Review Article

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Psoriasis with special reference to Unani medicine – A review

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Abstract: Background. Psoriasis is a chronic and recurrent inflammatory skin disorder that affects about 125 million people worldwide. Patients with psoriasis are more likely to develop inflammatory arthritis, cardiometabolic disease, and mental health issues. Psoriasis remains incurable and recurrent despite the availability of contemporary treatments. Unani (Greco-Arabic) medicine has its unique concept of psoriasis; numerous treatments and formulations are prescribed by renowned Unani scholars.

Objective. This study sought to provide an understanding of psoriasis in conventional medicine, as well as clinically equivalent conditions documented by ancient Unani academics in their writings, such as Rūfas, Jālinūs, Rāzī, Ibn Sīna, Majūsi, Ibn-i Zuhr, Ibn al- Quf, and Ibn-i Hubal Baghdādi.

Methods. The Unani classical literature was researched manually and online for this purpose. PubMed, Science Direct, and Google Scholar were utilized to assemble all the classic and contemporary psoriasis disease-related literature.

Results. Since antiquity, Unani scholars have advocated ‘Ilāj bi’l Ghiḍhā (diet therapy), ‘Ilāj bi’l- Tadbīr (regimenal therapy), ‘Ilāj bi’l Dawā (drug therapy) to treat disorders clinically comparable to psoriasis.

Conclusion. This study provided a comprehensive evaluation of existing psoriasis knowledge, with an emphasis on Unani medicine, which may be valuable for generating integrated hypotheses to treat the psoriasis challenge.

Keywords: *Taqashshur al-Jild*, psoriasis, unani; immunological disorder; skin disease

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1 Introduction

Skin disorders are one of the most common human conditions, affecting people of all ages and 30%–70% of the population[1]. Psoriasis is derived from the Greek word psora, which means “itch,” or psorin, which means “to itch.”[2–5]**.** The reported prevalence of psoriasis in countries ranges from 0.09% to 11.4%; the prevalence among adults in India ranges from 0.44% to 2.8%[6]. According to some research, males are twice as likely to be affected as females, and the majority of patients are in their third or fourth decade of life. Psoriasis can occur at any age; however, it is uncommon in children younger than five years [7]. It is defined as an autoimmune, inflammatory condition characterized by red, inflamed plaques, and macules caused by excessive proliferation and poor differentiation of keratin-producing epidermal cells. Frequently, these plaques are accompanied with silvery scales.[7]. It is a persistent, noncommunicable, irritating, disfiguring, and debilitating disease that has a significant negative impact on the quality of life of those suffering from it [8]. The exact cause of psoriasis is still being researched, and the mechanism of immune response is also not well understood. However, hyperproliferation of keratinocytes, acanthosis, parakeratosis, and T cells’ mediated inflammatory response can be the basic pathophysiology [9,10]. Despite the abundance of therapeutic choices, a complete cure with minimal or no side effects

remains elusive [11]. The primary therapy options consist of topical steroids, PUVA, and biologics, all of which have distinct limitations [12]. Therefore, quest for an alternative treatment option for psoriasis is the need of the hour.

The Unani (Greco-Arab) system of medicine, which evolved from ancient Greece (Yūnān), primarily based on the teachings and principles of the Greek physician Hippocrates (460-370 BC), were further elaborated and refined by the Roman physician Jālinūs (Galen, 129-210 CE), Arab & Persian physicians Zakariyya al-Rāzī (Rhazes, 850-925 CE), Shaykh al-Rayīs Abdullah Ibn Sīnā (Avicenna, 980-1037 CE), Abu'l-Qāsim al-Zahrawi (Abulcasis, 936-1036 CE) and Ibn Nafīs (1213-1288 CE) [13,14]. Unani medicine achieved long-term growth in India through improvement in its practise, education, and research (Figure 1) [14,15].

Unani medicine envisions the human body comprises seven main components: *Arkān* (elements), *Mizāj* (temperament), *Akhlāṭ* (humours), *A'ḍā'* (organ), *Rūḥ* (pneuma), *Quwā* (faculties), and *Af'āl* (functions) i.e., called as *Umūr-i Tabi'iyya*. The mere absence or derangement of any component threatens the very existence of health and causes disease [16]. The Unani system of medicine is founded on both scientific and holistic conceptions of health and healing. Its fundamental principles, diagnoses, and treatment modalities are all based on these beliefs: its holistic approach takes into account the whole person rather than a reductionist approach toward health and disease [14]. The demand for Unani Medicine is increasing continuously as a result of its efficacy and minimal adverse effects [15,17,18]. The present review provides the comprehensive details of psoriasis and its management strategies currently available in modern science as well as those described in classical Unani texts [19].

2 Methodology

The authors methodically examined ancient and contemporary literature in search of psoriasis references to compile and contextualize the facts and data relevant to the historical background, etiology, pathophysiology, clinical features, diagnostics, and treatment of psoriasis. In the classical Unani literature, the description using the words Taqashshur al-Jild, Qashaf Jild, Chambal, Da al-Sadaf, Samakiah, Sadafia, Apras, Sa'fa Qishr, Talaq, and Quba Mutaqashshira was thoroughly analyzed. These phrases were also entered into electronic databases such as PubMed, ScienceDirect, DOAJ (The Directory of Open Access Journals), Google Scholar, and the Ayush Research Portal. The Boolean operators 'AND' or 'OR' were utilized effectively for the specific facts pertaining to etiology, pathophysiology, clinical characteristics, diagnostics, and treatment in both conventional and Unani medicine. Unani terms and transliterations were derived from the most recent terminology standard for Unani.

3 Results

3.1 Historical background of psoriasis

Psoriasis is an ancient and ubiquitous inflammatory disease that was first documented in the Corpus Hippocraticum. Hippocrates (460–377 BCE), the "father of medicine" coined the term psora, which literally means "itch" [20]. He also grouped various skin illnesses under the name "lopoi", which means "to scale" in Greek. Hippocrates coined the terms "alphos" and "leukos" to describe certain skin disorders with maculae [21]. Further, A. Cornelius Celsus, writing in the first century CE during the Roman Empire, referred to psoriasis-like conditions as impetigo, which appeared on the skin of the extremities and nails and was treated with pitch and sulphur. However, he made no reference to psoriasis, psora, or leprosy. [2]. Furthermore, psoriasis is referred to by other names by early physicians, including *Talaq* [22], *Qūbā Mutaqashshira* [23,24], *Taqashshur al-Jild* [22,25,26][25], *Qashaf Jild* [27], *Chambal* [27,28], *Da al-Sadaf* (29), *Samakiah* [29], *Sadafia* [29], *Apras* [27], *Sa'fa Qishr* [30].

Rūfas (98-171 CE), a renowned Unani physician, described a skin condition known as "Talaq" in which white scaly lesions resembling bark appear on the affected area. Galen of Pergamon (131-201 CE), physician of a Roman emperor, used the term psoriasis to describe itchy, scaly lesions of the eyelids and scrotum [2,31]. Pliny, a Roman encyclopedia author, noted "psora" in his book "Naturalis Historia" and advised that cucumber root could be used to treat it [32].

Many authors after Pliny and Galen described conditions similar to psoriasis and recommended treatments. Thus, Rabban Tabari (770 –850 CE) recommended *Kibrīt* (sulphur), *Sibb-i Yamānī* (alum), and *Beikh Irsa* (*Iris ensata* root) for treating *Taqashshur al-Jild*, a condition clinically similar to psoriasis [33]. Thāḅīt bīn Qurrah (836-901 CE) provided numerous treatments for *Sawdāwī* (melanotic) skin illnesses such as psoriasis. [34]. Alī-Ibn Abbās Majūsī (930-994 CE) described Taqashshur al-Jild as a separate skin disorder. [35]. Zakariyya Razi (850-937 CE) described the disease as Taqashshur al-Jild, detailing its causes, clinical presentation, and treatment.[36]. According to

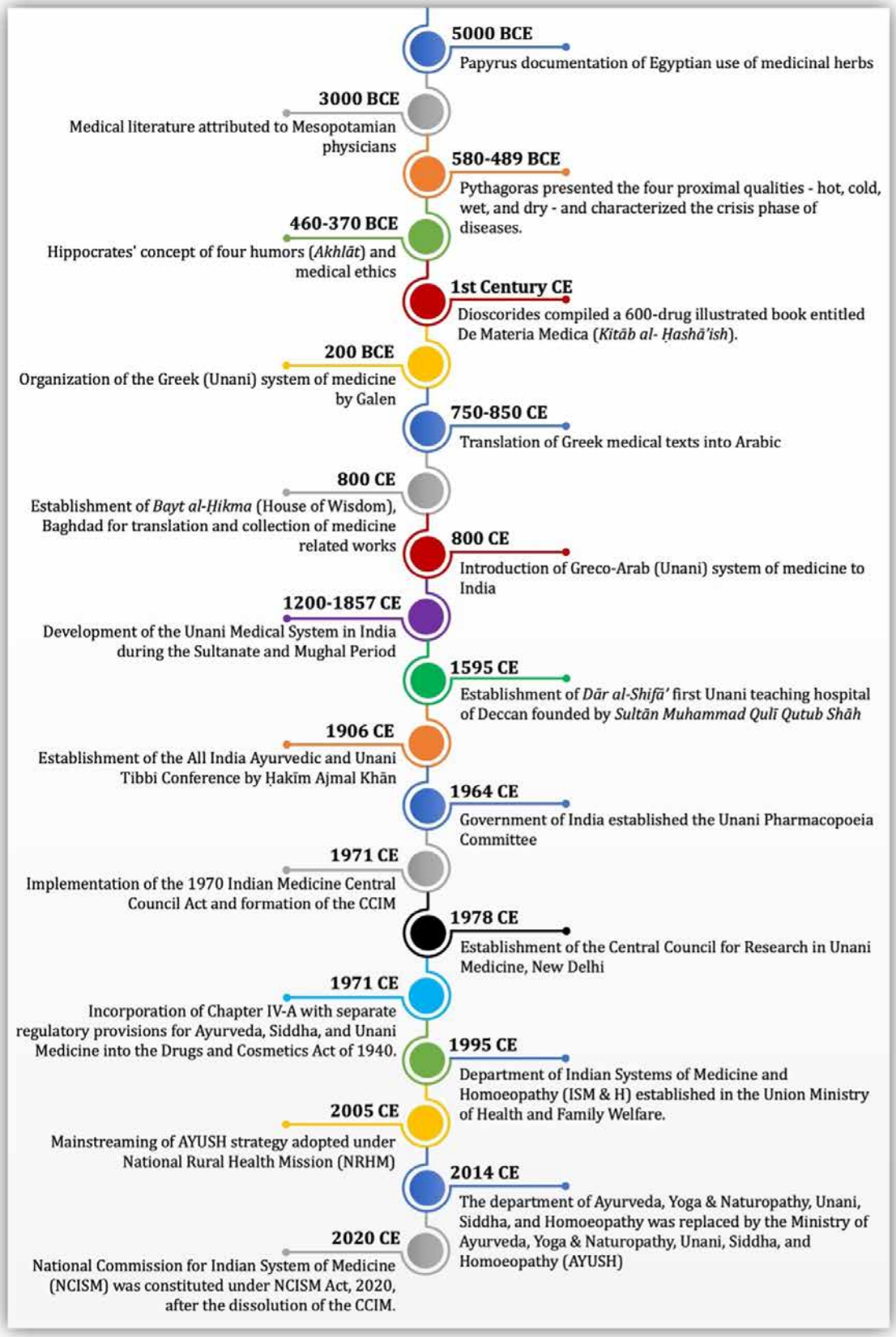

Figure 1. Important milestones in the evolution of Unani system of medicine [13]. (Design credit: PresentationGO.com)

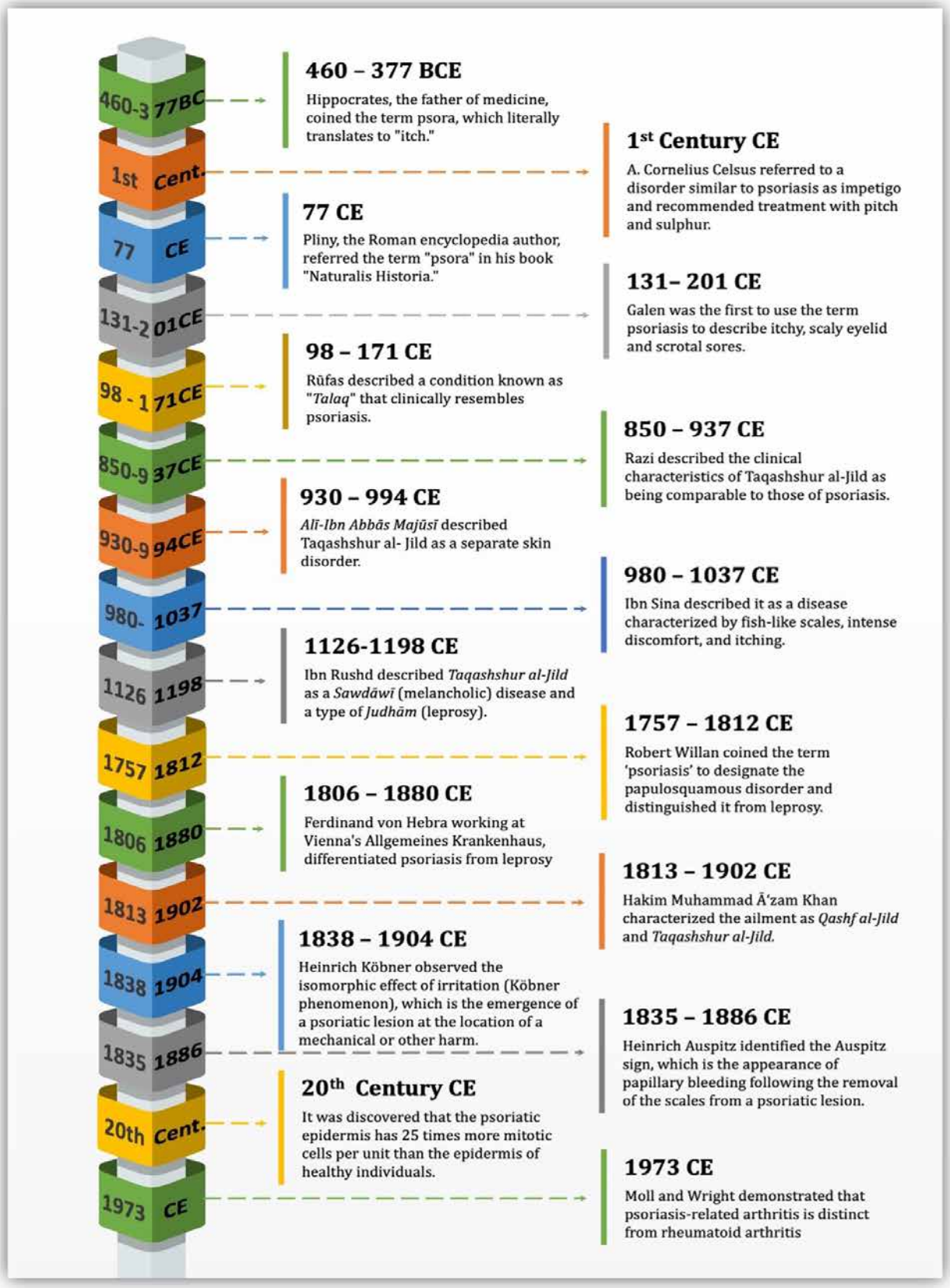

Figure 2. Important milestones in the history of psoriasis. (Design credit: PresentationGO.com)

Ahmad-Bīn Mohammad Tabrī (980 CE), *Dā' al-Ḥayya (Dā'* = disease, *Ḥayya* = snake) and *Taqashshur al-Jild* (*Taqashshur*=scaling, *Jild*=skin) are very similar, and the causes of both are pungent, irritant and dry humour *(Akhlāt-i Ḥirrīfah, Lazi'a and Yābisa*). Although *Dā' al-Ḥayya* might occur without itching, *Taqashshur al-Jild* is always accompanied by itching [22]. Renowned physician Ibn Sina (980-1037 CE) stated that the disease is characterized by fish-like scaling, severe irritation, and itching [37]. Nūḥ bīn Mansūr al-Qamarī (10th century CE) noted the use of *Sirka* (acetic acid) and *Siras* (*Albizia lebbeck*) or milk and *Siras* in the treatment of scaling of nails and itching [38]. Ibn-i Zuhr (1060-1162 CE) asserted that *Khilt Sawda* (black bile), which approaches the skin, is the cause of the skin disorder *Taqashshur al-Jild* [39]. *Ibn Hubal Baghdadi* (1122-1213 CE) believed that salty, irritating, and dry humor are the causes of *Taqashshur al-Jild* [40]. Ibn Rushd (1126-1198 CE) referred to *Taqashshur al-Jild* as a *Sawdāwī* illness and a form of *Judhām* (leprosy). That author emphasized that the body's excessive production of *Ghayr Ṭabaī Sawdā* (morbid black bile) causes incurable ailments [41]. Allāmā Qarshī (1210-1250 CE) asserted that the scaling process resembles snake scaling [42]. S*adīd al-Dīn Gāzrūni* (1204-1291 CE), *Nafīs Ibn 'Iwaḍ Kirmānī* (1439 CE) and *Jamāl al-Din Aqsarā'ī* described in their treatises that severe itching and scaling are pre-leprotic symptoms [23,43]. *Bahwā ibn Khwāṣ Khan* (1512 CE) identifies the condition as Kushth rog, which causes skin degradation characterized by erythema and itching [44]. *Dawūd Anṭākī* (1541 CE) described a disorder that causes the nails to become brittle and white [45]. Akbar Arzānī (1772 CE) described a skin disorder marked by roughness, scaling, and thickness [25]. Hakim Muhammad Ā'zam Khan (1813-1902 CE) described the condition as *Qashf al-Jild* and *Taqashshur al-Jild* in his work *Iksīr-i Ā'ẓam* [26].

In the later eighteenth century, Robert Willan (1757-1812CE), a British physician, authored the book "on cutaneous illness" and devised an improved, user-friendly taxonomy of skin illnesses based on eight recurring lesions. He coined the term 'psoriasis' to designate the papulosquamous disorder in the group squamae, along with lepra, pityriasis, and ichthyosis, and distinguished it from leprosy (psora leprosa and lepra Greco rum). He described various types of psoriasis, including guttata, diffusa, gyrata, palmaria, unguium, and inveterata. In Willan's view, the disease begins on the knees and elbows and then advances to the scalp, fingernails, and toenails [46].

Jean Louis Alibert (1768-1837CE), a French physician who worked and taught at the St. Louis Hospital in Paris, which was devoted to skin problems, disagreed with Willan's classification and sought to organize and systematize skin disorders. He developed an "Arbre des dermatoses" in 1829 CE, dividing skin illnesses into 12 separate groups. Psoriasis, along with leprosy, was categorized as *dartrous dermatosis*. The 19th century CE has seen the establishment of hospitals and clinics dedicated only to the treatment of skin or venereal illnesses, giving physicians ample chance to evaluate more cases of skin diseases such as psoriasis [21,31].

Ferdinand von Hebra (1806-1880CE), working at Vienna's Allgemeines Krankenhaus (1841), differentiated psoriasis from leprosy, thereby broadening Willan's nomenclature and categorization [31,47,48].

Heinrich Koebner (1838-1904CE) observed the isomorphic effect of irritation (Koebner phenomenon; 1872CE): the development of a psoriatic lesion at the site of mechanical or other injury. This phenomenon was subsequently utilized in trials to investigate the earliest changes caused by psoriasis [2,31,47]. Moreover, Heinrich Auspitz (1835-1886 CE) observed the incidence of papillary hemorrhage following the removal of psoriatic lesion scales (Auspitz sign or bloody dew phenomenon). D. Turner, R. Willan, and F. Hebra had previously recognized this sign [2]. At the end of the nineteenth century, Hebra, Unna, and William Munro characterized psoriatic micro morphology by defining the micro-abscess (micro-pustule), i.e., the concentration of neutrophils in the stratum corneum of the skin. [49]. During the early years of the 20th century, Woronoff's description of a pale halo encircling a psoriasis plaque became known as the "Woronoff ring" after the Auspitz sign and Koebner phenomenon. Then, these three phenomena/signs became established indicators that made psoriasis patients easy to diagnose for clinicians.[50]**.** In the second part of the 20th century, it was determined that the psoriatic epidermis has 25 times more mitosis per unit than the epidermis of healthy people. Van Scott and Ekel demonstrated that the cell cycle of keratinocytes in psoriatic patients is greatly reduced, from around 311 hours in normal individuals to 36 hours in psoriatic patients; furthermore, the turnover period of the epidermis is likewise significantly decreased, from 27 days to 4 days [32]**.** In 1973, Moll and Wright demonstrated that psoriasis-related arthritis is distinct from rheumatoid arthritis (Figure 2) [51]. Numerous immunological studies conducted over the past few decades have revealed that psoriatic patients have altered innate and adaptive immune systems, allowing for a better knowledge of the pathogenesis of psoriasis and the development of novel therapeutic methods [52].

3.2 Epidemiology

The occurrence of psoriasis varies by country, ranging from 0.09% to 11.43% [53]. Globally, psoriasis affects, on average, 2% to 5%, of the population [54]. Despite its global distribution, its prevalence varies by geography and ethnicity. In general, as latitude increases, prevalence increases [55]. As a result, psoriasis is less prevalent in Asian and African countries than in tropical regions such as Europe and Australia. Men and women are equally susceptible to psoriasis, but the disease impacts women far earlier. Recent research indicates that the disease's prevalence has increased exponentially in recent years. [56].

3.3 Psychosomatic paradigms in psoriasis

The National Psoriasis Foundation of the United States reports that psoriasis has a substantial impact on mental and emotional health, in addition to its effects on physical health [57]. Patients with psoriasis endure feelings of self-consciousness, agitation, and helplessness. Other patients try to disregard the great discomfort and severity of the disease, as well as its negative psychological impacts, which can result in a vicious cycle of despondency for many psoriasis sufferers. The social stigma associated with the illness contributes to depression and poor psychosocial functioning [58]: psoriasis patients have increased suicidal ideation compared to the general population, and the prevalence ranges from 4% to 21.2% in different nations [59]. The condition has the greatest psychological and social impact on women, adolescents, and minority groups [60]. Psoriasis has also been associated with stress-related diseases and behavioral disorders [61]. According to recent research, the fraction of patients identified as "stress reactors" appears to have a better long-term prognosis, as well as the early deployment of psychological therapies that may alter the course of the disorder [60].

3.4 Classification of psoriasis

Chronic plaque psoriasis, guttate psoriasis, psoriatic erythroderma (exfoliative psoriasis), pustular psoriasis, inverse psoriasis (flexural psoriasis), arthropathic psoriasis, and regional psoriasis are the clinical classifications for psoriasis [62,63].

3.4.1 Chronic plaque psoriasis / nummular psoriasis / psoriasis vulgaris

The plaque or nummular kind of psoriasis is the most prevalent, affecting about 80 - 90% of sufferers [64]. It is characterized by erythemato-squamous plaques. The lesion is round or oval, ranges in size from the size of a coin to a huge palm, and affects the elbows, knees, scalp, lumbosacral region, retro auricular region, inter-gluteal cleft, and umbilical region (Figure 3) [65,66].

3.4.2 Guttate psoriasis

This is a typical type of psoriasis that develops rapidly and is more prevalent among adolescents and young adults. The size of the lesion ranges from a pinhead to a pea (0.5–1.5 cm in diameter). These raindrop-like lesions, which resemble erythematous papules, erupt quickly and are distributed bilaterally symmetrically throughout the entire body, largely on the trunk and upper extremities while avoiding the palms and soles. Other risk factors include intensive local therapy or removal of systemic glucocorticoids. Streptococcal pharyngitis may occur 1 to 2 weeks prior to the onset or exacerbation of the condition. Throat swabs are required to rule out streptococcal infection, and an increased Anti-streptolysin-O (ASO) titre is typically observed in this condition [62,67].

3.4.3 Erythrodermic Psoriasis

This type of psoriasis is characterized by extensive erythema and scaling on the face, hands, feet, nails, trunk, and limbs. It may develop in patients with a history of chronic disease, as a side effect of poorly tolerated topical medication, such as chloroquine or adrenergic receptor blockers, or as a result of intense light therapy, such as

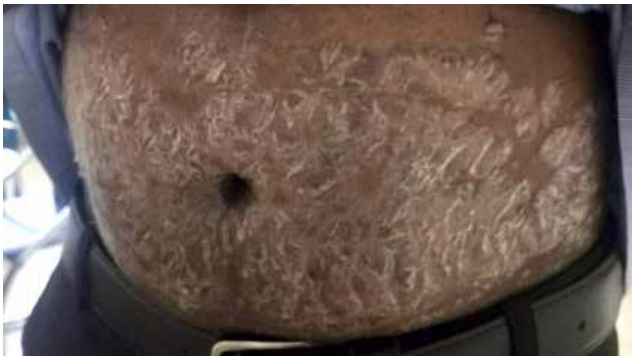

Figure 3. Abdominal skin of patient with plaque psoriasis

ultraviolet B or UVB. This disorder exhibits all psoriasis symptoms, but erythema is the most prominent. Additionally, systemic symptoms such as hyper- or hypothermia, dehydration, hypoproteinemia, electrolyte imbalance, anemia, hypocalcemia, renal and heart failure are noted [68–70].

3.4.4 Psoriasis inversus (Flexural Psoriasis)

An inverse form of psoriasis affects about 2%–4% of patients. It impacts the axilla, groins, sub-mammary folds, vulva, gluteal cleft, periumbilical region, retro-auricular region, and glans of the uncircumcised penis [66]. It is more prevalent among adults than among children. The lesions are well-defined, less scaly and smooth, with a glazed look and a small number of deep, painful fissures [3].

3.4.5 Pustular Psoriasis

This clinical type of psoriasis is the most severe, characterized by 1– 5 mm in diameter, flat, sterile, non-follicular pustules. Two forms of pustular psoriasis exist [63,71]: generalised pustular psoriasis (Von Zumbush psoriasis) and localised pustular psoriasis (Barber's psoriasis).

i. ***Generalised pustular psoriasis) (Von Zumbush):*** Generalized pustular psoriasis, the most severe form of pustular psoriasis, affects children aged 1 to 5 years. The lesions begin abruptly as many erythematous, painful plaques, which rapidly convert into small, sterile pustules the size of pinheads. There are pustules on the trunk and extremities. Erythema and pustules are preceded by fever, leucocytosis, musculoskeletal discomfort, malaise, and a burning feeling [72]. Nail alterations are prevalent when there is a subungual pus accumulation. Involvement of the tongue and buccal mucosa is also possible. Systemic steroids worsen pustular psoriasis [73,74].

i. ***Localised pustular psoriasis (Barber's Psoriasis):*** It is also known as palmoplantar pustulosis because the lesions often affect the palms and soles. It is more likely to affect females. The lesions are erythematous, well-defined, and covered with a large number of tiny pustules on the thenar and hypothenar prominences of the palms, soles, and sides of the heels. The skin is scaly, red, and prone to fissures; certain pustules may be hemorrhagic. Patients may develop concomitant arthropathy, especially of the distal interphalangeal joints [68,75].

3.4.6 Psoriasis arthropathica/arthritis psoriatica

Psoriatic arthritis is an autoimmune inflammatory illness characterized by psoriasis and arthritis, in addition to the absence of rheumatoid factor in the blood. It affects 5%–10% of psoriasis patients, reaches its peak between the ages of 20 and 40, and is uncommon in children. Both genders are equally affected. It might develop either before or after the skin symptoms. HLA B27, DR3, A26, and B38 haplotypes are genetically substantially related with psoriatic arthritis [72,76].

3.4.7 Regional Psoriasis

- ***Scalp Psoriasis:*** The scalp is commonly affected. The scaling areas are interspersed with normal skin, and their lumpiness is felt rather than seen, but considerable hair loss is rare. Psoriasis frequently extends beyond the edge of the scalp [77].
- ***Napkin Psoriasis:*** A psoriasis form outside the napkin (nappy/diaper) area may be the first sign of a psoriatic propensity in an infant. It often resolves rapidly, although there is an increased chance of acquiring psoriasis in later years [78].
- ***Nail Psoriasis:*** 20%–50% of psoriasis patients exhibit nail abnormalities, such as nail plate pitting, onycholysis, subungual keratosis, splinter bleeding, and yellow discoloration. The trenches are shallow, circular, and compact [78].

3.4.8 Type I/II psoriasis

Henseler and Christophers (1985) identified two clinical presentations of psoriasis based on age of onset. Type 1 occurs at or before the age of 40 and accounting for approximately 75% of cases; Type II presents after the age of 40, with a clear peak between the ages of 55 and 60. Patients with type I psoriasis tend to have more affected relatives and a more severe condition than those with type II psoriasis [79].

3.5 Etiology

The specific etiology of psoriasis is still being investigated; however, psoriasis is considered to be a complex inflammatory illness with recognized risk factors such as genetic factors, environmental variables, emotional stress, skin infection, mechanical stress (Koebner's phenomenon), drugs, alcohol, smoking, etc. [9,10]. The heredity of psoriasis is between 60% and 90%, which is higher than most other multifactorial disorders [80]. The majority of psoriasis-associated genes are involved in the immune response, whereas only a minority encode for skin-specific proteins. Psoriasis patients have a higher prevalence of HLA-Cw6 compared with healthy controls. Moreover, the etiology of psoriasis is connected with TNF-alpha, another protein-coding gene associated with innate and adaptive immune response. In addition, genes associated with Th17-cell activation have been shown to play a pathogenic role in psoriasis patients [80–82]. Psoriasis is considered to be initiated by external stimuli, including trauma, infection, and drugs in genetically sensitive individuals. The host DNA forms complexes with antimicrobial peptides released from keratinocytes (skin cells) in response to a stimulus, resulting in inflammation and keratinocyte proliferation that manifests as illness [82,83].

Numerous factors, including adolescent and pregnancy-related physiological changes, frequent infections, hormonal imbalances, physical harm (particularly exposure to sunlight), and psychological stress, contribute initiating the condition. Psoriasis has also been linked to the use of antimalarial, β-blockers, anti-malignant, immunosuppressive, nonsteroidal anti-inflammatory drug (NSAID), and lithium drugs. Moreover, it may be exacerbated by obesity, drunkenness, smoking, and dryness of the skin [84].

On the other hand, Unani physicians have compiled the following list of causal elements based on traditional Unani concepts. In addition, various *Asbāb-i Bādiya* (external) and *Asbāb-i Sābiqa* (internal factors), which are responsible for the disease and may function in combination or alone, have been described.

3.5.1 Causes in Unani Medicine

- *Mīrrah Sawdā'* (bilious melanchole: a type of abnormal black bile which is formed by the burning of yellow bile) [35]
- *Harārat/Burūdat/Yubūsat-i Khilt* (hotness, coldness and dryness of humors) [45].
- *Rutūbat-i Raddiyya, Ḥādda and Akkāla* (morbid, acute and corrosive moistness) [85]
- *Hirrīf, Lāz'e Muḥtariq-i Khilt-i Sawdā'*(pungent, irritant and burnt melanchole) [75, 85]
- *Balgham Shor Marāri* (saline bilious phlegm) [35,38]
- *Balgham Mālīh* (saline phlegm) [38,40,86]
- *Muta'affin Raqīq Bukharāt-i Ruṭūbiyya* (mephitic vapours) [22]
- *Ghalīz Khit-i Sawda'* (viscous melancholic humour) [38,40,41]
- *Safrā-i Muhtariqa* (burnt yellow bile) [22,38]
- *Fasād-i Khilt* (derangement in the humour), *Hirrīf Aghdhiya* (diet with pungent taste), and excess eating of red meat and brinjal [33]
- *Ghalīz Muta'affin Zujāji Balgham* (viscous mephitic vitreous phlegm) [30]
- *Ḍu'f-i Quwwat-i Hāḍima* (weakness of digestive faculty) [27]
- *Khushk Burāqi Mādda* (dry alkaline matter) [40]

3.5.2 Factors, responsible to precipitate or aggravate psoriasis

- *Yubūsat wa Khushūnat-i Jild* (Excessive dryness of skin) [41]
- *Butlan al-Haḍm* (Indigestion) [27]
- Unhygienic habits [27]
- Excessive intake of alcohol [27]
- Excessive use of cold and dry food [27]

3.6 Pathophysiology

Psoriasis is a hyperproliferative disorder with a complex sequence of inflammatory mediators. The mitotic activity of basal and suprabasal cells is significantly increased, and after a few days, basal cells migrate to the stratum corneum. The silver scales on psoriasiform lesions are nothing more than a layer of dead cells (Figure 4) [82,87]. Early clinical investigations using TNF inhibitors revealed the significance of these cytokines in psoriasis, prompting the disorder to be viewed as being predominantly driven by T-helper-1 (Th-1) cells [88]. However, data suggests that T-helper cells releasing interleukin (IL)-17 and IL-23 play a critical role in the development of psoriasis [89,90]. These cytokines are currently believed to play a fundamental role in the pathogenesis of psoriasis, as evidenced by the success of therapies that inhibit IL-17 or IL-23 pathways [83,88,89].

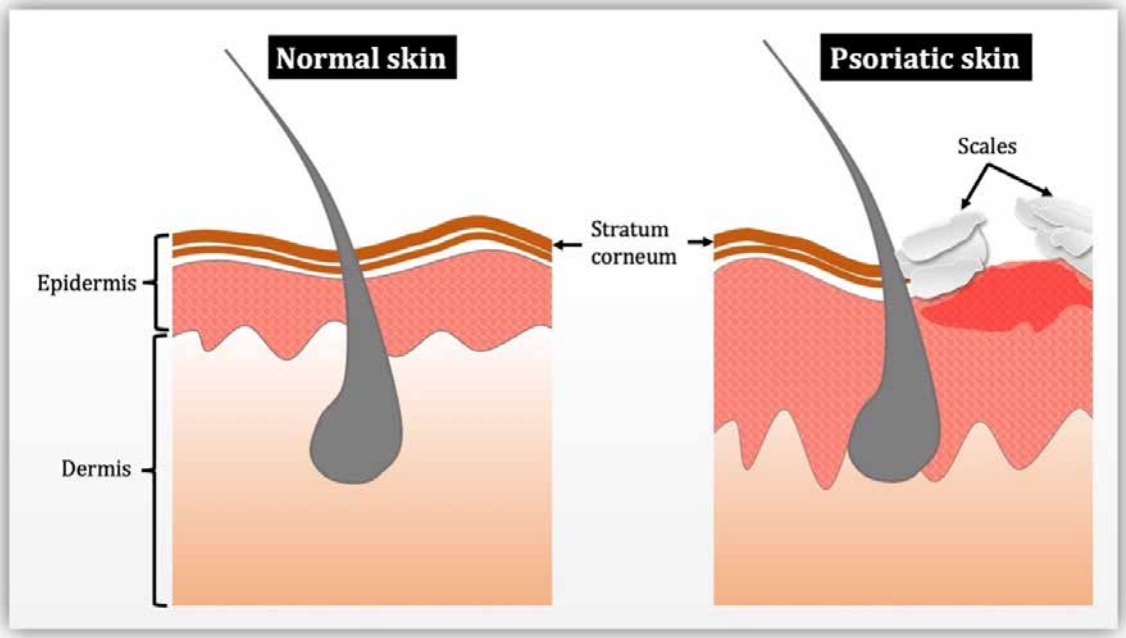

Figure 4. Illustration showing normal and psoriatic skin (Illustrated by Dr. Nazim Husain)

Regarding the pathophysiology of *Taqashshur al-Jild*, the Unani scholar Ibn-i Zuhr indicated that an excessive amount of abnormal *Sawdā* (black bile) accumulates in the skin, interfering with skin nutrition and preventing the skin from expelling abnormal *Sawdā* (black bile). As a result, skin tissues die and shed as scales [39]. According to Majusi, *Tabī'at* (medicatrix naturae) expels diseased humor from internal organs to the skin, causing dryness and itchiness. If the threshold is exceeded, the skin becomes incapable of removing *Khilt-i Ghalīz* (morbid humor) [35].

According to ancient Unani academics, the clinical characteristics of *Taqashshur al-Jild* are roughness, itching, scaling, and skin peeling. Razi defined *Taqashshur al- Jild* as having roughness, itchiness, and spherical scales on the body [45]. There are pustules on various surface locations and burst-like peeling of the skin. *Talliya* is a condition in which the nails become micaceous white and as brittle as lead [45]. According to Ahmad bin Mohammad Tabari, this is a skin ailment characterized by the development of scales on the affected areas [22]. These characteristics of the disease, as described in classical Unani literature, closely resemble those of psoriasis.

3.7 Clinical presentation

3.7.1 Symptoms

Morphology of psoriatic lesions: In psoriasis, the primary lesion is a mild itchy papule or plaque that is well-circumscribed, indurated, erythematous, scaly, or plaque-like [6].

Site of predilection: According to the Koebner or isomorphic phenomena, it affects pressure sites such as the elbows, knees, scalp (from which it can spread to the forehead and nape of the neck), extensor surface, lumbosacral area, and back [6].

3.7.2 Signs

***Candle grease sign*:** When a psoriatic lesion is scuffed with a glass slide, candle-grease-like scales appear, often known as the "*Signe de la taches de bougie*"[91].

***Grattage test*:** The lesion is lightly scraped with a glass slide to produce the silvery scales [62].

***Membrane of Bulkeley*:** When all scales are removed, the basement membrane is exposed, revealing a moist, red surface known as the Bulkeley membrane [91]

***Auspitz sign*:** Capillaries on the tops of elongated papillae are broken during a thorough scrape, resulting in multiple bleeding sites known as the Auspitz sign [67, 76,93]

***Holo or Woronoff sign*:** Following treatment with ultraviolet radiation or topical steroids, the absence of prostaglandins leads to the formation of a zone of hypopigmentation surrounding the plaques known as *Holo or Woronoff sign* [75,94]

***Koebner's or isomorphic phenomenon*:** It is characterized by the formation of isomorphic lesions at the site of an unrelated skin injury. Typically, lesions form seven to fourteen days following an injury. For Koebner's phenomenon to occur, both the epidermis and dermis must be injured [70,76].

3.7.3 *Nail changes in psoriasis*

- **Pitting of nail plate:** This condition is characterized by depressions in the nail surface and typically affects the fingernails. Due to improper development of the superficial layers of the nail plate, nail pitting can occur [67,70,95].
- **Oil drop sign:** On the nail bed of the digit, a circular yellow discoloration with a well-defined brown rim like an oil droplet is seen [67, 69].

3.8 Diagnostics

A family history of psoriasis, the presence of lesions at specific areas, such as the elbow, knee, scalp, back, and nails, lesions coated with silvery scales, the candle grease sign, the Auspitz sign, and the Koebner phenomenon, irritation, and seasonal variations are used to diagnose psoriasis.

Investigations include the ESR, which is usually normal but can be high in generalized pustular psoriasis, the TLC, which is high in psoriasis, the serum calcium, which is low in pustular and erythrodermic psoriasis [67], serum uric acid, which is elevated in up to 89% of patients [69], immunoglobulins, which are generally normal, but IgA deficiency and monoclonal gammopathy are documented in association with psoriasis. Moreover, anti-nuclear antibodies, which are found in rheumatoid arthritis but negative in psoriatic arthritis [69]; throat swab, which is useful in guttate psoriasis [91]; nail dipping and skin scraping, which are carried out to exclude the fungal infection because it is negative in psoriasis [96]; and skin biopsy, which is performed to confirm the diagnosis by histopathological examination of psoriasis are included in the diagnostics [62,66].

3.9 Treatment of psoriasis in conventional medicine

The treatment of each patient is individualized and based on patient, disease, and social variables [97]. The following are the typical therapeutic options utilized by dermatologists:

1. Non-pharmacologic therapy: Emollients and balneotherapy [98,99]

2. First-line topical pharmacotherapy: Salicylic acid, Topical Corticosteroids, and Vitamin D3 Analogues [75,100,101]

3. Second-line topical pharmacotherapy: Coal tar and anthralin [63,77,78,102]

4. First-line systemic pharmacotherapy: Infliximab and etanercept [19,75, 78,99]

5. Second-line systemic pharmacotherapy: Acitretin, cyclosporine, and methotrexate [3,103–105]

6. Phototherapy: UVB (290 to 320 nm) is often used in treating psoriasis [98,100] It may be combined with coal tar, dithranol or retinoid [3,106]. Some side effects like erythema, photo aging, dry skin and pigmentation may also be experienced after the use of phototherapy [102,105]

7. Photo-chemotherapy (PUVA): Administration of psoralens and subsequent long-wave UVA radiation, known as PUVA therapy [107,108]. Commonly used psoralen is 8-methoxypsoralen (8-MOP) in a dose of 0.6 mg/kg on alternate days or 4, 5, 8 trimethoxy psoralen [3,99,103]. Side effects such as nausea, vomiting, headache, drug fever, cataract, and hepatitis are reported with the use of PUVA [19,77].

8. Combination therapy: In more severe forms of psoriasis, a combination of treatment modalities may be employed to enhance the benefit and to lower toxicity. Such combinations include acitretin +UVB light , acitretin +PUVA [99,102], methotrexate + UVB light [98],

PUVA+UVB light [103], and Methotrexate + Cyclosporine [99,103].

3.10 Treatment of psoriasis in Unani medicine

***Usool-i 'Ilaj* (principle of treatment)**

The recommended primary line of treatment for *Taqashshur al-Jild* (psoriasis) is *Nuzj-wa Tanqiya-i Akhlāt-i Ghayr Ṭaba'īya* (concoction and expulsion of abnormal humours) specially *Sawdā* (melancholic humour) along with *Taḥlīl Waram* (resolution), *Taṣfiya al-Dam* (blood purification), *Indimāl-i Zakhm* (cicatrization), *Taskīn-i Jild* (demulcefication), *Tartīb-i 'Umūmī-wa Maqāmī* (general and local moisturization) and use of *Jālī* (detergent) drugs [109].

'Ilāj (Treatment)

Complete cure and effective treatment are perpetual challenges for clinicians. In the Unani system of medicine, the pathogenesis is based on humoral theory, and several humours are involved in the development of psoriatic lesions; melancholic humour predominates and may be produced from bilious humour, phlegmatic humour, sanguineous humour, or melancholic humour itself. Thus, there is a typical presentation that resembles the characteristics already mentioned for such melancholic conditions in traditional Unani literature. *Taqashshur al-Jild* is one of the clinical conditions characterized by prominent melancholy [110]. Using the same postulated guidelines, the treatment can also be administered. In this sense, Unani medicine corrects the normal physiology of cells, tissues, organs, and systems by expelling the pathological aberrant humour. Therefore, the medications are also useful in reducing the severity of the symptoms, reducing presentations, and relapse [13]. To attain the aforementioned goals, the condition may be treated using one of the following three modalities: '*Ilāj bi'l- Tadbīr* (Regimenal Therapy), *'Ilāj bi'l Ghidhā'* (Diet Therapy), and '*Ilāj bi'l Dawā* (Drug Therapy).

1. ***Ilāj bi'l- Tadbīr* (Regimenal Therapy):** This type of Unani therapy facilitates the waste disease material resulting from the derangement of *Khilṭ* (humour) to be expelled from the body using a variety of procedures such as *Fasd* (venesection), *Hijama* (cupping), *Ta'līque* (leeching), and *Ta'rīque* (sweating).
   - ***Faṣd* (venesection):** *Mohammad Ṭabarī* clearly described in his book *Muʿālajāt-i Buqrāṭiyya* that the treatment of *Taqashshur al- Jild* is the venesection of *Rag-i Bāsalīque* (basilic vein) of both hands, with an intervening period of 7 days until body power becomes weak [22].
   - ***Ta'līque* (leeching):** *Ibn Sīnā (Avicenna)* and Indian Unani physicians have suggested that *Ta'līque* (leeching) is beneficial in chronic inflammatory skin diseases and unhealed ulcers [111].
   - ***Hijāma* (cupping):** *Zakariyya Razi, Hakeem Āzam Khan, Ghulam Jeelāni* and *Qarshī* recommended the use of *Hijāma* in *Taqashur al- Jild* to evacuate the morbid humours that allow tissues to eliminate toxins through the surface of the skin [6].
   - ***Ta'rīque* (induced sweating):** *Buqrāṭ* stated that intradermal-epidermal conditions should be treated by *Ta'rīque* (sweating). It can be carried out in three ways**:** through *Ḥammām* (bathing), *Inkibāb* (vapour bath), and *Ābzan* (sitz bath). These three procedures produce a hot, humid climate that dissolves the morbid melancholic humour beneath the skin. As a result, the pores of the skin expand and the dissolved morbid material is expelled, thereby improving the patient's condition [112].
   - ***Hammām* (bathing):** This inflammatory condition responds best to a daily or twice-weekly bath [6].
   - ***Inkibāb* (vapour bath)*:*** For this purpose, decoction of *Babūna* (*Matricaria chamomilla* L.) 30g, *Aklīl al-Malik* (*Astragalus hamosus* L.) 30g, *Qaisoom* (*Artemisia abrotanum*) 30g, *Marzanjosh* (*Origanum majorana*) 15g, *Izkhar* (*Andropogon jwarancusa*) 15g, *Gul-i Surkh* (*Rosa damascena*)15g, *Bādyān* (*Foeniculum vulgare*) 15g can be used [6].
   - ***Ābzan* (sitz bath):** For sitz bath, decoction of *Tukhm-i Katān* (*Linum usitatissimum* L.) 15g, *Tukhm-i Teerah-Tezak* (*Eruca sativa* Mill.) 15g, *Tukhm-i Shaljam* (*Brassica rapa*) 15 gm, *Tukhm-i Gazar* (*Daucus carota*) 15g, *Suddāb* (*Ruta graveolens*) 15g, can be used [6].

2. ***'Ilāj bi'l Ghidhā'* (diet therapy):** Most Unani physicians advise an easily digestible diet and prohibit the use of *Ḥirrīf* (pungent), *Bārīd* (cold) and *Yābis* (dry) diet, e.g. salty dry meat. Also, it is advisable to avoid alcohol and foods that induce melancholy, such as beef, salty seafood, and cheese [41].

3. ***'Ilāj bi'l Dawā'* (pharmacotherapy):**

A large number of plant medicines are recommended by Unani physicians, including *Afsanteen (Artemisia absinthium* L.), *Asgand (Withania somnifera* (L.) Dunal), *Tukhm-i Babchi* (seed)*(Psoralea corylifolia* L.), *Bād Āward (Volutarella divaricata* Benth.), *Chiraita (Swertia chirayita* (Roxb.) Buch.-Ham. ex C.B.Clarke), *Kamela (Mallo-*

tus philippinensis), Shahatra (Fumaria parviflora), Haldi (Curcuma longa), Mundi (Sphaeranthus indicus L.), *Inderjaw Shirīn (Wrightia tinctoria), Unnab (Ziziphus jujube), Haleela (Terminalia chebula), Sandal (Santalum album* L.), *Ushba (Smilax ornata* Lem.), *Ghongchi (Abrus precatorius), Chob Chini (Smilax china* L.), *Bisfāij (Polypodium vulgare* L.), *Gul-i Gauzaban (Borago officinalis* L.), *Majeeth (Rubia tinctorum* L.), *Karanj (Pongamia pinnata* (L.) Pierre), *Dār Hald (Berberis aristata* DC.), *Post-i Neem (Azadirachta indica* A.Juss.), *Āk (Calotropis procera* (Aiton) Dryand.), *Babchi (Psoralea corylifolia* L.). These plant medicines may be useful in the treatment of *Sawdāwī* diseases like psoriasis [6].

***Advia-i Murakkab Dākhili* (compound drugs for oral administration)**

The compound formulations described in classical Unani text for amelioration of *Sawdāwī* diseases like psoriasis are *Joshānda -i Aftīmūn* [113]**,** *Itrifal Shahtra* [53], *Majoon-i Ushba, Khameerah-i Sandal, Sharbat-i Sandal, Sharbat-i Unnab, Sharbat-i Murakkab Musaffi-i Khoon, Arq-i Murakkab Mussaffi Khūn, Arq-i Shahtra, Arq-i Ushba, Sharbat-i Banafsha, Sharbat-i Nīlofar, Ḥabb-i Muṣaffi Khoon* [6]., and *Maʿjūn Mundī* [114].

***Advia-i Murakkab Maqami* (compound drugs for topical applications)**

Marham Hina [53], *Marham Gulabi, Marham Da-al Sadaf, Roghan Babchi, Roghan Narjeel, Roghan -i Gandum* (wheat oil) [6], *Roghan-i Banafsha, Roghan-i Badam sheerīn, Roghan-i Kaddu, Roghan-i Kundur, Roghan-i Neelofar, Mom Safaid, Roghan-i Gūl, Roghan-i Chalmogra, Roghan-i Kameela* [6], and *Qairūṭī Karnab* [115].

3.11 Research investigating Unani treatments for psoriasis

3.11.1 Clinical trials

Recent clinical investigations have evaluated the efficacy and safety of numerous traditional Unani medicines. Table 1 provides the essential details of the reported clinical trials.

3.12 Case reports

A number of case report studies on various Unani formulations with clinically and statistically meaningful outcomes were also accessible. Thus, Khatoon et al. utilized Marham Hina for local application [123], Khan et al. utilized Majun Ushba for oral administration and Marham Safeda Kafuri for topical application [124]. Siddiqui et al. utilized a decoction of *Bisfayej (Polypodium vulgare), Post Halela Zard (Terminalia chebula),* and *Turbud (Operculina turpethum*) [125], Shiraz et al. utilized leech therapy [126], whereas Qureshi et al. utilized *Sabūs Aspaghol* and coconut oil with camphor for local application, *Majun Musaff-i Khas* and *Musaff-i Ajib* for oral administration, and wet cupping at the conclusion of the treatment [127].

4 Discussion

The Unani system of medicine has a long and glorious background of promoting health, preventive measures, and management of diseases through its holistic approach based on time-tested drugs and therapies. Psoriasis is a chronic inflammatory skin disease characterized by erythematous, circumscribed scaly papules and plaques; it can cause itching, irritation, burning, and stinging [128]. Psoriasis patients have a higher risk of inflammatory arthritis, cardiometabolic illness, and mental health problems. Although there is no formal description of psoriasis in the Unani system of medicine, *Taqashshur al-Jild* presents similarly to psoriasis. There are significant parallels between *Taqashshur al-Jild* and psoriasis; nonetheless, these diseases have diverse pathology [111]. According to Unani concept *Taqashshur al-Jild* (psoriasis) is defined as a type of skin disease characterized by roughening and hardening of affected part of the skin accompanied by sloughing of fish-like scales and itching [114]. *Tabiʻat* expels *Khilt-i Ghalīz* from internal organs to the skin, causing dry skin and itchiness. If it builds up further than the limit, the skin seems unable to remove *Khilt-i Ghalīz* leading to accumulation of *Khilt-i Sawdā* in skin and produces *Taqashur al-Jild* [35]**.** The Unani system of medicine has been treating psoriasis with numerous therapeutic methods since ancient times with '*Ilāj bi'l Ghidhā*' (diet therapy), '*Ilāj bi'l- Tadbīr* (regimenal therapy), '*Ilāj bi'l Dawā* (drug therapy) [114].

Numerous clinical investigations on various Unani single and compound formulations have demonstrated its efficacy in the treatment of psoriasis Table 1. Nonetheless, the studies had significant shortcomings, including inappropriate use of scales, improper or no use of a control drug, absence of drug identification and chemical fingerprinting. Few research have analysed the effect in terms of clinically relevant differences; the majority of studies

Table 1. Summary of clinical trials conducted on several Unani medications

Sr. No.	Unani drug(s)	Study ID, year, Trial design	Sample size	Type of psoriasis	Comparator	Outcome
1	Itrīfal Shāhtra (systemic) and Marham Ḥina (topical)	Khatoon et al., 2022, RCT [116]	Test = 25 Control = 25	Plaque psoriasis	PUVA sol and petrolatum	Unani preparations may be superior to control medications.
2	Decoction of *Cuscuta reflexa* and whey AND paste of cantaloupe seed and flowers of *Matricaria chamomilla*	Rahi et al, 2022, RCT [117]	Test = 26 Control = 26	Plaque psoriasis	Betamethasone Valerate	Both therapies were found to be equally efficacious.
3	Maʹjūn Mundī (systemic) and Qairūtī Karnab (topical)	Fatima et al. (2022), Single-arm clinical trial [118]	30	Plauqe psoriasis	None	Unani formulations exhibited a notable anti-psoriatic effect without any adverse effects.
4	Oral UNIM-401 and topical UNIM-403	Khanna et al, 2018, RCT (non-inferiority) [119]	Test = 84 Control = 67	Plaque psoriasis	PUVA sol and petrolatum	Unani medications were not inferior to those receiving control drugs.
5	Wet Cupping and Majoon Chob Chini	Mohsin et al, 2016, Single arm clinical trial [120]	60	Psoriasis and psoriatic arthritis	None	Therapies were found efficacious, but longer duration was suggested.
6	Majoon Ushba and Roghane Hindi	Lone et al, 2011, RCT [121]	Test = 20 Control = 10	Psoriasis vulgaris	Placebo	A statistically significant difference was noted between the efficacy of test and control groups.
7	Itrifal-e-Shahatra and Roghan-e-Babchi	Akhtar et al, 2011, Single-arm clinical trial [122]	60	Psoriasis	None	The results were quite encouraging on all modern parameters.
8	Safuf Babchi and Marham Gulabi	Siddiqui 2009, Single arm clinical trial [110]	40	Psoriasis	None	Statistically significant improvements were seen

have merely reported statistical significance. In a handful of studies, recurrence assessment was also performed.

Therefore, additional research with well-planned randomized control trials and validated outcome measures is necessary to uncover the influence of these medications in the treatment of psoriasis and substantiate the claims made by ancient physicians. In addition, a major issue with published studies is the lack of standardization in the reporting of clinical trial results, which should be addressed in future publications.

5 Conclusion

This article attempted to summarize the details of psoriasis in both Unani and conventional medicine. This analysis also highlights the treatment method and possibilities accessible in Unani medicine that must be validated by scientific measures. In addition, the status of clinical trials on psoriasis in Unani medicine was discussed so that future studies might be planned with the incorporation of conventional medicine and validated outcome measures, and published according to standard reporting requirements.

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