GSA Webinar Series

Sun Protection and Sunburn Among U.S. Older Adults

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SUN PROTECTION AND SUNBURN AMONG U.S. OLDER ADULTS

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Skin Cancer: A Serious Public Health Problem

- Nearly 5 million adults are treated for skin cancer each year in the United States.
- $8.1 billion is spent in treatment costs annually.
- Annual spending for skin cancer treatment has increased rapidly.
- Skin cancer can often be prevented by avoiding overexposure to UV radiation.

Most Common Types of Skin Cancer

• **Basal Cell Carcinoma**
  - Arises from the cells in the bottom, or basal, layer of the epidermis

• **Squamous Cell Carcinoma**
  - Arises from the outer layers of the epidermis

• **Cutaneous Melanoma**
  - Arises from melanocytes, the melanin-producing cells that gives skin and eyes their color


Skin Cancer Risk Factors

• **Risk factors**
  - Fair skin, light hair, and light eyes
  - Skin that burns or freckles
  - Certain types or a large number of moles
  - Family or personal history of skin cancer
  - Age
  - Sex

• **Overexposure to ultraviolet (UV) radiation is most avoidable cause**
  - Classified by WHO/IARC as “carcinogenic to humans” (Group 1 carcinogen)
  - Chronic exposure
  - Intermittent exposure; sunburn

Skin Cancer Prevention Strategies

Shade
Long-Sleeved Shirt/Pants
Wide-Brimmed Hat
Sunglasses
Broad Spectrum Sunscreen SPF 15

Rate of New Melanoma Cases by Age Group, 2016

Source: https://www.cdc.gov/cancer/dataviz
Rate of New Melanoma Cases by Sex and Race/Ethnicity, 2016

Males
- White: 31.7
- Black: 1.0
- American Indian/Alaska Native: 6.6
- Asian/Pacific Islander: 1.4
- Hispanic: 5.1

Females
- White: 20.4
- Black: 0.8
- American Indian/Alaska Native: 4.2
- Asian/Pacific Islander: 1.1
- Hispanic: 4.4

Source: https://www.cdc.gov/cancer/dataviz

Rate of New Melanoma Cases Among Non-Hispanic Whites by Sex and Age Group, 2016

A Look at Melanoma Diagnoses in Non-Hispanic Whites

70% of melanomas diagnosed in adults 55+  
Increasing among men and women 55+  
Decreasing among men and women 15-44


Number of Non-Melanoma Skin Cancer Procedures Per 100,000 Medicare Fee-for-Service Beneficiaries in 2012

NMSC = non-melanoma skin cancer  
BCC = basal cell carcinoma  
SCC = squamous cell carcinoma

During 2006 to 2012
• The overall number of NMSC-specific procedures increased 14%.
• The number of persons undergoing at least 1 procedure for NMSC increased 14%.
• The average number of procedures per beneficiary remained stable.

Does our sun exposure really matter?

Why Sun Exposure Still Matters Later in Life

- Older adults are often more susceptible to UV damage
  - Age-related changes in the skin\(^1\)
  - Use of certain prescription medications and topical skin products\(^2\)
- Sunburn at any age increases skin cancer risk\(^3\)
- U.S. adult who reaches the age of 65 years can expect to have on average about two more decades of life\(^4\)

Study Hypothesis

We hypothesized that after controlling for appropriate covariates, regular use of sun protection would be associated with a decreased likelihood of having experienced sunburn.

Data Source: 2015 National Health Interview Survey

- Annual, cross-sectional household survey
- Nationally representative sample
- In-person interviews
- One adult in the household is randomly selected to answer additional questions

Source: https://www.cdc.gov/nchs/nhis/index.htm
**Survey Measures of Interest**

- Number of sunburns in the past 12 months
- When outdoors on a warm, sunny day for one hour or more, how often do you...
  - Stay in the shade
  - Wear a hat that shades the face, ears, and neck
  - Wear a long-sleeved shirt
  - Wear long pants or other clothing that reaches the ankles
  - Use sunscreen

Source: [https://www.cdc.gov/nchs/nhis/](https://www.cdc.gov/nchs/nhis/)

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**Conceptual Framework**

Demographic Characteristics
- Sex
- Age
- Race and ethnicity
- U.S. born status
- U.S. region

Skin's Reaction to Sun Exposure (sun sensitivity)

Sun Protection Behaviors
- Using sunscreen
- Wearing protective clothing
- Wearing a hat
- Seeking shade
- Limiting sun exposure

UVR Exposure

Sunburn Risk

Skin Cancer Risk
- (including basal cell carcinoma, squamous cell carcinoma, Merkel cell carcinoma, and melanoma)

UVR=ultraviolet radiation
Analyses

• N=7,765 respondents
• Calculated weighted, unadjusted percentages
• Used multivariable logistic regression to calculate adjusted prevalence ratios for experiencing one or more sunburns in the past 12 months

Demographic Characteristics (N=7,765)

• 58.7% women
• 78.1% non-Hispanic white
• 86.2% born in the United States
• 47.8% had sun-sensitive skin

<table>
<thead>
<tr>
<th>Age Breakdown</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>85+ years</td>
<td>11.4%</td>
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<tr>
<td>80-84 years</td>
<td>12.3%</td>
</tr>
<tr>
<td>75-79 years</td>
<td>17.3%</td>
</tr>
<tr>
<td>70-74 years</td>
<td>25.8%</td>
</tr>
<tr>
<td>65-69 years</td>
<td>33.3%</td>
</tr>
</tbody>
</table>
Percentage of U.S. Adults Aged 65+ Who Use Sun Protection*

*Always or most of the time when outdoors in the sun for 1 hour or more

Number of Sun Protection Behaviors*

U.S. Adults Aged 65+ (N=7,765)

*Always or most of the time when outdoors in the sun for 1 hour or more

Percentage of U.S. Adults Aged 65+ Who Use Sun Protection*

Percentage

Shade  Clothing to ankles  Sunscreen  Wide-brimmed hat  Long sleeves  Don't go out in the sun

Men  Women

Percentage

Number of Sun Protection Behaviors*

U.S. Adults Aged 65+ (N=7,765)

Percentage

0 1 2 3 4 5

Men  Women

Percentage

0 5 10 15 20 25 30 35

*Always or most of the time when outdoors in the sun for 1 hour or more

Percentage

Men  Women
Sun Protection Categories* U.S. Adults Aged 65+ (N=7,765)

- Sun avoidance: Men 45.3%, Women 62.8%
- Protective clothing: Men 55.2%, Women 42.9%
- Sunscreen: Men 19.4%, Women 32.1%

*Always or most of the time when outdoors in the sun for 1 hour or more

Prevalence of Sunburn* Among U.S. Adults Aged 65+ (N=7,765)

- Non-Hispanic White: 15.0%
- Hispanic: 8.3%
- Non-Hispanic Black: 6.2%
- Non-Hispanic Other: 6.0%

- Age categories:
  - 65-69: Non-Hispanic White 19.8%
  - 70-74: Hispanic 8.0%
  - 75-79: Non-Hispanic White 14.1%
  - 80-84: Hispanic 7.0%
  - 85+: Non-Hispanic White 6.5%

*Percentage of respondents who reported experiencing at least one sunburn in the past 12 months
Relationship Between Sun Protection and Sunburn

- No association between sunburn and
  - Sun avoidance
  - Protective clothing
  - Total number of sun protection behaviors

- Positive association between sunburn and sunscreen use
  - aPR=1.27 (1.05, 1.52)
  - No association when limited to those with sun-sensitive skin (N=3,659)

aPR = adjusted prevalence ratio for sunburn

Demographic Groups Most Likely to Report Sunburn

Males
Non-Hispanic Whites
Ages 65-69 & 70-74

However, sunburn was prevalent among older men and women of all age groups, races, and ethnicities.
Discussion

• Why did we observe a lack of a protective effect for sun protection behaviors?
• Why was sunscreen use associated with an increased likelihood of sunburn?
• What more could we be doing to promote sun-safety among older adults?

Targeted Efforts Could Focus On...

• Those most likely to sunburn
  • Men
  • Ages 65-74 years
  • Those with sun-sensitive skin
  • Those taking medications or using topical products that increase sun-sensitivity

• Those who engage in frequent outdoor activities
  • Outdoor occupational work
  • Outdoor recreational activities
Individual-Directed Interventions

• What approaches to message framing would resonate most with older adults?

• How do we empower older adults to take action to protect the future health of their skin?

• Is clinical counseling on skin cancer prevention an effective strategy for older adults?

Community Level Interventions

• Strategic placement of shade in outdoor community settings

• Removal of financial barriers to use of sun protection (e.g., costs of sunscreen and protective clothing)

• Easily accessible sun protection options

• Engagement with many community sectors
Making Progress Together!

https://www.cdc.gov/cancer/skin/what_cdc_is_doing/progress_report.htm

Opportunities for Cancer Prevention During Older Adulthood

- Free to view
- Sponsored by CDC’s Division of Cancer Prevention and Control

https://academic.oup.com/gerontologist/issue/59/Supplement_1
Questions?

- We will not be using the “raise hand” feature today
- Please use the “questions” feature accessible on the right side of your screen
- If we do not get to all of the questions today, we will email responses after the webinar
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www.geron.org/cancerprevention

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