



# Teacher perceptions of sun protection practices in the secondary school setting: Barriers, enablers and recommendations for future

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## Abstract

**Objective:** This qualitative study aimed to explore sun protection barriers and enablers in secondary schools in Victoria.

**Methods:** Five focus groups were conducted with nominated Health or Physical Education (PE) Coordinators (or other staff representatives) from schools in metropolitan and regional Victoria. Discussions were audio-recorded, transcribed and coded thematically.

**Results:** Participants identified the need for regulatory influences that included minimum standards for sun protection policy, training and shade in the built environment. Participants perceived that sun protection is not always acknowledged to be a duty of care in secondary schools. A crowded health and well-being curriculum, a focus on fostering independence, and challenges overcoming peer norms were perceived to be important contextual influences. At an organisational level, strong leadership and a united approach among staff were identified as critical ingredients for successful policy implementation and organisational change. Several potentially effective strategies were proposed, including increased shade, leveraging from student leaders, normalising sun protection practices and prioritising staff role modelling.

**Conclusions:** A cultural shift is required for many schools to accept and act on sun protection as a duty of care. A comprehensive approach that includes regulatory action, healthy school policies and leading by example may help protect students and staff from harmful UV exposure during school hours.

**So what?** Without regulatory support, strong leadership is required to implement and enforce sun protection practices within schools. Health promotion programs could assist schools to trial and evaluate the sun protection strategies that involve student-led solutions, role modelling and increasing shade.

## KEYWORDS

adolescent, cancer prevention, health promotion, sun protection

## 1 | INTRODUCTION

Ultraviolet (UV) radiation exposure during childhood and adolescence is an important predictor of skin cancer development in later life.<sup>1</sup> Despite the recent decline in the incidence of melanoma, particularly among Australians aged 40 years and under, the rate of melanoma in Australia remains among the highest globally.<sup>2,3</sup>

Multi-faceted interventions that include a focus on schools and other settings have been shown to be both effective and cost-effective to preventing skin cancer.<sup>4</sup> Given students and teachers are often outside of school when UV radiation is at its peak, schools are an important setting to address skin cancer prevention through the curriculum, policy and the school's built environment.<sup>5,6</sup> There is strong evidence to support skin cancer prevention programs that target sun protection policy and practice in the primary school and early childhood settings.<sup>7,8</sup> In Australia, programs that address the comprehensiveness of sun protection policies (such as the SunSmart membership program) have been shown to improve sun protection practices in primary schools.<sup>9</sup>

In contrast, there is insufficient evidence on the implementation and effectiveness of sun protection policies and practices in secondary schools.<sup>8</sup> Adolescence is a pivotal period for skin cancer prevention, when parental control over sun protective behaviour diminishes. Further, although Australian adolescents have good awareness of the harms of UV and the severity of skin cancer, they are also somewhat disconnected from future consequences of failing to protect their skin.<sup>10</sup> For example, preventing painful sunburn is most commonly provided as the motivation to use sun protection, rather than preventing skin cancer.<sup>10-12</sup> Adolescents identify a number of barriers to sun protection, including the desirability of having tanned skin, prioritising image or fashion over sun protection, forgetfulness or laziness to use and reapply sunscreen and a general dislike of the texture of sunscreen.<sup>10,12-14</sup> Encouragement to use sun protection from close friends and family appears to help overcome some of these barriers.<sup>14,15</sup>

Greater understanding of the opportunities and challenges faced by secondary schools when implementing skin cancer prevention programs is required to inform acceptable and effective strategies to protect adolescents from UV radiation. The aim of this qualitative study was to (a) explore the barriers and enablers to sun protection practices in secondary schools in Victoria, as perceived by staff representatives and (b) identify strategies perceived to be appropriate and effective in this setting. This formative evaluation was conducted to inform SunSmart Victoria's support for secondary schools.

## 2 | METHODS

### 2.1 | Participants and procedures

Five focus group discussions were held with staff representatives from 18 secondary schools in Victoria. We purposefully invited the participation of Health and PE staff (or others most familiar with the school's sun protection practices). These staff were considered

"information rich" due to the experiences associated with their role and responsibilities.<sup>16</sup> As such, we anticipated that these staff members were best placed to discuss the barriers and enablers to sun protection policies and actions within their schools. Data were collected during November 2015 and March 2016.

The following mix of purposive and random sampling was used. To prioritise schools that had recent experience with at least one skin cancer prevention strategy, we used a purposive sampling strategy to invite all schools that had participated in SunSmart Victoria's professional development for secondary school staff in the past 3 years ("contacts"). The intensity of engagement through this program was very low. Other schools (with no known contact with SunSmart in the previous 3 years) were randomly selected from a list of all government, independent and Catholic secondary schools that was purchased from the Australian Council for Education Research. The list was stratified by metropolitan and regional location prior to sampling and only those schools located in greater Melbourne or within 120 km of two major regional centres were included in each sampling frame.

Principals of all selected schools were mailed a letter describing the study and invited (a) to provide consent for the school to participate in the study and (b) to nominate a Health or PE Coordinator or alternative member of staff most familiar with the school's sun protection practices to participate in the study (one representative per school, henceforth: staff representatives). To facilitate participation, schools were offered reimbursement of costs for a relief teacher. Project staff recontacted the selected schools that did not respond to the initial invitation by email and by phone. Up to three follow-up phone calls were made to ascertain the school's interest in further information, after which point the invitation was considered declined. After receipt of the principal's written consent, nominated staff were emailed study information and invited to provide their personal written consent to take part. The study information provided details about the aims and methods and notified participants that no school or teacher would be identified in any report or publication arising from the study.

The participation rate in the focus groups was low (4 of 18 among contacts schools; 14 of 153 randomly selected schools). School representatives that declined the invitation to take part commonly provided feedback that competing demands in November/March prevented them from attending the face-to-face discussion.

Focus group discussions were semi-structured. The discussion guide was structured to address key research questions in line with recommended practice<sup>17</sup> and refined following piloting with colleagues with a background in teaching. The discussion guide included questions about experiences and ideas regarding: (a) the implementation of sun protection policies and practices, including on what works well and what does not; (b) strategies to promote sun protection; (c) feedback on SunSmart's programs and resources for secondary schools (where familiar); and (d) ideas on how SunSmart could better engage secondary schools. Feedback on specific SunSmart programs, resources and engagement strategies are not considered further in this publication.

Each 90-minute discussion was conducted by a facilitator with previous experience in qualitative research (AN). Notes were taken by an observer of each discussion (JH, SunSmart Youth and Advocacy Coordinator). Each session was audio-recorded and transcribed.

## 2.2 | Analysis

A contextualist thematic analysis was applied to include experiences, meanings and realities of participants and their reflections on the school and social environment.<sup>18</sup> A semantic approach was used to identify and code themes relevant to each research question: (a) barriers and enablers of sun protection policies and actions in the secondary school setting and (b) strategies to promote sun protection in the secondary school setting.

Barriers and enablers were categorised as:

1. Regulatory influences: factors determined by the Department of Education or required by law;
2. Socio-cultural influences: factors associated with the secondary school environment;
3. Organisational influences: factors that are context-dependent and vary from school-to-school;
4. Individual influences: factors that vary between students or between staff, such as attitudes, beliefs and personal preferences

Findings on strategies to promote sun protection encompass reflections on strategies that have been successfully implemented as well as those perceived to offer the most potential for success, as these views were frequently intertwined during the group discussion.

The primary analyst (AN) used the program N-Vivo 11 to code the verbatim transcripts. Recurrent ("key") themes were discussed and agreed upon with a secondary analyst (JH), who has extensive experience within the secondary school setting. This process helped to reach a shared understanding of experiences discussed by participants. Between-group differences in key themes were identified where prominent.

## 2.3 | Ethics

Following review of the project proposal, protocol and materials including approach to participants and confidentiality of data collected, the study was ratified by Cancer Council Victoria's Institutional Review Committee (a low risk ethics committee) as having negligible risk to participants and thus exempt from further ethical review. The project proposal, protocol and materials were also reviewed and approved by the Department of Education and Early Childhood Development, Catholic Education Melbourne and regional Catholic Diocese (Sandhurst, Ballarat and Sale) prior to commencement of the study. The peak body for the independent school sector "Independent Schools Victoria" was also consulted.

**TABLE 1** Characteristics of focus groups, participating schools and staff representatives

Group	School characteristics					Participant characteristics	
	Known contact	Education sector	School type	Co-ed status	Location	Role	Notation
1	Yes	Government	Secondary	Co-ed	Metro	School nurse	F1_A
	Yes	Independent	P-12	Girls	Metro	Health/PE	F2_A
	Yes	Government	Secondary	Co-ed	Metro	School nurse	F3_A
	Yes	Catholic	Secondary	Co-ed	Metro	PE	M1_A
2	No	Catholic	Secondary	Co-ed	Metro	Health/PE	M2_B
	No	Government	Specialist 10-12	Co-ed	Metro	Health/PE	F8_B
	No	Government	Specialist Development School	Co-ed	Metro	Health/PE	M3_B
3	No	Independent	P-10	Co-ed	Regional	Health	F4_C
	No	Government	P-12	Co-ed	Regional	Health/PE	F5_C
	No	Government	Secondary	Co-ed	Regional	PE	F6_C
	No	Government	Middle 7-10	Co-ed	Regional	School nurse	F7_C
4	No	Independent	P-12	Girls	Metro	Outdoor education	M4_D
	No	Government	Specialist	Co-ed	Metro	PE	F9_D
	No	Independent	P-12	Boys	Metro	PE	M5_D
5	No	Independent	P-12	Co-ed	Regional	Health/Welfare	M6_E
	No	Government	P-12	Co-ed	Regional	School nurse	F10_E
	No	Independent	P-12	Co-ed	Regional	Health/PE	M7_E
	No	Government	Secondary	Co-ed	Regional	School nurse	F11_E

Abbreviations: P, prep; Co-ed, co-educational; Metro, metropolitan; PE, Physical Education; M, male; F, female.

## 2.4 | Results

Although the study planned to recruit 6-10 participants per group, only three-four took part in each of the five group discussions ( $n = 18$  total). A summary of school characteristics is presented in Table 1; participating schools varied by education sector; school type; co-educational status; remoteness; and recent contact with SunSmart via the professional development program for staff ("known contact"). Staff representatives included male ( $n = 7$ ) and female ( $n = 11$ ) staff who were Health and PE coordinators ( $n = 12$ ), school nurses ( $n = 5$ ), or other health and welfare staff ( $n = 1$ ).

The absence of clear and regulated standards for skin cancer prevention in this setting was recognised as an important barrier to best practice. However, most discussion focused on the socio-cultural characteristics of secondary schools. These characteristics determined the strategies that staff representatives perceived to offer the most promise to increase sun protection behaviours in this setting. Whilst the socio-cultural characteristics were common to schools that participated in the study, organisational influences were dependent on school leadership. As individual influences were not prominent, these factors will not be discussed further.

## 2.5 | Regulatory influences

### 2.5.1 | Recognising UV radiation as a health and well-being risk (duty of care)

In general, staff representatives felt UV radiation was not broadly accepted as a health and well-being risk or hazard in the secondary school setting. Framing UV exposure as a duty of care was perceived to be an effective lever, as it held all staff accountable for ensuring that secondary schools take appropriate action to protect students from UV exposure and harm. It also helped to clarify obligations and responsibilities for all staff.

...until someone else says, "This is part of your job, you're accountable to it", it's one of the things that get pushed to the side. (M6\_E)

I hate to put it this way, but it gets staff worried that if I don't comply with this ...I'm up the creek without a paddle. (M4\_D)

Some reflected that risk assessments for UV exposure were routinely conducted when planning specific events, such as camps, excursions and sports days. However, the same scrutiny was not applied to UV exposure during day-to-day activities outdoors.

We have to do a risk assessment for any kind of sporting event and part of that will be sun protection. We're generally pretty good at doing that...it's probably more the week-to-week or general day-to-day... (M2\_B)

### 2.5.2 | Regulating sun protection policy, staff training and shade

The introduction of mandatory standards for sun protection (ie through regulations established by the Department of Education) were perceived to ensure that practices occur as a matter of course. Specifically, participants perceived that sun protection practices would be improved through regulation of sun protection policies, staff training on skin cancer prevention and the inclusion of shade in new builds.

Participants frequently drew parallels to mandated training for asthma and anaphylaxis. Although the emergency nature of the response was noted to differ, with best practice response in asthma and anaphylaxis having an immediately evident impact, unlike best practice in skin cancer prevention, the training requirements were perceived to reinforce the school's duty of care to prevent adverse outcomes in each circumstance.

...it's not enough to say, "We've got competing priorities" because if we don't do that around anaphylaxis, we don't do it around mental health now, we don't do it around bullying, they're things that are just accepted to be responsibilities that schools have. (M6\_E)

But possibly because I guess with asthma you're looking at something that can potentially have quick and devastating effects whereas you don't see that necessarily with SunSmart...but I think it should be done in a similar kind of model. (F7\_C)

## 2.6 | Socio-cultural influences

### 2.6.1 | The transition from primary school

Participants consistently agreed that the role and expectations of teachers change from one of nurturing and protecting students in the primary school environment to fostering independence in the secondary school environment. Prompting students to protect their skin was perceived to be a nagging, futile approach.

I can see that a more compliance based framework would be less easy and palatable by our senior campus than what it is at our junior campus. (M6\_E)

It can't be just so-and-so teacher keeps telling me to put a hat on, that's not, probably not going to work and it's not very pleasant for the teachers either. (F4\_C)

Rather, groups discussed the importance of equipping students with the skills to make informed decisions about when sun protection is required.

How do you expose them to learning situations that enable them to make better choices? (M3\_B)

It's not about someone telling them always they have to wear sunscreen and always just having sunscreen, that there's a purpose to it and that they can take control of it... (F7\_C)

Some groups perceived that, in contrast to the early childhood and primary school setting, parents regard their adolescent children as responsible for their own sun protection behaviour. The perceived absence of concern from parents was seen to reduce the urgency to act on sun protection in this setting.

It doesn't seem to be such a big issue at high school. At a primary level you look for that as a parent, to make sure that they're aware...I don't know why suddenly it becomes not important as your kids get older. I think it's relevant but I just think that there's just not a focus on it. (F8\_B)

I think that if you asked your average senior school parent at our school they'd say if we were a SunSmart membership school: "That's fantastic, but what are you doing for my child in the classroom?" (M7\_E)

## 2.6.2 | The influence of peer norms

Groups discussed the influence of self-consciousness and a growing desire among adolescents to meet peer expectations, particularly in the middle years. Students' growing awareness of their self-image was perceived to affect uniform compliance, hat wearing and the desire to have tanned skin, particularly among female students.

The girls especially want to be tanned and they think by not putting sunscreen on that they're going to get tanned. (F6\_C)

... We have no problems with the Year Sevens in regards to SunSmart, which is fantastic, but it's...less cool as you go through the senior schools to follow the procedures and guidelines that are laid out for them. (M1\_A)

As they get older there's certainly an image issue that if I put sunscreen on I don't get a tan when the sun is out. (M2\_B)

## 2.6.3 | Competing health and well-being demands

All groups identified limited time for lessons on UV and skin cancer prevention as an important barrier to educating students on this topic.

...it's difficult to get somewhere to put SunSmart classes in. (F3\_A)

The secondary school curriculum was perceived to be forever expanding to include new and emerging priorities, which had to be accommodated into an already crowded health and well-being agenda. In this context, UV and skin cancer prevention were perceived to be a lower priority relative to other health and well-being lesson demands.

Well with the new Victorian curriculum, a third of the Victorian curriculum is all about health, it's all about self-esteem and sex and all that type of stuff... (M5\_D)

...maybe the adults feel as if it's stuff we know... it's so simple and practical, why do we have to teach it? (F4\_C)

## 2.6.4 | Risk-aversity

Concerns about risk were raised in all group discussions. Participants expressed concerns related to sunscreen; participants worried that a commitment to supply sunscreen would hold them accountable if the sunscreen ran out or expired before it had been replaced, if a student had an allergic reaction to the sunscreen, or if ingredients in the sunscreen supplied by the school were later found to cause harm. A conversation in one group canvassed several of these concerns:

If we say we're going to provide sunscreen to a student or students and a student gets sunburnt, parents go: "Well how did that happen? You're meant to give sunscreen"; I think it's very murky. (M3\_B)

And if nanoparticles became an issue ...that becomes a legal issue. (M2\_B)

Yeah, so while in practice we've got sunscreens, especially for PE, and we say at the start of a class "Hey guys anyone want sunscreen? If you're not allergic come and grab it" ....But because of those legal reasons, I don't think they'd ever put it in the policy that we will supply it. (M3\_B)

I imagine that would be an issue in most schools. I think most schools wouldn't want to take that risk. (F8\_B)

Some participants also expressed concerns that sunscreen available from stations around the school would be misused or abused; however, this concern was acknowledged to be context-dependent.

If it was at my old school, I'd say it would never work there - because it would just simply get vandalised and misused quite quickly. Current school,

completely different, having those pump stations wouldn't be an issue at all...it's a cost versus risk basically. (M4\_D)

## 2.7 | Organisational influences

### 2.7.1 | The importance of support from the top

The importance of leadership was identified in each of the five focus groups, which were unanimous in their agreement on the importance of "support from the top." Many of the schools that reported having a comprehensive and effectively implemented sun protection policy acknowledged that support from the principal or school executive was an important facilitator.

With ours it's just the support from the top. Especially at lunchtimes...Every kid has a hat on now, because this year the Deputy Headmaster's said, "This must be happening". (M5\_D)

I think the Principal is quite emphatic about enforcing it, I think it comes from the Principal. She reminds the staff quite often at briefing, "Don't forget to wear your hats, don't forget to wear your hats," and will point out if somebody's not wearing a hat. (F3\_A)

Support from principals was also perceived as critical to the allocation of adequate resources, to support grants or funding applications, and to prompt role modelling and policy implementation among staff.

I can implement "right let's role model, let's get all the PE staff wearing a hat and sunglasses, let's offer sunscreen and make sure all our PE classes have got hats on". I can control those things but I can't control the budget and whether or not they'll build a shaded area. (M2\_B)

I definitely think, over my time in trying to do SunSmart promotion, that I feel as if there needs to be a leading teacher or someone on the Principal group making it their mission to continually have the messages out there, reminding staff of their role modelling and their capacity to make a difference and be seeing it as a priority. (F7\_C)

Without the backing of the principal or school executive, trying to champion change was perceived to be an uphill battle that was vulnerable to set-backs.

Things have been going the same way so long, I came in and wanted to change some stuff and it was very, very hard. (M5\_D)

Because until the school executive says, "No, this is a priority and we're basically going to support and endorse the work that the person does", then I reckon you've got the chance that you've just got a frustrated person who believes in the principle but doesn't get any traction in terms of the structural changes that need to occur. (M6\_E)

### 2.7.2 | The importance of support and consistency among staff

It was common for groups to discuss the importance of consistent expectations and actions. This was sometimes expressed as a "whole of school" or "united" approach. The whole-of-school approach was particularly relevant to the implementation of written policies and guidelines. In addition to creating clear expectations among students, the whole-of-school approach also created an environment in which sun protection was perceived to be a school priority.

So it's consistency through staff members I think is the key in our school. (M5\_D)

...it really needs to be the whole school approach, not just the PE staff approach. (M1\_A)

Similarly, the transition to secondary school was perceived to be an opportunity to maintain consistent enforcement of sun protection. For schools with students from Prep to Year 12, a whole-of-school approach could mean that sun protection just continued through to Year 7 onwards as a matter of course.

I don't feel it's a challenge...I think they're just used to it and because it's a Prep to 12 school, they've been doing it since they were in Grade Prep so it's not really anything different for them. (F5\_C)

## 2.8 | Strategies to improve sun protection

Participants suggested several social and environmental interventions to improve skin cancer prevention in secondary schools. These strategies included interventions that were *known* to be effective, such as shade implementation, as well as approaches that were *considered* to offer the most potential to be effective in this setting.

### 2.8.1 | Shade implementation

Shade was perceived by participants to be an appealing and popular method of reducing UV exposure among secondary school students.

I find if I was to give a secondary student an option about what they would choose to protect themselves,

they're unlikely to use sunscreen, they're unlikely to put a hat on, but they more often than not will seek shade. (F7\_C)

However, resources to increase available shade were noted to be context-dependent. Well-resourced schools were in a better position to lobby for increased shade.

I have drawn this policy up each time and each time I do mention shade...of course with that comes cost, budgets...funding for shading is an issue. (M2\_B)

We're really fortunate I suppose to be in a really good financial position at the moment. There seems to be a shade going up every year... (M7\_E)

### 2.8.2 | Leveraging from student leaders

Participants expressed support for programs that encourage older students to lead by example, by role modelling sun protection practices, developing their own skin cancer prevention initiatives for the school or contributing to the development of sun protection policies within the school. By taking ownership of these solutions, students could be enabled to voice their opinion, shape the program's implementation and leave a legacy within the school.

...I think we need to involve our students in some of these discussions because they're often an underutilised resource. (F2\_A)

Our leadership program really revolves around students leading the students...the kids seem to respond so much more effectively than when we as teachers do it. (M5\_D)

I think if you put to senior school leaders that part of the legacy that they left behind was to actually implement some real change in an area that had significant health implications for our student population...I reckon that's a great project for student leaders to have responsibility for. (M6\_E)

### 2.8.3 | Normalising sun protective clothing and practices

Staff representatives perceived that most students would follow the behaviour of the majority. It followed that strategies that normalise sun protective clothing or practices were seen to be most effective in this setting.

That's where you see the change of the masses don't you when the majority are doing it and then there's

the less of the ones that aren't going to challenge it as much... (F4\_C)

... If the majority are doing it then they might do it, but if the minority are doing it then it's not cool. (M5\_D)

A compulsory uniform could help to normalise sun protection, if it provided adequate protection. Peer leaders and peer role modelling could also help to change sun protection norms.

When it's a choice, image and everything comes into it...If everyone else has got a hat on it does make a difference. (F8\_B)

If you've got your older students doing it it's very much easier to just say: "Have a look at what's going on around you, let's do the same" and there'll be a degree with which you'll get a bit of cooperation with that. (M3\_B)

### 2.8.4 | Role modelling among staff: leading by example

The influence of student leaders was perceived to have the greatest potential to change social norms and behaviours. However, some groups commented that the authority of staff to enforce the school's sun protection policy was undermined if they did not adhere to the requirements themselves.

If a staff member doesn't have their hat on and they're trying to tell the kids to put their hat on the student will just turn around and say, "Well where's your hat?" and that sort of solves that problem. (F5\_C)

Yeah, it's quite contradictory if you're doing that. But it's not something which I guess is enforced by anyone really because it doesn't really come under anyone's responsibility. (M4\_D)

Role modelling by staff was perceived to be an appropriate and valuable means of reinforcing the importance of sun protection.

What is evident though is a lot more are doing it just because they know that's appropriate. (M4\_D)

## 3 | DISCUSSION

In this study, staff representatives have identified several barriers to and enablers of sun protection within secondary schools in Victoria. Consistent with factors identified in health promotion



literature,<sup>19–21</sup> we identified a distinct absence of structural support (ie through regulation and standards), pressure to meet other health and well-being priorities, a staff culture in which support for the implementation of sun protection policies and practices varies from school to school; and a student body that is heavily influenced by peer norms as important barriers to sun protection practices in Victorian secondary schools. Without regulatory support, strong leadership is required to implement and enforce sun protection practices within schools.

The inconsistent recognition that UV exposure is a health and safety responsibility is somewhat at odds with workplace settings, where the Occupational Health and Safety Act (2004) requires employers to protect staff who work outdoors from UV radiation. In the education sector, the State Government of Victoria advises secondary schools to: support staff and students to use a combination of sun protection measures when UV index levels are 3 or above; allow sun exposure when UV levels are below 3; develop and implement policy and procedures promoting sun-safe practices in consultation with students, staff and parents; and review/update policy at least once every 3 years.<sup>22</sup> Based on these discussions, the School Policy Advisory Guide does not appear to be sufficient to facilitate adequate sun protection policy and practice among secondary schools. The advisory guide was not mentioned by these staff representatives, all of whom were advocates for health and well-being within their schools. A regulatory approach that mandates these actions may be required for secondary school leaders and staff to accept UV exposure as a school responsibility. Our findings suggest there is some support for this among staff who are responsible for skin cancer prevention within their schools. However, we did not explore barriers and enablers in the broader school community.

Other strategies are required in the absence of regulatory standards that protect secondary students from UV radiation whilst at school. In particular, teachers who participated in this study have identified a number of strategies that have the potential to counter or circumvent perceptions about what is desirable and fashionable among peers, which has been identified as an important barrier to sun protection use among Australian adolescents.<sup>10,12–14</sup> First, shade was broadly acceptable and desirable within secondary school communities. This is consistent with findings from a randomised controlled trial of built shade in secondary schools, which found that students' use of outdoor spaces increased (relative to unshaded control schools) after shade was introduced.<sup>23</sup> Second, these results suggest that well-implemented sun protective policies and uniforms can tackle peer norms by establishing skin cancer prevention behaviours among the majority of students. However, effective enforcement of these policies and uniforms using a whole-of-school approach (including role modelling by staff) is critical to their success.<sup>21</sup> Past research provides support for educational interventions that directly address normative influences and motivators of sun protection among adolescents, such as skin tone and image desirability.<sup>24–26</sup> Involving

students in the development of skin cancer prevention education and other strategies presents an opportunity for student ownership of skin cancer prevention initiatives within their school, so that they become integral to the solution.<sup>21</sup> For example, previous research has found that peer education has the potential to increase sun protection behaviours among adolescents.<sup>27</sup> Here, participants identified policy development and targeted projects such as student-led projects and grant applications as other avenues for leadership. Finally, role modelling by senior students and/or student leaders was perceived to have the potential to "change the behaviour of the masses."

There are a number of limitations to this study. In particular, stretched staff time and resources affected study participation and resulted in a smaller sample size than planned. However, despite difficulties recruiting participants, those who took part in the discussions and interviews represented a broad range of schools, including those from each education sector, metropolitan and regional areas and (most importantly) from schools with a range of current sun protection policies and actions, among which experiences are likely to vary. This helped to ensure that a broad range of ideas were represented in the study. Although it might be expected for participating schools to prioritise skin cancer prevention more than those that declined or did not respond to the focus group invitation, staff representatives reported varied practices and levels of school support. Nonetheless, the views and experiences of these participants are not representative of all staff, as the study participants were all influencers of student health and well-being. Other barriers and enablers to sun protection may have been identified by a broader cross-section of secondary school staff. It is unlikely that saturation was reached, given the small sample size. However, new ideas and experiences were less common in the final group. It is important to note that experiences in other States and Territories may differ due to climatic and contextual differences.

Our research identifies strategies that our staff representatives *believed* would be effective for improving secondary school students' sun protection behaviours, based on their personal experiences. At present there is little evidence of what works to improve sun protection in this setting,<sup>8</sup> and it is important to continue to implement strategies and build research knowledge.

Previous research has provided valuable information on the perspectives and preferences of adolescents.<sup>10,12–14,26</sup> This study contributes new insight to the implementation of school policies and programs that target adolescents. We involved Health and PE staff (or others most familiar with the school's sun protection practices), as we anticipated that these staff members were best able to discuss the barriers and enablers to sun protection policies and actions within their schools. Given the important role of school leaders, seeking feedback from school principals would be a valuable extension of this study. The implementation and evaluation of student-led programs would also be a useful next step.



## 4 | CONCLUSIONS AND IMPLICATIONS

Sun protection is not consistently recognised as a duty of care for secondary schools in Victoria. In the absence of regulatory standards that protect secondary students from UV radiation whilst at school, commitment and leadership from school principals and/or the school executive is necessary to achieve a culture that supports sun protection among students and staff. In particular, staff need to be supported to recognise and act on the implementation and enforcement of sun protection policies and practices. This study identified a number of pragmatic, acceptable approaches, including student-led initiatives, staff and student role modelling initiatives, and increasing shade available for active and passive recreation.

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### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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