

# Financial Insecurity Among US Adults With Psoriasis

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## PRACTICE POINTS

- The economic burden on patients with psoriasis has been rising over time, as the disease impacts many aspects of patients' lives.
- Various sociodemographic groups among patients with psoriasis are financially insecure. Knowing which groups are at higher risk for poor outcomes due to financial insecurity can assist with appropriate treatment regimens.

To the Editor:

Approximately 3% of the US population, or 6.9 million adults, is affected by psoriasis.<sup>1</sup> Psoriasis has a substantial impact on quality of life and is associated with increased health care expenses and medication costs. In 2013, it was reported that the estimated US annual cost—direct, indirect, intangible, and comorbidity costs—of psoriasis for adults was \$112 billion.<sup>2</sup> We investigated the prevalence and sociodemographic characteristics of

adult psoriasis patients (aged  $\geq 20$  years) with financial insecurity utilizing the 2009–2014 National Health and Nutrition Examination Survey (NHANES) data.<sup>3</sup>

We conducted a population-based, cross-sectional study focused on patients 20 years and older with psoriasis from the 2009–2014 NHANES database to evaluate financial insecurity. Financial insecurity was evaluated by 2 outcome variables. The primary outcome variable was assessed by the question “Are you covered by health insurance or some other kind of health care plan (including health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills)?”<sup>3</sup> Our secondary outcome variable was evaluated by a reported annual household income of less than \$20,000. *P* values in Table 1 were calculated using Pearson  $\chi^2$  tests. In Table 2, multivariate logistic regressions were performed using Stata/MP 17 (StataCorp LLC) to analyze associations between outcome variables and sociodemographic characteristics. Additionally, we controlled for age, race/ethnicity, sex, education, marital status, US citizenship status, and tobacco use.

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**TABLE 1. Financial Insecurity of US Adults Aged ≥20 years With Psoriasis<sup>a</sup> in NHANES 2009-2014 (N=480)**

Variable	No health insurance <sup>b</sup> (n=97)		Household income <\$20,000 <sup>c</sup> (n=123)	
	Weighted % <sup>d</sup> (95% CI)	P value <sup>e</sup>	Weighted % <sup>d</sup> (95% CI)	P value <sup>e</sup>
Age, y				
20–30	20.2 (11.8–32.4)	.9	14.3 (7.6–25.3)	.009 <sup>f</sup>
31–40	18.5 (10.4–30.7)		14.3 (8.0–24.5)	
41–50	31.2 (20.0–45.1)		17.2 (10.9–25.9)	
51–60	22.4 (11.7–38.7)		23.8 (13.7–37.9)	
>60	7.7 (3.4–16.3)		30.4 (21.4–41.3)	
Race/ethnicity				
Non-Hispanic White	69.4 (57.9–78.9)	.003 <sup>f</sup>	70.4 (60.4–78.8)	.03 <sup>e</sup>
Non-Hispanic Black	10.1 (5.6–17.6)		12.4 (7.5–19.7)	
Other Hispanic/Mexican American	14.5 (8.6–23.6)		12.0 (7.4–18.9)	
Other race/multiracial	6.0 (2.7–12.6)		5.2 (2.2–12.0)	
Sex				
Female	55.5 (41.9–68.4)	<.0001 <sup>f</sup>	73.8 (64.4–81.5)	.5
Male	44.5 (31.6–58.1)		26.2 (18.5–35.6)	
Education				
<9th grade	7.2 (3.9–13.0)	<.001 <sup>f</sup>	10.0 (5.6–17.0)	.002 <sup>f</sup>
9th–11th grade	12.4 (6.2–23.1)		23.2 (15.1–33.9)	
High school graduate	35.2 (23.1–49.4)		24.3 (16.6–34.1)	
Some college	34.7 (22.3–49.6)		28.3 (17.5–42.3)	
College graduate	10.5 (4.6–22.2)		14.3 (7.6–25.2)	
Marital status				
No	76.4 (64.5–85.2)	<.0001 <sup>f</sup>	83.7 (74.9–89.9)	<.0001 <sup>f</sup>
Yes	23.6 (14.8–35.5)		16.3 (10.1–25.1)	
US citizenship status				
No	10.0 (5.3–18.0)	.8	4.2 (1.9–8.8)	.02 <sup>f</sup>
Yes	90.0 (82.0–94.7)		95.8 (91.2–98.1)	

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TABLE 1. (continued)

Variable	No health insurance <sup>b</sup> (n=97)		Household income <\$20,000 <sup>c</sup> (n=123)	
	Weighted % <sup>d</sup> (95% CI)	P value <sup>e</sup>	Weighted % <sup>d</sup> (95% CI)	P value <sup>e</sup>
Tobacco use <sup>g</sup>				
No	33.2 (22.3-46.4)	.9	43.3 (32.1-55.2)	.1
Yes	66.8 (53.6-77.7)		56.7 (44.8-67.9)	

Abbreviation: NHANES, National Health and Nutrition Examination Survey.

<sup>a</sup>Psoriasis status was assessed by the question “Have you ever been told by a doctor or other health care professional that you had psoriasis?”

<sup>b</sup>Insurance status was assessed by the question “Are you covered by health insurance or some other kind of health care plan (including health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills)?”

<sup>c</sup>Annual household income.

<sup>d</sup>Weighted percentage was calculated using NHANES survey design parameters.

<sup>e</sup>P values were obtained utilizing Pearson  $\chi^2$  test.

<sup>f</sup>Statistically significant (2-sided  $P < .05$ ).

<sup>g</sup>Tobacco use was assessed by the question “Have you smoked at least 100 cigarettes in your entire life?”

**TABLE 2. Multivariate Logistic Regression of Financial Insecurity Among US Adults With Psoriasis<sup>a</sup>**

Variable	AOR (95% CI)		Variable	AOR (95% CI)	
	No health insurance <sup>b</sup>	Household income <\$20,000 <sup>c</sup>		No health insurance <sup>b</sup>	Household income <\$20,000 <sup>c</sup>
Age, y			Sex		
20–30	1.00 (reference)	1.00 (reference)	Female	1.00 (reference)	1.00 (reference)
31–40	1.24 (0.44-3.54)	1.59 (0.47-5.37)	Male	1.01 (0.51-2.01)	0.35 (0.19-0.63) <sup>d</sup>
41–50	2.63 (0.91-7.59)	1.61 (0.58-4.42)	Education		
51–60	0.77 (0.24-2.44)	1.70 (0.55-5.20)	<9th grade	1.00 (reference)	1.00 (reference)
>60	0.21 (0.07-0.64) <sup>d</sup>	1.57 (0.63-3.91)	9th–11th grade	0.85 (0.21-3.37)	0.19 (0.05-0.81) <sup>d</sup>
Race/ethnicity			High school graduate	1.67 (0.47-6.02)	0.12 (0.03-0.47) <sup>d</sup>
Non-Hispanic White	1.00 (reference)	1.00 (reference)	Some college	1.12 (0.31-4.00)	0.07 (0.02-0.31) <sup>d</sup>
Non-Hispanic Black	1.69 (0.68-4.22)	2.26 (1.09-4.71) <sup>d</sup>	College graduate	0.23 (0.06-0.82) <sup>d</sup>	0.05 (0.01-0.19) <sup>d</sup>
Other Hispanic/Mexican American	1.56 (0.62-3.88)	1.76 (0.76-4.05)			
Other race/multiracial	0.86 (0.25-2.95)	0.89 (0.27-2.94)			

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TABLE 2. (continued)

Variable	AOR (95% CI)	
	No health insurance <sup>b</sup>	Household income <\$20,000 <sup>c</sup>
Marital status		
No	1.00 (reference)	1.00 (reference)
Yes	0.18 (0.08-0.38) <sup>d</sup>	0.14 (0.07-0.27) <sup>d</sup>
US citizenship status		
No	1.00 (reference)	1.00 (reference)
Yes	0.19 (0.05-0.73) <sup>d</sup>	5.01 (1.28-19.63) <sup>d</sup>
Tobacco use <sup>e</sup>		
No	1.00 (reference)	1.00 (reference)
Yes	2.02 (1.00-4.05) <sup>d</sup>	0.95 (0.51-1.76)

Abbreviation: AOR, adjusted odds ratio.

<sup>a</sup>Psoriasis status was assessed by the question "Have you ever been told by a doctor or other health care professional that you had psoriasis?"

<sup>b</sup>Insurance status was assessed by the question "Are you covered by health insurance or some other kind of health care plan (including health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills)?"

<sup>c</sup>Annual household income.

<sup>d</sup>Statistically significant (2-sided  $P < .05$ ).

<sup>e</sup>Tobacco use was assessed by the question "Have you smoked at least 100 cigarettes in your entire life?"

Subsequently, relationships with  $P < .05$  were considered statistically significant.

Our analysis comprised 480 individuals with psoriasis; 40 individuals were excluded from our analysis because they did not report annual household income and health insurance status (Table 1). Among the 480 individuals with psoriasis, approximately 16% (weighted) reported a lack of health insurance, and

approximately 17% (weighted) reported an annual household income of less than \$20,000. Among those who reported an annual household income of less than \$20,000, approximately 38% (weighted) of them reported that they did not have health insurance.

Multivariate logistic regression analyses revealed that elderly individuals (aged >60 years), college graduates, married individuals, and US citizens had decreased odds of lacking health insurance (Table 2). Additionally, those with a history of tobacco use (adjusted odds ratio [AOR] 2.02; 95% CI, 1.00-4.05) were associated with lacking health insurance. Non-Hispanic Black individuals (AOR 2.26; 95% CI, 1.09-4.71) and US citizens (AOR 5.01; 95% CI, 1.28-19.63) had a significant association with an annual household income of less than \$20,000 ( $P < .05$ ). Lastly, males, those with education beyond ninth grade, and married individuals had a significantly decreased odds of having an annual household income of less than \$20,000 ( $P < .05$ ) (Table 2).

Our findings indicate that certain sociodemographic groups of psoriasis patients have an increased risk for being financially insecure. It is important to evaluate the cost of treatment, number of necessary visits to the office, and cost of transportation, as these factors can serve as a major economic burden to patients being managed for psoriasis.<sup>4</sup> Additionally, the cost of biologics has been increasing over time.<sup>5</sup> Taking all of this into account when caring for psoriasis patients is crucial, as understanding the financial status of patients can assist with determining appropriate individualized treatment regimens.

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