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School-Level Factors Associated with Sun Protection Practices in California Elementary Schools

Kim D. Reynolds, PhD¹, David B. Buller, PhD², Julia Berteletti, MSW³, Kim Massie, BS⁴, Jeff Ashley, MD⁵, Mary Klein Buller, MA⁶, Richard T. Meenan, PhD⁷, Xia Liu, MS⁸

¹Professor, School of Community & Global Health, Claremont Graduate University. 675 W. Foothill Blvd., Ste. 310, Claremont, CA 91711, USA.

²Director of Research and Senior Scientist, Klein Buendel, Inc. 1667 Cole Boulevard, Suite 225, Golden, CO 80401, USA.

³Research Program Manager, Klein Buendel, Inc. 1667 Cole Boulevard, Suite 225, Golden, CO 80401, USA.

⁴Project Manager, School of Community & Global Health, Claremont Graduate University. 675 W. Foothill Blvd., Ste. 310, Claremont, CA 91711, USA.

⁵President, Sun Safety for Kids. 2625 W. Alameda Ave., Suite 517, Burbank, CA 91505, USA.

⁶President, Klein Buendel, Inc. 1667 Cole Boulevard, Suite 225, Golden, CO 80401, USA.

⁷Senior Investigator, Kaiser Permanente Center for Health Research. 3800 N. Interstate Ave, Portland, OR 97227, USA.

⁸Biostatistical Manager, Klein Buendel, Inc. 1667 Cole Boulevard, Suite 225, Golden, CO 80401, USA.

Abstract

BACKGROUND: This study examined implementation of district sun safety policy in schools and tested correlates of implementation in California public school districts.

METHODS: Principals (N = 118) and teachers (N = 113) in California public elementary schools (N = 118) were recruited and completed a survey on sun protection policies and practices. The sample contained schools whose districts subscribed to the California School Boards Association and adopted Board Policy 5141.7 for sun safety. Principals and teachers reported on implementation of ten school practices related to BP 5141.7 indicating which practices were implemented in the school.

RESULTS: Years in public education (Exponentiated Score (ES)=0.51, $p < .001$), years worked in the current district (ES = 0.49, $p < .001$), perception that parents should take action to protect children from the sun (ES=0.43, $p < .01$), and personal skin phenotype (Low Risk ES = 0.55; High Risk ES = 0.09, $p < .05$) were associated with number of practices implemented in the school using multiple Poisson regression.

CONCLUSIONS: Policy implementation is more likely among schools with experienced faculty, when parents are seen as important partners in student skin cancer prevention, and when school principals and teachers have a lower personal risk phenotype.

Keywords

cancer; skin; prevention; school; policy

BACKGROUND

Motivated by the high prevalence, incidence and cost of skin cancer, the U.S. Surgeon General issued a *Call to Action to Prevent Skin Cancer* in 2014.^{1,2} Prolonged and unprotected exposure to solar ultraviolet radiation (UV) is the primary risk factor for skin cancer^{3–5} and schools have been identified as a priority setting for the prevention of skin cancer by the Centers for Disease Control and Prevention (CDC).⁶ Substantial UV exposure is received by children at school,⁷ including during outdoor school activities, such as recess and lunch periods, physical education classes, field trips, and extracurricular sports. Most children acquire at least one sunburn every year^{8–11} and blistering sunburns in childhood may elevate lifetime risk for melanoma.⁵ Schools can alter schedules and design outdoor environments to reduce UV exposure, teach sun safety, and encourage sun protection behaviors that may last a lifetime.

Written policy issued by a school district's board of education is an important element of school-based approaches to skin cancer prevention.^{2,6,12} Board policies can prescribe the actions of school organizations^{13–16} with the goal of improving health outcomes^{17–20} and are valued as an intervention strategy.²¹ However, a policy will only be successful if it is implemented. This has led investigators to explore factors associated with policy implementation but relatively few studies have explored the correlates of policy implementation in schools for skin cancer prevention. Several recent school-based studies have identified variables that facilitate or limit the implementation of policy in other content areas including smoking bans,²² school wellness policy,²³ and brief physical activity breaks.²⁴ Factors associated with policy implementation included the clarity of the policy,²³ interest among teachers in implementation of policy,²⁴ awareness and perceived benefits of policy,^{23,24} co-worker and administrative support,^{23,24} enforcement of policy,²³ staff turnover,²³ clear communication about policy to teachers and parents^{22,23} including training in skills to implement it,²⁴ presence of existing school policy that is related to the new policy,^{22,24} funding for implementation²⁴ and systematic stepwise approaches to implementation.²² Additional studies of determinants of policy implementation are needed.²⁵ Prior studies have found a number of geographic and institutional factors associated with school-level implementation of sun safety practices in primary schools including geographic region,^{26,27} population density of region,²⁸ grade level,^{26–28} enrollment size,^{27,29} and student socioeconomic status.²⁷ To our knowledge, no prior studies have examined individual-level factors, including perceptions and experience of school personnel, as correlates of the implementation of sun safe policy in primary schools.

The present study was confined to California public school districts that had already adopted a board-approved sun safety policy. California was the first state to enact legislation, in 2002, governing sun protection for students (California Education Code Section 35183.5). In 2005, the authors collaborated with CSBA to develop a comprehensive Sample Board Policy for sun safety (BP 5141.7) based on California law and CDC recommendations.⁶ CSBA disseminated the Sample Policy along with an explanatory Policy Brief to subscribed boards.³⁰ It not only addressed all the elements of the new state law, but was also consistent with CDC guidelines⁶ on rescheduling outdoor activities; increasing use of sun protective clothing, hats, sunglasses and sunscreen; supporting education for students, training for staff, and outreach to families on skin cancer prevention, and allocating resources and increasing accountability for sun safety efforts. In sum, the current study tested potential correlates of the school-level implementation of district board sun safety policy with an emphasis on individual-level factors among principals and teachers.

METHODS

Sample of Public School Districts and Elementary Schools

Public school districts located in California were eligible for recruitment if they included elementary schools, were members of CSBA, and had a sun safety board policy (BP 5141.7) posted online. Schools within districts were approached first from a list stratified by location (coastal or inland) and distance from Claremont Graduate University. Ultimately, principals from 489 elementary schools in 59 eligible districts were contacted by telephone or email and invited to participate in an intervention program targeting the implementation of district board sun safety policy by elementary school personnel; 129 principals agreed to participate, but 11 never completed the baseline survey to complete enrollment. Recruitment ended when an a priori quota of 118 schools was reached based on power analyses conducted for the intervention study. The data reported here are from the baseline assessments of the intervention trial. Principals provided consent for the school and identified a teacher or staff member who would assist in the implementation of sun safety practices at the school. Each nominated teacher was contacted and asked to complete a baseline survey. If a teacher did not wish to participate, the principal was asked to identify a replacement.

Policy Collection and Coding Procedures

District board policies were coded for sun safety content and to allow for a comparison with practices implemented at the school level. The BP 5141.7 policy documents for each district with a participating elementary school were obtained by study staff from the school district websites or from the CSBA database of district policies. District policies were obtained between September 2013 and December 2015 and trained project staff coded each policy document using a validated coding system.³¹ The presence of policy content (0 = not present, 1 = present) was coded for ten categories covering sun safety components recommended by the CDC. These components included sunscreen use, wearing UV protective clothing and hats, education of students for sun safety and education of teachers for sun safety, provision of outdoor shade, scheduling to avoid UV exposure, parent outreach, resource allocation, accountability on the policy, and staff modeling of sun safe practices. The strength of the policy was also coded for each category (not allowed=–1, not

mentioned or specified=0, allowed or recommended=1, or required=2) and the intent of the policy components for sun protection of students (0=indirect; 1=direct) was recorded for protective clothing and hats; however, neither strength nor intent were used in the present analysis. The policies were coded by a single coder and 15% (N=29) were coded by a second rater to establish reliability. Acceptable levels of agreement between the two coders were found for the content and strength scores (Kappa>0.70 [M=0.94]).³⁰ The date of the policy and any revisions was also recorded.

Online Survey Procedures

Each participating principal and teacher completed a baseline survey online between January 2014 and May 2016 covering their knowledge of sun safety board policy in their district, as well as knowledge of sun safety practices at their school. Respondents received as many as three phone calls and three email reminders from project staff. The study was reviewed and approved by the Claremont Graduate University Institutional Review Board and the Western Institutional Review Board and was classified as having exempt status.

In the survey, principals and teachers were asked whether the school district had a policy addressing sun protection for students. Respondents who indicated that a district policy existed were shown a list of policy components, for example, that shade is included on school grounds and students wear sunscreen when outside, and asked to indicate which were included as a part of the board policy for their district. Principals and teachers who indicated the existence of a policy were then asked which of a series of ten practices related to these policy components had been implemented (Yes, No, I Don't Know, Prefer Not to Answer) in that school during the past year, such as, the school provides sun-protective resources. For each practice queried, a series of more detailed items were asked within each category and respondents indicated if that practice had been implemented; for example, the school provides sunscreen; the school provides sun protective clothing; the school provides sun-protective hats. Principals and teachers were also asked about their personal sunburn history, personal sun protection practices, opinion about the importance of sun protection for students, perceived personal risk for skin cancer, attractiveness of a tan, employment history in education (years in public education in any position, years as principal in current district, years in current school district in any position), and demographics (age, ethnicity, race, sex). All participants were given a \$10 gift certificate in return for completion of their survey.

School Characteristics

California Department of Education records (<https://www.cde.ca.gov/ds>) were used to determine the number of students and administrators in each school (school size), the racial and ethnic composition of the student body, the percentage of English learners, the number of students receiving free or reduced-price meals, and the address to determine distance from the study office in Claremont, California (see Table 1).

Statistical Analysis

PROC MEANS and PROC FREQ in SAS (v 9.3) were used to generate means and percentages to describe the samples of schools, principals, and teachers. The primary outcomes analyzed were the count of all sun safety practices implemented at school (range

of zero to ten) and the count of the elements in each school's district sun safety policy that were implemented. The study data had a three-level structure: principals and teachers (Level 1), schools (Level 2), and school districts (Level 3). Principals and teachers were nested within schools, which were further nested within districts. Multilevel analysis was conducted to investigate the relationship between each potential pretest predictor and the primary outcomes. PROC GLIMMIX in SAS (Version 9.3) was used to fit Poisson mixed models for the count outcome. Alpha criterion levels were set at 0.05 (two-tailed) for all models.

RESULTS

Profile of the Samples

Table 1 describes the characteristics of the schools, principals, and teachers participating in the study. Participating elementary schools (N=118) had a mean distance from the study office in Claremont, California of approximately 134 miles and a mean enrollment of about 564 students with roughly one-third being English learners and almost two-thirds receiving free or reduced-price meals. Students were largely Hispanic (54.5%) and non-Hispanic white (24.0%). There were no statistically-significant differences between participating (N = 118) and non-participating (N = 371) schools on distance from the study office, number of students, and race/ethnicity and other characteristics of the students ($p > .05$). Of the 130 principals who agreed to have their elementary school participate, 118 (90.7%) completed the survey and their school was included in the trial. These principals had worked a substantial amount of time in public education (mean=21.1 years); in the current district in any capacity (mean=11.4 years); and as a principal in the current district for just under five years. Principals were about 48 years of age on average, predominately female (72.0%) and white (69.5%), and with a substantial percentage having a personal or family history of skin cancer (39.0%); however, less than 20% of the principals had a skin type placing them at higher risk for skin cancer. In the 118 schools, 113 teachers (95.7%) completed the survey. The participating teachers had worked fewer years in public education (mean = 14.3) than principals but approximately the same number of years in the current district. When asked to indicate the grades in which they provided instruction, teachers indicated working across grade levels with the majority teaching in grades Kindergarten through five. Among teachers, approximately 42.0% taught science or health. Teachers were approximately 43 years of age, predominately female (86.7%) and white (66.4%), with about one in five reporting being Hispanic. Many teachers (42.5%) had a personal or family history of skin cancer and about 23% had a skin type placing them at higher risk for skin cancer.

Rate of Implementation of Policy-related Sun Safety Practices

Table 2 provides the rates at which the 10 policy-related practice categories were implemented across the participating schools at baseline. The frequency of implementation of any single practice was typically below 10% while the wearing of hats by students reached 11.1%. The next most frequently implemented practices were the encouragement of teachers to model sun safe behavior (8.4%), the wearing of protective clothing by students (7.6%), the monitoring of the UV Index and changes in outdoor activity if indicated (6.2%), and the use of sunscreen by students when outdoors (6.2%). The remaining four practices (education of students, training of teachers, provision of shade on school grounds, and

communication of the district's sun safety measures to parents) were implemented among fewer than 3% of the schools.

Univariate Correlates of School-Level Sun-Safety Practices

Tests of the univariate association of potential correlates with sun safety practices implemented in the schools are presented in Table 3 and were examined using Poisson regression. Correlates were tested for significance using two outcome variables. The first is a total count of the number of sun safety practices implemented at the school and the second is a count of the elements implemented at the school level that are present in the district board sun safety policy for that district. Years of experience in education worked in any job position, and years of experience as a principal or teacher in the current school district, were positively associated with the total number of practices and with the count of district board policy elements implemented. Respondent age was also positively associated with both counts of sun safety practices implemented.

Perceived importance of skin cancer and the perception that the respondent looks better or healthier with a tan were not statistically associated with either of the policy implementation outcome variables. However, the perceived risk of getting skin cancer compared to other teachers or principals was positively associated with both policy implementation outcome variables. Perceptions of the role of the school in addressing student health issues assessed on Likert scales (1=Strongly Disagree, 5=Strongly Agree) were also tested. The statement "It is more important that our school district keeps taxes low than to provide additional services to enhance student health" was positively associated with practice implementation. Likewise, agreement with "Parents should take action on their own to protect their children from the sun while at school, without my school telling them to do so," was also positively associated with school-level practice implementation.

An association was found with self-reported personal skin phenotype. Respondents who reported phenotype characteristics (how deeply skin tans, eye color, hair color) that place them at lower risk for the development of skin cancer (skin tans easily, dark eye color, light hair color) were more likely to work in schools that had implemented a higher number of sun safety practices.

Multivariable Regression Tests of the Correlates of School-Level Sun Safety Practices

A final analysis was conducted in which all variables significant in the univariate analysis were tested in a multiple Poisson regression adjusting for the effects of all other correlates in the model. In these analyses, years in education in any position, years as a teacher or principal in their current district, parent responsibility for health of children, and the personal skin phenotype remained in the model after both stepwise and backward elimination runs were conducted separately. Because the pattern of significant findings is the same between the stepwise and backward elimination approaches, only the backward elimination is presented in Table 2. Years working in public education and the skin phenotype were significantly associated with the total count of practices and the count of district policies implemented as practices. The number of years working in the current school and perceived parent responsibility for skin cancer prevention among students were

significant only for the count of the district board policies implemented and for the total practices implemented, respectively.

DISCUSSION

The results of this study provide evidence of the association of individual-level factors, including work experience, attitudes, and personal skin phenotype with implementation at the school level of district board policy for sun safety. When examined in both univariate and multiple regression analysis, the years of experience in education and years serving as a principal or teacher in the current district, and the perception that parents should take action on their own to help prevent skin cancer without the school telling them to do so, were positively associated with policy implementation. We also found a negative association between the personal skin phenotypes of principals and teachers at higher risk for skin cancer and the implementation of district policy in the schools in both the univariate and multiple regression runs.

The finding that the experience of principals and teachers is associated with policy implementation and program delivery has been observed in prior studies not involving sun safety, although the direction of association has varied.^{32,33} In the present study, the association was positive and might be explained by several factors. Experienced administrators and teachers may recognize the importance and value of district board policy more than those with less experience, creating motivation to translate policy into practice at the school level. Experienced school personnel may also be more efficient in the execution of their job duties, and as a result, better skilled at creating time to implement district board policies. More experienced principals and teachers may have greater institutional authority, enhancing their effectiveness as leaders for policy implementation, and greater access to resources that facilitate implementation of policy at the school level. Finally, more experienced principals may have stronger communication networks in the districts, informing them about the policy and leading to greater implementation. Years working in public education also predicted policy awareness and knowledge among these same respondents in a previous analysis.³⁴ Interestingly, the number of years worked at the current school was associated with policy implementation for only one of the outcome variables, namely the count of total practices implemented. This may again be related to the reasons noted above; that is, belief in the importance of policy and the skills needed to implement policy may be determined more by the total number of years of experience working in education and not by individual school factors such as the depth of relationships with other staff at a particular school. Although experience of school principals and teachers is beyond the control of intervention researchers, it may be possible to use years of experience as a targeting variable in programs developed to facilitate policy implementation. The messages delivered to principals and teachers might vary depending on their years of experience. For example, a greater number of messages about the policy might be directed at less experienced principals and teachers and messaging related to the importance and positive outcomes of board policy might be emphasized.

Two attitude variables were positively associated with the number of policies implemented in the univariate analyses, including (1) that it's more important to keep taxes low than to

provide services to student to improve health, and (2) that parents should take action on their own to help prevent skin cancer without the school telling them to do so. However, only the latter remained a significant predictor of implementation in the multiple regression models and thus is interpreted here. One possible explanation for this effect is that principals and teachers who feel that skin cancer prevention is important are likely to advocate for parental action to prevent skin cancer among students. These faculty may see the actions of the school and the parents as working in concert and that school personnel who implement board policy for skin cancer prevention support all actions for skin cancer prevention, whether completed by school personnel or by parents.

Finally, principals and teachers with a lower phenotypic risk for developing skin cancer reported the implementation of more policies than those with higher risk profiles, across both outcome variables. This is an interesting finding and is inconsistent with the typical assumptions made for attitudes and behaviors related to perceived risk and personal risk profiles. That is, it is often assumed that principals and teachers who believe themselves at greater personal risk for skin cancer will be more attentive to skin cancer prevention messages and therefore more likely to take steps to protect children, including through the implementation of skin cancer prevention policy. However, our findings suggest the opposite association. That is, principals and teachers with a lower self-reported phenotypic risk profile tended to be in schools that implemented more skin cancer prevention policy. We do not know the reasons for this association but it appears robust, being present in both outcome variables. Future studies should attempt to replicate this effect and collect additional information on the perceptions and attitudes of school personnel with lower risk skin phenotypes to provide further explanation for this phenomenon.

Limitations

The sample was restricted to elementary schools recruited from public school districts that had adopted a defined district board sun safety policy (BP5141.7). This may limit generalizability of the findings both to public schools and to those districts with similarly extensive sun safety board policies. In addition, the analyses were conducted solely on cross-sectional baseline data diminishing our ability to draw conclusions about the causal influence of the independent variables tested. Finally, the implementation of district board policy was assessed using a self-report measure that may be susceptible to recall and social desirability biases. Reports from principals (or designees) have been used to assess implementation of school policies elsewhere.³⁵

Conclusions

The results of this study provide empirical evidence for the association of individual level work experience, attitudinal, and personal risk profile variables of school personnel with the implementation of district board-approved sun safety policy. Such individual variables have not been examined extensively in the prior policy implementation literature for skin cancer prevention. The study was limited to California elementary schools, and is based on reports by principals and teachers that are open to social desirability biases. The survey was cross-sectional in nature, so these relationships cannot be inferred to be causal. However, further exploration of these associations within other regions and types of schools and with

observational and longitudinal analyses is warranted to determine causation, and if supported, to consider use of these variables in the design of interventions to facilitate policy implementation.

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IMPLICATIONS FOR SCHOOL HEALTH

Several implications might be derived from the results. First, experienced administrators and teachers were more likely to implement district board policy perhaps due to (1) enhanced perceived importance of board policy creating motivation for implementation; (2) increased efficiency of administrators leading to greater policy implementation; (3) increased authority and ability to garner support for implementation; and (4) greater awareness of district policy changes due to strong communication networks. Principal and teacher training might focus on these areas, on awareness and importance of policy, and ways in which policy might be implemented. Limited training time is available for principals and teachers but several avenues are available. Many schools regularly conduct professional development sessions, often using “banked” time and alternating between district and teacher selected topics. Training on policy implementation could occur during these sessions, although permission at the district level or from teacher leaders or the teachers union representative might be required. Another mechanism might include memos or communications to teachers from the principal or district and accompanied by materials that readily used for sun safety education or policy implementation. Second, although experience of school principals and teachers is outside the control of administrators, years of experience might be a targeting variable in programs to facilitate policy implementation. Messages might vary depending on years of experience of principal or teacher. For example, the importance and positive outcomes of the implementation of policy might be communicated to less experienced principals and teachers through memos or text communications and perhaps accompanied by specific tools, videos or infographics with strategies for implementation. Third, policy implementation increased among principals and teachers who believed parents should take action on their own to prevent skin cancer. Faculty who hold this belief, and who value sun safety, may believe school personnel and parents should work as a team to implement sun safety policy. Greater emphasis on parent outreach might be possible using tools available in most schools such as weekly phone blasts, parent newsletters, coffee hours with the principal, website messaging, parent information centers at schools, and announcements during events involving parents such as at parent night or school Olympics. In some schools, collaborative work of school personnel with parents might occur where a strong advocate exists among the school personnel or the parents and there is an active Parent Teacher Association or other specialized parent group.

Human Subjects Approval Statement

The study was reviewed and approved by the Claremont Graduate University Institutional Review Board and the Western Institutional Review Board and was classified as having exempt status.

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Table 1:

Profile of the Samples of Schools, Principals, and Teachers

School Characteristics (N=118)	Mean	Std Dev
Distance from study office in Claremont, CA	133.56	180.07
Total number of students enrolled in school	564.58	215.63
English learner students	27.8%	17.0%
Fluent English proficient students	8.7%	6.6%
Students in free or reduced-price meal program	64.1%	28.8%
African American students	6.4%	7.6%
American Indian or Alaska Native students	1.7%	7.3%
Asian students	6.5%	12.8%
Filipino students	1.6%	2.7%
Hispanic or Latino students	54.5%	26.4%
Pacific Islander students	0.5%	1.1%
Non-Hispanic white students	24.0%	22.3%
Percent of students with two or more races	3.6%	3.3%
Principal Characteristics (N=118)		
Years working in public education in any position	21.10	7.08
Years working as a principal in current school district	4.62	4.02
Years working in current school district	11.43	9.17
Skin Type:		
1 (darkest skin/lowest risk)	28.7%	
2	28.7%	
3	25.2%	
4	17.4%	
5 (lightest skin/highest risk)	0.0%	
Age	47.83	7.72
Personal or family history of skin cancer	39.0%	
Hispanic ethnicity	21.2%	
Race:		
None of these	8.5%	
American Indian/Alaska Native	3.4%	
Asian	0.8%	
Black/African American	8.5%	
Native Hawaiian/Other Pacific Islander	0.8%	
White	69.5%	
More than one race	5.1%	
Prefer not to answer	3.4%	
Sex:		
Female	72.0%	

School Characteristics (N=118)	Mean	Std Dev
Male	27.1%	
Prefer not to answer	0.9%	
Teacher Characteristics (N=113)		
Years working in public education in any position	14.29	7.34
Years working as a teacher in current school district	11.63	7.47
Grade(s) Currently Taught*:		
Kindergarten	17.0%	
Grade 1	17.9%	
Grade 2	18.8%	
Grade 3	21.4%	
Grade 4	21.4%	
Grade 5	18.8%	
Grade 6	9.8%	
Grade 7	2.7%	
Grade 8	1.8%	
No specific grade	45.1%	
Teach Health or Science Curriculum:		
No	58.0%	
Yes, health	7.1%	
Yes, science	17.9%	
Yes, health and science	17.0%	
Skin Type:		
1 (darkest skin/lowest risk)	26.4%	
2	27.3%	
3	22.7%	
4	20.9%	
5 (lightest skin/highest risk)	2.7%	
Age	43.40	9.97
Personal or family history of skin cancer	42.5%	
Hispanic ethnicity	22.1%	
Race:		
None of these	8.9%	
American Indian/Alaska Native	4.4%	
Asian	7.1%	
Black/African American	4.4%	
Native Hawaiian/Other Pacific Islander	2.7%	
White	66.4%	
More than one race	3.5%	
Prefer not to answer	2.6%	

School Characteristics (N=118)	Mean	Std Dev
Sex:		
Female	86.7%	
Male	13.3%	
Prefer not to answer	0.0%	

Table 2.

Self-Report Measures of School-Level Sun Safety Practices and Percentage Implemented in the Past Year

School-level Practices Implemented (Yes/No)	Percent implemented
1. The UV index is monitored and outdoor activities are modified with regard to risk of harm associated with the index level *	6.19%
2. Students wear sun-protective clothing (shirts with sleeves; long pants) and sunglasses when outside	7.56%
3. Students wear hats when outdoors	11.11%
4. Students wear sunscreen when outdoors	6.19%
5. Construction of new schools or renovation of existing schools or school grounds include plans that increase shade on school grounds	2.68%
6. Educational objectives related to the health risks of sun exposure are taught in the classroom	1.78%
7. In-service staff training and continuing education regarding sun safety is delivered to teachers	0.44%
8. The school communicates the district's sun safety measures with parents and requests parent provision of sun safety resources, such as sunscreen and sun protective clothing for their child	5.80%
9. The school provides sun protection resources, such as sunscreen or UV-protective clothing	0.00%
10. Staff is encouraged to model recommended sun-safe behaviors	8.44%

* Respondents reported Yes for the occurrence of a practice. Yes responses were then summed to create the total sun protection practices score (Range 0–10).

Table 3.

Univariate Regression Associating Potential Correlates with Number of School-Level Sun Safety Practices Enacted in the Past Year

List of Potential Correlates	Response Format	Estimate Using Count of All Practices	Estimate Using Count of District Policy Enacted
How many years have you worked in public education in any position?	Open ended	0.51 **	0.51 **
How many years have you worked as principal/teacher in your current school district?	Open ended	0.49 *	0.49 *
Perceived importance of skin cancer (Mean of 3 items; Cronbach coefficient alpha is 0.67). • Skin cancer prevention is important for the health of the students • Parents of students in my school feel skin cancer prevention is important • Skin cancer prevention is an important issue for me personally	Range 1 to 5	0.60	0.56
I think I look better/healthier with a sun tan (Mean of 2 items; Cronbach coefficient alpha is 0.91).	Range 1 to 5	0.53	0.54
Compared to other principals/teachers I am more likely to get skin cancer in my lifetime.	1 SD to 5 SA ^a	0.43 *	0.43 *
Perceived school responsibility for teaching health (Mean of 3 items; Cronbach coefficient alpha is 0.87). • Schools have a responsibility to protect student health by teaching them about how to stay healthy • Schools should promote behaviors to students that decrease their risk for developing disease • I personally would support my school district allocating resources for implementing the district's sun safety policy	Range 1 to 5	0.51	0.50
It is more important that our school district keeps taxes low than to provide additional services to enhance student health.	1 SD to 5 SA	0.38 **	0.37 **
Parents should take action on their own to protect their children from the sun while at school, without my school telling them to do so.	1 SD to 5 SA	0.43 **	0.43 *
Skin type/phenotypic index (composite of 3 items). • How deeply does your skin tan • What is your eye color • What was your natural hair color before age 20	1 Lowest risk 2 3 4 5 Highest risk	(1) Lowest risk: 0.55 ** (5) Highest risk: 0.09	(1) Lowest risk: 0.51 * (5) Highest risk: 0.09
What is your age?	Open ended	0.51 **	0.51 **
Have you or any member of your family ever been told by a doctor that you have had skin cancer?	0 No 1 Yes	(0) No: 0.32 (1) Yes: 0.22	(0) No: 0.28 (1) Yes: 0.21
Ethnicity/race (Composite of 2 items). • Hispanic status • Race	0 All other 1 Non-Hispanic White	(0) All other: 0.31 (1) Non-Hispanic White: 0.26	(0) All other: 0.28 (1) Non-Hispanic White: 0.25
Sex	0 Female 1 Male	(0) Female: 0.24 (1) Male: 0.42	(0) Female: 0.22 (1) Male: 0.39

^a 1 Strongly Disagree to 5 Strongly Agree

*
p < .05

**
p < .01

p < .001

p < .0001

Table 4.

Results of Final Multiple Regression Models Using Backward Selection and Associating Potential Correlates with School-Level Sun Safety Practices Enacted in the Past Year

List of Potential Correlates	Response Format	Estimate Using Count of All Practices	Estimate Using Count of District Policy Enacted
How many years have you worked in public education in any position?	Open ended	0.51 ***	0.51 ***
How many years have you worked as principal/teacher in your current school district?	Open ended	0.49 ***	----
Parents should take action on their own to protect their children from the sun while at school, without my school telling them to do so.	1 SD to 5 SA	----	0.44 **
Skin type/phenotypic index (composite of 3 items). <ul style="list-style-type: none"> • How deeply does your skin tan • What is your eye color • What was your natural hair color before age 20 	1 Lowest risk 2 3 4 5 Highest risk	(1) Lowest risk: 0.51 * (5) Highest risk: 0.14	(1) Lowest risk: 0.47 * (5) Highest risk: 0.09

^a 1 Strongly Disagree to 5 Strongly Agree

*
p < .05

**
p < .01

p < .001

p < .0001

---- Correlate not significant in backward selection procedure