This article provides an overview of psoriasis and its comorbidities and their management. The focus of the article is on cardiometabolic comorbidities, screening and treatment, multidisciplinary care, and patient support. The intended primary audience for this article is general practitioners and dermatology nurses, in addition to dermatologists.

**Background**

Psoriasis is a chronic immune-mediated inflammatory disease with a genetic predisposition, which has been estimated to affect 2.3–6.6% of adults in Australia. Its primary symptoms are erythematous scaly patches and plaques. Psoriasis is a multifactorial disease that appears to be influenced by genetic and immune-related components (a hypothesis supported by the efficacy of immune-mediating agents in the treatment of psoriasis). Previously considered to be an inflammatory disorder of the skin, psoriasis is now widely recognised as being a systemic inflammatory disorder that is associated with a high risk of comorbid conditions and loss of health-related quality of life (HRQoL) ([Figure 1](#)).

Psoriasis comorbidities include psoriatic arthritis, cardiovascular disease, metabolic disease, obesity, inflammatory bowel disease, and mood disorders (depression, anxiety, suicidal ideation). The comorbid conditions in patients with psoriasis add to the overall burden of the disease, including reduced HRQoL, especially in moderate to severe disease.

**Cardiometabolic comorbidities**

Cardiovascular disease, metabolic syndrome, and obesity are important and common comorbidities of psoriasis. In a recent analysis of a large US insurance database, the most common comorbidities (by prevalence) were hyperlipidaemia (45.6%), hypertension (42.2%), depression (17.9%), type 2 diabetes mellitus (17.5%), and obesity (14.4%).

**Cardiovascular disease**

Psoriasis is strongly linked to an increased risk of cardiovascular disease, and psoriasis may be an independent risk factor for major adverse cardiovascular events (i.e., myocardial infarction, stroke, and death), with the risk being highest among those with severe disease. Cardiovascular disease appears to be related to the systemic inflammation of psoriasis.
Patients with moderate-to-severe psoriasis should be advised of a possible increased risk of cardiovascular disease and that they should consult their general practitioner for appropriate medical screenings and assessment. Screening for cardiovascular risk factors among patients with psoriasis is essential to minimise the risk of adverse cardiovascular events. Screening and treatment of cardiovascular risk factors should follow recommendations for the general adult population, including lifestyle interventions, especially weight loss for patients who are obese and smoking cessation for patients who are current smokers. Smoking has also been demonstrated to be an independent risk factor for psoriasis.

Systemic treatments for psoriasis have been associated with reduced cardiovascular risk in observational studies. Currently, however, due to a lack of randomised controlled trials (RCTs), it is unclear whether systemic treatments for psoriasis have a protective effect against cardiovascular disease.

**Metabolic syndrome**

Metabolic syndrome and its individual components (obesity, hypertension, insulin resistance, and dyslipidaemia) appear to be more prevalent among patients with psoriasis than those without psoriasis. Metabolic syndrome is an important comorbidity because of the associated atherosclerosis and its complications such as myocardial infarction and stroke. Components of the metabolic syndrome should be identified and investigated at the first consultation and monitored on an ongoing basis. Hypertension and type 2 diabetes mellitus screening and measurements of blood lipid levels and adiposity (i.e., BMI, waist circumference, bodyweight) are recommended. They also provide the opportunity to commence appropriate specific medical therapies and introduce patients to lifestyle changes that may reduce their overall cardiovascular morbidity.

Whether early systemic treatment in psoriasis patients with metabolic syndrome can prevent major cardiovascular events is unknown.

**Obesity**

Obesity has been identified as an independent risk factor for psoriasis, with the risk of developing psoriasis increasing two-fold if a person's body mass index is >30. Moreover, obesity may contribute substantially to psoriasis severity and reduced response to treatment. It has been projected that the proportion of normal-weight adults will fall to less than a third (28.1%) of the Australian population by 2025, and the prevalence of obese adults will have increased by nearly two-thirds (65%).

Observational study evidence indicates that psoriasis, type 2 diabetes mellitus, and obesity are strongly linked in adults and that a common genetic aetiology for psoriasis and obesity exists. There is also evidence that the prevalence of obesity in psoriasis patients is higher than in the normal population, and that greater severity of psoriasis is associated with increased BMI. Based on these findings, patients with psoriasis should be screened for obesity and offered lifestyle counselling and encouraged to commence weight-loss programs.

According to a meta-analysis of RCTs, dietary and lifestyle weight loss intervention is associated with a reduction in the severity of psoriasis in overweight or obese patients. Bariatric surgery has also been shown to result in an improvement of psoriasis in a small prospective study, supporting observational evidence of remission or improvement of psoriasis after bariatric surgery. Regarding pharmacological treatment for psoriasis, an elevated BMI appears to be associated with a poorer response to biological drug therapy. and, in a RCT, body weight reduction augmented the efficacy of biological drug therapy in obese patients with psoriasis.

**Comment (SK):** Our understanding of psoriasis as a systemic inflammatory disease continues to be validated. It is increasingly clear that psoriasis is associated with a cascade of comorbidities that impact the quality of life of patients. Multisystem comorbidities associated with psoriasis now need to be more actively addressed for two reasons. Firstly, it delivers a better quality of life and, secondly, it can lead to a reduction in psoriasis severity. Diverse medical specialties and allied health may need to be involved to address the full biopsychosocial needs of patients to lead to better health and wellbeing outcomes. Integral to this effort is interdisciplinary education and awareness so as to initiate and support action. General practitioners are vital in this arena to instigate, supervise, and manage potential comorbidities. Psoriatic arthritis needs to remain salient, but clinicians need to now consider other comorbidities such as metabolic syndrome and cardiovascular disease. Any consult for psoriasis whether it is in a general practice or specialist setting needs to include an overview of the known comorbidities and referral arranged as required.

**Management**

Current treatments (used either in combination or as monotherapy) for psoriasis include topical agents, phototherapies, traditional systemic drugs (e.g., acitretin, cyclosporin, methotrexate), and biologic agents (e.g., adalimumab, secukinumab, and ustekinumab). Biologic agents have become an increasingly important option in the treatment of moderate-to-severe disease. Treatment goals should include grading of psoriasis severity (Psoriasis Area Severity Index score, PASI) and assessment of HRQoL (Dermatology Life Quality Index; DLQI). As a systemic inflammatory disease, the management of psoriasis involves more than the control of cutaneous symptoms. It also requires screening at regular intervals for comorbid cardiovascular diseases, metabolic syndrome, and mood disorders and their treatment (medical and lifestyle interventions) or referral to specialists as part of a multidisciplinary approach to care. The negative combined effect of psoriasis and its comorbidities on patient HRQoL emphasises the need to aggressively treat comorbidities that are modifiable. Indeed, improved HRQoL should be a primary aim of psoriasis disease management.

In a longitudinal retrospective study, patients with psoriasis treated with biologic agents for prolonged periods maintained their initial improvement in DLQI (and PASI) for up to 6.5 years. Moreover, because psoriasis is a chronic condition that requires ongoing treatment and monitoring for both response and tolerability, general practitioners have a pivotal role to play in achieving beneficial outcomes for patients.

**Comment (KP):** Over the years, we have seen patients arrive to clinic low in affect, unable or unwilling to maintain eye contact, and covered from top to toe regardless of the weather to avoid their skin being visible. They are clinically depressed, obese, and highly aware of the fact that every time they move they are leaving a trail of skin behind. These patients were unaware of the correlation between their skin disease and the condition’s tendency towards exacerbation due to obesity, smoking, and other lifestyle choices. They were at the end of their tether thinking that they had no other option but to tolerate this as their life; others had relied on the remedy from their next-door neighbour’s ‘mother-in-law’s sister, Dr Google, or the ‘wonder creams’ available off the internet only to be left disappointed and disillusioned.

The vicious cycle of low self-esteem, physical and social isolation, depression, and the effects these have on personal relationships, leads to a tendency to find solace in food, alcohol, and cigarettes, along with other less desirable lifestyle choices. Most of these first-time-to-clinic patients were unaware of the support available to them through a multidisciplinary team management approach of their disease and consequent comorbidities or had failed to realise the significance and correlation between them.

**Figure 2.** In addition to controlling the cutaneous symptoms, management of psoriasis should involve screening for comorbid conditions and appropriate treatment or referral.

Abbreviations: Neg = negative; Pos = positive; UV = ultraviolet light.
Multidisciplinary care

The high comorbidity load of psoriasis emphasises the need for a multidisciplinary approach to achieve optimal care.3,5,7 A systematic review concluded that multidisciplinary management appears to be more effective and more satisfactory for patients with moderate-to-severe psoriasis than conventional consultations.29 For example, in one RCT, interdisciplinary care resulted in higher DLQI scores than dermatological care alone in patients with moderate-to-severe psoriasis and at least one psychiatric disorder.27

General practitioners are ideally placed to co-ordinate care for patients with psoriasis and to screen for comorbidities and manage lifestyle factors.28 For example, by collaborating with dermatologists and dermatology nurses as well as other specialists, general practitioners can share information about the patient’s treatment preferences and expectations for treatment outcomes.28 In terms of screening tools, the Psoriasis and Arthritis Screening Questionnaire (PASQ), Psoriasis Epidemiology Screening Tool (PEST), and Toronto Psoriatic Arthritis Screen (ToPAS) can help to identify patients with possible psoriatic arthritis who might benefit from rheumatologist assessment,22 and German dermatologists have developed and published an interdisciplinary-based screening algorithm for assessment of psoriasis comorbidity.23

Comment (SK): For many years, the treatment options for psoriasis have been limited and stagnant. This is no longer the case and psoriasis patients can be offered a new range of life-improving treatments. In this context, treatment of psoriasis needs to go beyond treatment of skin alone but aim to prevent and manage associated comorbidities to avoid unnecessary morbidity and, in fact, further improve the psoriasis itself. This is not the exclusive role of any single clinician but needs to be a mutual goal. A multisystem disease requires multi-specialty input.

General practitioners are pivotal in recognising the current and relevant comorbidities in psoriasis patients and monitoring their progress. When specialist input is required they can initiate and supervise this. Moreover, many of the comorbidities associated with psoriasis have a significant lifestyle and psychosocial component to them. This may be best addressed by allied health practitioners such as dieticians, psychologists, and exercise physiologists. Input of allied health should not be neglected and should be included in the chronic disease plan.

Comment (KP): In specialist dermatologist clinics, the greatest challenge can often be the time restrictions and availability of appointments. The main aim of the dermatologist is to provide the patient with the best outcome in 15 minutes and their focus is on the skin more so than any comorbidity, which is commonly referred back to the general practitioner or specialist for management.

The dermatology nurse often has greater time flexibility to assist the specialist in providing patient education regarding psoriasis and its potential comorbidities; however, often it is difficult to action what is required for the patient. Many chronic plaque psoriasis patients have been attending the same clinic for years, developing a relationship not only with their dermatologist but especially with the dermatology nurse. More often than not, the patient is more likely to divulge information to their nurse than to the dermatologist (as they do not wish to take up more of the dermatologist’s time as “they are busy”) and often see the nurse as being more approachable than the specialists.

General practitioners have access to referral-based care plans to multiple allied health carers where the patient is given the opportunity to receive education from dieticians, exercise physiologists, and psychologists, as well as smoking cessation aids, lifestyle modification programs, and of course monitoring and medicating of metabolic syndrome and its components. Frequent general practitioner visits enable ongoing assessments and review of the overall condition of the patient, allowing the capture of any exacerbation and/or response to treatments and treatment modifications, and monitoring of adherence to treatments and programs. They also enable the patient to develop a rapport with the healthcare provider.

Patient support

Psoriasis comorbidity necessitates a whole-person/patient-centred approach to care,30 and the need for patient support is especially emphasised by the psychosocial burden (due to stigmatization, high stress levels, and relationship and employment problems) associated with living with psoriasis.31,32 and with the negative effects of psoriasis on patients’ physical and emotional HRQoL,31,32 which predisposes them to the development of mood disorders, including depression, anxiety, and suicidality.

In addition, psychological factors (psychological distress, healthcare professional-patient relationship, and patient satisfaction with care and therapy) are associated with poor treatment adherence in psoriasis and other immune-mediated inflammatory diseases.31,32 Hence, interventions, such as patient support programs, designed to address these factors via modification of treatment beliefs, provision of practical advice on taking treatment, and facilitation of healthcare professional-patient communication may be beneficial in increasing adherence. For example, a longitudinal retrospective cohort study demonstrated that a patient support program was associated with improved adherence to biologic drug therapy in patients with autoimmune diseases, including psoriasis and psoriatic arthritis.33

Social networking platforms, such as the photo-sharing networking application Instagram, are increasingly being used as patient support and as a source of information for patients and should be considered by healthcare professionals as a potentially effective means to educate patients with dermatological conditions.31,34

Comment (SK): The psychosocial burden of psoriasis should never be underestimated. Assumptions about patient experience and perception of their disease should never be based on gender, age, or disease severity. Many with clinically-mild disease have poor quality of life. Many patients are embarrassed to admit how psoriasis is impacting their self-esteem. Patients will often avoid social situations that may reveal their psoriasis and choose sedentary hobbies so as to avoid exposure. This is especially concerning amongst adolescents and young adults and it is this group that requires special attention. Psychologist input is often worthwhile to improve resilience, improve self-esteem, and learn coping strategies.

The chronic nature of psoriasis can often leave patients feeling frustrated and, if not addressed, soon leads to apathy and chronic disease attitudes. As such, proactive intervention is worthwhile. Social media increasingly provides a forum for inclusion and discussion, but many patients need more support. Regular review with their general practitioner is important for treatment motivation and reassurance as well as contact with a dermatologist to ensure optimum care.

Comment (KP): For many people with chronic plaque psoriasis, it can be a long and lonely process. Ensuring that they have access to education, both self-driven and that provided by healthcare professionals, gives them back some ownership of their progress, increasing their self-worth, and enabling them to set attainable and realistic goals to achieve.

In regards to biologic drug therapy for patients, a phone call to enquire about their progress and scheduling adherence often results in long conversations about their success stories … of how they can now shake hands with others without being treated like they are contagious or how they can now wear short sleeved tops, how they can go to the beach or the hairdresser’s without being embarrassed … how they can wear black without looking like they have been in a snow storm … how they no longer need to vacuum the house every day to collect the skin they or their partner has shed … and of how they do not have to change the bed linen daily due to splitting, bleeding large plaques.

Being able to reflect on previous PASI and DLQI scores is valuable when patients feel as though there has been a plateau in their treatment, enabling them to compare just how much they have achieved with the support of a multidisciplinary approach. Adherence to regimens increases as they realise that they are accountable, to both themselves and others involved, to complete treatment courses. Having been provided the opportunity to access the expertise of multiple service providers after dealing with their psoriasis on their own for long periods of time, most patients are incredibly appreciative of any support offered.
Components of patient support

The PsO We® patient materials, developed in the UK, are an example of a support tool for psoriasis patients. These theory-based psoriasis materials (based on the Common-Sense Model of Self-Regulation of Health and Illness, which emphasises the role of illness and treatment beliefs on coping and self-management) address psoriasis as a long-term condition (including consideration of medication and lifestyle factors). They have been shown to be considered acceptable and practical to use by patients and to improve patients’ understanding of their disease as well as sense of control.

Patient education has a beneficial role to play in supporting patients with a chronic disease such as psoriasis. Educational programs, including interventions for self-management, can help patients with chronic diseases to:
- Increase knowledge of their disease and its course.
- Increase knowledge of available treatments.
- Develop coping strategies.
- Improve their outcomes.

Common features of effective patient education interventions for chronic inflammatory skin conditions are a multidisciplinary approach and delivery over an extended period.

Two systematic reviews from 2014 concluded that there is a lack of RCTs that have evaluated the potential benefits of educational support for patients with psoriasis and that, compared with other chronic conditions, effective disease-specific tailored educational programs for psoriasis are lacking. However, more recent literature suggests that use of psoriasis educational programs and tools is increasing and that educational programs for psoriasis are lacking.

In a small US study, a verbal scripted educational intervention on cardiometabolic disorders in psoriasis disease with comorbidities including arthritis, cardiovascular disease, obesity, and metabolic syndrome. This list will expand as research continues to reveal the multi-system nature of this disease. These comorbidities need to be addressed. Both the dermatologist and general practitioner need to be proactive in this arena. General practitioners are especially well equipped to lead lifestyle modification and recruit medical specialties and allied health as needed. Given the chronic nature of psoriasis, early intervention is important to minimise morbidity.

Expert’s concluding comments (SK)

There is increasing strong evidence demonstrating that psoriasis is a systemic disease with comorbidities including arthritis, cardiovascular disease, obesity, and metabolic syndrome. This list will expand as research continues to reveal the multi-system nature of this disease. These comorbidities need to be addressed. Both the dermatologist and general practitioner need to be proactive in this arena. General practitioners are especially well equipped to lead lifestyle modification and recruit medical specialties and allied health as needed. Given the chronic nature of psoriasis, early intervention is important to minimise morbidity.

Expert’s concluding comments (KP)

Psoriasis is so much more than skin deep. It needs a multidisciplinary approach to capture it in its entirety. It can be a very debilitating and depressing disease process and unfortunately, for some, fatal. Time spent in discussion can often unearth underlying issues including mental health, personal/relationship problems related to image, social anxieties, and dietary concerns as well as lifestyle decisions. It is incredibly important that the patients are well informed of all available support, how to access multidisciplinary support services, and well educated about available treatments.

Take-home messages
- Comprehensive care of patients with psoriasis requires recognition of its high comorbid disease burden, especially cardiometabolic conditions.
- Comorbidities have a negative effect on patient quality of life, which emphasises the need to treat modifiable comorbidities.
- The goal of treatment in patients with psoriasis is to manage both the skin manifestations and comorbidities.
- Observational data suggest that systematic treatment for psoriasis may lead to reductions in cardiometabolic events in psoriasis patients.
- As a systemic disease with high comorbidity burden, the management of psoriasis requires a multidisciplinary approach.
- General practitioners have a pivotal role to play in the management of psoriasis, especially as they are ideally positioned to co-ordinate patient care and screen for comorbidities.
- Patient support, including patient education, is an important component of the management of psoriasis.

References