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Patterns of sun protective behaviors among Hispanic children in a skin cancer prevention intervention

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Abstract

Invasive melanoma is becoming more common in U.S. Hispanics, yet little is known about the sun protection behaviors in this population, particularly children and adolescents who incur high UV exposures. We used latent class analysis to examine patterns of sun protective behaviors in a cross-sectional survey of Hispanic elementary students participating in a sun safety intervention in Los Angeles from 2013–2014 (N=972). Five behavior indicators in two environments (school and home) representing multiple methods of sun protection were selected for the model. Results suggested a four-class model best fit the data. Classes were labeled in order of increasing risk as multiple protective behaviors (28%), clothing and shade (32%), pants only (15%), and low/inconsistent protective behaviors (25%). Children who reported high parental engagement with sun protection were significantly more likely to be classified in high overall protective categories (OR=4.77). Girls were more likely than boys to be classified in the highest protecting class (OR=3.46), but were also more likely to be in the “pants only” class (OR=2.65). Sensitivity to sunburn was associated with less likelihood of being in the “clothing and shade” class (OR=0.53). The differences amongst these classes and their predictors reveal the heterogeneity and complexity of Hispanic children’s sun protective behaviors. These findings have implications for the design and delivery of future sun protection interventions targeting Hispanic children, as strategies tailored to specific subgroups may be more effective in achieving meaningful behavioral changes.

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Conflict of Interest

The authors declare no conflict of interest.

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Keywords

Children; Hispanic; Melanoma; Skin cancer; Latent class analysis

Introduction

Melanoma, the most serious form of skin cancer and the leading cause of skin cancer death in the United States (National Cancer Institute), is a public health concern of increasing significance for U.S. Hispanics. Although non-Hispanic whites (NHWs) have highest incidence of the disease, the proportion of melanomas presenting at a late stage is increasing in Hispanics at a rate exceeding NHWs (Cockburn et al., 2006; Rouhani et al., 2010). With Hispanics currently comprising 17% of the U.S. population (approximately 53 million), a figure projected to grow to 31% by 2060 (CDC, 2011), the melanoma burden in the near future for this population may be considerable.

Hispanics are therefore an important population to target for primary prevention efforts that aim to reduce melanoma incidence through reduction of excessive exposure to ultraviolet (UV) radiation, the primary environmental risk factor for melanoma (Elwood and Jopson, 1997; Whitman and Green, 1994). As high levels of UV exposure and sunburn in childhood increase melanoma risk in adulthood (Gandini et al., 2005; Whitman et al., 2001), primary prevention interventions conducted among Hispanic children and adolescents are particularly needed (Buller et al., 2006; Geller et al., 2003; Saraiya et al., 2004). However, primary prevention interventions have largely targeted NHW children.

Studies of sun protection behaviors in Hispanic late adolescents and adults have found low awareness and perceived risk of skin cancer and low prevalence of sun protective behaviors in comparison to NHWs (Buller et al., 2011; Coups et al., 2008; Ma et al., 2007; Pipitone et al., 2002). Despite perceptions that Hispanics do not sunburn as easily as NHWs, Hispanics have high rates of sunburn comparable to or exceeding rates for NHWs (CDC, 2007; Coups et al., 2012). In addition, recent studies have suggested that acculturation, the process by which a cultural group encounters and selectively adopts the beliefs and behaviors of another culture (Negy, 1992), may influence sun protection for Hispanics. More U.S.-acculturated Hispanics tend to adopt U.S. norms of sun protection such as use of sunscreen, and less acculturated Hispanics are more likely to use sun protective clothing and hats and seek shade (Coups et al., 2012).

Studies regarding Hispanics and sun protection have primarily examined adult sun behaviors, and data regarding Hispanic children are limited. To address this research gap, the present study explored sun protection among Hispanic children using latent class analysis (LCA). This approach, which examines the heterogeneity within a seemingly homogeneous sample, yields insights into the sun protection patterns and risk profiles of Hispanic children in order to contribute to what is known about UV behaviors in this group and guide the development of tailored interventions.

We hypothesized that distinct subgroups, perhaps representing groups that might be more effectively targeted with tailored interventions, would be present in the sample.

Extrapolating from the literature among primarily NHW populations, we additionally hypothesized that Hispanic girls would be categorized in more protective classes (Alberg et al., 2002; Coogan et al., 2001; Dixon et al., 1999; Geller et al., 2002). Consistent with studies among NHW populations that have shown greater sun protection behaviors for children whose parents establish standards for sun protection (O'Riordan et al., 2003; Turner and Mermelstein, 2005), we hypothesized that Hispanic children who reported greater family sun protection would be categorized in more protective classes.

Following recent research about the influence of acculturation on sun protection behaviors in Hispanic adults (Andreeva et al., 2009; Coups E.J., 2013), we hypothesized that greater acculturation to U.S. norms would predict membership in classes characterized by the use of sunscreen, a sun protection method more prevalent among NHWs, while lower acculturation would predict membership in classes characterized by the use of protective clothing and shade. Finally, we included skin phototype and sunburn sensitivity as covariates in the model, anticipating that these variables would predict membership in more protective categories.

Methods

Sample and Measures

Baseline data were used from the SunSmart study (N=1,646), a school-based sun safety intervention conducted in Los Angeles in 2013–2014. Schools within proximity to the University of Southern California (USC) were contacted by research staff for recruitment. All were Title I schools with a high percentage of Hispanic and low-income students. The study had no inclusion/exclusion criteria exceptions with regards to schools, classrooms, or students participating. The USC Institutional Review Board (IRB) approved the study.

The analytic sample was restricted to students who self-reported as Hispanic/Latino (N=1,057). Paper-and-pencil questionnaires were administered in English before implementation of intervention activities. Because acculturation was measured at posttest and 85 students were absent the day of that questionnaire, the sample was restricted to students who were present for the follow-up questionnaire (N=972). No significant differences were found between the 972 students who completed both pre-and posttest in comparison to the 85 who completed pretest only on demographic characteristics and sun protection practices. Further, due to missing values on covariate variables, the final analytic sample for the model including covariates comprised 967 students.

Latent class analysis is a person-centered statistical method for detecting unobserved subgroups in a population using a set of observed variables (Muthén and Muthén, 2000). Individuals are categorized into mutually exclusive classes determined by their responses on indicator variables. The model's parameters estimate the probabilities of identified classes and probabilities of response for each indicator, conditional on class membership. Model fit is determined by a set of statistical criteria that compare the results of model with n classes to the $(n-1)$ model. The model that best fits the data with the smallest number of classes and yields interpretable results is chosen (Lanza et al., 2007). Subsequently, covariates can be

used to predict the likelihood of belonging to a particular latent class (Collins and Lanza, 2010).

For the current study, latent class indicators were selected to represent multiple dimensions of children's sun protection. Five sun protective behaviors measured in two environments, at school and outside of school (10 total) pertaining to the use of sunscreen, long sleeves, long pants, sun protective hats, and shade seeking were used. Each question was scored on a 4-level Likert-type scale with responses including "Never" "Rarely" "Sometimes" and "Often." To create binary indicators for the purposes of LCA, each item was dichotomously coded as 0 for "never/rarely" implementing the behavior vs. 1 for "sometimes/often" implementing the behavior. This classification method enabled the differentiation between higher risk students who rarely or never engaged in prevention objectives, versus lower risk students who met prevention objectives at least some of the time when outdoors.

Covariates

Five covariates were selected for their theoretical significance to sun protection in Hispanic children: gender, acculturation, skin phototype, sunburn sensitivity, and family sun protection habits for child. Acculturation was assessed using the U.S. orientation subscale of the Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA) scale (Unger, 2002). A single score was used ranging from 0–8, with higher scores reflecting higher levels of U.S. acculturation, measured as assimilation to U.S. norms.

Skin phototype was assessed with a five-level item adapted from the Fitzpatrick skin phototype scale and was entered into the model as a continuous variable ranging from 1=Very Fair to 5=Very Dark (Fitzpatrick, 1988). Sunburn sensitivity was assessed with one yes/no item in which students were asked if they had ever experienced sunburn. Family sun protection habits for child comprised an average of three variables that asked students if parents asked them to wear sunscreen, sun protective clothing, and a hat when outdoors on a sunny day. Responses were on a 4-point Likert-style frequency scale and ranged from "never" to "often," with higher scores indicating higher sun protection.

Statistical analysis

Latent class analysis was conducted using Mplus Version 6.0 (Muthén, 1998–2011) The number of classes examined began at 1 and was increased incrementally. Information criteria indices including the Akaike Information Criteria (AIC), Bayseian Information Criteria (BIC) and sample size adjusted BIC (SS-BIC) were used to determine model fit. The results of a Lo- Mendell-Rubin (LMR) likelihood-ratio test, which incrementally compares n vs. $n-1$ class models, were also evaluated to reject the null hypothesis that $n-1$ class is better (Lanza et al., 2007). Lower values on the AIC, BIC, and SS-BIC suggest superior fit, and a significant LMR test indicates that a model of $(n-1)$ classes fits significantly better than a model with only n classes. We stopped increasing the number of classes when there was no substantial decrease in information criteria and a non-significant LMR test. An entropy summary statistic also aided in assessing the quality of classification with values ranging from 0–1; values near 1 indicate good discrimination between classes

(Muthén et al., 2002). Model interpretability and theoretical meaningfulness were considered in selecting the best fitting model (Collins and Lanza, 2010).

In addition, we followed the steps recommended by Nylund (2007) to evaluate number of classes selected. Multiple start values were used to reduce issues with local minima and to determine a solution across different start values. We also examined the results of the bootstrapped likelihood ratio test (BLRT), which has been found to be more accurate in determining the correct number of classes than the LMR (Nylund, 2007). Finally, we randomly split the sample into two equal groups (N=486) and replicated our analyses in each.

Subsequently, covariates were incorporated into the final latent class model simultaneously to examine associations between latent classes and observed covariates. Multinomial logistic regression was used to determine the relationship between predictor variables and latent classes, and odds ratios (ORs) with *p*-values were reported.

Results

Characteristics of the sample are summarized in Table 1. Response categories for students reporting “sometimes” or “often” for each sun protective behavior included high endorsement of use of long sleeves and long pants, particularly at school. More than half of students reported seeking shade on sunny days when at home and at school. Smaller proportions of students used sunscreen or hats in either environment.

Description of classes

Table 2 presents fit statistics for the latent class analysis. Our results suggested a fourclass solution, indicated by a non-significant LMR test comparing 5 vs. 4-class models and negligible decreases in the information criteria. Entropy was also highest for the 4-class solution.

In further evaluation, the best log-likelihood was replicated at least 12 times using multiple start values. Performance of the BLRT suggested extraction of additional classes. However, in examining the results of a five- and six-class model, additional classes did not possess substantially distinct characteristics. In addition, the increase in the BIC and drop in entropy with the addition of classes greater than four suggested poorer fit to the data. When the sample was randomly halved, results indicated a four-class solution for one group and a fiveclass solution for the other based on the LRT, BLRT and BIC. Therefore, a four-class solution was selected as class sizes were substantial and yielded distinct characteristics with a conceptually meaningful interpretation (Collins and Lanza, 2010).

Table 3 presents the distribution of the latent classes estimated by the model. Classes were arranged in approximate order of sun protection and comprised two higher-protecting classes (Classes 1 and 2) and two lower-protecting classes (Classes 3 and 4). Class 1 (“multiple protective behaviors”; 28%) comprised a response pattern characterized by high probabilities of the use of nearly all sun protective methods and highest probabilities for sunscreen use. Class 2 (“clothing and shade”; 32%) was the most prevalent class and was

characterized by high probabilities of the use of long sleeves and long pants as well as the second-highest probabilities for shade use after Class 1. Classes 3 and 4 were similar, with both classes demonstrating lower sun protection aside from moderate probabilities of the use of shade. However, Class 3 (“pants only”; 15%) was characterized by high probabilities of the use of long pants only both at home and at school in contrast to other sun protection methods. One quarter of the sample was likely to be classified as Class 4 (“low/inconsistent protective behaviors”; 25%); this class was characterized by the low use of most sun protective behaviors aside from moderate use of long sleeves at school and moderate shade.

Covariates predicting latent classes

The 4-class model was then fit with the five covariates simultaneously. Table 4 shows ORs for predictors of class categories, presenting alternative parameterizations designating each of the two lower-protective classes as a reference category (i.e., Classes 3 and 4). Highest ORs were observed for students with high family engagement in sun protection who were significantly more likely to be classified in the two high protection categories relative to the lower protection classes. Relative to Class 3 (pants only), students with high family sun protection were significantly more likely to be classified in Class 1, the most protective class (multiple protective behaviors (OR= 4.77; $p<.0001$). Relative to Class 4 (low/inconsistent protective behaviors), students with high family sun protection were also significantly more likely to be classified in Class 1 (OR=4.01; $p<.0001$) as well as the second most protective category, Class 2 (clothing and shade) (OR=2.34; $p<.0001$).

Girls were significantly more likely to be classified in the most protective category, Class 1 (multiple protective behaviors) in comparison to Class 4 (low/inconsistent protective behaviors) (OR=3.46; $p=0.002$). Girls were also more likely to be classified in Class 3 (pants only) (OR=2.64; $p=0.003$) relative to Class 4. However, girls were significantly less likely to be classified in Class 2 (clothing and shade) relative to Class 3 (OR= 0.11; $p=0.001$) or Class 4 (OR=0.30; $p=0.01$) Relative to Class 3, girls were also significantly less likely to be classified in Class 4 (OR=0.38; $p=0.01$).

Students who reported sunburn sensitivity were significantly less likely to be classified in Class 2 (clothing and shade) relative to Class 4 (low/inconsistent protective behaviors) (OR=0.53; $p=0.04$). Neither skin phototype nor level of acculturation were significantly associated with class membership.

Discussion

We identified four latent classes of levels of sun protection behaviors among Hispanic schoolchildren in the Los Angeles area, supporting our hypothesis that distinct subgroups existed in the sample. The sample was divided between higher protectors, who used multiple methods of sun protection, and lower protectors, who used few or moderate levels of protection methods.

Although protective clothing and shade were the most prevalent methods of sun protection, only one class had high probabilities of sunscreen use. This distinction might have emerged due to low use of sunscreen among Hispanics, resulting from less awareness and perceived

risk of skin cancer or limited access to sunscreen in Hispanic communities (Hernandez et al., 2012). While sunscreen offers only partial protection from UV overexposure (Viros et al., 2014), it remains an important method to use in tandem with physical barriers such as protective clothing and shade, particularly for children in high UV environments. In our study, while one class of Hispanic children reported frequent use of sunscreen (Class 1), children who were otherwise high protectors reported low probabilities of sunscreen use (Class 2) as did the two low-protecting classes (Classes 3 and 4).

The strongest predictor of membership in high protecting classes was family habits for children's sun protection. Our results are in alignment with studies among NHW samples where parental sun protection habits have been shown to exert strong influence on child sun protection (Robinson et al., 2000; Turner and Mermelstein, 2005). For elementary school-aged children, sun protection may be shaped less by independent health decisions than by familial norms or provision of resources (sunscreen or protective clothing). Thus, broad strategies that incorporate families in sun protection might generalize cross-culturally as a critical component of effective primary prevention for school-aged children.

Contrary to our hypotheses, neither acculturation nor skin phototype was associated with class membership. One explanation for this lack of association may be low variability in the data, as the sample included relatively low-accultured children (with a mean score 2.6 out of 8 on the assimilation AHIMSA subscale). In addition, prior research on acculturation and sun protection has been conducted among adults and its influence on children's protective behaviors may differ (Andreeva et al., 2009; Coups E.J., 2013). Children's sun protective practices may reflect parental level of acculturation given the strong family influence regarding sun protection; thus, further research that captures the dynamics of acculturation as a family-level phenomenon is warranted with respect to its influence on children's sun protection.

Skin phototype was not significantly associated with class membership; this variable also lacked variability, with the majority of children self-reporting light brown skin. However, sunburn sensitivity was significantly associated with less likelihood of membership in a high-protection class. It is possible that Hispanic children who use little sun protection are more likely to report being sunburned as a result of time spent outdoors unprotected. This finding is of concern, as sensitivity to sunburn has been associated with greater sun protection for NHW adolescents (Buller et al., 2011), and even one severe sunburn in childhood can double the rate of melanoma in adulthood (Armstrong and Krickler, 2001; Gandini et al., 2005). For Hispanic children and their families, sunburn sensitivity may not motivate increased use of sun protection due possibly to lower perceived risk or less physician counseling about harmful UV overexposure and sunburn avoidance (Ma et al., 2007; Pipitone et al., 2002). Future intervention strategies might strengthen recognition of sunburn as a sign of skin damage for Hispanic children and families, particularly for children in less protective subgroups.

The role of gender in relation to sun protection subgroups was complex in this study. While several studies have affirmed the greater use of sun protection by NHW preadolescent girls than boys (Dixon et al., 1999; Geller et al., 2002) and Hispanic girls in the current study

were more likely to be categorized in high-protecting classes, it is unclear in our study why girls were also classified in the lower-protecting classes (in particular Class 3, pants only). It is possible that additional subgroups exist that further delineate high from low protecting Hispanic girls, potentially due to peer norms or culturally specific values such as modesty (Juckett, 2013; Pew Forum on Religion & Public Life, 2007). More research is required with a wider array of variables relevant to sun protection to further distinguish subgroups among Hispanic preadolescent girls.

Limitations and strengths of the research

Because results of the LCA are highly data-driven, generalizability of the findings are limited and LCA should be replicated in a different sample with similar demographic characteristics to determine if findings still hold. In addition, our likelihood-based tests differed somewhat with respect to model fit. As the measures were not originally designed for latent class analysis, some model misidentification may have occurred. However, our selection of a four-class solution was supported by the performance of the BIC, the best performing of the information criteria, and had good discrimination between classes (Nylund, 2007).

There is some potential for misclassification regarding the dichotomous variable to distinguish endorsement vs. non-endorsement of behaviors as middle values (“rarely” and “sometimes”) were included. Our measures were self-reported, which could introduce misclassification or social desirability bias. However, recent studies have shown adequate to good accuracy for self-reported sun protection estimates (Glanz and Mayer, 2005; Hillhouse et al., 2012).

Our sample likely generalizes to the school-based population in Los Angeles County, in which 74% of students in all grades identify as Hispanic (with a slightly smaller percentage estimated for elementary schools) (National Center for Education Statistics). However, Hispanics represent a heterogeneous ethnicity, and our analysis does not identify Hispanic subgroup. Based on recent census data for Los Angeles County (United States Census Bureau, 2013), our assumption is that the majority of children participating in the study were Mexican-American followed by Central American. However, as differences have been found among Hispanic subgroups with respect to sun protection (Coups et al., 2012), further research with a more diverse sample is required to examine whether our analysis would hold for other Hispanic heritage groups (South American, Cuban, Puerto Rican, etc.).

Strengths of the research include a large sample of Hispanic preadolescents and an innovative approach to profiling and delineating the heterogeneity of sun protective behaviors within this sample. To our knowledge, the current study is the first attempt to use LCA to identify distinct typologies of sun protection among Hispanic children.

Conclusions

Our analysis used a novel, person-centered approach and is the first to our knowledge to employ latent class analysis among Hispanic children in the sun protection literature. Results from the study demonstrate that while there are subgroups of high protecting Hispanic

children, the majority belonged to classes distinguished by suboptimal sun protection. Furthermore, the most salient predictor for being in the high protecting classes was the use of sun protection by parent for child. Therefore, our findings suggest that for Hispanic children, a culturally appropriate family-based intervention might most effectively target subgroups at highest risk. In addition, subgroups not using sunscreen might be encouraged to adopt its use in addition to physical barrier methods, while sunburn avoidance might be more strongly emphasized for Hispanic families. Such prevention steps, in addition to future research among Hispanic children and adults, may contribute to the long-term stabilization and/or reduction of rates of melanoma in this at-risk population.

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Highlights

- We examine sun protection in Hispanic children using latent class analysis.
- Two higher-protecting classes and two lower-protecting classes were found.
- Family sun habits and female gender were associated with higher-protecting classes.
- This study can inform tailored approaches to intervention in this population.

Table 1

Characteristics of sample at baseline, 2013–2014 (N=972)

Mean age (SD)	9.84	0.71
	<i>n</i>	%
Gender		
Female	510	52.47
Male	460	47.33
Missing	2	0.21
Grade Level		
4th	407	41.87
5th	486	50.00
Mixed 4th/5th	79	8.13
Skin Tone		
Very fair	7	0.72
Fair	167	17.18
Light brown	647	66.56
Dark brown	143	14.71
Very dark	3	0.31
Missing	5	0.51
Ever Sunburned		
Yes	603	62.04
No	366	37.65
Missing	3	0.31
Sun behavior characteristics^a		
Hat use at school	204	20.98
Hat use at home	358	36.83
Long sleeves at school	664	68.32
Long sleeves at home	487	65.13
Long pants at school	788	81.07
Long pants at home	645	66.36
Use of sunscreen at school	360	37.03
Use of sunscreen at home	330	33.96
Seeking shade at school	554	57.00
Seeking shade at home	591	60.80

^aPercent responding "often" or "sometimes"

Note: Percentages based on N responding to each question. The amount of missing data varied across item responses.

Table 2

Model-fit indices for a latent class analysis of sun protective behaviors among Hispanic schoolchildren, SunSmart (N=972)

Variable	No. of classes					
	1	2	3	4	5	6
No. of parameters	10	21	32	43	54	65
Log likelihood	-6073.233	-5723.239	-5648.497	-5600.967	-5573.56	-5545.913
AIC	12166.466	11488.478	11360.993	11287.935	11255.119	11229.64
BIC	12215.260	11590.944	11517.133	11497.747	11518.605	11538.984
N-adjusted BIC	12183.500	11524.249	11415.501	11361.179	11347.101	11332.544
Lo-Mendell-Rubin (LMR) testing the null hypothesis		2 vs. 1	3 vs. 2	4 vs. 3	5 vs. 4	6 vs. 5
LMR probability		<0.0001	0.004	0.009	0.57	0.56
Bootstrapped likelihood ratio test (BLRT)		<0.0001	<0.0001	<0.0001	<0.0001	0.05
Entropy		0.69	0.65	0.68	0.68	0.67

Notes: No. = number; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

Table 3

Four-latent-class model of sun protection behaviors: probabilities of engagement for each subgroup, SunSmart (N=972)

	Latent class			
	1 Multiple protective behaviours	2 Clothing and shade	3 Pants only	4 Low/inconsistent protective behaviors
	N=264 (28%)	N=308 (32%)	N=136 (15%)	N=264 (25%)
Use of sunscreen at school	0.77	0.22	0.22	0.22
Use of sunscreen at home	0.78	0.16	0.12	0.23
Hat use at school	0.30	0.14	0.11	0.26
Hat use at home	0.54	0.31	0.18	0.37
Long sleeves at school	0.93	0.89	0.24	0.42
Long sleeves at home	0.76	0.82	0.00	0.13
Long pants at school	0.95	0.96	1.00	0.38
Long pants at home	0.89	0.89	0.77	0.07
Seeking shade at school	0.79	0.52	0.45	0.47
Seeking shade at home	0.82	0.61	0.40	0.49

Table 4
Logit estimates and odds ratios for predictors of latent class membership, SunSmart (N=967)

	1 Multiple protective behaviours	2 Clothing and shade	3 Pants only	4 Low/inconsistent protective behaviors
	N=263 (27%)	N=219 (23%)	N=256 (26%)	N=231 (24%)
Intercept	-0.78	0.75	Ref	-0.09
<i>Family sun habits for child</i>				
Logit	1.56	1.02	Ref	0.17
OR	4.77 ^{***}	2.77 ^{***}	Ref	1.18
<i>Female</i>				
Logit	0.27	-2.18	Ref	-0.97
OR	1.31	0.11 ^{***}	Ref	0.38 ^{**}
<i>Acculturation</i>				
Logit	-0.05	0.04	Ref	-0.05
OR	0.96	1.04	Ref	0.95
<i>Sunburn reactive skin</i>				
Logit	0.001	-0.45	Ref	0.19
OR	1.00	0.64	Ref	1.21
<i>Skin phototype</i>				
Logit	0.19	0.14	Ref	0.21
OR	1.20	1.15	Ref	1.23
Intercept	-0.70	0.84	0.08	Ref
<i>Family sun habits for child</i>				
Logit	1.39	0.85	-0.17	Ref
OR	4.03 ^{***}	2.35 ^{***}	0.85	Ref
<i>Female</i>				
Logit	1.24	-1.21	0.97	Ref
OR	3.46 ^{***}	0.30 ^{**}	2.65 ^{***}	Ref
<i>Acculturation</i>				

	1 Multiple protective behaviours N=263 (27%)	2 Clothing and shade N=219 (23%)	3 Pants only N=256 (26%)	4 Low/inconsistent protective behaviors N=231 (24%)
<i>Sunburn reactive skin</i>	Logit	0.01	0.09	Ref
	OR	1.01	1.09	Ref
	Logit	-0.19	-0.64	Ref
	OR	0.83	0.53**	Ref
<i>Skin phototype</i>	Logit	-0.02	-0.21	Ref
	OR	0.98	0.93	Ref

Boldface indicates statistical significance ($p < *0.1$; $p < ** < 0.05$; $p < *** < 0.01$)