

# Skin cancer primary prevention by counseling patients with different skin tones

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To the Editor:

Early sun exposure in pediatric and adolescent years predisposes individuals to skin cancer, and provider counseling about photoprotective behaviors can reduce this risk in both children and adults.<sup>1-3</sup> In the United States, people with dark skin tones have higher mortality rates from skin cancer, yet there is a lower incidence of skin malignancies in these populations.<sup>2</sup> Research suggests this is due to inadequate understanding and medical training regarding dermatologic disease in skin of color.<sup>2,3</sup> The American Academy of Dermatology's *Skin Cancer in People of Color* currently recommends that dermatologists encourage sun-protective behaviors as a means of skin cancer reduction.<sup>3</sup> We sought to assess the existing literature addressing photoprotection counseling for patients with skin of color and the relative frequency with which dermatologists and other providers in the United States recommend photoprotective behaviors. We hypothesized that research addressing sun protection counseling for adult and pediatric patients with skin of color is limited in scope and that less frequent discussion of preventative behavior occurs between

providers and patients with darker skin tones and skin of color.

We conducted our literature review using the PubMed and MEDLINE databases. Search terms such as "sun protection counseling AND skin of color", "photoprotection AND skin of color AND pediatrics", and "skin cancer AND skin of color" were used. The initial search included all types of studies and yielded a total of 2484 articles. Assessment of titles, key words, and abstracts refined the literature to 69 articles best aligning with the hypotheses. Exclusion criteria, defined as any publications not written in English, articles published before 2011, or studies not considered original research, were then applied. This resulted in 46 articles being screened further to elucidate our research questions. Seventeen studies were then excluded for not explicitly discussing photoprotection counseling between providers and patients. Table 1 represents the resulting 29 full-text articles reviewed. Ultimately, four articles were deemed most significant to the research questions, as they directly quantified or discussed the frequency of photoprotection counseling between providers and patients of color.

Each of the four studies evaluated the frequency at which physicians counsel their patients about photoprotection through the implementation of voluntary surveys. Balk *et al.* cited a comprehensive decrease in photoprotection counseling from 2002 to 2015 and observed that physicians in suburban areas counseled patients more frequently than those in inner cities.<sup>4</sup> This is of note, as inner city areas have a higher proportion of residents who are people of color (POC) compared to white populations.<sup>5</sup> Holman *et al.* reported that 89.4% of physicians counsel patients with light skin tones about photoprotection, compared to 56.4% and 36.9% of physicians counseling patients with medium and dark skin tones, respectively.<sup>6</sup> The survey analysis was confined to physician respondents, who reported that the majority of their patients had fair skin, which suggests a need for more inclusivity in the assessment of this data. Akamine *et al.* and Cestari and Buster yielded similar findings, suggesting a decreased frequency of photoprotection counseling for patients with darker skin tones as compared to those with lighter skin tones.<sup>3,7</sup>

The literature review supported our hypotheses. Relatively few studies assess the frequency of photoprotection counseling in skin of color, and even fewer studies address photoprotection counseling in pediatric patients with skin of color. Of the studies that evaluated the frequency of counseling patients with darker skin tones, the majority demonstrated a higher percentage of counseling patients with lighter skin.

Since survey responses were the primary tool used by most studies to measure photoprotection counseling, provider recall bias is a limitation that may impact the findings of this literature review. Additionally, due to the voluntary nature of surveys, lower response rates may influence the power of our conclusions. Finally, a strong association between sun exposure and risk for melanoma and squamous cell carcinoma (SCC) is not well-established among people of color (POC) as compared to basal cell carcinoma (BCC).<sup>8</sup> Therefore, the significance of photoprotection counseling to prevent the development of melanoma or SCC in

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Key words: skin cancer, dark skin, primary prevention, pediatric dermatology, health equity.

Contributions: the authors contributed equally.

Conflict of interest: the authors declare no conflict of interest.

Funding: none.

Availability of data and materials: data and materials are available from the corresponding author upon request.

Received: 3 February 2023.

Accepted: 8 February 2023.

Early view: 18 May 2023.

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Dermatology Reports 2023; 15:9681

doi:10.4081/dr.2023.9681

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POC has yet to be proven. More research on the pathophysiologies of melanoma, SCC, and BCC in POC is needed, and this should inform how providers counsel these patients. Previous literature identified a need for an improved understanding of skin cancer in POC to address the disproportionate mortality of cutaneous malignancies in populations with darker skin.<sup>2,3</sup> Our research suggests that further efforts to prevent skin cancer should include increasing photoprotection counseling for adult and pediatric patients with skin of color and darker skin tones.

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