

Examining patterns and clusters of comorbidities in people with psoriasis

Wright AK¹, Emsley R², Kontopantelis E³, Morris C³, Rutter MK^{4,5,6}, Griffiths CEM^{6,7}, Ashcroft DM^{1,6}, on behalf of the Global Psoriasis Atlas

¹ Division of Pharmacy and Optometry, University of Manchester, Manchester, UK; ² Department of Biostatistics & Health Informatics, King's College London, London, UK; ³ Division of Population Health, Health Services Research & Primary Care, University of Manchester, Manchester, UK; ⁴ Division of Diabetes, Endocrinology and Gastroenterology, University of Manchester, Manchester, UK; ⁵ Diabetes, Endocrinology and Metabolism Centre, Manchester Royal Infirmary, Manchester, UK; ⁶ NIHR Manchester Biomedical Research Centre, University of Manchester, Manchester, UK; ⁷ Department of Dermatology, King's College Hospital, King's College London, UK

Introduction

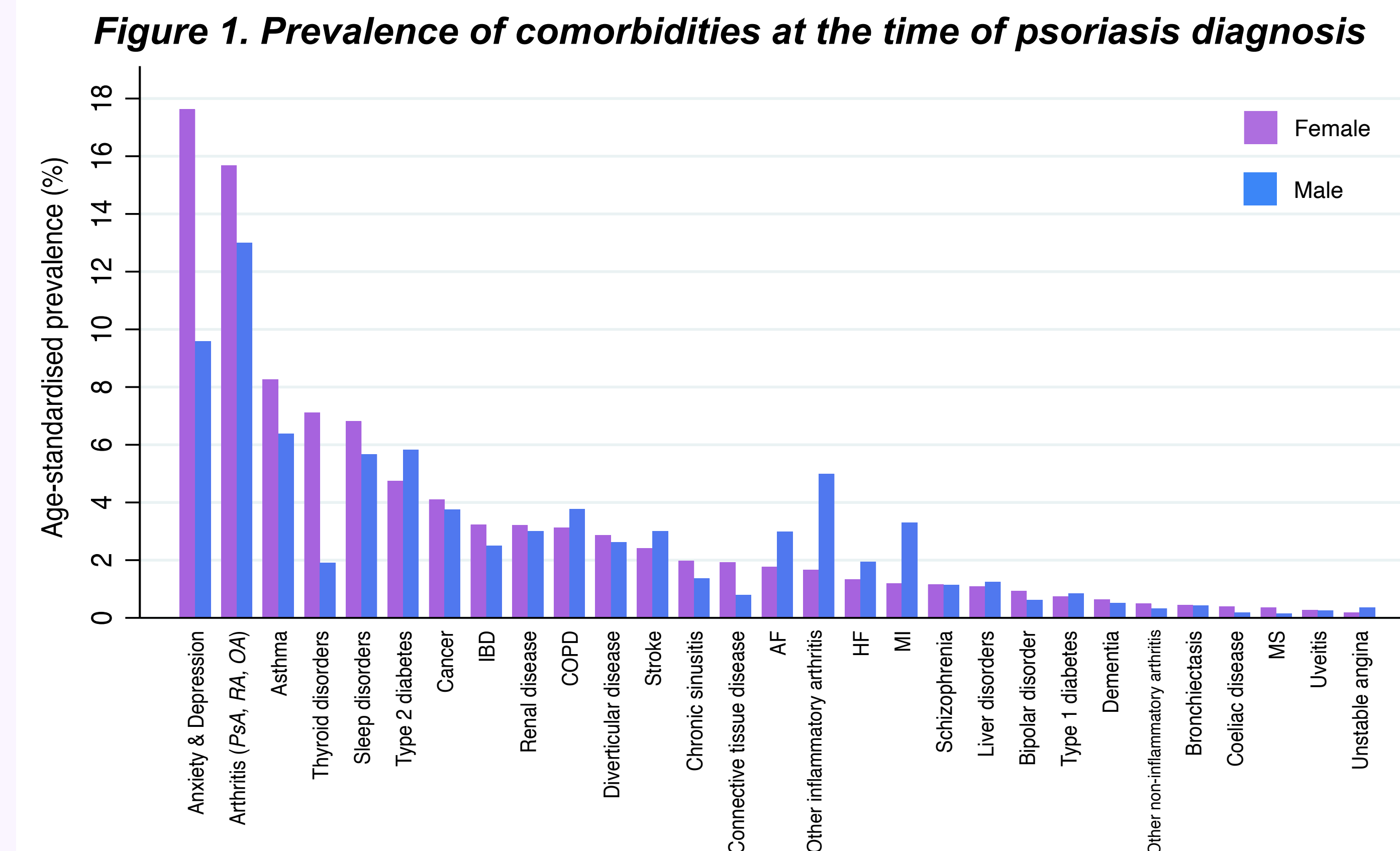
- Psoriasis is associated with several other diseases which may significantly impact on patients, lowering quality of life and increased mortality.
- The presence of these additional conditions, and their treatment, can have an impact on psoriasis severity and affect the management of psoriasis and vice versa.
- Understanding patterns of comorbidity may encourage earlier and more targeted screening for specific conditions and identify more appropriate management and treatment strategies for psoriasis and associated comorbidities.
- The aim of the study was to estimate the prevalence of comorbid conditions and patterns of comorbidities in patients with psoriasis at the time of diagnosis and after 1, 5, and 10 years of follow-up.

- Retrospective population-based cohort study using electronic health records from English practices from the Clinical Practice Research Datalink (CPRD) Aurum, linked with hospital and death records and Index of Multiple Deprivation (IMD) 2019.
- 275,620 adults (51% female, 81% White, 5% Asian, 1.2% Black) with incident psoriasis were identified by Read code between 01/01/1998 and 30/06/2020. Patients were followed from psoriasis diagnosis until the earliest of transfer out of practice, date of last collection of data, death, or end of study period (31/10/2020).

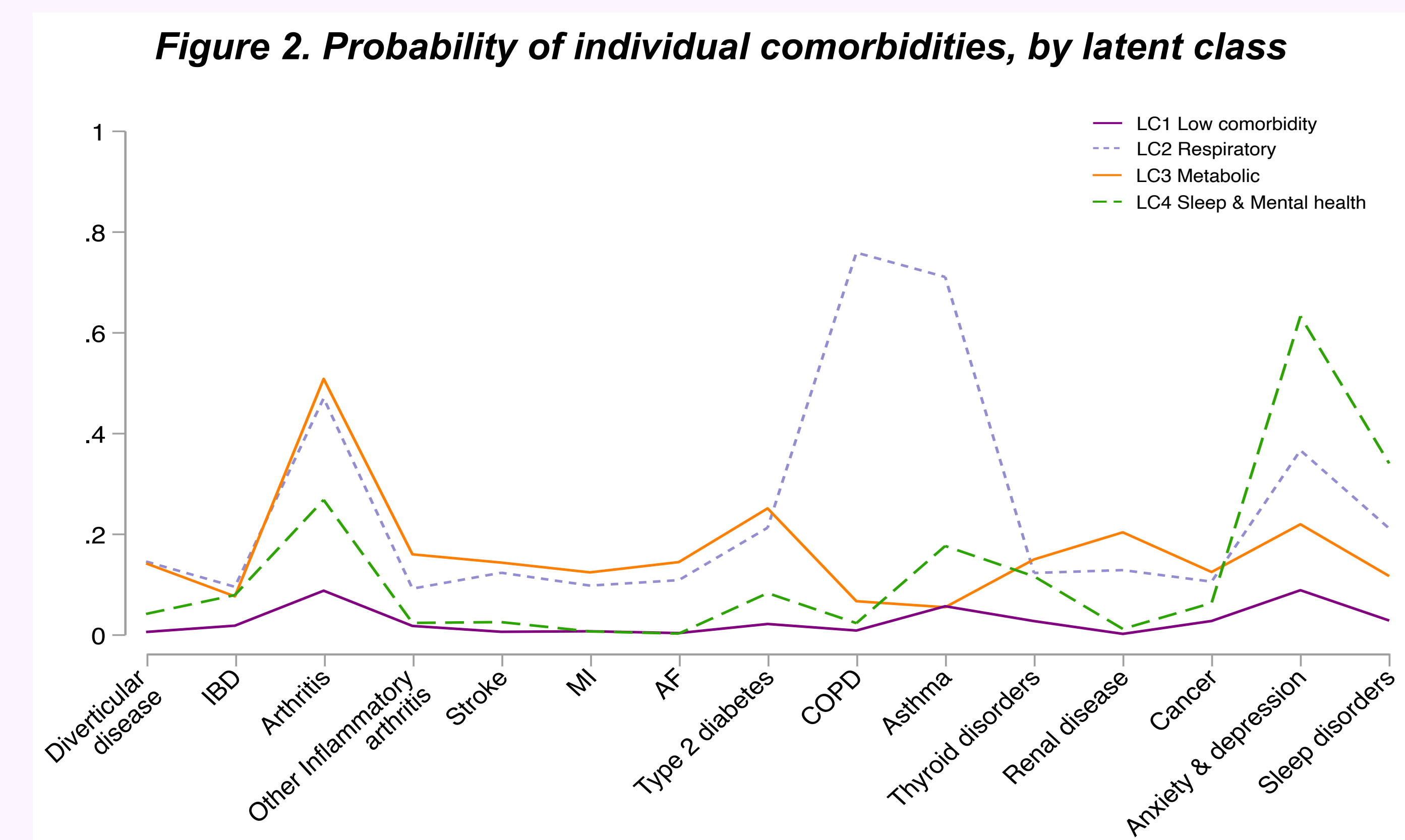
Methods

- Data on 29 chronic conditions were defined from primary care and hospital records using Read codes and prescription data, where appropriate. Crude and age-standardised prevalence rates were calculated for each comorbidity.
- Latent class analysis, a probabilistic clustering approach, was used to identify and estimate distinct disease patterns in these individuals. Predictors of latent class membership were examined using multinomial logistic regression, with the low comorbidity class (LC1) specified as the reference group.

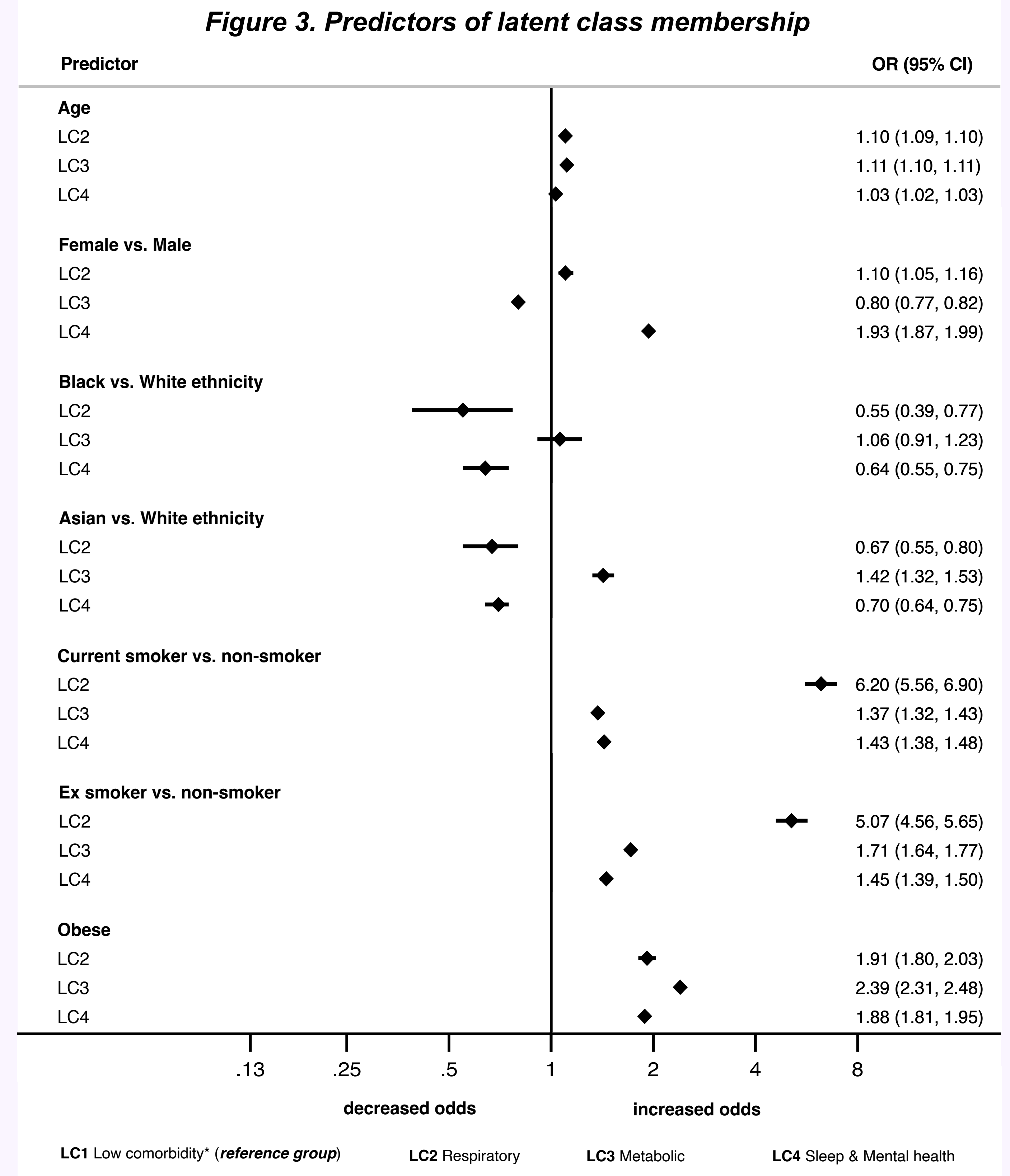
Results



- 44% of patients had ≥ 1 comorbidity at psoriasis diagnosis, with females on average presenting with more comorbidities than males.
- Anxiety & depression, arthritis (PsA, RA, OA), asthma, sleep disorders, type 2 diabetes, thyroid disorders, and cancer were the most prevalent diseases. Rates differed by sex and ethnicity.



- Four classes were distinguished each characterised by differing probabilities of various chronic diseases, including: the low comorbidity group (75% of patients), the respiratory group (3%), the metabolic group including type 2 diabetes and renal disease (13%), and the sleep & mental health group (9%).
- A high probability of arthritis and anxiety/depression was observed across all latent classes.
- At 5 and 10 years post psoriasis diagnosis, five latent classes were identified, with the addition of a multiple comorbidities group.



- Females were more likely to belong to LC2 (respiratory) and LC4 (sleep/mental health) compared to males. Males had greater odds of belonging to LC3 (metabolic – type 2 diabetes and renal disease).
- People of Black or Asian ethnicity had greater odds of being in LC3 compared to those of White ethnicity.
- Compared to non-smokers, current and ex-smokers had higher odds of belonging to one of the multimorbid classes than the relatively healthy class (LC1), particularly the respiratory (LC2) class.
- Obesity increased the likelihood of belonging to classes LC2-LC4; the odds of being in LC3 relative to LC1 were over 2 times greater for psoriasis patients with BMI ≥ 30 kg/m².

Conclusion

The identification of distinct classes of psoriasis comorbidities offers clinicians valuable information that may lead to more targeted health and clinical strategies for the management and treatment of psoriasis and associated chronic diseases. This may help improve the quality of life and mortality of people with psoriasis.