

Prevalence and Association of Autoimmune Comorbidities Among Adults With Vitiligo: A Systematic Literature Review and Meta-Analysis of US-Based Studies

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SUPPLEMENTARY TABLES

Supplementary Table S1. Search Strategy

Database	Query
PubMed	((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("Staphylococcal Skin Infections"[MeSH Terms] OR ("skin diseases, infectious"[MeSH Terms] OR ("skin"[All Fields] AND "diseases"[All Fields] AND "infectious"[All Fields]) OR "infectious skin diseases"[All Fields] OR ("skin"[All Fields] AND "infection"[All Fields]) OR "skin infection"[All Fields]) OR ("skin diseases, infectious"[MeSH Terms] OR ("skin"[All Fields] AND "diseases"[All Fields] AND "infectious"[All Fields]) OR "infectious skin diseases"[All Fields] OR ("skin"[All Fields] AND "infections"[All Fields]) OR "skin infections"[All Fields])))) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("Bone Diseases"[MeSH Terms] OR "bone diseases, metabolic"[MeSH Terms] OR ((("bone and bones"[MeSH Terms] OR ("bone"[All Fields] AND "bones"[All Fields]) OR "bone and bones"[All Fields] OR "bone"[All Fields]) AND ("health"[MeSH Terms] OR "health"[All Fields] OR "health s"[All Fields] OR "healthful"[All Fields] OR "healthfulness"[All Fields] OR "healths"[All Fields])))) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("Metabolic Diseases"[MeSH Terms] OR ("Metabolic Diseases"[MeSH Terms] OR ("metabolic"[All Fields] AND "diseases"[All Fields]) OR "Metabolic Diseases"[All Fields] OR ("metabolic"[All Fields] AND "disorder"[All Fields]) OR "metabolic disorder"[All Fields]) OR ("Metabolic Diseases"[MeSH Terms] OR ("metabolic"[All Fields] AND "diseases"[All Fields]) OR "Metabolic Diseases"[All Fields] OR ("metabolic"[All Fields] AND "disorders"[All Fields]) OR "metabolic disorders"[All Fields])))) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("Cardiovascular Diseases"[MeSH Terms] OR "Cardiovascular Abnormalities"[MeSH Terms] OR ("Cardiovascular Diseases"[MeSH Terms] OR ("cardiovascular"[All Fields] AND "diseases"[All Fields]) OR "Cardiovascular Diseases"[All Fields] OR ("cardiovascular"[All Fields] AND "disease"[All Fields]) OR "cardiovascular disease"[All Fields])))) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("Illicit Drugs"[MeSH Terms] OR "Substance-Related Disorders"[MeSH Terms] OR "substance abuse, intravenous"[MeSH Terms] OR "substance abuse, oral"[MeSH Terms] OR ("Substance-Related Disorders"[MeSH Terms] OR ("substance related"[All Fields] AND "disorders"[All Fields]) OR "Substance-Related Disorders"[All Fields] OR ("substance"[All Fields] AND "abuse"[All Fields]) OR "substance abuse"[All Fields])))) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND "28"[All Fields]) OR ((("Vitiligo"[MeSH Terms] OR "Vitiligo"[All Fields] OR "Vitiligo"[MeSH Terms]) AND ("immunity, active"[MeSH Terms] OR "Adaptive Immunity"[MeSH Terms] OR "immunity, cellular"[MeSH Terms] OR "Histocompatibility Antigens Class II"[MeSH Terms] OR "irg1 protein mouse"[Supplementary Concept] OR "immunity, humoral"[MeSH Terms] OR ((("immune"[All Fields] OR "immunized"[All Fields] OR "immunes"[All Fields] OR "immunisation"[All Fields] OR "vaccination"[MeSH Terms] OR "vaccination"[All Fields] OR "immunization"[All Fields] OR "immunization"[MeSH Terms] OR "immunisations"[All Fields] OR "immunizations"[All Fields] OR "immunise"[All Fields] OR "immunised"[All Fields] OR "immuniser"[All Fields] OR "immunisers"[All Fields] OR "immunising"[All Fields] OR "immunities"[All

	Fields] OR "immunity"[MeSH Terms] OR "immunity"[All Fields] OR "immunization s"[All Fields] OR "immunize"[All Fields] OR "immunized"[All Fields] OR "immunizer"[All Fields] OR "immunizers"[All Fields] OR "immunizes"[All Fields] OR "immunizing"[All Fields]) AND ("mediated"[All Fields] OR "mediational"[All Fields] OR "mediator"[All Fields] OR "mediator s"[All Fields] OR "mediators"[All Fields] OR "negotiating"[MeSH Terms] OR "negotiating"[All Fields] OR "mediate"[All Fields] OR "mediates"[All Fields] OR "mediating"[All Fields] OR "mediation"[All Fields] OR "mediations"[All Fields]) AND ("condition s"[All Fields] OR "conditions"[All Fields] OR "disease"[MeSH Terms] OR "disease"[All Fields] OR "condition"[All Fields])))) OR (("Vitisiligo"[MeSH Terms] OR "Vitisiligo"[All Fields] OR "Vitisiligo"[MeSH Terms]) AND ("Allergy and Immunology"[MeSH Terms] OR "Hypersensitivity"[MeSH Terms] OR (("allergic"[All Fields] OR "allergical"[All Fields] OR "allergically"[All Fields] OR "allergics"[All Fields] OR "allergization"[All Fields] OR "allergizing"[All Fields]) AND ("condition s"[All Fields] OR "conditions"[All Fields] OR "disease"[MeSH Terms] OR "disease"[All Fields] OR "condition"[All Fields])))) OR (("Vitisiligo"[MeSH Terms] OR "Vitisiligo"[All Fields] OR "Vitisiligo"[MeSH Terms]) AND ("dermatitis, atopie"[MeSH Terms] OR "hypersensitivity, immediate"[MeSH Terms] OR (("atopie"[All Fields] OR "atopical"[All Fields] OR "atopics"[All Fields]) AND ("condition s"[All Fields] OR "conditions"[All Fields] OR "disease"[MeSH Terms] OR "disease"[All Fields] OR "condition"[All Fields])))) OR (("Vitisiligo"[MeSH Terms] OR "Vitisiligo"[All Fields] OR "Vitisiligo"[MeSH Terms]) AND "Comorbidity"[MeSH Terms])
Embase	((('vitisiligo' AND 'comorbidity') OR ('vitisiligo' AND 'atopy') OR ('vitisiligo' AND 'allergy') OR ('vitisiligo' AND ('immunopathology' OR (immune AND mediated AND condition))) OR ('vitisiligo' AND 'mental health') OR ('vitisiligo' AND 'substance use') OR ('vitisiligo' AND 'cardiovascular disease') OR ('vitisiligo' AND 'metabolic disorder') OR ('vitisiligo' AND 'bone health') OR ('vitisiligo' AND 'skin infection')) AND ([embase]/lim OR [medline]/lim OR [preprint]/lim OR [pubmed-not-medline]/lim)

Supplementary Table S2. Analysis of Quality for Cohort Studies Using the Newcastle-Ottawa Scale [1]

Cohort study	Selection				Comparability	Outcome			Score/ Interpretation
	Representativeness of the exposed cohort	Selection of the non- exposed cohort	Ascertainment of exposure	Demonstration that outcome of interest was not present at start of study	Comparability of cohorts on the basis of the design or analysis	Assessment of outcome	Was follow- up long enough for outcomes to occur	Adequacy of follow- up of cohorts	
Ahmed 2023 [2]	★	★	★	★	★★	★			7 High quality
Moseley 2022 [3]			★	★	★★	★	★		6 High risk

A study can be awarded a maximum of 1 star for each numbered item within the Selection and Outcome categories. A maximum of 2 stars can be awarded for Comparability.

Supplementary Table S3. Analysis of Quality for Cross-Sectional Studies Using the Modified Newcastle-Ottawa Scale [4]

Cross-sectional study	Selection				Comparability	Outcome		Score/ Interpretation
	Representativeness of the sample	Sample size	Non-response rate	Ascertainment of the screening/ surveillance tool	Potential confounders investigated by subgroup analysis or multivariable analysis	Assessment of the outcome	Statistical test	
Hadi 2020 [5]	★		★	★★	★	★★	★	8 High quality
Gill 2016 [6]	★		★	★★	★	★★	★	8 High quality
Silverberg 2013a [7]	★				★		★	3 Very high risk
Silverberg 2013b [8]	★		★	★★	★		★	6 High risk
Sheth 2013 [9]	★		★	★★	★	★★		7 High quality
Henning 2020 [10]	★		★		★		★	4 High risk

A study can be awarded a maximum of 1 star for each numbered item within Selection (except Ascertainment), Comparability, and Outcome (except Assessment). A maximum of 2 stars can be awarded for Ascertainment and Assessment.

Supplementary Table S4. Definitions of Statement Wording and Implications

Statement wording	Overall certainty of supporting evidence	Implication
Is associated	High or moderate	Clear evidence of an important large effect
Is not associated	High or moderate	Clear evidence of no association
Probably associated	High or moderate	Evidence of a moderate effect
Probably not associated	High or moderate	Evidence of small or unimportant effect
May be associated	Low	Evidence of a large, moderate, or small effect based on low-quality evidence
May not be associated	Low	Evidence of no association based on low-certainty evidence
Uncertain association	Any quality	Evidence of any magnitude of effect from very-low-certainty evidence or imprecise or inconsistent effect estimates from evidence of any certainty

Supplementary Table S5. Strength of Evidence and Implications

Strength of evidence	Wording	Implication [11-13]
High	"High certainty evidence"	Very confident that the true magnitude of association lies close to that of the estimate
Moderate	"Moderate certainty evidence"	Moderately confident in the estimate of association, but there is a possibility that it is substantially different
Low	"Low certainty evidence"	Confidence in the estimate is limited; the true magnitude of association may be substantially different from the estimate
Very low	"Very low certainty evidence"	The estimate is very uncertain; the true magnitude of association may be substantially different from the estimate

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