality of life. Though it rarely causes mortality, it creates a constant state of worriedness due to omnipresent psychiatric comorbidities. Psoriatic lesions on exposed areas decrease the self-esteem of the patient.

Many epidemiological studies have been conducted that looked into the psychiatric comorbidities of patients with psoriasis, both in India and abroad.<sup>7-20</sup> Those studies have found a prevalence ranging from 30 to 62.5% for psychiatric comorbidities in patients with psoriasis. Other psychiatric disorders that were commonly seen in psoriasis patients were depression, anxiety, body image disturbances, adjustment disorders, and suicidal ideations. Table 1 gives the summary of various studies looking into the psychiatric comorbidities of psoriasis patients.

With this background, the index study was conducted to find out the prevalence of psychiatric comorbidities in patients with psoriasis. Secondary objectives were to compare the prevalence of psychiatric comorbidities in male and female subjects with psoriasis, to find out the correlation of psychiatric comorbidities with the severity of psoriasis, and to find out the correlation of number of body areas affected by psoriasis with psychiatric comorbidities.

## MATERIALS AND METHODS

Patients were recruited from the outpatient Department of Dermatology, Venereology and Leprosy of a tertiary care teaching hospital in Eastern India. It was a hospital-based, cross-sectional study. Consecutive sampling was done. The study duration was one-and-half year (October 2017–March 2019). The clearance from the Institutional Ethics Committee has been taken prior to the initiation of the study.

All patients aged between 15 and 55 years attending the outpatient Department of Dermatology, Venereology and Leprosy with psoriasis and providing written and informed consent were included in the study.

Patients having other chronic medical conditions, e.g., diabetes, osteoarthritis, hypertension, asthma, hypothyroidism etc., patients who are acutely ill, e.g., post-stroke, post-MI, patients who are on dialysis etc., pregnant patients, and patients who are already on psychotropic medications for pre-existing psychiatric disorder were excluded from the study.

Sample size was calculated using a sample size calculator.<sup>21</sup> While calculating, the level of confidence was taken as 95%, precision (d) was 0.08, and the mean prevalence of psychiatric comorbidities in psoriasis patients (calculated from previous studies) was 62%. Thus, N came to be 142. Adding 5% as nonresponsive error, a sample size of 149 was arrived at.

## Methodology

One hundred and forty-nine (149) consecutive patients with psoriasis who fulfilled the inclusion criteria got examined by a senior consultant dermatologist. Diagnostic confirmation was done clinically and histopathologically (if required). Sociodemographic and clinical pro forma were filled in. Following informed consent, the patients were assessed for severity of the condition by Psoriasis Area and Severity Index (PASI). Thereafter, the patients were screened for the presence of psychiatric comorbidities by a validated Bengali version of the screening tool SRQ 20 (Self-Reporting Questionnaire 20), and they were administered in succession with Bengali version of Self-Reporting BDI (Beck Depression Inventory) (already-validated), HAM-A (Hamilton Anxiety Scale), and SKINDEX 61 (interviewer-rated) for evaluating the depression, anxiety, and psychiatric morbidities in them under the guidance of a consultant psychiatrist.

## Instruments Used

- *PASI worksheet*: It is a quantitative rating score for measuring the severity of psoriatic lesions based on area coverage and plaque appearance. The severity is divided into mild, moderate, severe, and very severe on the basis of total score ranging 0 to 5, 5.1 to 12, 12.1 to 20, >20, respectively.<sup>22</sup>
- *HAM-A*: The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0 to 56, where <17 indicates mild severity, 18 to 24 mild to moderate severity, and 25 to 30 moderate to severe.<sup>23</sup>
- *BDI*: It, created by Aaron T. Beck, is a 21-question multiple-choice self-report inventory, one of the most widely used psychometric tests for measuring the severity of depression. Grading is done as follows: score ranging 0 to 13—minimal depression, 14 to 19—mild depression, 20 to 28—moderate depression, and 29 to 63—severe depression.<sup>24</sup>
- *SRQ*: It is a 20-question self-reporting questionnaire having two choices for one question either yes or no. Inference is done by cutoff score as follows: The cutoff is set based on gender—six or more positive answers for men (as they are more likely to yield false-negative results) and eight or more positive answers for women.<sup>25</sup>
- *SKINDEX 61*: It is a 61-item self-administered survey instrument to measure the effects of skin disease on patient's quality of life. It has eight domains, each of which addresses a construct, or an abstract component, in a comprehensive conceptual framework: cognitive impairment, social problem, depression, fear, embarrassment, anger, discomfort, and physical limitations. Each of the component can be appreciated by some responses given like sometime, often, all the time, slightly agree, agree, and strongly agree from which an affirmative response was calculated to know the status of that domain.<sup>26</sup>

## Statistical Analysis

Descriptive analysis was computed in terms of mean and standard deviation with range for continuous variables and frequency with percentage for ordinal and nominal variables. The comparison of psychiatric morbidity in males and females was done by Student's *t*-test. Correlation analysis was used to find out the correlation between psoriasis severity and the psychiatric morbidities. All analyses were done with the help of SPSS (version 21), and *p* value  $\leq 0.05$  was considered statistically significant.<sup>27</sup>

## RESULTS

A typical subject was of 38.9 years of age ( $\pm 11.9$  SD), male (54.4%), married (84.6%), and belonging to upper lower socioeconomic status (57%).

Table 2 shows patients, we got 235 different types of psoriasis as a single patient could have multiple types of psoriasis. Other details are presented in Table 2.

Table 3 shows the details of HAM-A, BDI, SRQ, PASI SCOREs, and SKINDEX-61. Majority of the subjects had anxious mood ( $N = 124$ , 83.2%), tension ( $N = 124$ , 83.2%), depressed mood ( $N = 117$ , 78.5%), behavioral symptoms ( $N = 100$ , 67.1%), insomnia ( $N = 100$ , 67.1%), and somatic symptom ( $N = 78$ , 52.3%) on HAM-A scale.

**Table 1:** Epidemiological studies of psychiatric comorbidities in patients with psoriasis<sup>7–20</sup>

Author and year of publication	Sample population	Instruments used	Prevalence of psychiatric morbidities
<b>Studies from India</b>			
Sarkar et al., 2014 <sup>7</sup>	48 psoriasis patients 48 controls	<ul style="list-style-type: none"> <li>SRQ (self-reporting questionnaire)</li> <li>SKINDEX-61</li> </ul>	<ul style="list-style-type: none"> <li>62.5% prevalence of psychiatric disorders in psoriasis patients</li> <li>18.5% prevalence of psychiatric disorders in controls</li> </ul> <p>According to SKINDEX-61: Commonest psychiatric morbidities in psoriasis patients were anger (58.3%), discomfort and social problem (52.08%), cognitive impairment and embarrassment (50%), so on and so forth.</p>
Lakshmy et al., 2015 <sup>8</sup>	90 psoriasis patients	PASI, PHQ-9, GAD, PSS, WHOQOL-BREF	<ul style="list-style-type: none"> <li>Depression—78.9%</li> <li>Anxiety—76.7%</li> <li>Depression and anxiety—72.2%</li> <li>Perceived stress scale: mean score was 14.71, significant stress—56.71%, severe degree of perceived stress—22.2%</li> <li>Poor to poor quality of life—16.6% prevalence</li> <li>Poor to very poor satisfaction in personal health—17.98% prevalence</li> </ul>
<b>Studies from abroad</b>			
Gupta et al., 2003 <sup>9</sup>	217 psoriasis patients	CRSD	Mean depression score— $11.9 \pm 7.9$ ; Wish to be dead—10%; Suicidal ideation—5.5%
Nasreen et al., 2008 <sup>10</sup>	89 psoriasis patients	PASI, AKUADS	38% had psychiatric illnesses
Han et al., 2011 <sup>11</sup>	7,971 psoriasis patients, 31,884 controls	ICD, Ninth Revision Clinical Modification Codes	Anxiety—6.9%; Depression—9.2%; Bipolar disorder—1.1%; Delirium—0.3%
Rabin et al., 2012 <sup>12</sup>	Review article	NA	Depression—24–51%, Embarrassment over their appearance—89%, Lack of confidence—42%, Family friction—26%, Suicidal ideation—5.5%, Addiction and alcoholism—18%, Psychiatric disorder in children with psoriasis had 25–47% higher risk to develop psychiatric disorder and 23–62% higher risk of developing depression
Grozdev et al., 2012 <sup>13</sup>	429 chronic plaque psoriasis patients	PASI, PCS, SF-12, MCS	<ul style="list-style-type: none"> <li>For every 10-point increase in PASI—<math>1.1 \pm 1.3</math> unit decrease in MCS</li> <li>For every 10-point increase in PASI—<math>2.4 \pm 1.3</math> unit decrease in PCS</li> <li>Psoriasis severity associated with quality of life, PCS, and MCS</li> </ul>
McDonough et al., 2014 <sup>14</sup>	306 patients with Psoriatic Arthritis (PsA), 135 patients of Psoriasis without Arthritis (PsC)	HADS, CASPAR, HAQ, SF-36, DLQI, FSS, PGA	<ul style="list-style-type: none"> <li>In PsA: Anxiety—36.6%, Depression—22.2%</li> <li>In PsC: Anxiety—24.4%, Depression—9.6%</li> <li>Unemployment was protective for depression (OR = 0.36)</li> <li>One unit increase in fatigue severity scale was associated with an increased risk of depression.</li> </ul>
Chamoun et al., 2015 <sup>15</sup>	Review article	NA	Psychiatric comorbidity is estimated approximately at 30%
Khawaja et al., 2015 <sup>16</sup>	87 psoriasis patients	PASI, GHQ-12, DLQI	<p>The prevalence of depression in patients with psoriasis is estimated between 10% and 62%</p> <p>Mean PASI score showed a positive influence on GHQ-12 score</p> <p>Increase in psoriasis severity increases the psychiatric problems.</p>
Pompili et al., 2016 <sup>17</sup>	157 patients (91 psoriasis and 66 other dermatological conditions)	Sociodemographic questionnaire, HAM-A, HDRS	<ul style="list-style-type: none"> <li>Psychiatric disorder—38.5% in psoriasis, 16.7% in others</li> <li>Out of 38.5% psychiatric disorders, 16.5%—mood disorders, 15.4%—anxiety disorders and 15.4% showed suicidal ideation.</li> </ul>

(Contd...)

Table 1: (Contd...)

Author and year of publication	Sample population	Instruments used	Prevalence of psychiatric morbidities
Lamb et al., 2017 <sup>18</sup>	607 psoriasis patients	PHQ-9, GAD-7 scale, DLQI	<ul style="list-style-type: none"> <li>Depression—9.9% prevalence, out of them 35% had suicidal ideation.</li> <li>Anxiety—13.1 % prevalence</li> </ul>
Tian et al., 2019 <sup>19</sup>	208 psoriasis patients	PHQ-9, GAD-7, PASI	<ul style="list-style-type: none"> <li>Depression—29 patients (13.9% prevalence)</li> <li>Anxiety—22 patients (10.6% prevalence)</li> </ul>
Tzur Bitan et al., 2019 <sup>20</sup>	255,862 psoriasis patients	Diagnostic data obtained from Clalit Health Services Care Organization of Israel	<p>In low socioeconomic status patients: Psoriasis associated with anxiety (OR = 1.1), depression (OR = 1.17), and anxiety-depression concurrence (1.32)</p> <p>In high socioeconomic status patients: Psoriasis was associated with only anxiety (OR = 1.15)</p>

SRQ, Self-Reporting Questionnaire; PASI, Psoriasis Area Severity Index; PHQ-9, Patient Health Questionnaire-9; GAD scale-7, Generalized Anxiety Disorder-7; PSS, Perceived Stress Scale; WHOQOL-BREF, World Health Organization Quality of Life Scale; Brief Version; CRSQ, Carroll Rating Scale for Depression; AKUADS, Aga Khan University Anxiety and Depression Scale; ICD, International Classification of Diseases; PCS, Physical Component Score; SF-12, Short Form-12 health survey; MCS, Mental Component Score; HADS, Hospital Anxiety and Depression Scale; CASPAR, Classification Criteria for Psoriatic Arthritis; HAQ, Health Assessment Questionnaire; SF-36, Medical Outcomes Study Short Form-36; DLQI, Dermatology Quality of Life Index; FSS, Fatigue Severity Scale; PGA, Patient Global Assessment; GHQ-12, Generalized Health Questionnaire-12; HAM-A, Hamilton Anxiety Rating Scale; HDRS, Hamilton Rating Scale for Depression

Mean score on BDI scale was 13.89 ( $\pm 8.40$  SD). More than half (55.7%) of the subjects had minimal depression, whereas nearly one-fifth (23.5%) of the subjects had mild depression. Only around one-tenth of the subjects had moderate (14.1%) and severe (6.7%) depression, respectively.

The mean total score on SRQ was 7.56 ( $\pm 4.07$ ) and 7.61 ( $\pm 3.82$ ) in male and female subgroup, respectively. Around two-thirds (64.2%) and half (50%) of the male and female subjects were SRQ positive, respectively, after applying the cutoff criteria.

The mean score on PASI was 9.70 ( $\pm 7.44$ ). Based on the PASI severity grade, 43, 19.5, 29.5, and 8.1% of subjects were categorized as having mild, moderate, severe, and very severe types of psoriasis, respectively.

In SKINDEX-61, in a decreasing order of frequency, the following percentage of subjects responded affirmatively: embarrassment (91.62%), discomfort (90.55%), fear (86.57%), anger (66.6%), physical limitation (58.07%), depression (56.15%), cognitive impairment (54.34%), and social problem (43.62%).

In the index study, there was no difference between male and female subjects with respect to HAM-A, BDI, and PASI scores. Table 4 shows that PASI total score had a significant positive correlation with HAM-A total score, BDI total score, and SRQ total score. PASI severity grade had a significant positive correlation with BDI severity grade and SRQ responses. The table showed a negative correlation of PASI severity with HAM-A severity, which means, with an increase in severity of PASI, anxiety decreases in a psoriasis patient. Number of body sites involved in psoriasis had a significant positive correlation with BDI severity.

## DISCUSSION

Index study made an attempt to find out the prevalence of psychiatric morbidities in psoriasis patients attending Dermatology outdoor of a tertiary care teaching hospital in Eastern India. It also attempted to establish a correlation between the severity of psoriasis and psychiatric morbidities.

In the index study, the percentage of males (54.4%) and females (45.6%) was comparable to the study by Lakshmy et al. and nearly comparable to the studies by Sarkar et al. and Nasreen et al.<sup>7,8,10</sup> In all previous studies, the percentages of females were less than

the percentages of males as in this part of the country female patients remain busy in household works and rarely get time to go for consultancy and even females hide the disease from the in-laws to avoid marital problems.<sup>7</sup> Hence, males were more than females in studies.

The mean age of the sample was 38.99 years  $\pm$  11.99 SD. The mean age of the subjects in the index study was higher compared to the study by Nasreen et al. (36.3 years  $\pm$  10.20 SD) and lesser compared to studies by Lakshmy et al. (41.91 years) and Sarkar et al. (41.92 years  $\pm$  12.20 SD).<sup>7,8,10</sup> But all studies had a similarity, i.e., mean age was near to fifth decade of life, which is similar to that mentioned in textbooks. In the index study, the maximum age taken was 55 years, which was comparatively lesser than that of other studies because with increasing age, the prevalence of psychiatric disorders increases.<sup>28</sup>

In the index study, 89 (59.7%) subjects had chronic plaque psoriasis, which was lower compared to the study done by Sarkar et al.<sup>7</sup> Seventy-two (48.3%) had scalp psoriasis, 25 (16.7%) had nail psoriasis, 1 (0.7%) patient had inverse psoriasis, and 3 (2%) had psoriatic arthropathy. These four types of psoriasis were not found in the study by Sarkar et al.<sup>7</sup> Forty-five (30.2%) patients had palmo-plantar psoriasis, which was higher from Sarkar et al.'s study.<sup>7</sup> Index study included all the consecutive psoriasis patients and did not exclude any patient if he/she had more than one type of psoriasis. This was a strength of the index study.

Index study found that 2% of the subjects had mild to moderate anxiety in psoriasis patients. The studies that reviewed gave a range of 6.9 to 76.7% for anxiety symptoms in psoriasis patients.<sup>8,11,18</sup> However, if we consider subjects with mild anxiety symptoms, then additional 98% subjects had the same.

In the index study, the total prevalence of mild, moderate, and severe depression taken together was 44.4%. The studies by Han et al. (9.2%) and Lamb et al. (9.9%) showed a lower prevalence than the index study, while the study by Lakshmy et al. showed a higher (78.9%) prevalence of depression compared with the index study.<sup>8,11,18</sup>

Index study found that, out of total of 149 patients, 52 males (64.2%) had psychiatric disorder and 34 (50%) females had psychiatric disorder, i.e., in total, 86 patients (57.71%) had psychiatric disorder, which was comparatively higher compared to the study



Table 2: Details of psoriasis in the sample (N = 149)

Types of psoriasis	Number of patients N (%)	Extent of involvement		Duration of onset (in years) (mean ± SD)	Duration of treatment (in years) (mean ± SD)	Mode of treatment				Family history of psoriasis		Associated with other chronic skin disease	
		Localized N (%)	Generalized N (%)			No treatment N (%)	Topical N (%)	Systemic N (%)	Topical + systemic N (%)	Absent N (%)	Present N (%)	Absent N (%)	Present N (%)
Chronic plaque	89* (59.7)**	2 (2.2)	87 (97.7)	4.91 ± 3.25	3.04 ± 2.76	7 (7.8)	75 (84.4)	0	7 (7.8)	86 (96.6)	3 (3.4)	88 (98.9)	1 (1.1)
Scalp	72* (48.3)**	18 (25.0)	54 (75.0)	3.92 ± 2.63	2.12 ± 2.15	9 (12.5)	60 (83.3)	0	3 (4.2)	71 (98.7)	1 (1.3)	71 (98.7)	1 (1.3)
Nail	25* (16.7)**	4 (16.0)	21 (84.0)	3.31 ± 1.69	0.79 ± 1.15	18 (72.0)	5 (20.0)	0	2 (8.0)	25 (100)	0	25 (100)	0
Inverse	1* (0.7)**	0	1 (100)	2.0 ± 0	0 ± 0	1 (100)	0	0	0	1 (100)	0	1 (100)	0
Palmoplantar	45* (30.2)**	4 (8.8)	41 (91.2)	3.32 ± 1.63	1.69 ± 1.71	9 (20.0)	36 (80.0)	0	0	44 (97.8)	1 (2.2)	45 (100)	0
Psoriatic ar- thropathy	3* (2)**	0	3 (100)	2.66 ± 0.50	1.66 ± 1.52	1 (33.3)	0	2 (66.7)	0	3 (100)	0	3 (100)	0
Number of psoriasis in single patient													
One type of psoriasis													
Two types of psoriasis													
Three types of psoriasis													
Four types of psoriasis													

\*Total number will be greater than the number of participants (149) as some patients could have more than one type of psoriasis;

\*\*These percentages are calculated from the total of 149 patients. The sum of the percentages will be more than 100% because one or more types of psoriasis can be present in the same patient

Table 3: HAM-A, BDI, SRQ, PASI SCORE, and SKINDEX-61 details

		MEAN ± S.D	
HAM-A total		7.8523 ± 4.50	
HAM-A severity	Severity grades	N (%)	
	Mild	146 (98)	
	Mild to moderate	3 (2)	
	Moderate to severe	0	
BDI total score		13.89 ± 8.40	
BDI severity	Severity grades	N (%)	
	Minimal depression	83 (55.7)	
	Mild	35 (23.5)	
	Moderate	21 (14.1)	
	Severe	10 (6.7)	
SRQ total	Gender	N (%) / MEAN ± SD	
SRQ total	SRQ positive	Male	7.56 ± 4.07
		Female	7.61 ± 3.82
	SRQ negative	Male	52 (64.2)
		Female	34 (50)
PASI score		9.70 ± 7.44	
PASI severity grade	Mild	64 (43)	
	Moderate	29 (19.5)	
	Severe	44 (29.5)	
	Very severe	12 (8.1)	
SKINDEX domains		Percentage (%)	
DISCOMFORT total		90.55	
COGNITIVE total		54.34	
EMBARRASSEMENT total		91.62	
SOCIAL total		43.62	
ANGER total		66.6	
LIMITATIONS total		58.07	
DEPRESSION total		56.15	
FEAR total		86.57	

Table 4: Correlation between PASI total score and HAM-A total, BDI total and SRQ total score and severity, and correlation of number of involved sites and HAM-A severity, BDI severity and psychopathology

Correlation	HAM-A total	BDI total	SRQ total
PASI total score	0.455**	0.426**	0.436**
Correlation	HAM-A severity	BDI severity	SRQ (Psychopathology)
PASI severity	-0.041	0.419**	0.259**
Correlation	HAM-A severity	BDI severity	Psychopathology (SRQ)
Numbers of body sites involved in psoriasis	0.042	0.286**	0.114

\*\*p &lt; 0

by Nasreen et al. (38%).<sup>10</sup> The prevalence of psychiatric disorders in the index study was lower compared to the study by Sarkar et al. (62.5%) and Lakshmy et al. (72.2%).<sup>7,8</sup>

Index study found that embarrassment (91.62%) was the most common psychiatric morbidity followed by discomfort (90.55%) and fear (86.57) in contrast to the study by Sarkar et al., which had found anger (58.3%) as the most common psychiatric morbidity followed by discomfort (52.08%) and social problem (52.08%).<sup>7</sup>

Index study had a mean PASI score of  $9.70 \pm 7.44$  SD, which was comparable to the studies conducted by Lamb et al. and Khawaja et al.<sup>16,18</sup> Index study segregated the patients on the basis of PASI score severity, i.e., 43% subjects had mild psoriasis, which was nearly the same (38%) to the study done by Nasreen et al.<sup>10</sup> Index study found no significant difference in psychiatric morbidities (HAM-A score, BDI score), mean values, and severity of psoriasis (PASI score) between male subjects and female subjects.

Index study found a significant positive correlation between PASI total score and depression and anxiety total score. Similar findings were obtained in the studies by Lakshmy et al. and Khawaja et al.,<sup>8,16</sup> which means psoriasis was correlated with the presence of anxiety and depression symptoms.

Index study found a significant positive correlation of PASI severity with the severity of depression and psychopathology. Hence, an increased severity of psoriasis was correlated with an increase in severity of depression symptoms and psychopathology. A negative correlation was found between PASI severity and HAM-A severity, which means, with an increase in severity of PASI, anxiety decreases in a psoriasis patient. One possible explanation could be, with gradual involvement of newer sites and increasing duration of psoriasis, that patients gradually adapt to the disease process and the anxiety decreases. Index study also found a significant positive correlation between the number of body sites involved in psoriasis and depression severity. This finding was along the expected line.

Index study had certain limitations. The study was conducted in tertiary care teaching hospital. Therefore, the findings cannot be generalized to community setting. This index study included patients having more than one type of psoriasis. Therefore, it precluded the determination of comparative prevalence of psychiatric comorbidities in different subgroups of psoriasis patients.

## CONCLUSION

In the index study, the majority of the subjects had a mild degree of anxiety symptoms; the majority of the subjects with psoriasis had minimal depression; around two-third of male subjects and half of the female subjects, respectively, were SRQ positive. On SKINDEX-61, the index study found that the majority of the subjects responded affirmatively in a decreasing order of frequency in the following domains: embarrassment, discomfort, fear, anger, physical limitation, depression, and cognitive impairment. PASI total score had a significant positive correlation with anxiety, depression, and psychopathology total score. Severity of psoriasis also had a significant positive correlation with depression severity grades and presence or absence of psychopathology. The index study also revealed that the number of body sites involved in psoriasis had a significant positive correlation with depression severity. Therefore, it can be safely concluded that subjects with psoriasis need careful psychiatric evaluation and if required, referral and intervention.

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