Original Article

Prevalence and Characteristics of Psoriasis Patients in a Primary Care Area in Thailand

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Background: Psoriasis is a chronic dermatological illness with a high burden of morbidity. There is no collective data on its prevalence and incidence in Thailand to date.

Objective: To explore the prevalence and patient characteristics in a primary care area with a population of approximately 30,000 under the Universal Health Care Coverage Scheme serviced by the authors' university hospital.

Materials and Methods: The authors conducted a retrospective database analysis from the hospital electronic medical record system on patients seen between January 2015 and December 2019. Psoriasis patients were identified by using the International Statistical Classification of Diseases and Related Health Problems Tenth Revision codes containing L40 (L40.0 to L40.9). The diagnosis for each patient was then confirmed from the medical chart review. The number of visits and number of psoriasis patients in the Universal Health Care Coverage Scheme in the primary care setting was counted, and a five-year period prevalence was calculated. Characteristics of psoriasis patients were analyzed including their ages, gender, comorbidity, and systemic treatment received.

Results: During the five-year period, there were 338 visits from 40 individual psoriasis patients. The five-year period prevalence of psoriasis was 0.13% or 133 per 100,000 persons. The mean age of psoriasis patients was 50 years. Male consisted of 47% of patients. Forty-two percent of patients required systemic treatment.

Conclusion: The five-year period prevalence of psoriasis was 0.13%, which is less than the prevalence in the western countries but similar to other east Asian countries. The limitation of the present study was the relatively small geographic area and the possibility of underestimating prevalence due to some patients may not have sought treatment or were treated at other health facilities. After adjusting for underreporting bias, the adjusted prevalence is 0.43%.

Keywords: Psoriasis, Prevalence, Thailand

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Psoriasis is a chronic skin disease with a high burden of morbidity. In 2014, the World Health Organization recognized psoriasis as a serious non-communicable disease in the World Health Assembly Resolution WHA 67.9, which highlighted that the patients suffer from psoriasis due to incorrect or delayed diagnosis, inadequate treatment options, insufficient access to care, and social stigmatization. The reported prevalence of psoriasis in countries ranges between 0.09% and 11.4%, making psoriasis a serious global problem[1]. The study on a registry of 11,574 psoriasis patients in Thailand showed that the average age of onset was 33 years. Twenty-five percent of patients have been classified as moderate-to-severe psoriasis based on the affected body surface area[2]. There is no population-based prevalence study of psoriasis patients in Thailand to date. The authors' facility, Naresuan University Hospital is a teaching hospital located in Phitsanulok province in the lower northern Thailand, provides not only tertiary care but also primary care for the population around the hospital area. The hospital medical record data provided an opportunity to study the prevalence of the disease in a population-based area of primary care area. The authors, therefore, aimed to explore the prevalence of psoriasis among the population in the primary care area between 2015 and 2019.

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Materials and Methods

The authors' university hospital provided

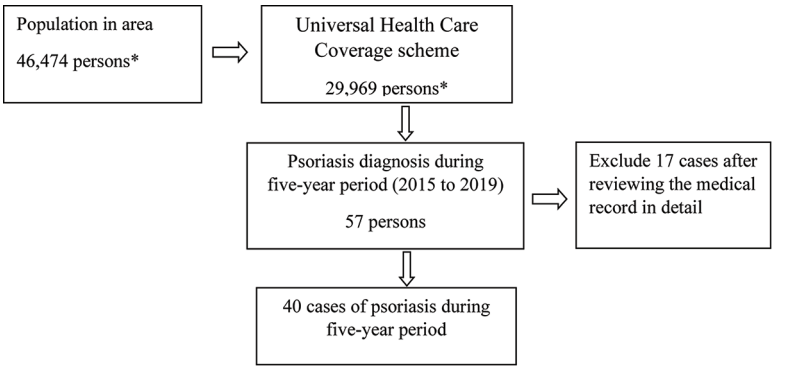

Figure 1. Psoriasis cases from the population of five primary care subdistricts.

* Population of year 2017

health services for patients with variety of health coverage programs including Civil Servant Medical Benefit Scheme, National Social Security Scheme, Universal Health Care Coverage scheme (UC), and cash payment by the patient. The hospital serves five subdistricts in the Muang District, Phitsanulok Province. The population in these five subdistricts in the year 2017 was 46,474. Among the 46,474, 29,969 were under the UC, a national health coverage program providing universal health care based on the National Health Insurance Law of 1995. The authors conducted the present study in this subgroup to explore the prevalence of psoriasis in the primary care area.

The hospital had operated on an electronic medical record. Diagnoses were coded based on the International Statistical Classification of Diseases and Related Health Problems Tenth Revision codes (ICD10). Psoriasis patients were identified by using ICD10 code L40 (L40.0 to L40.9), which consisted of psoriasis vulgaris, generalized pustular psoriasis, acrodermatitis continua, pustulosis palmaris et plantaris, guttate psoriasis, arthropathic psoriasis, other psoriasis, and unspecified psoriasis. Patients with these psoriasis diagnoses in their electronic database between January 2015 and December 2019 were included for analyses.

The authors conducted a chart review on each patient to validate the diagnosis. Patients would be excluded from the study if they only had a single visit, and the diagnosis was made by non-dermatologist. Characteristics of psoriasis patients analyzed included age, gender, comorbidity, and treatment.

At the date of the first recorded diagnosis, individuals were considered as prevalent cases from that date onward. The authors counted all the visits and the number of non-duplicated psoriasis individual cases. The authors used the accumulated diagnoses between 2015 and 2019 for the calculation of a five-year period prevalence. The five-year period prevalence was calculated using the 2017 population, which is the median of the five-year period as a denominator. Statistical analyses were performed using Stata, version 9.0 IC (StataCorp LP, College Station, TX, USA). Ethical approval (IRB no. P3-007/2563) was approved by the Institutional Ethics Review Board.

Results

As showed in Figure 1, in 2017, there were 46,474 persons in five subdistricts of the primary care area, and 29,969 persons were under the UC. There were 57 psoriasis patients during five-year period. Seventeen patients were excluded as they had only one visit and were diagnosed by a non-dermatologist (13 patients), and later were changed diagnoses (4 patients). Finally, 40 individuals with psoriasis diagnosed were eligible. There were 17 individuals with psoriasis at the beginning of 2015, and 40 by the end of 2019.

From Table 1, the catchment area had a population under the UC of 26,505 in 2015, 29, 969 in 2017, and 31,136 in 2019. The number of visits was 338 visits from 40 psoriasis patients. During a five-year period, the number of visits ranged from 1 to 65 visits with a median of five visits. In 2015, there were 72 visits from 17 psoriasis patients from the catchment area of 26,505 patients. In the following year 2016, there were 64 visits from 18 psoriasis patients. Among these 18 individuals, seven were new patients while the remainder 11 were follow-up cases.

The authors calculated a five-year period

Table 1. Number of population and psoriasis patients

Year	Population	Number of visits	Number of psoriasis patients	Old cases	New cases
2015	26,505	72	17	-	17
2016	26,585	64	18	11	7
2017	29,969	59	13	8	5
2018	31,618	70	22	15	7
2019	31,136	73	19	15	4
2015 to 2019	29,969*	338	40		40

* Population of year 2017

Table 2. Characteristics of 40 psoriasis patients (n=40)

Characteristics	Number of patients; n (%)
Sex	
Male	19 (47.5)
Female	21 (52.5)
Age (year)	
<20	1 (2.5.)
20 to 39	9 (22.5)
40 to 59	16 (40.0)
>60	14 (35.0)
Number of visits	
1	7 (17.5)
2 to 5	12 (30.0)
6 to 10	9 (22.5)
11 to 20	9 (22.5)
>20	3 (7.5)
Co-morbidity diseases	
No	16 (40.0)
Yes	24 (60.0)
• Hypertension	11 (27.5)
• Diabetes mellitus	5 (12.5)
• Dyslipidemia	7 (17.5)
• Gout	1 (2.5)
• Arthritis	2 (5.0)
• Depression	2 (5.0)
• Malignancy	1 (2.5)
• Thyrotoxicosis	1 (2.5)
Systemic treatment	
No	23 (57.5)
Yes	17 (42.5)
• Methotrexate	14 (35.0)
• Cyclosporine	2 (5.0)
• Acitretin	2 (5.0)
• Sulfasalazine	3 (7.5)

prevalence of psoriasis by combining all individual cases diagnosed between 2015 and 2019 (40 patients), then divided by the population from the year 2017 (29,969 persons). The five-year prevalence was 0.13% or 133 cases per 100,000 persons.

The characteristics of psoriasis patients are shown in Table 2. Genders were equally distributed among male and female. Most patients were in their middle age or older. Patients' ages ranged between 17 to 77 years old with a median age of 50. The mean age was 50.96 years with a standard deviation of 15.56.

Discussion

In 2016, the World health organization global report on psoriasis stated the burden of psoriasis disease and reported prevalence of psoriasis in countries ranges between 0.09% and 11.43%[1]. As showed in Table 3[2-13], the prevalence in Europe and North America were higher than in Asia and Africa. Among the Asian countries, the prevalence was 0.12% in China, 0.19% in Taiwan, 0.44% in Japan, and 0.44% in Sri Lanka. In Africa, the prevalence was 0.19% in Egypt, 0.09% in Tanzania, and 0.57% in Tunisia. Among the Western countries, higher prevalence of psoriasis was reported: 5.10% in the United States, 1.87% in the United Kingdom, and 2.53% in Germany.

In the present study, there were 40 psoriasis patients during a five-year period. Male and female were nearly equally affected. Most were in the middle age and old age group. Sixty percent had comorbidity diseases such as hypertension (28%), dyslipidemia (18%), and diabetes (13%). Forty-two percent received systemic treatment mainly with methotrexate. A retrospective study of 1,082 psoriasis patient at a dermatology clinic in a university hospital in Bangkok showed a high proportion of patients in the 40 to 49 age group, 33% with co-existing disease, and 33.5% with systemic treatment[14]. Thai Health Examination Survey showed that the prevalence of hypertension, dyslipidemia, and diabetes in Thai people older than 15 was at 24.7%, 16.4%, and 8.9%, respectively[15].

The present study's five-year period prevalence of psoriasis was 0.13%, which was nearly the same as the prevalence from China (0.12%) and Taiwan (0.16%)[13,11] but was much below the prevalence reported from the western countries. In the estimation by the Global Psoriasis Atlas website, psoriasis prevalence in Thailand was extrapolated at 0.30% (CI 0.06 to 1.65)[16].

Table 3. Psoriasis prevalence in all age across the countries in the world

Country	Year	Study source	Population size	Prevalence in percent	Female	Male
United States of America[3]	2009	Melanoma screening program	2,573	5.10		
United Kingdom[4]	2009	Health database	7,520,293	1.87	1.9	1.8
Germany[5]	2005	Health database	1,344,071	2.53	2.57	2.79
Tunisia[6]	2006	National survey	5,778	0.57		
Egypt[7]	1994	Community survey	8,008	0.19		
Tanzania[8]	1994	Community survey	1,114	0.09		
South Korea[9]	2015	Health database	Whole population	0.45		
Japan[10]	2010	Health database	128,000,000	0.44		
Taiwan[11]	2006	Health database	1,000,000	0.19	0.16	0.23
Sri Lanka[12]	1997	Household survey	1,806	0.44		
China[13]	1984	Health database	6,617,917	0.12	0.12	0.17
Current study, Thailand	2019	Health database	29,969	0.13, 0.43*		

* Adjusted prevalence for underreporting bias, more detail in text

Using a five-year prevalence could overestimate the prevalence of psoriasis. However, the authors chose not to report point prevalence or 1-year period prevalence as some patients with psoriasis might not require any therapy during the short period of evaluation[17]. The authors calculated using the five-year period prevalence of the disease to allow for more cases to be detected, including patients that may have gone to other health facilities, pharmacies, or those who might not seek out treatment.

However, the five-year period prevalence was still considered low at 0.13%. In addition, some cases were excluded to improve the specificity of diagnosis of psoriasis after reviewing and validating all diagnosed psoriasis cases. However, psoriasis cases misdiagnosed as other skin diseases could not be identified. The proportion of systemic treatment in the present study was quite high at 42% indicating that some patients with mild disease might not be included in the present study. A previous study in Thailand with the registry of 11,574 psoriasis patients from 22 hospitals showed that there were only 13% of psoriasis patients that received systemic treatment such as methotrexate and retinoid[2]. Seventeen patients received systemic treatment in the present study. If the authors consider 17 patients as 13% of total patients who required systemic treatment, the total psoriasis patients would be "(100/13)×17=130.7 cases". The newly adjusted prevalence for underreporting bias would be 0.43% (130.7/29,969).

The heterogeneity of prevalence of psoriasis was likely to be due to different methodologies, namely types of measure such as point, period, or lifetime prevalence, and case definition such as self-reported, or physician's, or dermatologist's diagnosis. The self-reported diagnoses gave higher rates compared with physician's and dermatologist's diagnoses. Prevalence estimates using data from the subgroup population might not represent the general population[18]. Different age structures would affect the prevalence of psoriasis, which are more likely to occur in the elder. In August 2020, Thailand had 18% of the population who were older than 60 years[19]. Age-standardized prevalence rate might be more preferred to compare prevalence between the country with different population age structure.

The main limitation of the present study was the relatively small number of thirty thousand population size. Calculated prevalence from hospital medical record should be lower than the clinical exam in the cross-sectional survey since biases might occur in many ways including not capturing cases that may not have sought treatment or were treated at other health facilities. The authors' studied population was under the UC, which may have different lower socioeconomic status and educational levels than others.

The strength of the present study is the setting of the present study tertiary hospital with a designated primary care area where dermatology consultation is easily accessible under the UC, making it ideal to explore the prevalence of psoriasis patient as a population-based study.

In conclusion, the five-year period prevalence of psoriasis patients was at least 0.13%. The prevalence was consistent with other studies among Asian

population, but much lower than the prevalence among Caucasian population. This prevalence is likely underestimated, compared to the other study. After adjusting for underreporting, the adjusted prevalence is 0.43%. Psoriasis tends to occur more in adult and old patients. The common comorbidity diseases included hypertension, diabetes mellitus, and dyslipidemia, but nearly similar to the level of general population in Thailand.

What is already known on this topic?

Psoriasis is a common chronic skin disease with a high burden of morbidity. As shown in Table 3, the prevalence of psoriasis from studies in the western countries, which was 1.87% to 5.5%, was higher than prevalence from the study in east Asian country, which was 0.12% to 0.45%.

What this study adds?

The prevalence of psoriasis in the Thai population in a primary care area was at least 0.13% or 0.43% when adjusted for underreporting, which was not much different from the East Asian population but low when compared with European population. Psoriasis might become more burdensome in the upcoming aging society.

Conflicts of interest

The authors declare no conflict of interest.

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