

Racial and Ethnic Health Disparities in Dermatology



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KEYWORDS

- Racial/ethnic disparity • Health inequities • Psoriasis • Melanoma • Acne
- Hidradenitis suppurativa • Atopic dermatitis • Economic burden

KEY POINTS

- The economic burden of skin disease continues to increase, and there is a business case for eliminating health care disparities in dermatology.
- Racial and ethnic patients with psoriasis, melanoma, acne, and atopic dermatitis experience significant disparities that must be understood and addressed.
- Hidradenitis suppurativa is a disease that needs more attention to understand the prevalent disparities and their impact.

INTRODUCTION

Health disparities are differences in health or disease incidence, prevalence, severity, or disease burden that are experienced by disadvantaged populations.¹ There is significant evidence linking socially determined factors, such as housing, education level, access to food and clean water, neighborhood safety, and economic stability, on access to care and health outcomes. Health disparities are complex and multifactorial and are often linked to social and economic disadvantage. They originate from dynamic interactions of genetic, biological, environmental, social, economic, and health system–related factors.

Eliminating racial health disparities has the potential to save the United States more than \$1 trillion in a 4-year period.² With the economic burden of health disparities in the United States projected to nearly triple from \$126 billion in 2020 to \$353 billion in 2050, there is a compelling business case for achieving health equity.³ Although the economic burden of skin disease grew from

\$35.9 billion in 1997 to \$86 billion in 2013^{4–7} (Fig. 1), additional studies are needed to better understand how much of these costs was attributed to disparities in dermatologic care. There is a growing body of literature documenting disparate outcomes across cutaneous diseases, including, acne, atopic dermatitis (AD), psoriasis, hidradenitis suppurativa (HS), and melanoma.

PSORIASIS

Psoriasis is a chronic immune-mediated, inflammatory skin disease that can have a profound impact on patients' quality of life.⁸ An estimated 7.55 million US adults live with psoriasis.⁹ The prevalence of psoriasis is higher in white men and women at 3.6% compared with the Asian population, which is estimated to be 2.5%, the Hispanic population, at 1.9%, and the black population, at 1.5%.⁹ Studies have identified ethnorracial differences in the clinical presentation of psoriasis. Asian patients have higher odds of psoriasis and erythrodermic psoriasis and lower

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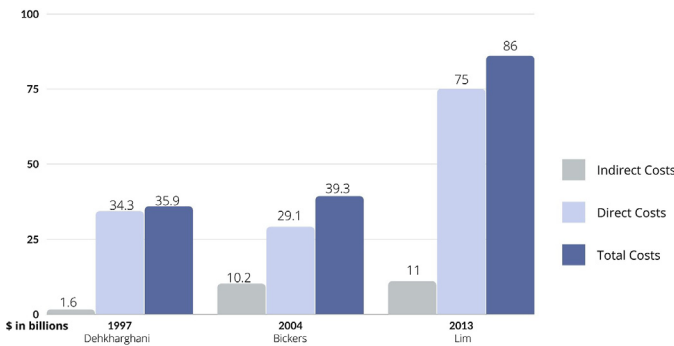


Fig. 1. The economic burden of skin disease estimates from 1997 to 2013.

frequency of inverse psoriasis compared with their white counterparts. Plaque psoriasis has been found to be the most common subtype across all ethnorracial groups.¹⁰

Health Care System Factors

Accessibility to effective medications may partially explain disparate psoriasis outcomes. Black patients are less likely than white patients to receive biologic treatments for their psoriasis.^{11,12} In one study, 8.3% of African Americans received a disease-modifying antirheumatic drug (DMARD) and 28% received a biologic therapy, compared with 13.3% of whites, who received a DMARD, and 46.2% who received a biologic therapy. It is also difficult for Medicaid patients to have dermatologic visits covered under reimbursement models. A 2016 study found that Hispanics, blacks, and Asians had significantly higher odds (odds ratio [OR], 1.28, $P = .02$; 1.65, $P < .0001$; 2.08, $P < .0001$, respectively) of hospital admissions for psoriasis.¹³ Similarly, recipients of Medicare (OR, 1.42; $P < .0001$), recipients of Medicaid (OR, 1.61; $P < .0001$), and the uninsured (OR, 3.81; $P < .0001$) experience higher rates of hospitalization for psoriasis compared with the privately insured.¹³

Economic Factors

Low socioeconomic status (SES) patients with psoriasis fare worse, consistently having a lower quality of life and work productivity than their high SES counterparts without the disease.^{14–17} Non-white patients with psoriasis report the high costs of care as a significant barrier to seeking medical care.¹³ Patients with higher incomes may be more able to cover expenses and also take advantage of insurance benefits to help offset the costs of treatment.¹⁸ Furthermore, disease severity impacts job security,¹⁸ contributing to unemployment and early retirement.^{19,20}

Educational Factors

Health literacy is understanding, seeking, and using health information.²¹ Suboptimal health literacy is associated with poorer health outcomes.²¹ Recent multivariate analysis links low educational level to increased psoriatic disease severity.²² Mahe and colleagues²² found that patients with severe psoriasis of lower socioeconomic class and lower educational levels had seen fewer physicians and less frequently received a systemic treatment that those with severe psoriasis from higher SES and educational levels.

Cultural/Societal Factors

Non-white populations more frequently reported lack of culturally competent care as a barrier to seeking psoriasis treatment.²³ Hispanic and African American patients with psoriasis experience more provider-related bias, stereotyping, misdiagnosis, and delayed diagnoses compared with whites.²⁴ These factors may contribute to the lack of trust, lack of confidence, and fear that minority patients with psoriasis feel toward their health care providers.²⁴ Increasing diversity and cultural competence among health care providers enhances patient adherence, satisfaction, and outcomes of treatments.²⁴ Ensuring providers are clinically proficient in recognizing psoriasis across different skin types and in understanding the different cultural backgrounds of patients may improve diagnostic accuracy and strengthen the patient provider rapport.²³

ACNE

Acne is a common skin condition with significant cutaneous and psychological sequelae. Americans are estimated to use more than 5 million physician visits for acne each year, with a direct annual cost of more than \$2 billion.⁵ Scarring and hyperpigmentation secondary to acne are common in skin-of-color patients and are often

the chief concern.²⁵ Perkins and colleagues²⁶ found that African Americans had the highest rate of active acne, and the highest rate of combined hypertrophic and atrophic scarring compared with other groups.

Health System and Educational Factors

Barbieri and colleagues²⁷ found that although non-Hispanic blacks are more likely to be seen by a dermatologist, they received fewer acne prescriptions than non-Hispanic white patients. Non-Hispanic blacks and Medicaid beneficiaries were less likely to be prescribed oral antibiotics, spiro-lactone, and isotretinoin.²⁷ Medicaid patients were less likely than commercially insured patients to see a dermatologist for acne. Native Americans also have limited access to specialty care. Zullo and colleagues²⁸ found that 1 out of 158 participants seeking care at an Indian Health Services or tribal health care clinic was seen for acne.

Recent studies have identified flaws in the iPLEDGE system that may disproportionately burden marginalized populations (Fig. 2). iPLEDGE materials are above the national readability level, which may impair compliance among non-English-speaking and low-literacy patients.²⁹ Patients may also have limited access to computers or Internet service, which is needed to fulfill iPLEDGE requirements.³⁰

Shah and colleagues³⁰ noted that women are twice as likely than men to prematurely terminate isotretinoin therapy. Furthermore, women who missed prescription windows resided in communities with a higher distress level than women who did not miss prescription windows. Black women are 9 times more likely than white patients to miss their prescription window.³⁰ The most common reasons for missed windows included insurance delays, pharmacy processing, and patient factors.³⁰ The mandated monthly visits are time-consuming and financially burdensome, particularly for those who cannot afford to miss time from work.³⁰

In addition, Shah and colleagues³¹ discovered significant lack of access to iPLEDGE pharmacies in lower-income neighborhoods and an unequal geographical distribution of pharmacies with low density in areas comprising minority inhabitants. iPLEDGE-enrolled pharmacies are more prominent in affluent neighborhoods, which may be tied to a policy termed redlining. Redlining, which dates back to the early 1900s, is based on government maps that were designed to exclude blacks and other races from purchasing homes in certain neighborhoods. Although outside the scope of this

review, this policy may account for the maldistribution of pharmacies.

Economic Factors

Haider and colleagues³² found that likelihood for referral to a dermatologist varied significantly by SES status. Similarly, this same study found that patients with acne living in urban areas had a greater likelihood of referral to a dermatologist (OR, 1.43; $P < .001$) compared with patients in a more rural area.³² This demonstrates a clear difference in access and greater utilization of specialty care by wealthier patients with acne.

MELANOMA

From 2015 to 2018, the average incidence of melanoma (per 100,000) in the United States was 29.4% for non-Hispanic whites, 9.3% for American Indian and Alaska Natives, 4.7% for Hispanics, 1.3% for Asian and Pacific Islanders, and 1% for non-Hispanic blacks.³³ White patients had the highest percentage of stage I diagnosis at 75.9% and lowest proportion for all later stages with 12.9% diagnosed at stage II, 6.6% diagnosed at stage III, and 4.4% diagnosed at stage IV.³⁴ Conversely, black patients had the lowest presentation of stage I diagnosis at 52.6%, and the highest presentation for stage II at 22.82%, stage III at 13.42%, and 11.07% at stage IV.³⁴ From 2005 to 2009, the 5-year survival was 93% in white individuals compared with 73% in black individuals.³⁵ Overall, ethnic minorities are 1.96 to 3.01 times more likely to die of melanoma compared with white counterparts.³⁶

Health System Factors

Recent studies have shown delays in definitive surgical intervention for melanoma in publicly insured and uninsured groups of patients.^{37,38} Several studies have shown that Medicaid and uninsured patients experience delays of greater than 6 weeks from diagnosis to definitive surgery.^{37,39-41} Minorities, those over 80 years old, and patients that receive care at nonacademic institutions have lower odds of undergoing excisional biopsy.⁴² African Americans (OR, 0.626; $P < .001$) and lower-income patients (OR, 1; $P < .001$) (income < \$63,000) are less likely to be prescribed immunotherapies compared with white patients or patients with higher incomes.⁴³

Educational and Economic Factors

SES measures, such as occupation, income, educational level, insurance status, or residential status in certain neighborhoods, are determinants

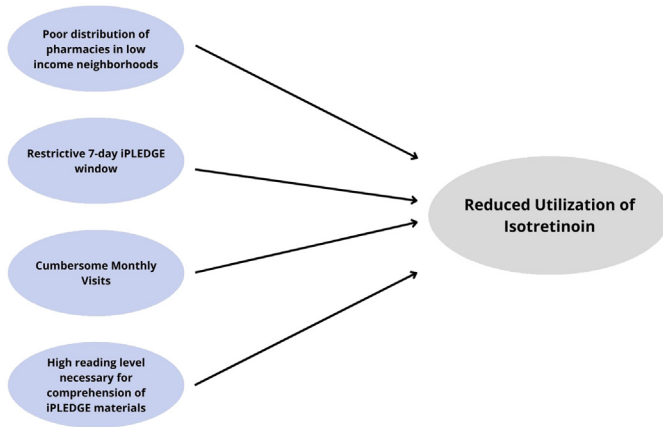


Fig. 2. Factors associated with reduced utilization of isotretinoin among minorities and those living in low-income neighborhoods.

for skin cancer screening, cutaneous melanoma incidence, and stage at diagnosis.^{44,45} Many studies have demonstrated a direct correlation with incidence of cutaneous melanoma and measures of high SES.^{44,46,47} Lower SES is associated with the development of thicker primary tumors (>2 mm), more advanced stage of melanoma at time of diagnosis, and increased mortalities.^{44,48–52} The root cause for these disparities is multifactorial and includes lack of educational awareness about melanoma risk and melanoma presentation, and lack of access to care (**Fig. 3**). Buster and colleagues⁵³ noted that black patients were less likely to consider regular skin examinations important in the detection of skin cancer (OR, 0.30; $P = .0009$) compared with whites. Blacks and Hispanics perceive themselves as being at low risk for developing skin cancer (OR, 6.34; $P < .0001$; OR, 1.41; $P = .1727$, respectively).⁵³ Compared with college graduates, those with less education (measured as highest education level being high school) also perceived themselves as being at lower risk for developing skin cancer (OR, 2.076; $P = .0063$), worried less about developing skin cancer (OR, 1.83; $P \leq .0144$), and had less knowledge of skin cancer prevention methods (OR, 5.00; $P \leq .0030$).⁵³ Health education and promotions targeting health literacy about melanoma for minorities may provide an opportunity to change health-related attitudes, behaviors, and thus outcomes.⁵⁴

HIDRADENITIS SUPPURATIVA

HS is a chronic inflammatory disease affecting apocrine gland-bearing skin. HS is clinically characterized by sinus tracts, abscesses, inflammatory nodules, and scarring.^{55,56} Although the prevalence of HS is estimated to be 0.10% in the US population, its physical and psychosocial toll leads

to work absenteeism and reduced productivity.^{57–60} A 2017 study demonstrated that population-adjusted HS prevalence is threefold higher in African Americans compared with whites.^{60,61} Others report greater prevalence in young adults, women, and African Americans compared with non-Hispanic whites, with much lower rates in Hispanics.^{62–65} African Americans were more likely to visit clinics for their HS.⁶⁶ A recent retrospective analysis reported increased severity in Hispanic patients when compared with non-Hispanic whites with HS. A 2022 study showed that HS has both a higher incidence/prevalence and a greater disease severity in African American people in the United States.⁶⁷

Health Care System Factors

Disparities in HS outcomes are linked to race/ethnicity, SES, comorbid diseases, provider and patient education, and underrepresentation in clinical trials.^{62,65,68} A 2021 study of black patients (5.7 mean visits) ($P < .001$) and Hispanic patients (4.5 mean visits) ($P < .059$) used outpatient services for HS more than the white patients (3.6 mean visits).⁶⁶ Black patients also present later in the disease process to tertiary care centers and have higher rates of Medicare usage (30.6%) compared with white (23%) or Hispanic (17.3%) patients with HS.⁶⁶ Less access to care to a dermatologist who is knowledgeable about HS is another systemic factor leading to inequities in marginalized populations.⁶⁹

Economic and Educational Factors

HS is more common in both people of color and individuals from lower socioeconomic strata.^{59,70} In addition to experiencing higher prevalence rates, African Americans with HS have been found to have significant health care disparities related to

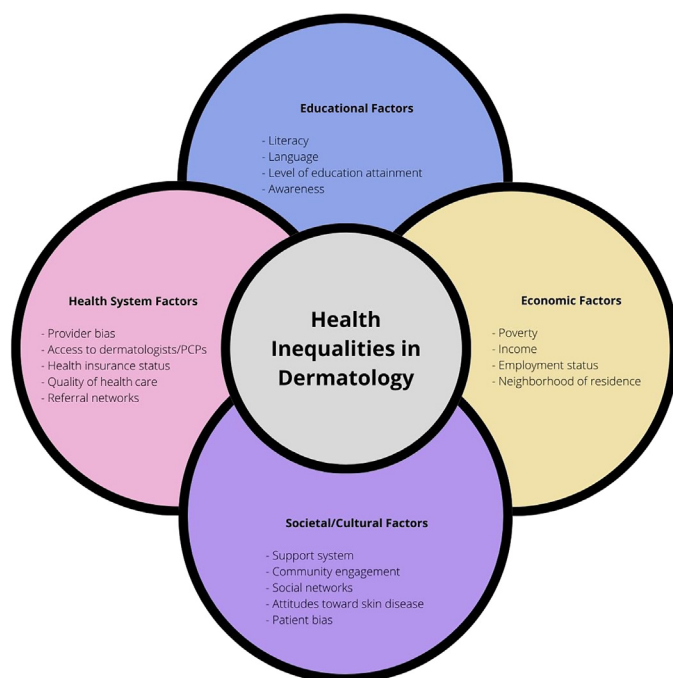


Fig. 3. Factors contributing to health inequalities in dermatology for racial and ethnic minorities. PCP, primary care physician.

lower SES than non- African Americans patients with HS.⁷¹ More research is needed to understand the directionality of this relationship between HS and SES.⁷¹

Metabolic syndrome, obesity, and smoking are risk factors for HS, which is more prevalent in women.^{59,72,73} Non-Hispanic white, non-Hispanic black, and Hispanic women all have higher odds of obesity when they have a lower education level.⁷⁴ Rates of smoking are also higher in those who have only primary education.⁷⁵ Those with lower education levels also have higher odds of developing metabolic syndrome.^{59,72,73} In addition to lower education attainment-related risk factors for HS, one study found that its black and Hispanic patients received less education than the white HS patients in the cohort.⁶⁶

ATOPIC DERMATITIS

Atopic dermatitis (AD) is a common chronic pruritic inflammatory condition that follows a relapsing course. Not only does the clinical appearance and distribution of AD vary across race and ethnicity but also studies show variability in frequency and types of mutations for genes involved in barrier function and TH2 signaling pathways. AD prevalence, severity, and hospitalizations in children are higher in non-Hispanic blacks than it is in whites.⁷⁶ Among children, non-Hispanic blacks are more likely than non-Hispanic whites to visit a dermatologist for AD.⁷⁷ Blacks and Asian/Pacific

Islanders with AD are 3 to 7 times more likely than whites to seek care. Non-Hispanic blacks and Native American or Alaskan Natives experience higher levels of psychological distress and psychosocial trauma, which are both risk factors for increased severity of AD.^{78,79}

Health Care System Factors

Black and Hispanic patients with AD have reported lower income, lack of transportation for work/appointments, increased need for help completing documents, and increased difficulty learning about their medical conditions when compared with white patients.⁸⁰ A recent study that surveyed patients with AD and asthma found that black patients have higher usage of Medicaid (37%) than white patients (15%).⁸⁰ In this study, 6% of participants reported having no insurance.⁸⁰ Children who have health insurance have a higher prevalence of AD compared with uninsured children ($P = .0004$), suggesting the possibility of underdiagnosis that results from decreased access to care in the latter group.⁸¹ These barriers in access to care for lower SES patients may contribute to increased disease severity.⁸²

Economic and Educational Factors

SES, exposure to air pollution and indoor allergens, and decreased access to medical care and a dermatologist are some reasons that explain the increased prevalence of AD in racial/ethnic minorities in the

United States.^{80,83,84} Higher SES, heavily influenced by income, is related to increased prevalence of AD, which may be explained by detection bias or that patients with higher SES have greater access to medical care through use of insurance.^{82,85,86} AD prevalence is higher in urban or metropolitan areas in the United States.^{81,87} Black race (OR, 1.70; $P = .005$), household education above high school (OR, 1.61; $P = .004$), and living in an urban area (OR, 1.67; $P = .008$) were all associated with higher odds of having an AD diagnosis.⁸¹ Lower SES is related to many risk factors (comorbidities, smoking, pollution exposure, psychological stress) for AD as well as increased AD severity.^{75,82,88,89} In addition to lower household income ($P < .0001$), both maternal and paternal education levels ($P = .001$ and $P < .00001$) were associated with increased AD severity.⁹⁰

SUMMARY

Decades of systemic and structural racism in the United States, as manifested by inequities in housing, education level, access to food and clean water, neighborhood safety, and economic instability, caused socioeconomic disparities that both create and amplify health disparities for racial groups in access to care, clinical outcomes, and erosion of trust in these communities.^{88,91} As policies and strategies aimed at eliminating health care disparities are advocated for, one must be mindful of the individual level and system-level contributors. Additional studies are needed to unravel the cultural, economic, and biologic complexities that contribute to the observed inequities in outcomes among patients with skin disease.

CLINICS CARE POINTS

- Racial and ethnic disparities in dermatology outcomes are multifactorial.
- It is important to understand which educational, societal/cultural, economic, or health system factors are most impacting your patients.
- Recognizing and addressing individual-level biases toward patients is a critical step toward building trust.
- More studies are needed to better understand the social and economic drivers of poorer outcomes for minoritized populations who suffer from skin disease.
- This knowledge will inform the development of effective future interventions.

DISCLOSURE

None of the authors have any commercial or financial conflicts of interest to disclose.

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