



Published in final edited form as:

Arch Dermatol. 2011 July ; 147(7): 863–864. doi:10.1001/archdermatol.2011.172.

Sunscreen Use: Non-Hispanic Blacks Compared With Other Racial and/or Ethnic Groups

Pamela Summers, MD, James Bena, MS, Susana Arrigain, MA, Andrew F. Alexis, MD, MPH, Kevin Cooper, MD, and Jeremy S. Bordeaux, MD, MPH

Department of Dermatology, University Hospitals Case Medical Center, Case Western Reserve University, Cleveland, Ohio (Drs Summers, Cooper, and Bordeaux); Departments of Dermatology (Dr Summers) and Quantitative Health Sciences (Mr Bena and Ms Arrigain), Cleveland Clinic, Cleveland; Skin of Color Center, Department of Dermatology, St Luke's Roosevelt Hospital, New York, New York (Dr Alexis); and Louis Stokes VA Medical Center, Cleveland (Dr Cooper)

Although up to 14% of non-Hispanic blacks (NHBs) experience sunburns, they rarely use sunscreen.^{1,2} Whites are at least twice as likely to wear sunscreen than NHBs.^{3,4} Hispanics are more likely to wear sunscreen than NHBs, even though many Hispanics have a darker skin phototype than some NHBs.⁵⁻⁷ Given these differences, we sought to determine factors influencing sunscreen use in NHBs compared with other racial and ethnic groups.

Methods

Data from the dermatology section of the 2003-2006 National Health and Nutrition Examination Survey (NHANES)⁶ were examined. The 2 following questions were analyzed: (1) If after several months of not being in the sun you then went out in the sun without sunscreen or protective clothing for half an hour, which of the following would happen to your skin? and (2) When you go outside on a very sunny day for more than 1 hour, how often to you use sunscreen?⁶ Sex, ethnicity and/or race, age, annual income, and education were evaluated for their association with the dermatology survey answers.

Weighted estimates of responses to each question and the subject characteristics were created using survey frequency and means procedures. Survey logistic regression procedures, assuming proportional odds, were fit to each question. When the proportional odds assumption was questionable, inferences were compared against those of the generalized logit model. A multivariable model for sunscreen use was fit using all univariable predictors. Interactions between each variable and ethnicity and/or race were

© 2011 American Medical Association. All rights reserved.

Correspondence: Dr Bordeaux, 11 100 Euclid Ave, Cleveland, OH 44106 (jeremy.bordeaux@uhhospitals.org)..

Author Contributions: All authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* Summers and Bordeaux. *Acquisition of data:* Arrigain. *Analysis and interpretation of data:* Bena, Arrigain, Alexis, Cooper, and Bordeaux. *Drafting of the manuscript:* Summers. Critical revision of the manuscript for important intellectual content: Summers, Bena, Arrigain, Alexis, Cooper, and Bordeaux. *Statistical analysis:* Bena, Arrigain, and Bordeaux. *Obtained funding:* Cooper and Bordeaux. *Administrative, technical, and material support:* Summers and Cooper. *Study supervision:* Cooper and Bordeaux.

Financial Disclosure: Dr Alexis has served as a consultant for Estée Lauder Inc, has received departmental grants from L'Oréal, and has received an honorarium from Neutrogena. Dr Cooper has served as a consultant for Estée Lauder, Procter & Gamble, and L'Oréal.

evaluated. Where interactions were significant, subgroup analyses were performed comparing ethnicities and/or races within each level of the other variable included in the model. Analyses were performed using SAS software, version 9 (SAS Institute Inc, Cary, North Carolina).

Results

Participants' demographic characteristics and answers to survey questions are summarized in Table 1. The Figure shows skin reactivity to the sun based on ethnicity and/or race. Multivariable analysis revealed that ethnicity and/or race, sex, income, education, and skin reactivity affected sunscreen use (Table 2).

Further analysis showed that NHBs who reported severe sunburns were 7 times less likely to use sunscreen than were non-Hispanic whites who reported severe sunburns. Among participants who had severe sunburns, there was no difference in sunscreen use for the other ethnic groups (Mexican American, other Hispanic, and other race) compared with non-Hispanic whites.

Comments

In this study, NHB participants had a similar relative likelihood of not wearing sunscreen even if they have a propensity to severely sunburn, a finding comparable to other studies.^{1,2} Also consistent with other studies is the positive influence on sunscreen use of female sex, higher income, and higher education.⁴ The lack of sunscreen use by NHBs, including those who sunburn, may be explained by underlying cultural differences as well as limited knowledge about skin cancer.⁷ One survey found 70% of NHBs, 14% of whom experienced burns, were not aware that NHBs can develop skin cancer.² Another survey of NHBs found 43% had the propensity to sunburn, yet only 35% felt that they had a risk to develop skin cancer.⁸ Acknowledgment of skin cancer risk did not influence their sun protection behavior.⁸

The lack of sunscreen use by NHBs may have stemmed from rare familial and community experiences of skin cancer and lack of dialogue within families and with health care providers.⁷ Prior national dermatology screening and education programs only included 1.2% of NHBs, thus limiting interaction with health care providers.⁹ In addition, mainstream magazines with predominantly white readership had 5 times as many sun protection ads as magazines oriented toward NHBs.¹⁰ Future education of NHBs on skin cancer risk and sunscreen use is warranted, especially for the group that experiences sunburns.

Acknowledgments

Funding/Support: This study was supported in part by grant P30AR39750 from the National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Skin Diseases Research Center (Drs Summers and Cooper).

Role of the Sponsors: The sponsors had no role in the design and conduct of the study; in the collection, analysis, and interpretation of data; or in the preparation, review, or approval of the manuscript.

Additional Contributions: We acknowledge Victor Apprey, PhD, for his dedication to this project.

References

1. Hall HI, Rogers JD. Sun protection behaviors among African Americans. *Ethn Dis.* 1999; 9(1):126–131. [PubMed: 10355481]
2. Briley JJ Jr, Lynfield YL, Chavda K. Sunscreen use and usefulness in African-Americans. *J Drugs Dermatol.* 2007; 6(1):19–22. [PubMed: 17373157]
3. Pichon LC, Mayer JA, Slymen DJ, Elder JP, Lewis EC, Galindo GR. Ethnoracial differences among outdoor workers in key sun-safety behaviors. *Am J Prev Med.* 2005; 28(4):374–378. [PubMed: 15831344]
4. Santmyre BR, Feldman SR, Fleischer AB Jr. Lifestyle high-risk behaviors and demographics may predict the level of participation in sun-protection behaviors and skin cancer primary prevention in the United States: results of the 1998 National Health Interview Survey. *Cancer.* 2001; 92(5):1315–1324. [PubMed: 11571748]
5. Galindo GR, Mayer JA, Slymen D, et al. Sun sensitivity in 5 US ethnoracial groups. *Cutis.* 2007; 80(1):25–30. [PubMed: 17725060]
6. Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). [Accessed April 25, 2011] National Health and Nutrition Examination Survey (NHANES) Questionnaire [2003-2006]: Dermatology. http://www.cdc.gov/nchs/nhanes/nhanes_questionnaires.htm
7. McMichael AJ, Jackson S. Issues in dermatologic health care delivery in minority populations. *Dermatol Clin.* 2000; 18(2):229–233. [PubMed: 10791149]
8. Kim M, Boone SL, West DP, Rademaker AW, Liu D, Kundu RV. Perception of skin cancer risk by those with ethnic skin. *Arch Dermatol.* 2009; 145(2):207–208. [PubMed: 19221276]
9. Geller AC, Zhang Z, Sober AJ, et al. The first 15 years of the American Academy of Dermatology skin cancer screening programs: 1985-1999. *J Am Acad Dermatol.* 2003; 48(1):34–41. [PubMed: 12522368]
10. Lee ET, O’Riordan D, Swetter SM, Demierre MF, Brooks K, Geller AC. Sun care advertising in popular U.S. magazines. *Am J Health Promot.* 2006; 20(5):349–352. [PubMed: 16706006]

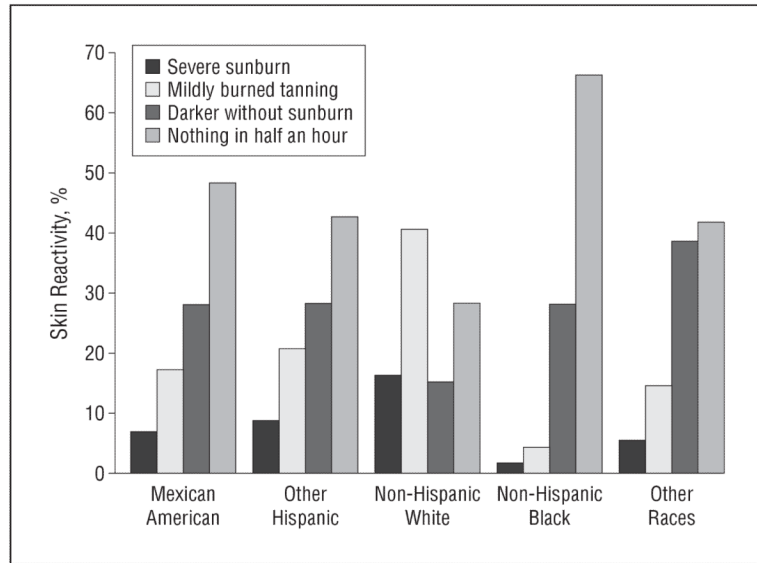


Figure.
Weighted percentages of skin reactivity by ethnicity and/or race.

Table 1

Characteristics of Sample

Characteristic	Raw Frequency, No. (Weighted %)
Ethnicity and/or race	
Mexican American	1377 (9)
Other Hispanic	251 (4)
Non-Hispanic white	3071 (69)
Non-Hispanic black	1525 (12)
Other race, including multiracial	325 (6)
Total	6549 (100)
Sex	
Male	3082 (49)
Female	3467 (51)
Total	6549 (100)
Age, y	
20-29	1977 (25)
30-39	1688 (25)
40-49	1631 (28)
50-59	1253 (22)
Total	6549 (100)
Annual income, \$US	
<45 000	3456 (46)
>45 000	2829 (54)
Total	6285 (100)
Education	
<High school	1545 (16)
High school or GED	1574 (24)
>High school	3425 (60)
Total	6544 (100)
Skin reaction to sun	
Severe sunburn blisters	149 (3)
Severe sunburn peeling	522 (10)
Mildly burned tanning	1612 (31)
Darker without sunburn	1435 (20)
Nothing in half an hour	2761 (36)
Total	6522 (100)
Use sunscreen	
Always	579 (11)
Most of the time	745 (14)
Sometimes	1167 (22)
Rarely	792 (14)
Never	3177 (39)

Characteristic	Raw Frequency, No. (Weighted %)
Total	6460 (100)

Abbreviation: GED indicates general educational development.

Table 2
Multivariable Proportional Odds for Sunscreen Use

Comparison	Odds Ratio (95% Confidence Interval)
Ethnicity and/or race	
Mexican American vs non-Hispanic white	0.75 (0.64-0.88)
Other Hispanic vs non-Hispanic white	0.67 (0.47-0.97)
Non-Hispanic black vs non-Hispanic white	0.14 (0.12-0.17)
Other race, including multiracial, vs non-Hispanic white	0.72 (0.52-0.98)
Sex	
Female vs Male	2.66 (2.31-3.06)
Age, y	
30-39 vs 20-29	1.03 (0.86-1.24)
40-49 vs 20-29	1.11 (0.94-1.30)
50-59 vs 20-29	0.88 (0.72-1.09)
Annual family income \$US	
45 000 vs <\$45 000	1.84 (1.60-2.12)
Education	
High school vs <high school	1.87 (1.41-2.47)
>High school vs <high school	4.71 (3.72-5.97)
Skin reaction to sun	
Severe sunburn with blisters or peeling vs nothing	2.77 (2.42-3.18)
Mildly burned vs nothing	2.03 (1.80-2.30)
Darker without sunburn vs nothing	1.29 (1.09-1.54)