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Correlates of sun safety practices in a racial/ethnically diverse sample of adolescents: Implications for skin cancer prevention interventions

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Abstract

To guide skin cancer preventive interventions, this study examined correlates of sun safety behaviors in a racial/ethnically diverse sample of 407 adolescents completing a self-report survey at the time of pediatric well-visits. Adolescents regularly practiced few sun safety behaviors, and greater interest in cancer prevention was associated with more sun safety behaviors, ever smoking cigarettes was associated with fewer sun safety behaviors, and non-white minority adolescents practiced fewer sun safety behaviors than non-Hispanic whites. Clinical preventive interventions to increase sun safety practices among adolescents of all racial/ethnic backgrounds could be integrated into general cancer prevention education, including combining skin cancer prevention and anti-smoking counseling.

Keywords

Adolescents; sun safety; skin cancer; prevention

Sun safety practices are recommended to reduce skin cancer risks (1), but adolescents' adherence is low (2). Although skin cancer is less common among racial/ethnic minority populations and is less likely to be attributable to sun exposure than among whites (2), sun safety practices are recommended for all adolescents. This study examined sun safety practices and tested whether potentially modifiable psychosocial and behavioral risk factors for cancer were associated with sun safety practices in a diverse sample adolescents. We hypothesized that sun safety practices would vary by adolescents' race/ethnicity, based on their cancer-related beliefs, and behavioral risk factors.

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Participants were 407 healthy adolescents ages 13 to 21 years recruited during well-visit check-ups at an urban adolescent medicine clinic as part of a larger observational study (3). Parents and adolescents provided informed consent/assent, and adolescents completed a self-report survey comprised of valid and reliable measures of sun safety practices, cancer-related beliefs, and other cancer risk behaviors (tobacco use, physical activity). Procedures were reviewed and approved by the Georgetown University Institutional Review Board.

Table 1 displays the sample characteristics. Figure 1 displays the prevalence of engaging in regular sun safety behaviors. On average, adolescents reported regularly engaging in 2.1 (*SD* 1.9) of 8 sun safety behaviors and 21.6% did not engage in any sun safety behaviors regularly. Adolescents were least likely to engage in behaviors requiring the highest involvement to accomplish, such as re-applying sunscreen (Figure 1). In a multivariable regression analysis of factors associated with the total regular sun safety practices, regular sun safety was less common among non-whites ($B = -.75$, $SE\ B = .18$, $p < .001$) and those who had smoked cigarettes ($B = -.41$, $SE\ B = .20$, $p = .04$). Greater interest in cancer prevention was associated with regular sun safety ($B = .26$, $SE\ B = .09$, $p = .005$).

Discussion

The findings are consistent with population data indicating adolescents engage in few sun safety practices, especially behaviors that require greater effort and vigilance, such as proper application and re-application of sunscreen. The finding that cigarette smoking was associated with fewer sun safety behaviors is not new but it is concerning given an independent association between cigarette smoking and squamous cell carcinoma risk (4). This indicates a need for coordinated efforts to address multiple cancer risk behaviors. That greater interest in cancer prevention was associated with more sun safety practices is a novel result and supports the idea that sun safety education in pediatric health care settings, particularly those serving racially/ethnically diverse populations, may be enhanced by targeting multiple cancer risk behaviors and is an important area for future research (5). Although skin cancer risks vary by race/ethnicity (2), sun safety practices are recommended for all patients regardless of skin color. A one size fits all approach to public health education may not be optimal and additional studies examining the barriers to and reasons for adequate sun protection and how to best address multiple cancer risk behaviors in racially/ethnically diverse pediatric populations are needed.

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Note: Regular sun safety practices are those which participants reported practicing "Frequently" or "Always." Intensity refers to the level of effort involved with each behavior.

Figure 1.
Regular sun safety behaviors among adolescents

Table 1

Sample characteristics and bivariate associations with regular sun safety behaviors

	Study Sample (<i>n</i> = 407)			Association with Regular Sun Safety Behaviors		
	<i>Mean</i>	<i>Std. Dev.</i>	<i>n</i>	<i>%</i>	<i>Correlation (r)</i>	<i>P</i>
Demographics						
Age	16.5	2.1			−0.0	.98
Race/Ethnicity						<.001
Non-Hispanic White			287	46.0	2.4	2.1
Non-white			220	54.1	1.7	1.5
Sex						
Male			130	31.9	1.9	1.7
Female			277	68.1	2.1	1.9
Annual Household Income, \$US	\$66,499	\$27,946			.05	.29
Season of Assessment						
Spring or Summer			229	56.3	2.1	1.9
Fall or Winter			178	43.7	2.0	1.8
Cancer-Related Beliefs						
Worry about cancer	1.8	.83			−.01	.74
Interest in cancer prevention	3.1	.99			.13	.009
Interest in smoking risk	2.7	1.1			.09	.07
Worry about familial cancer	2.4	1.0			−.00	.99
Cancer Risk Behaviors						
Ever Smoke Cigarettes			178	43.7	1.8	1.8
Fewer Than 3 Days/Week With Vigorous Physical Activity			172	42.3	1.9	1.8
Regular Sun Safety Behaviors	2.1	1.9				.59

Note: Regular sun safety behaviors were measured using an 8 item scale to capture how frequently adolescents reported engaging in sun safety behaviors based on a 5-point response format ranging from “Never” [1] to “Always” [5]. Responses were dichotomized to reflect whether they practiced each behavior “Frequently” or “Always” and summed to create an overall score indicating the number of sun safety behaviors practiced regularly (range 0-8, Kuder-Richardson 20 = .70). Bivariate associations with regular sun safety behaviors examined using Pearson's *r* for continuous variables and *t*-tests for categorical variables.