

The Assessment of Depression Among Psoriasis Patients in a Southern Regional Hospital of Tropical Dermatology Trang Province, Thailand: A Cross-sectional Descriptive Study

Siriporn Seanghirun MSc*, Kitipan Khaonim MSc*,
Sutsarun Prunglumpoo MD**, Navinda Donsakul MD*,
Duangdao Sriruengrat MPH*, Weerasak Manee MPH***,
Voraphol Vejjabhinanta MD PhD*.

*Southern Regional Hospital of Tropical Dermatology Trang Province, Thailand.

**Institute of Dermatology, Thailand.

***Disease Prevention and Control 12th Songkhla, Thailand.

ABSTRACT:

Background: Psoriasis is a chronic, immune-mediated skin disorder that is influenced by both genetic susceptibility and environmental factors. Psoriasis affects the quality of life of the patient not only physically, but also mentally. Because psoriasis is a chronic skin disease that cannot be completely cured without relapsing, it may cause individuals to develop depression.

Objective: 1) To screen for depression in psoriasis patients receiving services at the Southern Tropical Dermatology Hospital, Trang Province (Hospital of Tropical Dermatology). 2) To study the factors associated with depression.

Materials and Methods: This study employed a cross-sectional descriptive design. Data was gathered using a structured, face-to-face interview questionnaire comprising the 2Q, 9Q, and 8Q formats. The data were analyzed using descriptive and inferential statistics. Analyzed associations between different factors and depression using the Chi-square test, Fisher's exact test for categorical variables, and the Independent t-test, Mann-Whitney U Test for continuous variables.

Results: In the depression screening of 186 participants, the median psoriasis duration was 5 (3, 10) years. Using the 2Q questionnaire, depression was found to be a potential outcome in 29 patients (15.6%). Using the 9Q screening questionnaire, 24 patients with psoriasis (12.9%) were found to have very mild depression, while 5 patients (2.7%) had mild depression. Of these 5, 3 patients (60.0%) had mild psoriasis, and 2 patients (40.0%) had moderate to severe psoriasis. In terms of overall suicidal tendency, 3 patients (1.6%) were found to have a low tendency for suicide attempts. The results of the analysis of associations between different factors and depression in psoriasis patients found that Age, Income, and Severity of psoriasis were significantly associated with depression (p -value<0.05).

Conclusion: A low prevalence of depression was observed in psoriasis patients. Screening for psychological problems is recommended for psoriasis patients.

Key words: Depression; Psoriasis; Severity; Screening; Tropical Dermatology

Introduction

Psoriasis affects around 1% to 2% of the overall population and can be found in all racial groups. An equal incidence rate has been observed among both men and women. A study of individuals with psoriasis revealed that the condition was more common in two age groups: 22.5 and 55 years old. The individuals with psoriasis who exhibited symptoms earlier in life were found to have more severe symptoms than those with a later onset. Psoriasis is related to genetic predisposition. There are several treatment options for psoriasis. To choose the best treatment for each patient, physicians must be aware of the benefits, risks, and efficacy of the treatment. Combination and rotational therapy can be used to reduce the side effects of other treatments¹.

In many countries, psoriasis is regarded as an essential public health issue with profound impact. From the epidemiology of psoriasis, it was estimated that the number of psoriasis cases is rising annually, with 7 million cases in America and 335,000 cases in Australia². In Thailand, 2 cases of psoriasis can be found in every 100 population or 1.34 million cases in 67 million population¹. Because psoriasis is a chronic disease, the increase in the number of new cases combined with preexisting cases increased the number of overall psoriasis cases to be augmented. Moreover, patients with psoriasis are prone to depression as psoriasis is a chronic disease that cannot be completely cured.

Depression is a mental disorder in which patients have altered thoughts and behavior, while a depressive mood can happen to anyone. The causes of depression can be multifactorial e.g., abnormal hormonal regulation, chronic diseases, etc. Psoriasis patients can suffer from symptoms including erythematous plaques, thick silvery scales, pustules, arthritis, and malformed joints. These problems can cause the patients to be depressed or anxious.

The objectives of this study are to screen for depression in psoriasis patients receiving services at the Southern Tropical Dermatology Hospital, Trang Province (Hospital of Tropical Dermatology and (2) to identify factors associated with depression among these patients.

Materials and Methods

This cross-sectional descriptive study was conducted at the Southern Tropical Dermatology Hospital, Trang Province (Hospital of Tropical Dermatology). The population was psoriasis patients receiving services at the Hospital of Tropical Dermatology. Inclusion criteria comprised: (1) Psoriasis patients receiving treatment at the psoriasis clinic during fiscal year 2023, (2) Participants aged more than 18 years, and (3) All participants providing informed consent. Exclusion criteria were: (1) Patients diagnosed with psychiatric disorders before psoriasis treatment, (2) Patients unable to read or write Thai, and (3) Non-Thai patients.

The sample size was 186 psoriasis patients receiving treatment at the psoriasis clinic during May 2023 to September 2023. An appropriate formula for estimating population proportions under the assumption of an infinite population was applied via the n4Studies software to calculate the sample size³. With a confidence interval (α) of 0.05 and proportion (p) of 0.14, the required sample size was determined to be 186.

The data collection tools consisted of standardized instruments for screening and assessing depression and suicide risk, namely the 2Q, 9Q, and 8Q forms, which were administered via face-to-face interviews. The questionnaire was structured into two sections: one capturing general demographic information, and the other evaluating levels of depression and suicide risk⁴.

The assessment process followed a stepwise approach. All participants were initially screened using 2Q. Those with a positive result

(answering “yes” to either question) proceeded to the 9Q to assess the severity of depressive symptoms. Participants scoring ≥ 7 on the 9Q were then assessed for suicide risk using the 8Q.

The study procedure consisted of three main steps: (1) Assessing depression in patients with each psoriasis severity level, (2) Reevaluating depression in patients who experienced shifts in disease severity (mild to moderate, moderate to severe, severe to mild, and moderate to mild), and (3) No reassessment for patients with unchanged psoriasis severity. The study was conducted in accordance with the Declaration of Helsinki and approved by the Hospital of Tropical Dermatology Human Ethics Committee (Approval No. 002/2023; approval period: November 21, 2022, to November 21, 2023).

Statistical analyses

The data were analyzed using package software statistics. Descriptive statistical methods and categorical data were presented as numbers and percentages, while continuous

data were presented as mean and standard deviation (SD) or median and interquartile range (IQR) depending on the data distribution. Associations between different factors and depression were analyzed using the Chi-square test, Fisher’s exact test for categorical variables and the Independent t-test, Mann-Whitney U Test for continuous variables.

Results

Among 186 participants, 58.6% were male patients. The mean age was 50.0 (14.4) years, with 60.8% married. The number of patients who graduated with a Bachelor’s degree was 33.9%. Patients who work in agriculture accounted for 25.8%. Patients with underlying diseases accounted for 24.2%, and most of them had hypertension (71.1%). The median income was 15,000 (10000, 23000) baht. The median duration of psoriasis was 5 (3, 10) years. The median visits were 6 (3, 10) times. The median cost of treatment spent on each visit was 600 (350, 1000) baht (see Table 1).

Table 1 Demographic characteristics of patients (n= 186)

Variables	n (%)
Gender	
Male	109 (58.6)
Female	77 (41.4)
Age (Years); Mean (SD)	50.0 (14.4)
Status	
Married	113 (60.8)
Single	45 (24.2)
Widowed/divorced/separated	28 (15.1)
Education	
Unlettered	5 (2.7)
Primary school	46 (24.7)
Secondary school	39 (21.0)
Associate degree	23 (12.4)
Bachelor’s degree	63 (33.9)
Master’s degree/ Doctoral degree	8 (4.3)
No answer	2 (1.1)
Occupations	
Agriculture	48 (25.8)
Employee	43 (23.1)
Merchant	28 (15.1)

Variables	n (%)
Government official	20 (10.8)
Unemployed/retired	5 (2.7)
Other	42 (22.6)
Underlying diseases	
No	141 (75.8)
Yes	45 (24.2)
- Hypertension	32 (71.1)
- Diabetes	19 (42.2)
- Dyslipidemia	5 (11.1)
- Heart disease	4 (8.9)
- Kidney disease	1 (2.2)
- Orthopedic Disease	1 (2.2)
Income (Baht/Month); Median (IQR)	15000 (10000, 23000)
Cost (Baht); Median (IQR)	600 (350, 1000)
Duration of psoriasis (Years); Median (IQR)	5 (3, 10)
Number of times (Visit); Median (IQR)	6 (3, 10)

Table 2 presents the depression screening results in psoriasis patients. Using the 2Q questionnaire, 29 patients (15.6%) were identified as at risk for depression. Following assessment with the 9Q questionnaire, 24 patients (12.9%) had very mild depression, while 5 patients (2.7%) had mild depression. Among patients with mild depression, 3 patients (60.0%) had mild psoriasis (Psoriasis Area and Severity Index [PASI Score] ≤ 10), while 2 patients (40.0%) had moderate to severe psoriasis (PASI Score >10). No patients were found to have moderate and severe depression

(Table 3). According to the assessment of suicide in the depressed sample, it was found that there was a low level of suicide (1.6%).

For patients with mild depression, three were male (60.0%), with a mean age of 40.4 (12.8) years. Three were married (60.0%), and 4 patients (80.0%) did not have a university degree. All patients with mild depression had an income of less than 15,000 baht per month and did not have comorbidities apart from psoriasis. Additionally, 3 patients (1.6% of the total sample) were found to have a low risk of suicidal ideation.

Table 2 Screening Results for Depression Using the 2Q, 9Q, and 8Q Questionnaires (n=186)

Assessment depression	n (%)
2Q	
Normal (No depressive)	157 (84.4)
Risk depressive (Ongoing assessment with 9Q)	29 (15.6)
9Q	
Very mild case of depression	24 (12.9)
Mild case of depression (Ongoing assessment with 8Q)	5 (2.7)
Moderate and Severe case of depression	0
8Q	
No risk of suicide	2 (1.1)
Mild risk of suicide	3 (1.6)

Table 3 Number and percentage of the participants that met the criteria for depression by using 9Q questionnaire classified by severity of psoriasis.

Psoriasis patients' symptoms of depression	No/very mild case of depression	Mild case of depression	Moderate and Severe case of depression
Mild (PASI Score $\leq$ 10)	22 (91.7)	3 (60.0)	0
Moderate to Severe (PASI Score $>$ 10)	2 (8.3)	2 (40.0)	0
Total	24	5	0

Table 4 presents the analysis of associations between different factors and depression in psoriasis patients found that Age, Income, and

Severity of psoriasis were significantly associated with depression (p-value $<$ 0.05).

Table 4 Analysis of associations between different factors and depression.

Factors	Depression (n=29)	No depressive (n=157)	p-value
Gender			0.680
Male	18 (62.1)	91 (58.0)	
Female	11 (37.9)	66 (42.0)	
Age (Years); Mean (SD)	43.3 (14.8)	51.3 (14.0)	0.006*
Status			0.335
Married	16 (55.2)	97 (61.8)	
Single	10 (34.5)	35 (22.3)	
Widowed/divorced/separated	3 (10.3)	25 (15.9)	
Education			0.461
Unlettered/ No answer	1 (3.5)	6 (3.8)	
Primary school	11 (37.9)	35 (22.3)	
Secondary school	5 (17.2)	34 (21.7)	
Associate degree	2 (6.9)	21 (13.4)	
Bachelor's degree/ post-graduate	10 (34.5)	61 (38.9)	
Income (Baht/Month); Median (IQR)	12000(9000, 20000)	15000(10000, 25000)	0.034*
Severity of psoriasis			0.022*
Mild (PASI Score $\leq$ 10)	25 (86.2)	153 (97.5)	
Moderate to Severe (PASI Score $>$ 10)	4 (13.8)	4 (2.6)	

* p-value $<$ 0.05

Discussion

This study explores the demographic, socioeconomic, clinical, and psychological characteristics of psoriasis patients attending the Hospital of Tropical Dermatology during fiscal year 2023. The findings contribute to a nuanced understanding of the interplay between psoriasis and mental health, with a particular focus on depression and suicidal ideation.

In the study on the prevalence of depression among psoriasis patients, it was identified that 15.6% of patients were at risk for depression, with 2.7% experiencing mild depression. While

these rates align with findings reported by Koo et al.⁵ and Luna et al.,⁶ they remain lower than those observed in other populations, such as 19% by Pollo et al.⁷ and 40.3% in the study by Schuster et al.⁸

Furthermore, several methodological and contextual factors could explain the relatively lower prevalence of depression observed in this current cohort. First, the study's stringent exclusion criteria removed patients with pre-existing psychiatric diagnoses, which inherently lowers the baseline prevalence of depression. Second, the regional setting of the

Hospital of Tropical Dermatology in Trang province may reflect a patient population with stronger familial and community support systems, which are characteristic of provincial Thai culture and serve as protective factors against severe psychological distress. This contrasts with data from major tertiary referral centers in the capital; for example, Wannarit et al.⁹ reported a higher prevalence of 21.3% among psoriasis patients at Siriraj Hospital in Bangkok. Patients treated at central tertiary hospitals often present with more severe, recalcitrant disease, which significantly increases their psychological burden.

Variability in these rates globally may also stem from differences in healthcare accessibility and methodological factors, such as the tools used for depression screening. For instance, a systematic review and meta-analysis by Dowlathshahi et al.¹⁰ identified a high prevalence of depressive symptoms of approximately 28% based on questionnaires, with variations depending on screening tools and regional contexts. Additionally, Fleming et al.¹¹ highlighted that the psychological burden of psoriasis often remains underestimated due to underreporting and stigma, particularly in low- and middle-income countries. These observations align with the current findings and underscore the importance of systematic screening and culturally sensitive interventions.

In terms of disease severity and its psychological impact, the majority of patients with depression in this study had mild psoriasis (86.2%), contrasting with the findings of Luna et al.⁶ and Nicholas et al.,¹² which showed a positive correlation between psoriasis severity and depression risk. This discrepancy could be attributed to the absence of patients with severe psoriasis in the current cohort, potentially due to treatment adherence or alternative care pathways. It is crucial to expand future studies to include a broader spectrum of psoriasis severity, using standardized scoring systems such as the PASI score to ensure comprehensive

analysis. While this study found that most patients with depression had mild psoriasis, the literature suggests a complex relationship between disease severity and mental health. For instance, Dowlathshahi et al.¹⁰ concluded that psoriasis patients are at least 1.5 times more likely to experience depression compared to controls, and Luna et al.⁶ emphasized that patients with more severe psoriasis generally have a higher prevalence of depression. The discrepancy observed in the current study could be attributed to the exclusion of severe cases, as well as cultural factors influencing the perception of disease burden. Future studies should employ validated tools like the PASI score to explore these dynamics further.

Socioeconomic and educational factors also demonstrated a significant influence, as patients with depression were predominantly from lower socioeconomic backgrounds, with all earning less than 15,000 baht per month and 80% lacking a university degree. This highlights the intersection between socioeconomic status, education, and mental health. Lower income and educational attainment are often associated with reduced access to healthcare resources, increased stress levels, and poorer disease management outcomes. Targeted interventions addressing these disparities, such as patient education and subsidized care, are vital for improving holistic patient well-being. The correlation between socioeconomic factors and mental health outcomes in patients with psoriasis is well-documented. Kimball et al.¹³ reported that patients with lower socioeconomic status (SES) face barriers in accessing advanced treatments, which can exacerbate both physical and psychological symptoms. Similarly, Armstrong et al.² emphasized the bidirectional impact of low income and educational attainment on stress levels, coping mechanisms, and healthcare accessibility. The present study's findings, which reveal a strong association

between lower income and depression risk, are consistent with these global patterns.

Correlation analysis identified three significant factors associated with depression in psoriasis patients: age, income, and severity of psoriasis. This research result is consistent with Wannarit et al.'s⁹ research, which found depressive symptoms in 21.3% of their sample, linked to stress, psoriasis severity, and diminished quality of life. Furthermore, our results strongly align with the nationwide study by Hu et al.,¹⁴ which identified young to middle age and low income as major risk factors for depression in Asian psoriasis patients, although their larger sample size also allowed for the identification of major systemic comorbidities as significant predictors.

Evaluating the impact of comorbidities revealed that psoriasis is often associated with multiple systemic conditions, including cardiovascular diseases and metabolic syndrome, which can further exacerbate mental health issues. Studies by Takeshita et al.¹⁵ emphasize the cumulative burden of these conditions, suggesting that integrated care approaches addressing both physical and psychological needs are essential for improving patient outcomes.

When assessing suicidal ideation among psoriasis patients, a notable 1.6% of patients were identified with a mild risk, a finding consistent with rates reported by Luna et al.⁶ but lower than the 6.3% observed by Bardazzi et al.¹⁶ Although this prevalence is low, it underscores the importance of integrating mental health support into routine dermatological care. Early identification and intervention are crucial, as psoriasis patients with comorbid depression and suicidal ideation are at risk for poorer overall outcomes. The finding of a 1.6% prevalence of suicidal ideation aligns with the lower end of global data ranges reported by Bardazzi et al.¹⁶ (0.4%–6.6%). This highlights the urgent need for mental health support in dermatological

settings. The relatively low prevalence observed in this study may reflect cultural differences in reporting, variations in healthcare delivery systems, or specific stress and coping profiles among Thai psoriatic patients, as noted by Pairayayutakul.¹⁷

Clinically, the findings of this study emphasize the multifaceted impact of psoriasis, extending beyond dermatological symptoms to mental and socioeconomic dimensions. Key clinical recommendations include: 1. Routine mental health screenings for psoriasis patients, particularly those with mild or moderate disease. 2. Development of integrated care models combining dermatology and psychiatry to address psychological comorbidities effectively. 3. Implementation of patient-centered interventions, such as counseling services and financial support programs, to alleviate disease burden.

This study is subject to certain limitations, including its exclusion of severe psoriasis cases and reliance on a single-center population. Future research should aim to include diverse patient cohorts, utilize longitudinal designs to assess temporal changes, and evaluate the efficacy of integrated care interventions. Additionally, further exploration of the bidirectional relationship between socioeconomic factors and disease severity is warranted.

Ethical statement

The study Protocol was approved by the Hospital of Tropical Dermatology Human Ethics Committee (approval number: 002/2023)

Declarations

Grants and Funding Information

This work was supported by the Thailand Science Research and Innovation (TSRI), Fundamental Fund (FF).

Conflict of Interest

The authors declare that they have no conflicts of interest regarding the publication of this article.

Author Contributions

Conceptualization and methodology, S.S., K.K., D.S., V.V., S.P., N.D., and W.M.; Investigation, S.S., K.K.; Formal analysis, D.S.; Visualization and writing – original draft, S.S., K.K.; Writing – review and editing, S.S., K.K., D.S., and W.M.; Funding acquisition, K.K.; Supervision, V.V., S.P., N.D. All authors have reviewed and approved the final version of the manuscript.

Use of artificial intelligence

No artificial intelligence tools or technologies were used in the writing, analysis, or development of this research.

Acknowledgements

The author sincerely thanks Dr. Narissara Ngamkajornviwat (Dermatologist) for her invaluable guidance and support. Appreciation is also extended to the methodology instructors, the Department of Research at the Hospital of Tropical Dermatology, and all others who contributed their advice and assistance.

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