



Prevalence, Co-morbidities and Management of Psoriasis in Saudi Arabia: A Review

**Afaf Enad Alenazy¹, Asmaa Enad S. Alenazy^{2*}, Maali Salamah N. Alanazi³
and Manal Nashi Alshammari²**

¹National Guard Hospital, Arar, Saudi Arabia.

²North Medical Tower Hospital, Arar, Saudi Arabia.

³Primary Health Care, Arar, Saudi Arabia.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Psoriasis is a chronic inflammatory skin illness with an autoimmune pathogenic mannerisms and genetic tendency. It is regarded as erythematous plaques sheltered with silvery scales predominantly over the extensor exteriors, scalp, and lumbosacral region. The prevalence in Saudi Arabia was projected to be 5.3% (53% of psoriasis patients develop it before 30 years of age).

Aim: The main objective of this study is to summarize the current evidence regarding prevalence, types, risk factors, associated comorbidities and management of psoriasis in Saudi Arabia.

Methods: This is a systematic review was carried out, including PubMed, Google Scholar, and EBSCO that examining previous studies regarding psoriasis in KSA. Authors extracted the data, and then the author's names, year and region of publication, the study type, period of study, and the result were reported.

Results: The review included 7 studies that illustrate prevalence, types, risk factors, associated comorbidities and management of psoriasis in Saudi Arabia.

Conclusion: The incidence of psoriasis in Saudi Arabia is within previously reported figures worldwide. Family history seems to have a strong association with the occurrence of psoriasis. CVD and psychological disorders seem to be prevalent Saudi psoriatic patients. Topical medications are widely used and effective in psoriasis management in Saudi Arabia.

Keywords: *Psoriasis; chronic inflammatory skin illness; autoimmune pathogenic mannerisms; genetic tendency.*

1. INTRODUCTION

Psoriasis is defined as a chronic inflammatory skin illness with an autoimmune pathogenic mannerisms and genetic tendency. It is regarded as erythematous plaques sheltered with silvery scales predominantly over the extensor exteriors, scalp, and lumbosacral region [1]. The international prevalence is around 2%, but differs rendering to regions with lower prevalence in Asian and some African residents, and 11% in Caucasian and Scandinavian residents [2]. The prevalence in Saudi Arabia was projected to be 5.3% (53% of psoriasis patients develop it before 30 years of age [3].

Psoriasis normally affects the skin, but sometimes joints can be affected (about 10% of patients develop severe deforming arthritis). It has been reported to be associated with other diseases. Organ systems can also be affected by inflammation as it is not limited to the psoriatic skin [4].

The precise etiology is indefinite, but it is considered to be an autoimmune disease mediated by T lymphocytes. Family history suggests its genetic predisposition. Also, mechanical, chemical, and radiation trauma induces lesions of psoriasis as well as certain drugs such as chloroquine, lithium, beta-blockers, steroids, and NSAIDs which worsen psoriasis [5]. There are a number of multiplicities of psoriasis, including plaque psoriasis, inverse (flexural) psoriasis, pustular psoriasis, and guttate psoriasis. The dermatological symptoms of psoriasis are varied; psoriasis vulgaris is also called plaque-type psoriasis, and is the most prevalent type [6].

Psoriasis is known to have a negative influence on patient's quality of life as well as their family members. Remissions are experienced in 10-60% of patients. Psoriasis has been associated with depression, suicide, smoking, substance abuse, alcoholism, metabolic syndrome and a variety of skin cancers. Also, patients incline to have major comorbidities as kidney disease, heart disease (as noted in several previous studies), and joint problems [7].

Topical treatment is recommended in mild to moderate cases, while phototherapy includes PUVA therapy combines psoralen with exposure

to ultraviolet light (UVA), as well as NBUVB (Narrowband UVB light) is recommended in severe cases. Systemic drugs as methotrexate, retinoids, cyclosporine, and fumarates are possible options that can be used in severe psoriasis cases in which nails are involved and psoriatic arthritis [8].

1.1 Aim of the Study

The main objective of this study is to summarize the current evidence regarding prevalence, types, risk factors, associated comorbidities and management of psoriasis in Saudi Arabia.

2. METHODOLOGY

2.1 Searching

PubMed and EBSCO data bases were searched for the publications used in the study, as they are known to be high-quality sources of information. PubMed is one of the leading online databases established by the National Center for Biotechnology Information (NCBI). Articles regarding psoriasis in Saudi Arabia as well as other articles were used in writing the article. Limitations to English language due to insufficient translation services have been applied. Papers were screened by names, and the abstracts reviewed 6 articles that were eligible.

2.2 Data Extraction

In the first stage, authors screened the titles and abstracts identified from searching the databases for eligibility. Eligible papers were critically appraised and those meeting the inclusion criteria were selected for data extraction.

2.3 Criteria for Inclusion

Papers were chosen on the basis of importance to the topic, including one of the following topics: epidemiology of psoriasis in Saudi Arabia, associated comorbidities among psoriasis patients in KSA, psoriasis in Saudi Arabia'.

2.4 Criteria for Exclusion

Papers not important to the topic, including articles outside Saudi Arabia and all other publications that did not consider our scope

(epidemiology of psoriasis in Saudi Arabia, associated comorbidities among psoriasis patients in KSA, psoriasis in Saudi Arabia) or repetitive research, and summary studies were omitted.

2.5 Statistical Analysis

No technology was used to analyze the results. Information collected was derived on the basis of a particular type (Publication Title, Author's Name, Purpose, Description, Findings and Outcomes). This data were checked by the group members to obtain a uniform results. Double

review of the results of each member has been implemented to ensure authenticity and eliminate errors.

3. RESULTS

A total of 66 research used for the title screening contributed to the search. 35 of them had been used for abstract screening, which contributed to the omission of 12 papers. The remaining 23 full-text articles have been examined. The full-text revision helped lead to exclusion of 17 studies and 6 were able to enroll for final extracting data (Table 1).

The included studies had different study designs.

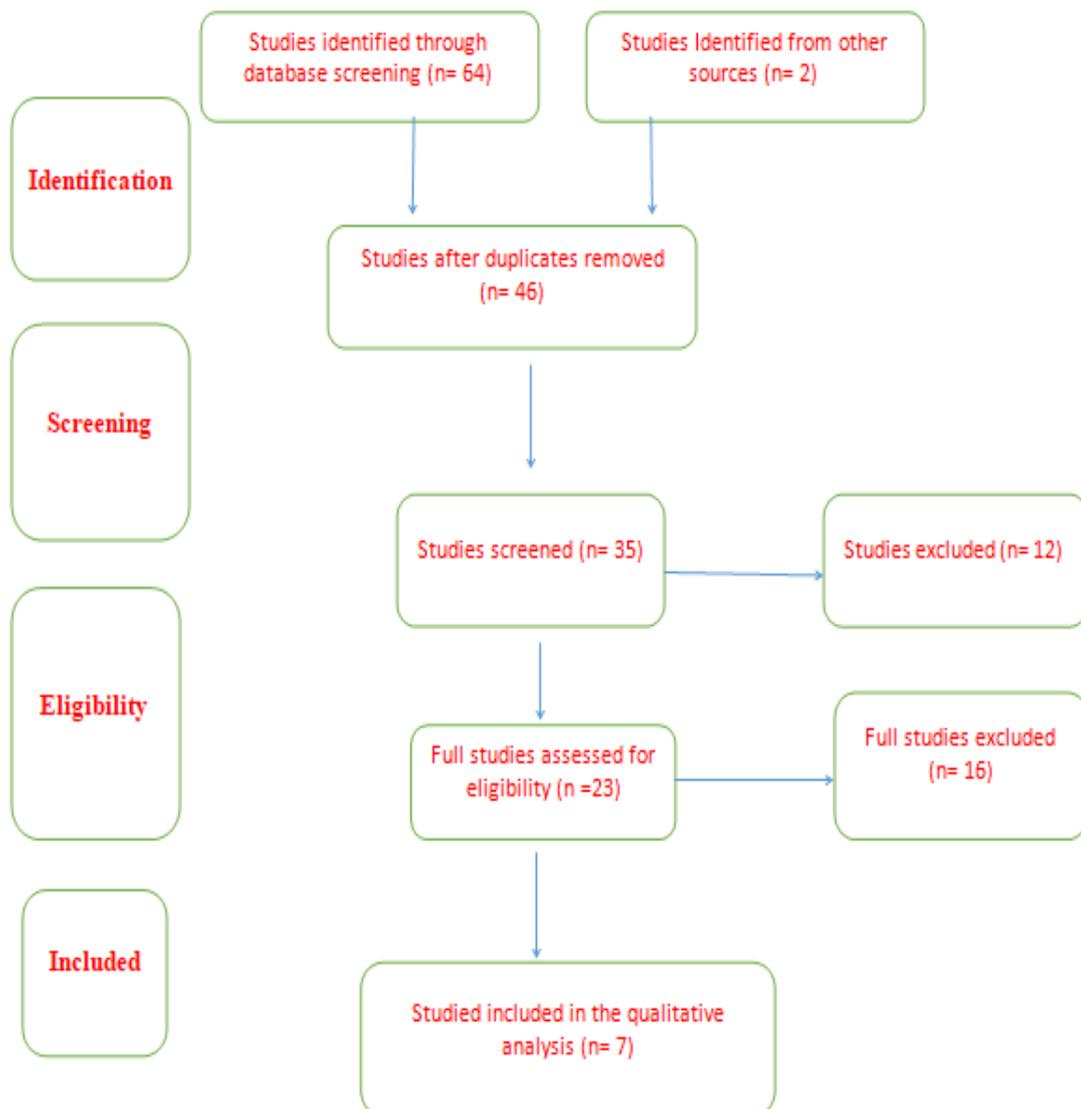


Fig. 1. Flowchart of data extraction of the study

Table 1. Author, study region, year of publication, study type, sample size and outcome

Author	Study Region	Year	Study type	Sample size	Outcome	Ref
Fatani, Mohamad I et al.	Al-Khobar, Saudi Arabia	2002	A cross-sectional study	263 adult psoriatic patients	Incidence was reported around 5.3%. The most common type was plaque psoriasis (87.1%), followed by erythrodermic (4.2%), pustular (3%), guttate (1.9%), flexural, (2.3%) and follicular (0.4%). Sex ratio was 1.4:1 with male predominance.	[3]
Alhumidi A, A.	Saudi Arabia	2013	Retrospective study	100 patients	69% of patients presented with plaques, 8 % with papules (guttate psoriasis), 3% with patches, 5 % with pustules (pustular psoriasis),3% were linear distribution (linear psoriasis), 2 % were erythrodermic psoriasis and 2% in annular fashion.	[9]
Alsuwaidan, S, N.	Saudi Arabia	2011	Analytic retrospective study	36 patients	66.67% had generalized plaque type psoriasis, 22.2% had guttate psoriasis, 11.1% had mixed plaque type and guttate psoriasis, 16.67% had localized plaque type on elbows and knees, 11.11% had palmoplantar psoriasis and 2.77% had scalp psoriasis. All patients were treated by topical medications and/or narrow-band ultraviolet-B phototherapy.	[10]
Alhomoud, Abdulrahman Saad et al.	Saudi Arabia	2017	a case-control study	200 participants -100 with psoriasis, and 100 with dermatitis (control)	There is a higher CV risk prevalence among Saudi psoriatic patients and this confirms that psoriasis is an independent CV risk factor in this population.	[11]
Mleeh, Nouf T et al.	Jeddah, Saudi Arabia	2019	A cross-sectional study	273 participants	More 71.1% of all cases were women (71.1%). Depression was the most prevalent psychological disorder among patients with psoriasis (39.5%, P < 0.001)	[12]
Bhutto A, M, et al.	Riyadh, Saudi Arabia	2011	Hospital-based cross sectional study	36 children	33.3% had the generalized (plaque type) psoriasis, 22.2% had the guttate psoriasis, 11.1% had the mixed guttate and plaque type. All patients were treated by giving the various types of topical medications and/or narrow-band ultraviolet B phototherapy treatment.	[13]
Fatani M, I, et al.	Makkah, Saudi Arabia	2016	Hospital-based cross sectional study	79 patients	Among psoriatic patients, we found that 27.3% have positive family history and 73.2% have associated comorbidities. The mean DLQI score in all patients was 10.67 ± 5.54.	[14]

Fatani, Mohamad I et al. [3] has found that 53% of psoriasis patients developed before 30 years of age, 8.4% of the cases reported family history of psoriasis, and 43% of cases had itching as a main symptom. Lower extremity were the site of affection in 44.9% of patients, then scalp 41.8%, nail 26.6% and palmoplantar 12.6%. The mean age of onset in males was 26.9 years while in females it was 22.3 years.

Alhumidi A, A. [9] reported lower extremity as the most common site of infection (42%), followed by upper extremity (27%), back in 22%, abdomen on 18%, palm and sole in 20 %, genital area in 9 %, axilla in 8 %, scalp in 8 %, face in 5 %, buttock in 4 %, submammary area in 5 %, umbilicus in 3 %, and nail involvement in 2 %. The mean age of disease onset is 31 years with slight male predominance.

Alsuwaidan, S, N. [10] reported that; patients' age ranged from 8 months to 18 years (mean = 11.3 years). The mean duration of the disease was 3.04 years. 27.78% reported positive family history.

Alhomoud, Abdulrahman Saad et al. [11] reported significant association between psoriasis and angina ($p=0.005$), hypertension ($p=0.001$), diabetes mellitus ($p=0.016$), hypercholesterolemia ($p=0.015$), and "CAD succeeding psoriasis ($p=0.001$). There was no association between severity of psoriasis and CV risk.

Mleeh, Nouf T et al. [12] reported that psychosocial valuation should be defined when evaluating and treating psoriasis as it may help in reducing exacerbation of symptoms, mainly for conditions aggravated by stress.

Bhutto A, M, et al. [13] reported that; the age of children ranged from 8 months to 18 years (mean=11.27 years). Of all studied cases, (16.7%) had the localized lesions on elbows and knees, (11.1%) had the localized lesions on hands and feet and (2.8%) had on scalp. The duration of the disease ranged from 2 months to 11 years (mean=3.04 years). The male and female prevalence ratio was 1:1.4 respectively. 27.8% of cases reported positive family history.

Fatani M, I, et al. [14] reported mean age of patients 35.27 (SD=13.16). The mean PASI was 10.67 (SD=5.54) with a range of 0 to 24. Most of patients' (60.8%) psoriasis occurred before 40 years of age with a mean age at onset of 35 (SD=13.16) years [14].

4. DISCUSSION

In Saudi Arabia; Fatani, Mohamad I et al. [3] reported incidence around 5.3%. This was higher than reported in Russia 31.4 per 100 000 person years [15] and comparable to Germany 521.1 per 100 000 person years [16]. Springate and colleagues [17] reported a slight decline in the incidence of psoriasis in all ages in the United Kingdom from 159.0 to 129.0 per 100 000 person years between 1999 and 2013). Kubanova and colleagues [18] also reported a slight decline in the incidence in Russia (from 69.8 to 65.0 per 100 000 person years between 2010 and 2016). However, the incidence of psoriasis in Denmark has been inconsistent, with a decrease from 140.1 to 104.0 per 100 000 person years between 2003 and 2005, followed by an increase to 181.0 in 2010 [19].

Regarding Type of psoriasis; in Saudi Arabia, Bhutto A, M, et al. [11] reported that 33.3% had the generalized (plaque type) psoriasis, 22.2% had the guttate psoriasis, 11.1% had the mixed guttate and plaque type. Similar findings were presented in previous study where it was shown that the most frequent clinical type of childhood psoriasis was as a plaque type in (68.1%) of patients, followed by guttate psoriasis in (38.0%) of patients, erythrodermic psoriasis in 7.% and pustular psoriasis in 7. 5.0% of patients [20]. Another study reported other patterns in childhood psoriasis as erythrodermic (1.4%), pustular disease including palmoplantar pustular psoriasis (1.1%), and mucosal glossitis (1.1%) [21].

The association between psoriasis and increased risk of cardiovascular and metabolic disorders may be explained by the shared inflammatory component underlying these diseases [22]. Alhomoud, Abdulrahman Saad et al. [11] reported higher CV risk prevalence among Saudi psoriatic patients. A large, Middle Eastern study demonstrated an elevated risk of coronary heart disease, obesity, type 2 diabetes mellitus, hypertension, dyslipidemia and metabolic syndrome, which increased with worsening psoriasis severity [23]. Large population-based observational studies, our study also showed an association between psoriasis and hypertension ($p=0.001$). The severity of psoriasis is directly proportional to the odds of hypertension [24].

A meta-analysis study conducted in 2013 demonstrated that patients with psoriasis are 1.5 times more likely to exhibit depressive signs and

symptoms compared to their healthy peers [25]. Mleeh, Nouf T et al. [12] had demonstrated that; depression was the most prevalent psychological disorder among patients with psoriasis in Saudi Arabia (39.5%, $P < 0.001$). Kimball et al., it was concluded that a psychological burden resulting from psoriasis could be due to stress, stigmatization, depression, difficulty getting a job, and physical limitation [26].

Regarding management; both studies by Bhutto A, M, et al. [13] and Alsuwaidan, S, N. [10] reported that topical medications were effective in all patients and/or narrow-band ultraviolet-B phototherapy. Promising results after the treatment with NB-UVB are reported in previous multiple studies. A previous study reported that; when children were treated for 12 week with NB-UVB treatment, PASI 90 was achieved in 60% of patients, however, 10% had less than 50% improvement [27]. In another study; 113 children were treated by various phototherapy procedures and 92.9% of them treated by NB-UVB showed positive response by given treatments [28].

5. CONCLUSION

The incidence of psoriasis in Saudi Arabia is within previously reported figures worldwide. Family history seems to have a strong association with the occurrence of psoriasis. CVD and psychological disorders seem to be prevalent Saudi psoriatic patients. Topical medications are widely used and effective in psoriasis management in Saudi Arabia. Future studies are recommended with large sample size to assess updated incidence and document association between psoriasis and other comorbid diseases.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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