

# **An evaluation of shade-seeking and long-sleeved shirt use in Asian Americans**

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# BACKGROUND, OBJECTIVE, AND PATIENTS

## Background

- Although Asian Americans have a lower risk of skin cancer compared to non-Hispanic whites, diagnosis is often delayed in this population, resulting in poor outcomes.<sup>1,2</sup>
- A previous study by our research team demonstrated that Asian Americans are significantly less likely to use sunscreen consistently compared to non-Hispanic whites (29% vs 35%, aOR 0.70, 95% CI: 0.59-0.81, p<0.0001).<sup>3</sup>
- The National Health and Nutrition Examination Survey (NHANES), conducted annually by the National Center for Health Statistics, surveys non-institutionalized adult and children using a complex-multistage sampling design. Oversampling of Asian Americans was implemented in 2011.<sup>4</sup>

## Objective

1. Examine shade-seeking and long-sleeved shirt use in Asian Americans and non-Hispanic whites using the 2011-2018 National Health and Nutrition Examination Survey (NHANES) data.

## Study Population



- The 2011-2018 NHANES administered the *dermatology questionnaire* to adults aged 20-59 years old (n=14,934)
- Of these 14,934 participants, 7246 identified as Asian American or non-Hispanic white
- A total of 7173 Asian American and non-Hispanic white participants answered the shade-seeking and/or long-sleeved shirt question(s) and were included in the analyses

<sup>1</sup> Gupta AK, Bharadwaj M, Mehrotra R. Skin Cancer Concerns in People of Color: Risk Factors and Prevention. *Asian Pac J Cancer Prev*. 2016;17(12):5257-5264. Published 2016 Dec 1. doi:10.22034/APJCP.2016.17.12.5257.

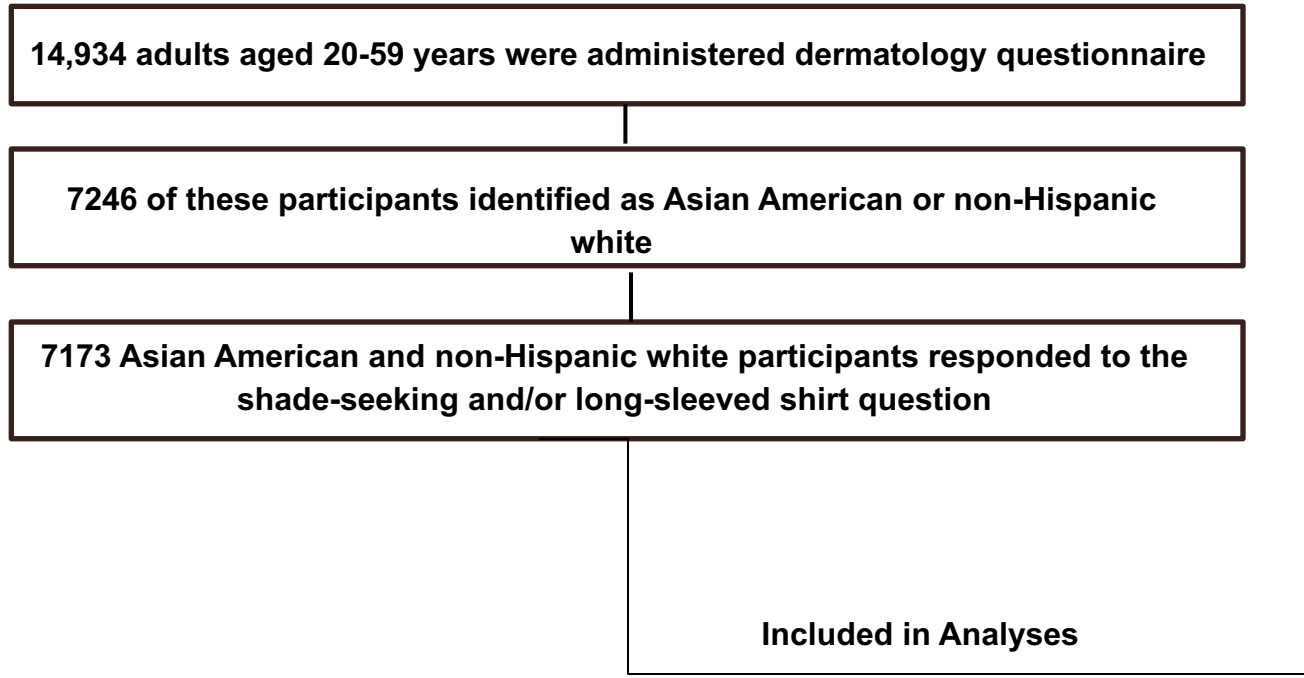
<sup>2</sup> Zheng YJ, Ho C, Lazar A, Ortiz-Urda S. Poor melanoma outcomes and survival in Asian Americans and Pacific Islanders, *Journal of the American Academy of Dermatology*(2020), doi: <https://doi.org/10.1016/j.jaad.2020.08.086>.

<sup>3</sup> Martin A, Liu J, Thatiparthi A, Ge S, Wu JJ. Asian Americans less likely to wear sunscreen compared to non-Hispanic whites. *J Am Acad Dermatol*. Accepted Dec 28, 2020.

<sup>4</sup> Paulose-Ram R, Burt V, Broitman L, Ahluwalia N. Overview of Asian American Data Collection, Release, and Analysis: National Health and Nutrition Examination Survey 2011-2018. *Am J Public Health*. 2017 Jun;107(6):916-921. doi: 10.2105/AJPH.2017.303815. Epub 2017 Apr 20. PMID: 28426300; PMCID: PMC5425904.

# STUDY DESIGN AND ANALYSES

## Study Design



\*When you go outside on a very sunny day, for more than one hour, how often do you Stay in the shade?

\*When you go outside on a very sunny day, for more than one hour, how often do you Wear a long sleeved shirt?

## Analyses

- Participants responding “always” or “most of the time” when queried about shade-seeking or long-sleeved shirt use were considered to engage in these behaviors *consistently*.
- Participants responding “sometimes”, “rarely”, or “never” were considered to engage in these behaviors *inconsistently*.
- Exclusion criteria: participants answering “don’t go out in the sun” when queried about shade-seeking
- Multivariable logistic regression models were constructed
  - Dependent variables: shade-seeking and long-sleeved shirt use
  - Independent variable: race/ethnicity
  - Covariates: skin reaction to sun, income, age, sex, marital status, education level, and body mass index

# Sample Characteristics: adults ages 20-59 years who identified as Asian American or NHW in the 2011-2018 NHANES

Characteristic	NHW, weighted percent <sup>a</sup> (95% CI)	Asian Americans, weighted percent <sup>a</sup> (95% CI)	P value
<b>Sex</b>			
Male	50 (48-51)	47 (45-49)	0.025
Female	50 (49-52)	53 (51-55)	
<b>Age Group (y)</b>			
20-29	24 (22-26)	26 (23-29)	<0.0001
30-39	23 (21-24)	28 (25-31)	
40-49	24 (23-26)	26 (24-29)	
50-59	29 (27-31)	20 (18-22)	
<b>BMI (kg/m<sup>2</sup>)</b>			
<18.5	2 (1-2)	3 (2-4)	<0.0001
18.5-29.9	61 (59-63)	82 (80-84)	
30-34.9	20 (18-21)	12 (10-13)	
35-39.9	9 (8-10)	2 (2-3)	
40+	8 (7-9)	1 (1-2)	
<b>Marital Status</b>			
Married/living with partner	65 (63-67)	71 (68-74)	<0.0001
Never married	22 (20-24)	23 (21-26)	
Widowed, divorced, separated	13 (12-15)	6 (5-7)	
<b>Highest Level of Education</b>			
High school	21 (19-23)	13 (10-16)	0.0005
Less than high school	8 (6-10)	9 (8-12)	
More than high school	71 (68-74)	78 (73-82)	
<b>Annual Household Income</b>			
≥ \$20,000	90 (88-92)	93 (91-94)	0.042
< \$20,000	10 (8-12)	7 (6-9)	
<b>Skin Reaction to Sun</b>			
Mild or no reaction	81 (80-82)	97 (95-97)	<0.0001
Severe sunburn±blistering	19 (18-20)	3 (3-5)	

<sup>a</sup> Weighted percent using NHANES survey design parameters  
95% CI = 95% confidence interval

# RESULTS AND CONCLUSION

## Results from multivariable logistic regression for shade-seeking and long-sleeved shirt use

Characteristic	NHW, Percent (95% CI)	Asian Americans, Percent (95% CI)	Adjusted OR (95% CI) <sup>a</sup>	P value
<b><i>Seeks shade consistently?<sup>b</sup></i></b>				
No <sup>c</sup>	74 (72-76)	57 (54-60)	1.00 (control)	
Yes <sup>d</sup>	26 (24-28)	43 (40-46)	2.93 (2.48-3.46)	<0.0001
<b><i>Wears long-sleeved shirts consistently?<sup>e</sup></i></b>				
No <sup>c</sup>	93 (92-94)	79 (77-81)	1.00 (control)	
Yes <sup>d</sup>	7 (6-8)	21 (19-23)	3.91 (3.20-4.79)	<0.0001

<sup>a</sup>OR = odds ratio, 95% CI = 95% confidence interval

<sup>b</sup>Participant was asked "When you go outside on a very sunny day, for more than one hour, how often do you stay in the shade?"

<sup>c</sup>Participant responded with "sometimes", "rarely", or "never"

<sup>d</sup>Participant responded with "always" or "most of the time"

<sup>e</sup>Participant was asked "When you go outside on a very sunny day, for more than one hour, how often do you wear a long-sleeved shirt?"

### Conclusion

- Our current and prior study demonstrate that sunscreen use, long-sleeved shirt use, and shade-seeking behavior are inadequate (<50%) in both Asian Americans and non-Hispanic whites.
- Healthcare professionals should encourage patients to consistently utilize multiple photoprotective behaviors, thus maximizing protection against ultraviolet radiation.
- Further studies are needed to understand the reasons why patients prefer certain photoprotective behaviors over others.
- Understanding the rationale for engagement in particular photoprotective behaviors may lead to more effective patient counseling.