

Beyond the Skin

The Psoriasis (Ps)-Comorbidity Connection

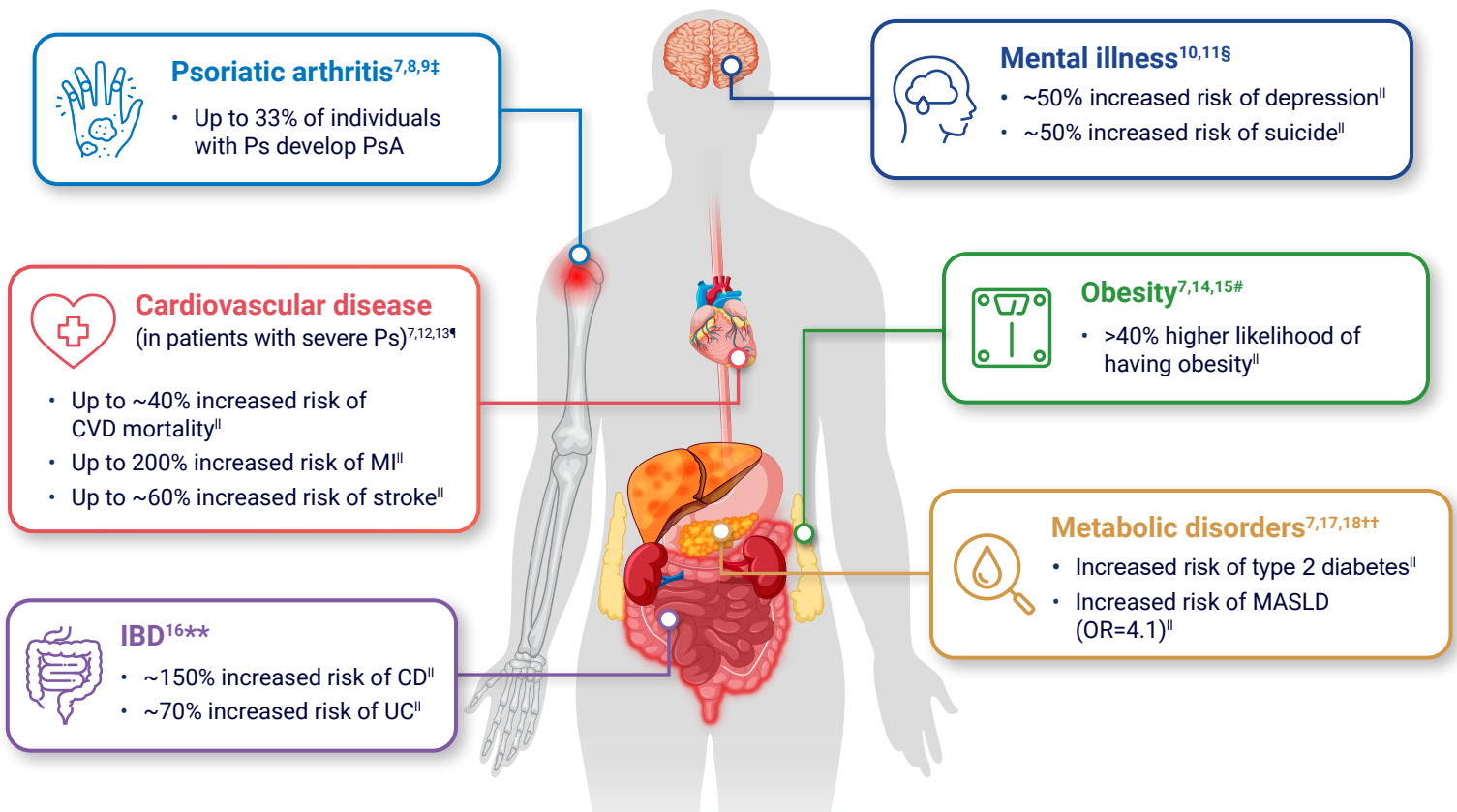
Inflammation Associated With Ps Extends Across Organ Systems

Elevated levels of pro-inflammatory cytokines are found not only in skin lesions, but also in the blood.^{1-4*}



A subset of inflammatory molecules may diffuse into systemic circulation and then to various organ systems.^{1,5,6†}

Systemic Inflammation May Be Linked to Comorbidities in Ps



Additional medical conditions are associated with Ps, including cancer, renal disease, sleep apnea, COPD, uveitis, hepatic disease, and other skin conditions^{19, 20}

Patient Survey: Many Patients Are Unaware That Ps Is a Systemic Disease and That Their Comorbidities May Be Related to It^{21††}

1 in 3 patients had never heard that their disease is part of a systemic disease.

>2 in 3 patients were unaware that common comorbidities could be related to their disease, including PsA, depression, CVD, GI diseases, obesity, and diabetes.

Footnotes and Additional Resources



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*Three studies (Arican et al 2005, de Oliveira et al 2015, and Di Cesare et al 2009) and a review article summary of those studies (Korman et al 2020) describe elevated levels of pro-inflammatory cytokines in the blood of patients with Ps. Arican et al (2005) studied 30 patients with Ps who had not received any prior local or systemic treatment within 2 months and 23 healthy, nonpsoriatic individuals with no family history (n=23). Severity was assessed using PASI for each patient.² De Oliveira et al (2015) collected serum samples from 53 patients with Ps and 35 healthy donors, showing that IL-17A serum concentrations were elevated in patients with Ps in comparison with healthy controls.³ Di Cesare et al (2009) reviewed the development, characterization, and function of human Th17 cells, as well as the crucial role of IL-23 in the context of Th17-cell-dependent chronic inflammation in Ps.⁴ Korman et al (2020) explores the pathophysiological relationship between Ps and its common comorbidities and discusses the need for new treatment paradigms that include strategies to reduce systemic inflammation in patients with moderate-to-severe Ps.¹

†Understanding of which inflammatory molecules may diffuse into systemic organ systems is attributed to Lowes et al (2014), which describes the association between Ps and comorbidities by correlating the skin transcriptome and serum proteins.⁵ Furthermore, Korman et al (2020) reviews these data and also discusses shared systemic inflammatory pathways between Ps and its comorbidities; Garshick et al (2021) connects Ps with CVD risk via inflammatory molecules and discusses updated guidelines that suggest Ps diagnosis and CV risk prediction and prevention strategies, as well as the need for further research into the connection between the two.^{1,6}

‡Data reported in the NPF 2024 Psoriasis Health Indicator Report.⁷ The NPF cites 2 references to support this information. Mease et al (2013) was a study of 949 consecutive patients evaluated by dermatologists for Ps and subsequently by rheumatologists for PsA.⁸ Gelfand et al (2005) sought to determine the prevalence of PsA and the impact of the disease in the US by interviewing patients by telephone who were selected at random from the US population; 27,220 people were interviewed, including 601 people with Ps and 71 with Ps and PsA.⁹

§Depression rates are based on Lukmanji et al (2021), a meta-analysis of 17 studies identified through a systematic review of observational studies investigating the risk of depression in adults with psoriatic disease across MEDLINE, EMBASE, PsycINFO, and CINAHL databases.¹⁰ Suicide results are based on Yang et al (2025), a meta-analysis of 4 studies reporting the risk of suicide-related mortality in patients with Ps identified through a systematic search of PubMed, EMBASE, and the Cochrane Library (from inception to March 2025).¹¹

[¶]Vs the general public.

*Data reported in the NPF 2024 Psoriasis Health Indicator Report.⁷ The NPF cites 2 references to support this information. Armstrong et al (2013) was a systematic review and meta-analysis that used the MEDLINE, EMBASE, and Cochrane Central Register databases to identify relevant studies in English between January 1, 1980, and January 1, 2012. The 9 identified studies included 17,415 patients who had severe Ps.¹² Samaresekera et al (2013) was a systematic review and meta-analysis that evaluated 14 cohorts; meta-analyzed the magnitude of CVD risk for the primary outcomes of CVD mortality, stroke, and MI; and established subgroup risk for different Ps severities and age groups.¹³

#Data reported in the NPF 2024 Psoriasis Health Indicator Report.⁷ The NPF cites 2 references to support this information. Armstrong et al (2012) was a systematic review and meta-analysis of 16 observational studies from MEDLINE, EMBASE, and the Cochrane Central Register published in English between January 1, 1980, and January 1, 2012; 16 studies with a total of 2.1 million participants (201,831 patients with Ps) fulfilled the inclusion criteria.¹⁴ Takeshita et al (2017) reviewed the epidemiologic data supporting associations between Ps and cardiometabolic diseases, GI diseases, kidney disease, malignancy, infection, mood disorders, PsA, and other emerging comorbid diseases.¹⁵

**Results are based on a systematic review and meta-analysis by Fu et al (2018) that included 5 case-control or cross-sectional studies and 4 cohort studies (7,794,078 total study participants) assessing the association between Ps and IBD risk, identified from MEDLINE, EMBASE, and the Cochrane Central Register of Controlled Trials through January 17, 2018.¹⁶

††Diabetes risk data reported in the NPF 2024 Psoriasis Health Indicator Report.⁷ The NPF cites Wan et al (2018) to support this information: a prospective, population-based cohort study from the UK that included 8124 adults with Ps and 76,599 adults without Ps who were followed for ~4 years.¹⁷ MASLD results are based on Untaaveesup et al (2025), a meta-analysis of 8 studies (total of 109,806 participants) identified through a search of MEDLINE, EMBASE, OSF, and ClinicalTrials.gov for relevant published articles assessing the risk of prevalent MASLD in patients with moderate-to-severe Ps up to April 2024.¹⁸

‡‡Results from the Global Psoriasis and Beyond survey reported in Armstrong et al (2023), a cross-sectional, quantitative online survey conducted in patients with a self-reported, physician-given diagnosis of moderate-to-severe Ps (BSA >5% to <10%, affecting sensitive and/or prominent body parts or BSA ≥10%) at its worst, with or without PsA; 4,978 respondents with Ps completed the online survey from 20 countries across Australia, Asia, Europe, and the Americas.²¹

BSA=body surface area. CD=Crohn's disease. COPD=chronic obstructive pulmonary disease. CV=cardiovascular. CVD=cardiovascular disease. GI=gastrointestinal. IBD=inflammatory bowel disease. IL=interleukin. MASLD=metabolic dysfunction-associated steatotic liver disease. MI=myocardial infarction. NPF=National Psoriasis Foundation. OR=odds ratio. OSF=Open Science Framework. PASI=Psoriasis Area and Severity Index. PsA=psoriatic arthritis. Th=T helper. UC=ulcerative colitis. UK=United Kingdom. US=United States.

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