SKIN

RESEARCH LETTER

Sun Safe in the City: Understanding Sunscreen Practices in Brooklyn, NY

Kaitlin Martins[1], Justin W. Marson, MD[1], Soodeh Kabir, MD[1], Sharon Glick, MD[1]

[1] Department of Dermatology, SUNY Downstate Health Sciences University, Brooklyn, New York, USA

ABSTRACT

Background: Despite increased efforts to encourage sunscreen usage across all racial groups and all skin types, there remain many public misconceptions surrounding benefits/utilization of sun-protection.
Objective: To assess sunscreen usage among the attendees of a 2023 community fair within East Flatbush, NY relative to patient demographics.
Methods: Respondents were asked to complete a survey designed to inform clinic education and patient outreach and provide demographic information (e.g., zip code, self-identified gender, age) and whether or not they use sunscreen. Statistical analysis was performed using Microsoft Excel; categorical and continuous variables were analyzed via Chi-square and two-sample t-tests, respectively, with $p < 0.05$ denoting significance.
Results: Participants (n = 224) were mostly female (90%) and predominantly Fitzpatrick Score of 5 or 6 (71%). Younger individuals and individuals with lower Fitzpatrick scores were significantly more likely to report using sunscreen.
Limitations: Cross-sectional survey study and small sample size.
Conclusion: These findings suggest that interventions to encourage young people and fair-skinned people to wear sunscreen have likely been successful, but there is a larger need now for more targeted education for individuals with skin of color, as well as older patients.

Sunscreen plays a pivotal role in minimizing photoaging, skin cancer, and hyperpigmentation by protecting against ultraviolet (UV) and visible light radiation.[1] This study assessed sunscreen usage among attendees of a September 2023 Annual Community Healthy Lifestyle Fair in Brooklyn, New York.

Participants completed a questionnaire providing age, gender, zip code, and whether they use sunscreen. Fitzpatrick scores were assessed by Dermatology residents. Zip code was used as a proxy of socioeconomic status to determine median household income and compared to US Department of Housing and Urban Development (HUD) Percent of Area Median Income (AMI) brackets.[2] Categorical and continuous data were assessed with Chi-squared and Two-sample T-test, respectively, with $p<.05$ denoting significance.

Among dermatology booth visitors, 88.2% (224/254) completed the questionnaire and were included in the analysis. Respondents were majority female (90%), with a median age of 48 (18-88), and reported living in ZIP codes associated with a Very Low Median Income bracket (59%) (**Table 1**). Attendees

were majority Fitzpatrick Score 5/6(71%). Respondents who reported using sunscreen were significantly younger [Mean±Standard Deviation: 44.9±17.4 vs 53.4±18.8, p<.05)], (Mean Difference: 8.527, 95% CI [3.5966 to 13.4573]) and were rated as having a lower Fitzpatrick score [Mean±SD: 4.6±1.04 vs 5.0±0.83, p<.05)], (Mean Difference: 0.392, 95% CI [0.1232 to 0.6607]) compared to respondents who did not use sunscreen (**Table 2**). There was no significant relationship found between reported sunscreen use and gender [X2(1, N=224)=0.34, p=0.56] nor socioeconomic status [X2(3, N=224)=5.45, p=0.14].

Table 1. Patient Demographics

***N* (%)**	224
Age, years	
Mean	48
Gender, *N* (%)	
Male	22 (10)
Female	202(90)
Fitzpatrick Score *N* (%)	
2	7(3)
3	22(10)
4	36(16)
5	112(50)
6	47(21)
Median Income *N* (%) *	
extreme low	11(5)
very low	132(59)
low	69(31)
moderate	12(5)

***Utilizing Zipcode, median household income of a community was compared to US Department of Housing and Urban Development (HUD) Percent of Area Median Income(AMI) brackets for New York City. [extreme low 0-30%, very low 31-50%, low 51-80%, moderate 81-120%, middle 121-165%].

Despite increased awareness campaigns, ethnic minority communities historically receive later-stage diagnoses of melanoma and have poorer outcomes, and there is little research exploring racial discrepancies in melanoma diagnosis and treatment.[3] As the existing studies are rather new, misconceptions remain among health providers and patients regarding sun protection in the skin of color populations.[4] Our findings demonstrated that younger and lighter skin-toned individuals may be more likely to wear sunscreen, potentially suggesting the efficacy of public awareness of skin cancer prevention among select populations. This is an interesting finding in comparison to recent findings by the American Academy of Dermatology, suggesting that Generation Z adults are at increased risk of skin cancer due to poorer sun-protective practices.[5] This study suggests education may not be uniformly

Table 2. Sunscreen Usage Across Demographics

	Sunscreen Use		
	Yes	No	p value
***N* (%)**	145 (64.7%)	79 (35.3%)	
Age, years [A]			<.05
Mean	45	53	
Gender, *N* (%)			0.55978875
Male	13 (9)	9 (11.4)	
Female	132 (91)	70 (88.6)	
Fitzpatrick Score *N* (%) [B]			<.05
2	6 (4.1)	1 (1.3)	
3	18 (12.4)	4 (5)	
4	27 (18.6)	9 (11.4)	
5	68 (47)	44 (55.7)	
6	26 (17.9)	21 (26.6)	
Median Income *N* (%)			0.14115675
extreme low	5 (3.4)	6 (7.6)	
very low	81 (55.9)	51 (64.6)	
low	49 (33.8)	20 (25.3)	
moderate	10 (6.9)	2 (2.5)	

A: Statistically significant higher rate of reported use among younger respondents. [Mean±Standard Deviation: 44.9±17.4 vs 53.4±18.8, p<.05)]
B: Statistically significant higher rate of reported use among respondents with lower Fitzpatrick Score [Mean±SD: 4.6±1.04 vs 5.0±0.83, p<.05)]

reaching audiences of different age and ethnic backgrounds, and illustrates an ongoing need for broader public education, especially among patients with skin of color, that multiple types of light can adversely affect and exacerbate skin conditions.

Limitations include a cross-sectional nature, and possible ascertainment and response bias; however, respondents represented a variety of socioeconomic status, ages, and Fitzpatrick Scores. These findings underscore the importance of tailored education and outreach, especially within communities of color and older demographics. Future studies and initiatives should aim to promote equitable access to sunscreen education to empower all individuals to protect their skin.

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Corresponding Author:
Kaitlin Martins
450 Clarkson Ave #46, Brooklyn, NY 11203
kaitlin.martins@downstate.edu

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