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# Patterns of sunscreen use on the face and other exposed skin among US adults

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**Background:** Sunscreen is a common form of sun protection, but little is known about patterns of use.

**Objective:** We sought to assess patterns of sunscreen use on the face and other exposed skin among US adults.

**Methods:** Using cross-sectional data from the 2013 Summer ConsumerStyles survey (N = 4033), we calculated descriptive statistics and adjusted risk ratios to identify characteristics associated with regular sunscreen use (*always/most of the time* when outside on a warm sunny day for  $\geq 1$  hour).

**Results:** Few adults regularly used sunscreen on the face (men: 18.1%, 95% confidence interval [CI] 15.8-20.6; women: 42.6%, 95% CI 39.5-46.7), other exposed skin (men: 19.9%, 95% CI 17.5-22.6; women: 34.4%, 95% CI 31.5-37.5), or both the face and other exposed skin (men: 14.3%, 95% CI 12.3-16.6; women: 29.9%, 95% CI 27.2-32.8). Regular use was associated with sun-sensitive skin, an annual household income  $\geq$  \$60,000, and meeting aerobic activity guidelines ( $P$ s < .05). Nearly 40% of users were unsure if their sunscreen provided broad-spectrum protection.

**Limitations:** Reliance on self-report and lack of information on sunscreen reapplication or other sun-safety practices are limitations.

**Conclusion:** Sunscreen use is low, especially among certain demographic groups. These findings can inform sun-safety interventions and the interpretation of surveillance data on sunscreen use. (J Am Acad Dermatol 2015;73:83-92.)

**Key words:** broad spectrum; skin cancer prevention; sun protection; sun protection factor; sun safety; sunscreen.

Sunscreen is a common form of sun protection used by US adults.<sup>1-4</sup> According to National Health Interview Survey (NHIS) data, approximately one third of adults *usually or always* use sunscreen when outdoors in the sun for 1 hour or more.<sup>4</sup> Furthermore, a study of media coverage on skin cancer prevention found more content about sunscreen than other recommended prevention strategies.<sup>5</sup> If used properly, regular sunscreen use can reduce risk for skin cancer<sup>6,7</sup> and prevent or

## Abbreviations used:

CDC:	Centers for Disease Control and Prevention
CI:	confidence interval
NHIS:	National Health Interview Survey
SPF:	sun protection factor
UV:	ultraviolet

delay photoaging of the skin.<sup>8-10</sup> In 2011, the US Food and Drug Administration updated regulations

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on sunscreen labeling to help consumers select and properly use sunscreens.<sup>11</sup> Sunscreen products that provide a sun protection factor (SPF) of 15 or higher and broad-spectrum protection (ie, protection from both ultraviolet [UV]A and UVB radiation) are labeled as protecting against sunburn, and, if used as directed, reducing the risk for skin cancer and early skin aging.

National surveys (eg, NHIS<sup>12</sup>) have assessed sunscreen use among US adults but do not differentiate between use on the face versus other exposed skin and do not capture whether the sunscreen provides broad-spectrum protection. Given the variety of cosmetics on the market that are labeled as providing sun protection, sunscreen use on the face is likely to be distinct from use on other exposed skin, particularly among women.

The purpose of this study is to examine patterns of sunscreen use on the face and other exposed skin among US adults.

## METHODS

We used data from Porter Novelli's 2013 Summer ConsumerStyles survey to examine sunscreen use among US adults aged 18 years or older. The ConsumerStyles are cross-sectional online surveys designed to capture the public opinions, beliefs, and trends in health behavior. Participants are from the GfK Knowledge Panel,<sup>13</sup> which is randomly recruited by probability-based sampling using both random-digit dialing and address-based sampling methods to reach respondents regardless of landline telephone or Internet availability. If needed, households are provided with a laptop computer and access to the Internet. The survey was fielded from June 28 through July 26, 2013.

### Outcome measures

Sunscreen use on the face was assessed by 3 questions:

1. When you go outside on a warm sunny day for more than 1 hour, how often do you use sunscreen on your face? [*always; most of the time; sometimes; rarely; never*]
2. What is the SPF number of the sunscreen you usually use on your face? [*1-14; 15-49; ≥50; not sure*]

3. Does the sunscreen you usually use on your face provide broad-spectrum (UVA and UVB) protection? [*yes; no; not sure*]

Three similar questions asked about sunscreen use on "other exposed skin (not including your face)."

## CAPSULE SUMMARY

- Sunscreen is a recommended form of sun protection.
- Sunscreen use is low among US adults, especially men, those with less sun-sensitive skin, and low-income groups. Use on the face but not on other exposed skin is common among women.
- These findings can inform future sun-safety intervention efforts targeting specific demographic groups.

### Other variables of interest

The survey included a question previously used on the NHIS<sup>12</sup> that asks about the skin's reaction to being "out in the sun for an hour without sunscreen, a hat, or protective clothing." Response options were: (1) *get a severe sunburn with blisters*, (2) *have a moderate sunburn with peeling*, (3) *burn mildly with some or no tanning*, (4) *turn darker without sunburn*, and (5)

*nothing would happen to my skin*. Similar to the Fitzpatrick scale,<sup>14</sup> this variable measures sun sensitivity by assessing the skin's tendency to burn, but the question also captures the severity of the burn. Sun-sensitive skin was defined as a skin that sunburns (response options 1-3). Other variables included gender, age, race/ethnicity, geographic region, household income, having skin cancer in the past year, having a cancer other than skin cancer in the past year, having 1 or more children younger than 18 years, meeting the 2008 Physical Activity Guidelines for Americans<sup>15</sup> for aerobic activity (based on self-reported average weekly physical activity; referred to as "aerobic activity guidelines" in subsequent text), body mass index (based on self-reported height and weight), and cigarette smoking status.

### Data analysis

The survey was sent to 6102 adults aged 18 years or older. A total of 4033 adults completed the survey (answered at least half the questions), yielding a response rate of 66%. The resulting data were weighted using 9 factors: gender, age, household income, race/ethnicity, household size, education, census region, metro status, and prior Internet access to be representative of the US population.

We calculated the unadjusted frequency of sunscreen use on the face and on other exposed skin when outside on a warm, sunny day for more than 1 hour among all participants. Among

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