

Comprehensive Analysis of Comorbidities Associated With Psoriasis Diagnosis in the MEPS National Cohort

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Dear Editor,

Psoriasis is recognized as a systemic disease with various comorbidities that increase disease burden and complicate treatment.¹ Research has highlighted its systemic impacts, as well as worsened mental health outcomes.^{1,2} These

comorbidities have a profound impact on patient quality of life, including work impairment, medical utilization and overall lower quality of life, as measured by the Dermatologic Life Quality Index (DLQI).³ These challenges highlight the need to better understand the significant effects of psoriasis.

TABLE 1.

Odds Ratios With 95% Confidence Intervals of Developing Comorbidities Among Psoriasis Patients. Red= Not Significant									
ICD-10 Code	Condition	Total of Condition	Total Psoriasis	% With Condition	Total Of Condition	Total Pts	% With Condition	Odds Ratio	Confidence
i10	Essential (primary) hypertension	376	926	40.60475162	43505	144493	30.10872499	1.35	1.2–1.52
e78	Disorders of lipoprotein metabolism	302	926	32.61339093	32539	144493	22.51943001	1.45	1.27–1.65
m19	Other and unspecified osteoarthritis	236	926	25.48596112	14527	144493	10.05377423	2.53	2.2–2.93
m25	Other joint disorders	172	926	18.57451404	19134	144493	13.24216398	1.4	1.19–1.65
e11	Type 2 diabetes mellitus	171	926	18.46652268	19338	144493	13.38334729	1.38	1.17–1.63
f41	Anxiety disorders	167	926	18.03455724	16792	144493	11.62132422	1.55	1.32–1.83
f32	Depressive episodes	152	926	16.41468683	14880	144493	10.29807672	1.59	1.34–1.89
k21	Gastro-esophageal reflux disease (GERD)	135	926	14.57883369	11806	144493	8.170638024	1.78	1.49–2.14
g47	Sleep disorders	125	926	13.49892009	10617	144493	7.347760791	1.84	1.52–2.22
m54	Dorsalgia (back pain)	118	926	12.74298056	13313	144493	9.213595122	1.38	1.14–1.68
e03	Hypothyroidism	86	926	9.287257019	5827	144493	4.032721308	2.3	1.84–2.88
j45	Asthma	85	926	9.179265659	13147	144493	9.098710664	1.01	0.81–1.26
m79	Other soft tissue disorders	74	926	7.991360691	8389	144493	5.805817583	1.38	1.09–1.75
e07	Disorders of thyroid gland	66	926	7.127429806	5839	144493	4.041026209	1.76	1.37–2.27
m06	Rheumatoid arthritis	59	926	6.371490281	3610	144493	2.498390926	2.55	1.96–3.32
h26	Cataract	56	926	6.047516199	4665	144493	3.228530102	1.87	1.43–2.46
j32	Chronic sinusitis	55	926	5.939524838	5181	144493	3.585640827	1.66	1.26–2.18
i98	Other skin and subcutaneous disorders	53	926	5.723542117	2908	144493	2.012554241	2.84	2.15–3.76
i25	Chronic ischemic heart disease	50	926	5.399568035	5906	144493	4.087395237	1.32	0.99–1.76
n39	Other urinary disorders	50	926	5.399568035	5285	144493	3.657616632	1.48	1.11–1.96
z20	Contact with and exposure to communicable diseases	44	926	4.75161987	5026	144493	3.478369194	1.37	1.01–1.85
j30	Allergic rhinitis	42	926	4.535637149	4363	144493	3.019523437	1.5	1.1–2.05
r60	Edema	40	926	4.319654428	3219	144493	2.227789582	1.94	1.41–2.67
h40	Glaucoma	39	926	4.211663067	3586	144493	2.481781124	1.7	1.23–2.34
i49	Cardiac arrhythmias	39	926	4.211663067	1745	144493	1.20767096	3.49	2.52–4.82
i30	Other dermatitis	39	926	4.211663067	2026	144493	1.402144049	3	2.17–4.15
g43	Migraine	38	926	4.103671706	3955	144493	2.737156817	1.5	1.08–2.08
r21	Rash and other nonspecific skin eruption	37	926	3.995680346	2962	144493	2.049926294	1.95	1.4–2.71
m10	Gout	32	926	3.455723542	2461	144493	1.703196695	2.03	1.42–2.89
g62	Polyneuropathy	32	926	3.455723542	2030	144493	1.404912349	2.46	1.72–3.51
h04	Disorders of lacrimal system	29	926	3.13174946	1834	144493	1.269265639	2.47	1.7–3.58
h91	Hearing loss	28	926	3.023758099	2245	144493	1.553708484	1.95	1.33–2.84
n40	Benign prostatic hyperplasia	28	926	3.023758099	1948	144493	1.348162195	2.24	1.54–3.28
d49	Neoplasm of unspecified behavior	27	926	2.915766739	1312	144493	0.908002464	3.21	2.18–4.73
j44	Chronic obstructive pulmonary disease (COPD)	26	926	2.807775378	2287	144493	1.582775636	1.77	1.2–2.63
e87	Disorders of fluid, electrolyte, and acid-base balance	26	926	2.807775378	2198	144493	1.521180957	1.85	1.25–2.73
c44	Other malignant neoplasms of skin	26	926	2.807775378	3198	144493	2.213256005	1.27	0.86–1.88
j34	Other disorders of nose and nasal sinuses	26	926	2.807775378	1854	144493	1.28310714	2.19	1.48–3.24
r06	Abnormalities of breathing	25	926	2.699784017	2368	144493	1.638833715	1.65	1.11–2.46
r73	Abnormal blood glucose	25	926	2.699784017	1655	144493	1.145384205	2.36	1.58–3.52
i21	Acute myocardial infarction	25	926	2.699784017	3469	144493	2.400808344	1.12	0.75–1.68
j18	Pneumonia, unspecified organism	25	926	2.699784017	2591	144493	1.793166451	1.51	1.01–2.24
e55	Vitamin D deficiency	25	926	2.699784017	2512	144493	1.738492522	1.55	1.04–2.31
i48	Atrial fibrillation and flutter	24	926	2.591792657	2498	144493	1.728803471	1.5	1–2.25
i51	Complications and ill-defined descriptions of heart disease	23	926	2.483801296	1984	144493	1.373076896	1.81	1.19–2.74
m81	Osteoporosis	23	926	2.483801296	1468	144493	1.015966171	2.44	1.61–3.71
m62	Disorders of muscle	23	926	2.483801296	2371	144493	1.64090994	1.51	1–2.29
f31	Bipolar disorder	22	926	2.375809935	2001	144493	1.384842172	1.72	1.12–2.62
j42	Unspecified chronic bronchitis	20	926	2.159827214	1636	144493	1.13223478	1.91	1.22–2.98
i60	Nail disorders	20	926	2.159827214	1455	144493	1.006969196	2.14	1.37–3.35

Data from the Medical Conditions component of the Medicare Expenditure Panel Survey (MEPS) between 2016 and 2022 were used to focus on 50 comorbidities, recorded by ICD-10 code. The MEPS is a yearly cross-sectional survey of nationally representative households that provides information on healthcare utilization in America. Odds ratios (OR) with 95% confidence intervals (CI) were used as measures of association between 926 psoriasis patients interviewed in the survey and 144,493 patients without psoriasis.

Our analysis revealed the odds of developing cardiovascular conditions, including hypertension (1.35, CI 1.2-1.52), dyslipidemia (1.45, CI 1.27-1.65), and arrhythmias (3.49, CI 2.52-4.82) were increased, although notably there was no increased risk of myocardial infarction (MI) (1.12, CI 0.75-1.68) or chronic ischemic heart disease (1.32, CI 0.99-1.76). Previous literature has found a link between psoriasis and major cardiovascular events, with genetics, immune dysfunction, and exacerbation of pre-existing conditions proposed as etiologies.⁴ Our observations, however, highlight the need for more comprehensive research on specific cardiovascular conditions. Participants also had higher odds of metabolic disorders such as diabetes (1.38, CI 1.17-1.63), hypothyroidism (2.3 CI 1.84-2.88), gout (2.03, CI 1.42-2.89), and acid-base disorders (1.85, CI 1.25-2.73), which is consistent with the literature.¹ Additionally, sensory organ sequelae, including glaucoma (1.70, CI 1.23-2.34), cataracts (1.87, CI 1.43-2.46), lacrimal disorders (2.47, CI 1.70-3.58), hearing loss (1.95, CI 1.33-2.84), and disorders of the nasal system (2.19, CI 1.48-3.24) were increased. Ocular comorbidities have been less studied and are hypothesized to be inflammatory manifestations or therapeutic side effects.⁵ Participants with psoriasis were also more likely to have anxiety (1.55, CI 1.32-1.83), depression (1.59, CI 1.34-1.89), sleep disorders (1.87, CI 1.52-2.22), migraine (1.50, CI 1.08-2.08), and polyneuropathy (2.46, CI 1.72-3.51), highlighting the impact of psoriasis on neuroimmunology and mental health, and the quality of life burden of psoriasis (Table 1).²

Our analysis highlights the diverse range of comorbid conditions associated with psoriasis, highlighting the need for comprehensive, multidisciplinary care. Discrepancies in the significance of cardiovascular correlations and the increased risk of lesser-studied conditions highlight the need for additional research to understand the full impact of these comorbidities. Understanding both physical and psychosocial burdens of psoriasis can help clinicians provide appropriate and effective treatment.

Data Availability: All data used in this study are accessible at the MEPS website, https://www.meps.ahrq.gov/mepsweb/about_meps/survey_back.jsp

DISCLOSURES

The authors have no conflicts to disclose.

REFERENCES

1. Strohal R, Kirby B, Puig L, et al. Psoriasis beyond the skin: an expert group consensus on the management of psoriatic arthritis and common co-morbidities in patients with moderate-to-severe psoriasis. *J Eur Acad Dermatol Venereol.* 2014;28(12):1661-1669. doi:10.1111/jdv.12350
2. Kleyn CE, Talbot PS, Mehta NN, et al. Psoriasis and mental health workshop report: exploring the links between psychosocial factors, psoriasis, neuroinflammation, and cardiovascular disease risk. *Acta Derm Venereol.* 2020;100(1):adv00020. doi:10.2340/00015555-3375
3. Lysen TS, Crombag EJGM, Lennaerts L, et al. Real world insights for psoriasis: the association of severity of skin lesions with work productivity, medical consumption costs and quality of life. *J Dermatolog Treat.* 2024;35(1):2332615. doi:10.1080/09546634.2024.2332615
4. Mehta H, Narang T, Dogra S, Handa S, Hatwal J, Batta A. Cardiovascular considerations and implications for treatment in psoriasis: an updated review. *Vasc Health Risk Manag.* 2024;20:215-229. doi:10.2147/VHRM.S464471
5. Constantin MM, Ciurduc MD, Bucur S, et al. Psoriasis beyond the skin: Ophthalmological changes (Review). *Exp Ther Med.* 2021;22(3):981. doi:10.3892/etm.2021.10413

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