Title

Ethnic distribution of populations in the highest and lowest dermatologist-dense areas: is there more to the story?

Permalink

Journal

Authors

Rehman, Rafey
Mateen, Zaid
Osto, Muhammad
et al.

Publication Date

2022

DOI

Copyright Information

Peer reviewed

Ethnic distribution of populations in the highest and lowest dermatologist-dense areas: is there more to the story?

Rafey Rehman[1] BS, Zaid Mateen[2] BS, Muhammad Osto[3] BS, Darius Mehregan[3] MD

Affiliations: [1]Oakland University William Beaumont School of Medicine, Rochester, Michigan, USA, [2]University of Michigan-Ann Arbor, Ann Arbor, Michigan, USA, [3]School of Medicine, Wayne State University, Detroit, Michigan, USA

Corresponding Author: Darius Mehregan MD, Department of Dermatology, School of Medicine, Wayne State University, 18100 Oakwood Boulevard, Suite 300, Dearborn, MI 48124, Tel: 734-242-6870, Fax: 734-242-4962, E-mail: dmehregan@wayne.edu

Abstract

Several studies in the past decade have highlighted the lack of adequate dermatological care in skin of color (SOC) patients. This inquiry has led to further research to identify the sources of this disparity. Previous studies have highlighted the uneven geographic distribution of dermatologists, with a higher density of dermatologists in urban areas compared to other areas. However, the exact ethnic populations served by these dermatologists has remained largely uncharacterized. The purpose of this study was to compare the ethnic distributions in the ten highest and lowest dermatologist-dense areas across the United States to determine if there is equal access to dermatological care for minorities. Stratified by ethnicities, the highest dermatologist-dense areas consisted of 60% White alone (not Hispanic or Latino), 13% Hispanic or Latino, 13% Asian alone, and 12% Black or African American. Conversely, the least dermatologist-dense areas consisted of 45% White alone (not Hispanic or Latino), 28% Black or African American, 21% Hispanic or Latino, and 4% Asian alone. Our analysis highlights the presence of larger proportions of SOC patients in the lowest dermatologist-dense areas and this lack of access to dermatologists may contribute to inferior dermatological care and outcomes in Hispanic or Latino, and Black or African American minorities.

Keywords: density, disparity, diversity, epidemiology, racial

Introduction

Patients in the United States (US) are currently suffering from decreased access to medical care, which can be attributed to the growing shortage of physicians and may lead to decreased positive health outcomes and increased mortality rates [1]. Although there is a shortage of physicians in general, this is especially applicable to the field of dermatology [2]. Interestingly, this decreased access to dermatological care is not uniform across the country as some areas are more densely populated with dermatologists than others [2]. Although dermatologist density has been previously characterized, the exact ethnic populations these physicians serve has not been previously explored. The purpose of this study was to compare the ethnic population distributions in the ten highest and lowest dermatologist-dense areas across the United States to determine if there is equal access to dermatological care for minorities.

Data was collected from a study by Glazer et al., who examined geographic trends of dermatologists using the 2016 American Academy of Dermatology (AAD) Database, and the U.S. Census for 2020 Demographics which provides population estimates as of July 1, 2019 [2,3]. According to Glazer et al., the ten areas with the highest density of dermatologists were Manhattan, NY (upper east side), Palo Alto, CA, Santa Monica, CA, Boston, MA, Middlesex County, MA, Manhattan, NY (central and lower), Hanover, NH, Bethesda and Rockville MD, Annapolis MD, and Portland, MN [2]. The ten areas with the lowest density of dermatologists were Swainsboro, GA, Amarillo, TX, Flint, MI, South Bend, IN, Dayton, OH, Mojave, CA, Beaumont, TX, Yakima, WA, Lexington, KY, and Jamaica, NY [2]. This data was analyzed to compare the ethnic distributions of populations in

the highest and lowest dermatologist-dense areas. Mean values were calculated using this data on the ten highest and lowest dermatologist-dense areas.

Our analysis revealed that the ten highest dermatologist-dense areas had an average of 25.7 dermatologists per 100,000 people. Conversely, the ten lowest dermatologist-dense areas had an average of 0.38 dermatologists per 100,000 people. Stratified by most common ethnicities, the highest dermatologist-dense areas consisted of 60% White alone (not Hispanic or Latino), 13% Hispanic or Latino, 13% Asian alone, and 12% Black or African American individuals. In contrast, the lowest dermatologist-dense areas consisted of 45% White alone (not Hispanic or Latino), 28% Black or African American, 21% Hispanic or Latino, and 4% Asian alone individuals. **Figure 1** depicts the difference in the percentage of each ethnicity in the highest and lowest dermatologist-dense areas.

Discussion

Misdiagnosis, including missed early diagnosis of melanoma in SOC patients leading to higher metastatic melanoma rates in these patients, has been well-established and can be related to a variety
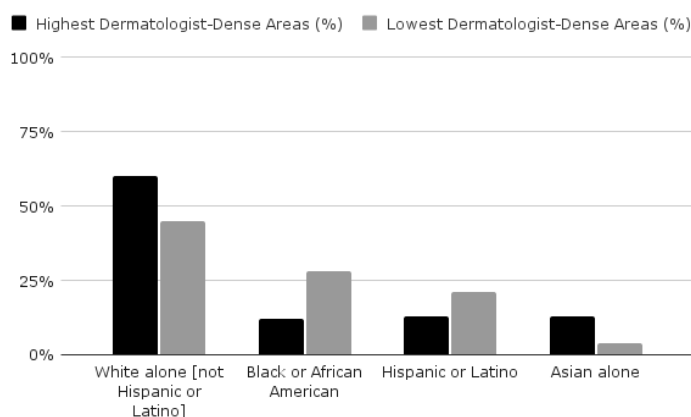

Figure 1. *Calculated mean percentages of the ethnic populations residing in the ten highest and ten lowest dermatologist-dense areas. The black and gray bars represent the average proportion of each ethnicity in the populations served by the ten highest and lowest dermatologist-dense areas, respectively. Our analysis highlights that SOC patients represented a larger proportion of the population in areas of lowest density of dermatologists, which can lead to decreased access to dermatological care in comparison to ethnicities in the highest dermatologist-dense areas.*

of factors [4]. One commonly studied factor is that textbooks may contain inadequate representations of dermatologic conditions in SOC patients, which can lead to less comprehensive understanding in students and residents [5]. However, one factor that may be overlooked is decreased access to dermatological care. Currently, there is an uneven geographic distribution of dermatologists across the country, with a higher density of dermatologists in metropolitan areas [2]. Although efforts are underway to address the need for more dermatologists, particularly in the lowest dermatologist-dense areas, no study has previously evaluated the specific populations served by the different dermatologist-dense areas. Our results showed that White alone (not Hispanic or Latino) and Asians alone are well-represented in the highest dermatologist-dense areas at 60% and 13%, respectively, but represent a much smaller proportion of the lowest dermatologist-dense areas at 45% and 4%, respectively. Conversely, Black or African American and Hispanic or Latino minorities represent a much smaller portion of the population in the highest dermatologist-dense areas at 12% and 13%, respectively, but represent a much greater proportion of the lowest dermatologist-dense areas at 28% and 21%, respectively (**Figure 1**). Our analysis highlights that SOC patients represented a larger proportion of the population in areas with the lowest density of dermatologists, which can lead to decreased access to dermatological care in comparison to ethnicities in the highest dermatologist-dense areas. Although this difference in representation may seem minor, its significance becomes magnified when considering that the highest and lowest dermatologist-dense areas contained an average of 25.7 and 0.38 dermatologists per 100,000 people, respectively. Therefore, in addition to inadequate resident and physician education on SOC patients, higher rates of misdiagnosis and worse outcomes in Hispanics or Latinos and Blacks or African Americans may be attributable to the decreased access to dermatologists. One limitation of this study was a lack of updated data regarding dermatologist density in each geographic location as the latest available data was from a study published by Glazer

et al. that used information from the 2016 AAD database.

Conclusion

Our analysis highlights the existence of a larger proportion of SOC patients within the lowest dermatologist-dense areas and this lack of access to dermatologists may contribute to inferior dermatological care and outcomes in Hispanic or Latino and Black or African American minorities. More work needs to be completed to further characterize dermatologist density trends and the distributions of the ethnic populations served over time.

Potential conflicts of interest

The authors declare no conflicts of interest.

References

1. Koplyay K. Physician shortage in america. *Kentucky J Undergrad Scholarsh.* 2018;2:1. https://encompass.eku.edu/kjus/vol2/iss1/3. Accessed on February 13, 2021.
2. Glazer AM, Farberg AS, Winkelmann RR, Rigel DS. Analysis of trends in geographic distribution and density of US dermatologists. *JAMA Dermatol.* 2017;153:322–5. [PMID: 28146246].
3. U.S. ccnsus bureau quickfacts: United States. n.d. https://www.census.gov/quickfacts/fact/table/US/PST045219.
    Accessed on February 13, 2021.
4. Hu S, Parmet Y, Allen G, et al. Disparity in melanoma: A trend analysis of melanoma incidence and stage at diagnosis among whites, hispanics, and blacks in florida. *Arch Dermatol.* 2009;145:1369–74. [PMID: 20026844].
5. Louie P, Wilkes R. Representations of race and skin tone in medical textbook imagery. *Soc Sci Med.* 2018;202:38–42. [PMID: 29501717].