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No Racial Differences Found in Access to Biologics: A Population-Based Study of Psoriasis Patients in the United States

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ABSTRACT

Background: Conflicting evidence exists regarding the role of race in access to biologics for patients with psoriasis.
Objective: To compare biologic use among adult and pediatric United States psoriasis patients of different racial backgrounds.
Methods: Population-based study of US psoriasis patients using the 2003 to 2018 Medical Expenditure Panel Survey (MEPS).
Results: Among 31,525,500 adults and children with psoriasis (weighted), 3,026,578 (9.6%) were on biologics. Among psoriasis patients, 27,464,864 (87.1%) self-identified as white, 2,033,802 (6.5%) self-identified as Black, 1,173,435 (3.7%) self-identified as Asian or Pacific Islander, and 853,399 (2.7%) self-identified as other races. Among those on biologics, 2,778,239 (91.8%) self-identified as white, 84,971 (2.8%) identified as Black, 89,452 (3.0%) self-identified as Asian or Pacific Islander, and 73,917 (2.4%) self-identified as other races. Multivariate logistic regression revealed no significant differences in biologic access between whites and non-whites after adjusting for sociodemographic factors including insurance status (OR for Blacks: 0.347 [0.118, 1.021], P=0.055; OR for Asians: 0.616 [0.240, 1.579], P=0.311; OR for other races: 0.850 [0.216, 3.336], P=0.814.
Conclusion: The results of this study suggest that race alone is not independently associated with access to biologics among adult US psoriasis patients. Additional studies are necessary to evaluate factors independently associated with biologics access among adults and children with psoriasis in the US.

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INTRODUCTION

Psoriasis is a chronic inflammatory disease that affects more than 7.5 million people in the United States.[1] Although psoriasis is most prevalent in whites (3.2%), African Americans often exhibit more extensive skin involvement, present with more severe variants of psoriasis, and experience greater psychological burden and impaired quality-of-life than whites.[2-6] Since 2003, biologics have become increasingly popular for the treatment of moderate-to-severe psoriasis, and have resulted in higher patient satisfaction and compliance rates compared with oral, photo, or topical therapies.[7,8] However, multiple studies have shown that African Americans have less access to biologics than whites.[9,10] A 2015 study on the US Medicare population demonstrated that African American patients were 69% less likely to use biologics compared with white patients.[11] However, the association between race and biologics has not been evaluated in a nationally representative psoriasis population. This population-based study aims to evaluate the impact of race on access to biologics among adult and pediatric psoriasis patients in the US. We hypothesized that our analysis would demonstrate racial differences in biologics access similar to previous studies.

We conducted a cross-sectional, population-based study using the Medical Expenditure Panel Survey (MEPS) national database from 2003-2018. We identified adults and children (mean age 49.36 years) with a reported diagnosis of psoriasis by the ICD-9 diagnosis code "696" or ICD-10 code "L40". Race was categorized based on the MEPS classification: white, Black, Asian or Pacific Islander, Alaska Native or American Indian, or multiple races; the latter two groups were later grouped together due to insufficient sample size. Access to an approved biologic medication for psoriasis was identified by the household-reported receipt of a prescription biologic. Multivariate logistic regression was used to investigate the association between race and access to biologics, adjusting for potential confounders including age, sex, ethnicity, insurance status, education level, poverty level, personal income, employment status, number of outpatient visits, region of care, and the Charlson Comorbidity Index.

A weighted total of 31,525,500 adult and child patients with psoriasis in the US were identified from 2003 to 2018. 87.1% self-identified as white, 6.5% self-identified as Black, 3.7% self-identified as Asian, and 2.7% self-identified as other races,

including Alaska Native, Native American, and multiple races. Among all psoriasis patients, 3,026,578 (9.6%) were prescribed biologics. Among those who received biologics, 2,778,239 (91.8%) identified as white, 84,971 (2.8%) identified as Black, 89,452 (3.0%) identified as Asian, and 73,917 (2.4%) identified as other races. The adjusted multivariate regression analysis revealed no racial differences in biologics access compared with whites (OR for Blacks: 0.347 [0.118, 1.021], *P*=0.055; OR for Asians: 0.616 [0.240, 1.579], *P*=0.311; OR for other races: 0.850 [0.216, 3.336], *P*=0.814; Table 1).

TABLE 1.

Multivariate Logistic Regression Analysis of the Association Between Race and Psoriasis Adjusting for Comorbidities and Covariates **P*<0.05

Independent Variables	Dependent Variable: Prescription of bilogical medication (weighted n = 3,026,578)	
	Odds Ratio (95%)	*P*-Value
Race		
Black vs. White[a]	0.347 [0.118, 1.021]	0.055
Asian, Native American, or Pacific Islander vs. White[a]	0.616 [0.240, 1.579]	0.311
Other Race vs. White[a]	0.850 [0.216, 3.336]	0.814
Age	0.986 [0.970, 1.002]	0.081
Sex		
Female vs. Male[a]	0.746 [0.469, 1.187]	0.215
Ethnicity		
Hispanic vs. Non-Hispanic[a]	0.391 [0.141, 1.085]	0.071
Poverty Level Category		
Near poor vs. Poor[a]	1.721 [0.628, 4.718]	0.29
Low income vs. Poor[a]	1.745 [0.646, 4.715]	0.271
Middle income vs. Poor[a]	1.425 [0.575, 3.529]	0.442
High income vs. Poor[a]	1.109 [0.452, 2.717]	0.821
Insurance Status		
Public vs. Private[a]	0.951 [0.471, 1.919]	0.887
Uninsured vs. Private[a]	0.209 [0.040, 1.092]	0.063
Marital Status		
Married vs. Not Married[a]	1.458 [0.850, 2.502]	0.17
Employment Status		
Employed vs. Unemployed[a]	2.135 [1.291, 3.531]	0.003*
Highest Education Level		
High School vs. Lower[a]	3.799 [1.365, 10.575]	0.011*
Some College/Degree vs. Lower[a]	2.019 [0.720, 5.663]	0.181
Region of Residence		
Midwest vs. Northeast[a]	0.980 [0.517, 1.856]	0.95
South vs. Northeast[a]	1.250 [0.736, 2.122]	0.407
West vs. Northeast[a]	1.061 [0.513, 2.194]	0.872
Charlson comorbidity index	1.129 [0.844, 1.510]	0.411
Number of ambulatory visits for psoriasis	1.012 [0.994, 1.030]	0.192

Our study revealed no significant association between race and biologic access among US psoriasis patients. Our results differ from our *a priori* hypothesis and previous studies that demonstrated certain races were less likely to receive biologics for treatment of their psoriasis.[9,11] The differences in findings between this study and previous findings might be attributable, at least in part, to the patient populations. This study uses Medical Expenditure Panel Survey (MEPS), which draws on a nationally representative sample of adult and pediatric patients over a 15-year time span. We also adjusted for possible contributory factors including ethnicity, insurance status, and poverty level with no significant differences found across all racial groups.

Biologics remain one of the most effective treatment options for psoriasis. While access to biologics does not appear to be significantly different between white and non-white racial groups, racial minorities experience more severe psoriasis and psychological burden than their white counterparts. This may lead to delayed diagnosis and subsequent more severe disease on initial presentation.[2,5,6,12] Barriers to seeking dermatologist care for psoriasis among non-whites may include lack of cultural competency and low density of dermatology providers in areas where significant proportions of people of color reside.[13,14] Socioeconomic and demographic factors, other than race, such as older age, poor English language proficiency, and lower income level, may also exacerbate access to biologics, and thus result in more severe disease.[8,15] Further investigation is needed to elucidate potential additional demographic, socioeconomic, and clinical risk factors contributing to increased disease severity faced by minority patients.

DISCLOSURES

April W. Armstrong MD MPH has served as a research investigator and/or scientific advisor to AbbVie, Almirall, Arcutis, ASLAN, Beiersdorf, BI, BMS, EPI, Incyte, Leo, UCB, Janssen, Lilly, Nimbus, Novartis, Ortho Dermatologics, Sun, Dermavant, Dermira, Sanofi, Regeneron, Pfizer, and Modmed. All remaining authors have no disclosures.

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