

Psoriasis association with occupational organic dust exposure: A cross-sectional analysis of NHANES 2009-2012 data among US adults

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Background

- Psoriasis, a cutaneous inflammatory disease, involves a genetic predisposition accompanied by an inciting environmental trigger such as stress, smoking, obesity, alcohol, etc.
- Psoriasis has also been linked to inorganic environmental triggers, including heavy metals [1].
- However, the exploration of organic triggers, notably exposure to organic dust in occupational settings, remains insufficient despite the substantial role environmental factors play in the development of psoriasis.

Objective

The goal of this study was to examine the relationship between psoriasis and occupational organic dust exposure among U.S. adults ages 20-79 years old.

Methods

We utilized the latest accessible data from the National Health and Nutrition Examination Survey (NHANES) for psoriasis and organic dust exposure (2009-2012). Multivariable logistic regression analyses were performed using STATA/SE 18.0.

Results

Psoriasis	Organic Dust (weighted %)*	AOR (95% CI)	P value
All participants (20-79 years old)			
Yes	95/316 (32.0)	1.68 (1.19-2.36)	0.004
No	2204/10,191 (22.0)	1.00 (Reference)	
Females			
Yes	36/152 (24.0)	1.87 (1.03-3.39)	0.040
No	722/5084 (14.7)	1.00 (Reference)	
Males			
Yes	59/164 (39.6)	1.60 (0.99-2.55)	0.052
No	1482/5107 (29.6)	1.00 (Reference)	
Ages 20-39			
Yes	28/94 (29.2)	1.39 (0.63-3.04)	0.400
No	858/3735 (23.7)	1.00 (Reference)	
Ages 40-59			
Yes	38/119 (35.1)	1.69 (1.03-2.75)	0.038
No	791/3645 (22.0)	1.00 (Reference)	
Ages 60-79			
Yes	29/103 (30.2)	1.95 (1.05-3.63)	0.034
No	555/2811 (18.9)	1.00 (Reference)	

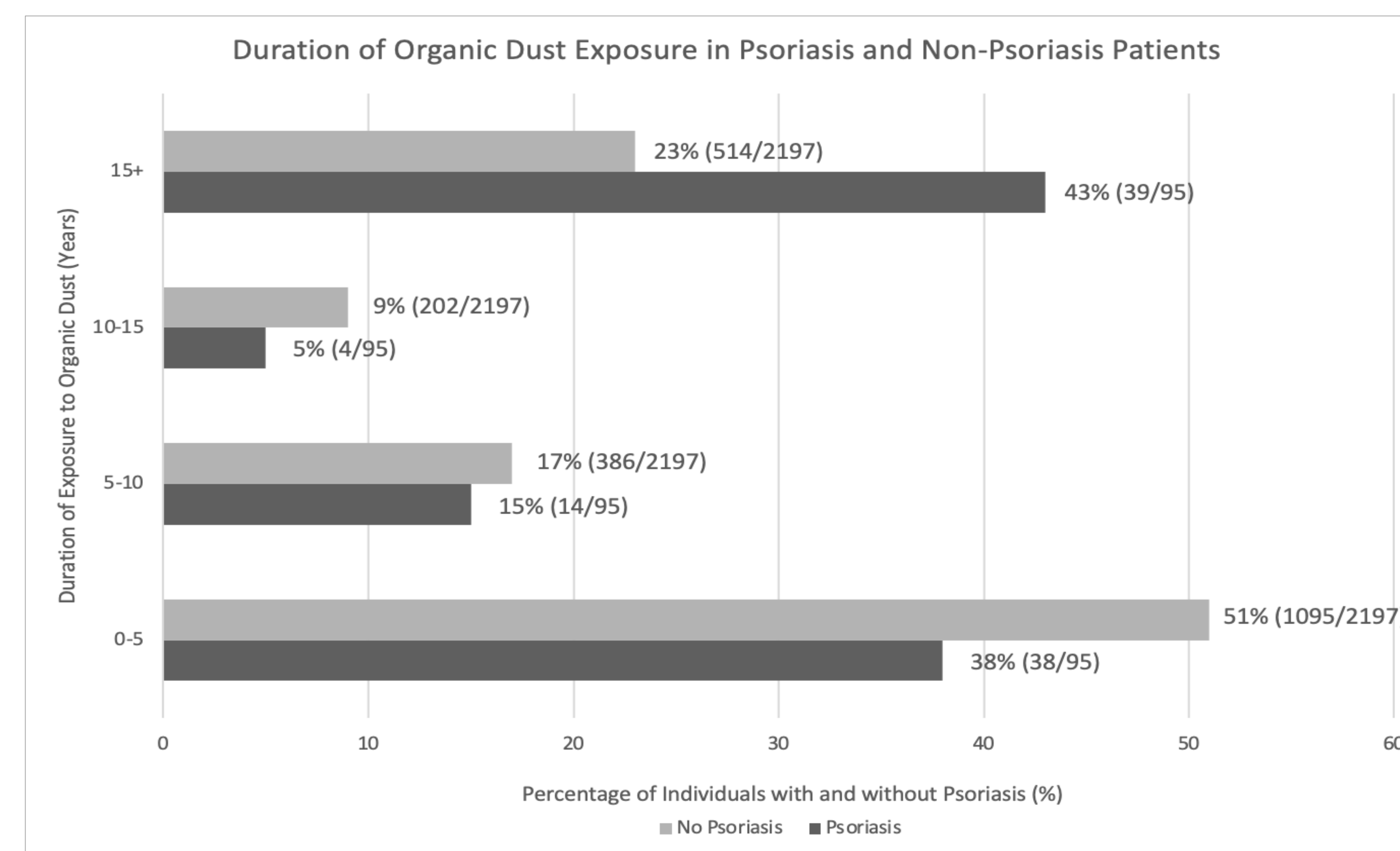


Table I: Association between psoriasis and chronic bronchitis among adults in NHANES 2009-2014. Values that are statistically significant (two-sided P -value $\leq .05$) are in bold.
 *Weighted percentage was calculated using NHANES survey design parameter.

Figure 1: Analysis of the duration of organic dust exposure in occupational settings among psoriasis patients versus non-psoriasis patients. If the participant responded “yes,” duration of organic dust exposure was assessed by the question, “Please give me the total number of years for all jobs where this has happened.”

Conclusion

- There was a significant association between psoriasis and occupational organic dust exposure in the U.S. adults, even when controlling for asthma, which is linked to psoriasis and organic dust exposure [3,4].
- Prolonged exposure to organic dusts exceeding 15 years was significantly associated with a heightened risk of developing psoriasis, which may reflect the cumulative impact.
- Organic dust has been linked to increased inflammatory responses, involving TNF α , Th1/Th17, and macrophages; all of which play a role in the pathogenesis of psoriasis [3,5].
- TLR9 has been linked to the pro-inflammatory pattern recognition receptor pathway in organic dust responses and with the activation of dendritic cells in psoriasis [6].

References

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