

# The Prevalence of Sunscreen Use: A Cohort Study

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Skin cancer is the most commonly diagnosed malignancy worldwide and continues to grow as a major public health concern. Basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), collectively referred to as nonmelanoma skin cancer (NMSC) or keratinocyte carcinomas, demonstrate an annual incidence that exceeds all other malignancies combined.<sup>1</sup> Further, skin cancer is the 5<sup>th</sup> most costly malignancy to treat in the United States, with an average treatment cost of \$8.1 billion annually.<sup>2</sup> Despite a relatively low mortality rate, NMSC contributes to substantial morbidity and economic burden.<sup>1</sup> Additional efforts to highlight the critical role of actionable prevention strategies warrants continued discussion.

Exposure to solar ultraviolet (UV) radiation is considered the primary modifiable environmental risk factor for all skin cancer types.<sup>3</sup> Since the introduction of commercial sunscreen products in 1928, the now multibillion-dollar industry serves an integral role in photoprotection and promotion of sun safety.<sup>4</sup> Understanding public knowledge, attitudes, and sun protection habits is necessary for the development of tailored prevention and community outreach solutions. While the role of sunscreen in the prevention of skin cancer has been well established, reports of public attitudes towards sun exposure and photoprotection have remained more variable.

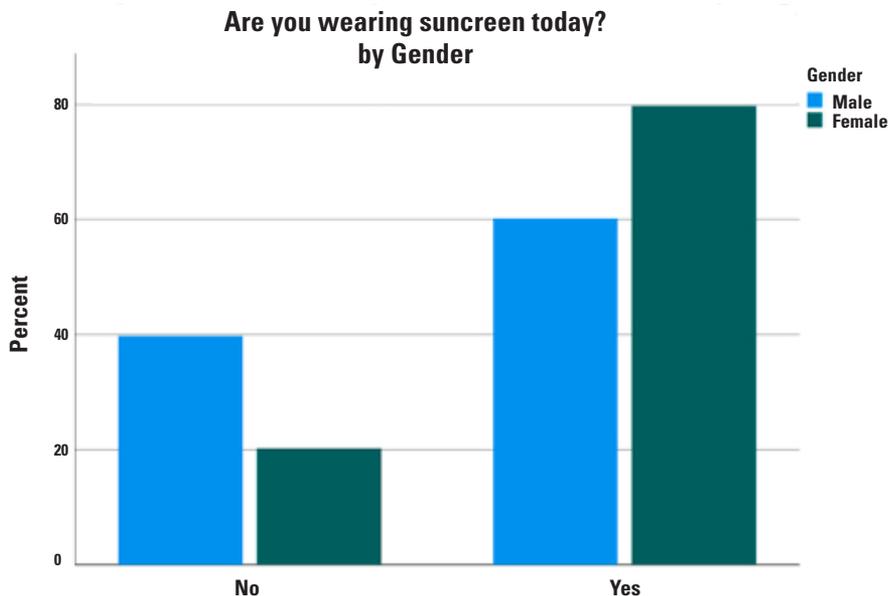
The aim of this study was to assess the use of sunscreen and sun safety behaviors among individuals attending Jazz Festival, a 10-day annual outdoor music festival in New Orleans held between the hours of 11 am and 7 pm. This Institutional Review Board (IRB)-approved study used a structured questionnaire consisting of 11 questions to collect data regarding the prevalence of sunscreen use and other prevention strategies such as wearing hats to protect against UV exposure. Data were obtained using both hard copy and QR code-linked survey forms and participant responses were uploaded to Qualtrics and SPSS for further analysis. Surveys were collected in person from May 5, 2022 to May 8, 2022 at the front entrance of Jazz Fest.

Of the total 258 volunteer participants, 72.1% reported wearing sunscreen on the day of the festival ( $P<0.001$ ). Female gender was significantly associated with sunscreen use ( $P<0.001$ ; Figure 1). While age was not associated with sunscreen use on the day of the festival ( $P=0.389$ ), increased age was found to correlate with more frequent sunscreen application in general ( $P=0.05$ ). The average age of participants who reported always wearing sunscreen was 8.05 years older than those who reported never wearing sunscreen ( $P=0.005$ ; Figure 2). 11.11% of participants reported not wearing sunscreen due to cloudy weather.

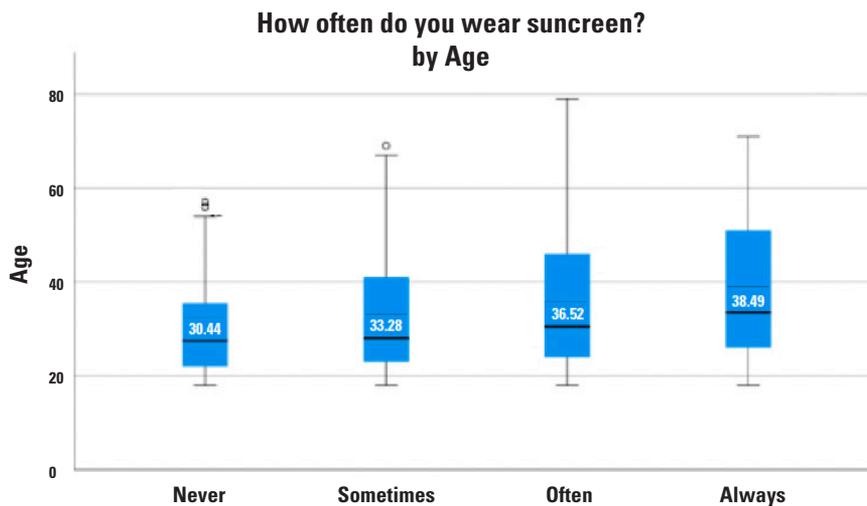
Limitations of this study include potential selection bias due to the restricted timeframe of data collection and the specific population sampled as well as human error during in-person data collection. Data were only collected during the last 4 days of the festival and most participants responded to the survey during daylight hours. Additionally, people who refused to participate in the survey were not taken into consideration during data analysis. Recall bias was minimized by asking both about sunscreen use on the day of the festival and about historical sunscreen use patterns.

Characterization of sun protection attitudes and behaviors in various community settings will allow for the development of effectively tailored outreach initiatives to improve knowledge of skin cancer risk and the importance of sunscreen use in its prevention. This study highlights the discrepancies in sunscreen use both between gender and age. Further, the data offer insight into participants' reasoning when choosing not to wear sunscreen on a daily basis. Based on this study's results, sunscreen education should aim to challenge the myth that sunscreen is not needed when it is not visibly sunny outside. Further, this education should be emphasized during physician interactions with younger patient populations and with patients who identify as male.

**FIGURE 1.** Female gender was associated with more sunscreen use at Jazz Fest than the male gender ( $P<0.001$ ) at a power of 0.926.



**FIGURE 2.** The average age of those who reported always wearing sunscreen was 8.05 years older ( $P=0.005$ ) than those who reported never wearing sunscreen at a power of 0.888.



**DISCLOSURES**

The authors have no conflicts of interest to declare.

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