Legally brown: using ethnographic methods to understand sun protection attitudes and behaviours among young Australians ‘I didn’t mean to get burnt—it just happened!’

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Abstract

Sun protection is not commonly perceived as an important issue by adolescents yet this behaviour would, if adopted, confer significant lifelong protection against skin cancer. Despite the world’s highest skin cancer rates, Australia remains a culture which values sun seeking, tanning and outdoor activities. This qualitative study used ethnographic methods to produce insights into sun protection behaviours and attitudes of Australian adolescents aged 15 and 16 years. Applying the Theory of Planned Behaviour to the analysis, the study involving 51 adolescents revealed the complexity of the factors that influence sun protection behaviours, such as peers, lifestyle, environments, social norms and fashion. Sun protection was imbued with associations of negativity, dullness and irritation which was dissonant with adolescents’ buoyant, dynamic and ‘fun filled’ experience of the sun. Key barriers to sun protection were found to stem from the perceived impact of sun protection behaviour on the peer dynamic, negative perceptions around what sun protection communicates about the user, the tone of existing sun protection communications and the spontaneous unplanned nature of the adolescent lifestyle. The paper concludes by discussing the implications for health promotion with this hard to reach group.

Introduction

Skin cancer is the most common cancer in countries with fair-skinned populations and extreme exposure to ultraviolet radiation (UV) [1]. Australia has one of the highest rates of skin cancer in the world [2]. Each year, approximately 9500 people are diagnosed with melanoma [3] and nearly half a million are diagnosed with non-melanoma skin cancer (NMSC) [4]. Approximately two-thirds of Australians will be diagnosed with at least one NMSC before the age of 70 years [4].

Australia’s high rates of skin cancer are due to a number of factors, particularly the very high levels of UV radiation year-round in most parts of Australia [5]. Further, Australia’s cultural norms and outdoor lifestyle mean that tanned skin is associated with health, attractiveness and beach culture [6]. Previously associated with the working class, a tan became a sign of wealth and mobility in the 1920s. Today, the ‘sun-bronzed Aussie’ enjoying the outdoor lifestyle symbolizes a distinctive part of being Australian [7]. Media outlets present mixed messages in relation to sun exposure by reinforcing the desirability of a tan through the use of tanned models in fashion magazines, while mass media campaigns have played an important positive part since the early 1980s in raising awareness about the risk of skin cancer and dangers of sun exposure [6].

This socio-cultural context presents an ongoing challenge for health promotion and skin cancer prevention in Australia. Exposure to UV radiation
during childhood and adolescence is a critical factor in developing skin cancer of any type later in life [8]. Four out of five skin cancers can be prevented by minimizing exposure to UV radiation, especially by practising sun protection and avoiding sunburn [9]. Despite skin cancer being preventable, Australian adolescents continue to demonstrate the highest risk behaviours in terms of spending long periods of time in the sun, high rates of sunburn and positive views about suntans [8, 10]. They generally adopt sun protection behaviours less than adults [10]. Typically, sun protection behaviour begins to decline in pre-adolescence, reaches its lowest level around 15–17 years of age and then improves only as adolescents move into adulthood [11–13].

Research has shown that adolescent sun protection behaviour is not completely attributable to lack of knowledge or awareness [6, 14, 15]. Young people in Australia demonstrate good knowledge about how and why they should protect themselves [16]. Indeed, over 80% of adolescents know about issues related to skin cancer prevention, frequency of burning and the possibility of burning even on cloudy days [8]. In investigating the reasons for this gap between knowledge and behaviour, it is critical to acknowledge that adolescence is a time of significant life changes; social time with peers becomes more frequent and important and adult guidance is reduced while independence increases and interactions with the opposite sex increase [17].

While a number of theories can be useful in exploring the relationship between sun protection and behaviour in adolescents, the Theory of Planned Behaviour is especially attractive [18]. In the Theory of Planned Behaviour, behaviour is determined by intentions and perceptions of behavioural control. As exhibited in Fig. 1, three factors influence intention: attitudes to the behaviour, subjective norms and perceived behavioural control. Perceived behavioural control can also directly influence behaviour. Attitudes towards the behaviour indicate an individual’s positive or negative feelings towards the behaviour. Subjective norms are the perceived social pressure to engage or not to engage in the behaviour. Perceived behavioural control refers to people’s perceptions of their ability to perform a given behaviour. Intention is an indication of a person’s readiness to perform a given behaviour. In the Theory, behaviour is a function of intentions and perceptions of behavioural control [18].

The purpose of this study was to explore what was understood about influences on adolescents’ sun protection behaviour and dissect the true complexity of these factors. Using ethnographic methods, this qualitative study examined teenagers’ attitudes, subjective norms and contexts influencing sun protection behaviour. It specifically sought to answer questions about how the increased independence of adolescence and peer dynamics influenced sun protection behaviours and their perceptions of related issues such as tanning, burning, skin colour and the role the sun plays in their lives. Lastly, it explores adolescents’ perceptions of existing and potential sun protection campaign themes to identify possible directions for future campaigns.

**Methods**

Two stages of qualitative research were undertaken: first, ‘ethnography’ with natural cohorts of same gender ‘friendship groups’ before which participants completed a pre-research day collage task and second, ‘facilitated discussion’ within these friendship groups. This combination of qualitative methods was selected to create a range of opportunities to observe and produce a multi-dimensional representation of sun protection behaviour and its explanatory factors.

The Consolidated Criteria for Reporting Qualitative Research framework has been used to report on the findings [19]. This framework specifically considers information about the research team (personal characteristics and relationship with participants), study design (theoretical framework, participant selection, setting and data collection) and analysis and findings (data analysis and reporting) which are reported below.

**Participants**

The study sample consisted of nine friendship groups of four to six adolescents each ($n = 51$). A
research recruitment agency recruited participants from an existing database. Database contacts are sourced by advertising, word of mouth and a 'snowballing' technique where existing database contacts recruit future contacts from among their acquaintances. Adolescents commencing Year 10 in 2008 (aged 15 and 16 years) were recruited from the database by telephone to participate in the study. Recruiters firstly recruited a ‘lead’ respondent of a ‘friendship group’, who then was asked to recruit three to five same-age friends. Males were deliberately oversampled due to this group being traditionally more likely to value risk taking, spending greater amounts of time outdoors and being less likely than females to wear sunscreen, use sunglasses and shade [10, 20]. Participants were chosen from metropolitan, coastal and regional areas in New South Wales, namely Sydney (31%), Coffs Harbour (35%) and Dubbo (33%) (herein referred to as Regions 1, 2 and 3, respectively).

Procedure

Recruitment and eligibility criteria

Verbal consent of all adolescents and at least one parent or guardian for each was obtained by recruiters over the telephone during the recruitment process. Brief written information about the study was also sent to each parent by email prior to the research. Parental email addresses were sourced from the recruitment agency database. During recruitment, participants were informed that the research was exploring what it was like to be an Australian teenager in their town during summer. Further details of the study aims were revealed to participants in Stage 2 of the study. The recruitment process also required students to complete a brief questionnaire comprising a range of behavioural, attitudinal and biometric questions. The study was conducted during Australian summer school holidays (January 2008). Participants were reimbursed a modest payment and gift vouchers for their time.

The study was conducted over two stages and was purposefully designed to elicit and progressively build different perspectives and types of information.

Stage 1 (individual tasks and in situ observations)

Once participants were recruited, they were contacted by telephone by the researchers to explain the pre-task and begin the rapport building process. Eligible consenting participants were required to complete an individual pre-task in their homes. They were asked to ‘Create a collage that expresses what summer is like for you in your town. Be as creative, colourful or crafty as you like’. There were
no limits or constraints given to participants. Collages are designed to explore a theme (perceptions about the kinds of person who engages in the behaviour of interest), mood (the association between the behaviour of interest and an emotional feeling) and occasion (the kind of occasion in which the behaviour fits best). Collages, an arts informed research method, were used by Japanese artists over 1000 years ago to enhance their poetry and in the 1900s by Picasso and Braque to make art more accessible and question political agendas. Collages have been used in the art world as a way of thinking, knowing and communicating and are increasingly recognized by qualitative researchers as useful visual interpretive tools that reveal meaning, insight, unconscious thoughts and new understandings that words cannot communicate as vividly. They are also valued for allowing the researcher to work in an intuitive and non-linear way [21].

Next, each friendship group gathered at a predetermined venue and the researchers spent 3 hours outdoors during the day ‘hanging out’ with each friendship group. Groups were segregated by gender. As age and gender of the researcher have the potential to either inhibit or encourage openness within the group dynamic, researchers with a youthful appearance and of the same gender as the group were used to ensure they would build rapport, trust and blend in so as not to distort the natural behaviour or flow of the group [22, 23]. This non-intrusive activity was designed to observe natural outdoor behaviour and explore attitudes to contextual themes in relation to sun protection. Researchers participated in activities and areas were chosen by the participants, including time in a non-aquatic outdoor environment. From time to time, other people in the vicinity were identified by the researcher to the group to stimulate conversation about sun protection. Friendship groups were videotaped and photographed by R.E. and A.W.

Stage 2 (home-based discussion groups)
Friendship groups and researchers next gathered at one of the participants’ homes to engage in group discussions for approximately 2 hours. Only participants and researchers were present in the home. The purpose of the home-based discussion was to discuss the collages, question the adolescents’ behaviours and attitudes noted earlier in the day and to identify triggers that inform future approaches to skin cancer prevention. A range of techniques, visual materials and discussion prompts such as vignettes and scenarios were used to stimulate discussion as further detailed in Table I. Figure 2 gives an example of visual material given to participants. Sun protection campaign themes were also discussed, using examples of existing and proposed campaign concepts, ranging from traditional to humorous style campaigns. These home-based group discussions were audiotaped and field notes were completed by the researchers at the end of each discussion. Figure 3 describes the flow of the qualitative study methods.

Throughout the research process, significant efforts were made to minimize the researchers’ impact on the group dynamic and develop a trusting relationship with participants. The researcher’s ability to assimilate and be accepted by the group was evident when they were included in conversations about the participant’s personal lives, such as sexual experiences and family issues. After the research, the participants invited the researchers to join their friendship group on social networking site ‘Face Book’.

Analysis
Individual collages were used to explore and understand participants’ summer behaviour and attitudes, including the latent behaviours and attitudes depicted by participants in pictures and words that they may not otherwise articulate verbally [23]. Semiotic techniques were used to analyse the collages for underlying themes, revealing the deeper cultural meaning and symbology of the pictures beyond the verbal description by participants [24]. This involved discussion by researchers of the various images and visual elements included in each collage, with a focus on the perceived interpretation and meaning behind the images. The themes for each collage were recorded and then grouped into
### Table I. Examples of discussion prompts used in Stage 2

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
<th>Examples of discussion questions</th>
</tr>
</thead>
</table>
| Collage Show and Tell           | Opportunity for participants to describe and explain the pictures included in their collage. | • Can you tell us about your collages?  
• What is this picture about?  
• Who is that person?  
• We’re now going to play a game of associations, when I say sun what does that mean to you?  
• What is the most important thing you get from the sun?  
• What makes this important?  
• Complete this sentence ‘If I couldn’t go out in the sunshine all summer, I would feel …’  
• Can you add some images and words to your collages that represent what the sun means to you? |
| The Sunny Side of Life          | A ‘game of association’ was used to prompt feelings and attitudes in relation to the sun. | • How do you think they would feel when they are tanned/pale?  
• How do others see them when they are tanned/pale?  
• Who do you think the ‘others’ would be?  
• When I say sun protection, what does that mean to you?  
• What is the most important benefit you get from sun protection?  
• What is the least appealing thing?  
• Who felt they followed some kind of sun protection behaviour today?  
• Who thought about it? When and what type?  
• What triggered these thoughts?  
• What prevented you from using it?  
• Did anyone’s presence make a difference and why? |
| Mirror Mirror                   | Using images of gender-specific characters as stimulus, participants were asked to discuss how the character may feel when they see their reflection in the mirror and see a pale and tanned version of themselves. | • How would the sunburnt person be feeling?  
• What is the tipping point?  
• When is being tanned/burnt too much?  
• What would the others in the group think of them?  
• Is there any sense of repercussions from their actions? |
| The Sun Protection Way          | A ‘game of association’ was again used to prompt feelings and attitudes in relation to sun protection. Observations from earlier in the day would then be discussed. | • What are these teenagers doing at the festival and who are they hanging out with?  
• What would they be wearing?  
• What kind of person are they?  
• Would you hang out with them?  
• Are they showing any types of risky behaviour?  
• Can you think of a character in a movie or on television that is close to the person you described?  
• Which sun protection methods would they use? Why? |
| The Big Day Out                  | Participants were presented with five vignettes and asked to comment on them individually. The five vignettes were based on adolescents each exhibiting various sun protection behaviours at a music festival, ranging from those that vigilantly protect themselves to those with deliberate tan seeking behaviour. The scenario is explained and participants are asked to create the remainder of the storyline. | • How would the sunburnt person be feeling?  
• What is the tipping point?  
• When is being tanned/burnt too much?  
• What would the others in the group think of them?  
• Is there any sense of repercussions from their actions? |
| The Red One Out                  | The groups were provided with a picture of a sunburnt looking person in among a group of peers. Participants are asked to write down what the burnt person would be thinking and what the others would be thinking of them. This exercise was repeated with a picture of a deeply tanned person. Participants were then asked to discuss their responses. | • How would the sunburnt person be feeling?  
• What is the tipping point?  
• When is being tanned/burnt too much?  
• What would the others in the group think of them?  
• Is there any sense of repercussions from their actions? |
common themes. Figure 4 gives two examples of the collages produced.

All video and audio footage, field notes and photographs from both stages were reviewed and analysed individually by the researchers for the discourses, emotional associations and beliefs. The focus of this analysis was upon the language and phrases used and themes of anecdotes imparted in relation to sun protection and other contextual themes. Researchers discussed and compared their individual results, analyses and differences observed throughout the research stages. Agreement was sought between researchers about the content and perceived interpretation and meanings [23].

Categorization of results

The Theory of Planned Behaviour was used as a framework for regrouping, interpreting and understanding the qualitative data and findings of the researchers. Participants’ responses were first reclassified as either sun protection ‘enablers’ or sun protection ‘barriers’. Sub-classification then mirrored those factors specified in the Theory of Planned Behaviour.

Results

Sample

A total of 35 males and 16 females participated in the nine friendship groups. Six home-based discussion groups of males and three groups of females were conducted. Table II summarizes data obtained from the participants at the beginning of the study.

Sun protection enablers

The sun protection enablers reported by all genders and friendship groups (Table III) are considered in detail below.

Attitudes

Burning

Burning found to be an enabler among some groups, with redness and peeling reported to be
embarrassing and painful. However, this negative consequence was viewed to be short lived and worth the potential delayed benefit of a tan, particularly for males. ‘Yeah, but when you get burnt it turns into a tan anyway.’

Comfort
Avoiding heat, rather than UV radiation, was reported as a motivating factor for using shade. Sunglasses were used for glare protection. Clothing was considered to be a general protection from the elements.

Appearance
Most groups reported that clothing, sunglasses and hats were used to help project an image for fashion reasons, rather than sun protection.

Subjective norms

Parental reminders
All groups reported that directives or reminders by parents were often a prompt for using sun protection. ‘I was mowing the lawn for my mum and she yelled at me to put my hat on.’
Context
All groups raised planned events, as opposed to impromptu activities, as situations where sun protection was consciously practised. Planned events included days at the beach, school excursions or entire days outdoors that were organized and known of in advance.

Perceived behavioural control
All groups demonstrated good awareness of the five sun protection methods [25]. Sunglasses, clothing and shade were not consciously or intuitively linked to sun protection and were used for other reasons. Most groups perceived themselves to have the control to use sunscreen when they remembered to
Table II. Summary of key responses to recruitment questionnaire

<table>
<thead>
<tr>
<th>Sample responses (n = 51)</th>
<th>% of total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hair colour</td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>67</td>
</tr>
<tr>
<td>Blonde</td>
<td>31</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>Eye colour</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>47</td>
</tr>
<tr>
<td>Brown</td>
<td>27</td>
</tr>
<tr>
<td>Hazel</td>
<td>20</td>
</tr>
<tr>
<td>Green</td>
<td>6</td>
</tr>
<tr>
<td>Skin colour</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>41</td>
</tr>
<tr>
<td>Fair</td>
<td>41</td>
</tr>
<tr>
<td>Olive</td>
<td>18</td>
</tr>
<tr>
<td>Dark</td>
<td>0</td>
</tr>
<tr>
<td>Use of sunscreen in summer</td>
<td>100</td>
</tr>
<tr>
<td>Description of sunscreen usage</td>
<td></td>
</tr>
<tr>
<td>I’m very careful with my skin so I always make sure I use sunscreen when I’m outside</td>
<td>2</td>
</tr>
<tr>
<td>I try and wear sunscreen most of the time but I forget</td>
<td>53</td>
</tr>
<tr>
<td>I only wear sunscreen so I don’t get burnt</td>
<td>37</td>
</tr>
<tr>
<td>Most of the time I just couldn’t be bothered using sunscreen</td>
<td>2</td>
</tr>
<tr>
<td>Sunscreen? I never put that stuff on</td>
<td>6</td>
</tr>
<tr>
<td>Intention to tan over summer</td>
<td></td>
</tr>
<tr>
<td>Strongly intend to tan</td>
<td>18</td>
</tr>
<tr>
<td>Intend to tan</td>
<td>4</td>
</tr>
<tr>
<td>Not sure about intending to tan</td>
<td>18</td>
</tr>
<tr>
<td>Don’t intend to tan</td>
<td>5%</td>
</tr>
<tr>
<td>Strongly don’t intend to tan</td>
<td>8</td>
</tr>
</tbody>
</table>

bring it with them on a planned day outdoors ‘I was at an Australia Day BBQ and I felt really hot so I put some sun cream on’.

Sun protection barriers

Table III lists the sun protection barriers that were reported by all genders and friendship groups.

Attitudes

Tanning and skin colour

The desire to tan was noted to be a significant barrier to using sun protection. A tan was deemed important in providing a sense of confidence, achievement, attractiveness and the ability to fit in. A ‘natural’ tan (derived from sun exposure) was described as a by-product and symbolic of enjoyable times outdoors with friends, rather than something actively and consciously sought after. ‘Fake’ tans (derived from a cosmetic tanning product) were generally avoided as they did not deliver the same benefits on an emotional level.

Deliberate tan-seeking behaviour was perceived to be relatively pretentious by most groups. Males, in particular, did not relate to the verb ‘tanning’ and reported a preference for the term ‘getting colour’, perceived as a more natural and unconscious process. ‘No one tries to go out and get tanned, it just happens naturally.’

In contrast, paleness was found to carry negative associations, described by some groups as ‘nerdy’ or ‘geeky’. While there was some acknowledgement that those who avoid getting a tan have a lower chance of developing skin cancer, pale skin was not regarded as a socially desirable colour. ‘Boys won’t look at you if you’re pale.’
The sun
Practicing sun protection was perceived to be dissonant with the positive associations of the sun. Collages showed that the sun elicited a significantly positive emotional response among all groups. It was associated with freedom, mateship, excitement and happiness. Feeling alive, energetic and healthy was noted in relation to the sun. Sun protection practice was regarded as conflicting with the instinctual emotional benefits of the sun and was linked to negative responses, such as caution, guilt, inconvenience, annoyance and dullness. ‘Being out of the sun is being locked in, enclosed, unhealthy … yuck!’

Mortality and risk taking
Males particularly regarded the use of sun protection as acknowledging one’s fallibility and equivalent to conceding that ‘you’re not strong enough to take the sun’. ‘We’re teens—we think we’re immortal!’ ‘It’s like, everyone’s having a good time and you’re there thinking about melanomas!’ This connection with fallibility was found to be linked to mass media messages and campaigns, many of which in Australia associated sun protection with signs and symptoms, surgery and mortality.

Campaign messages
All groups reported that traditional medical style campaigns helped to raise awareness of the negative consequences of sun exposure. However, males in particular reported not relating to or being motivated by authoritative figures. ‘Life’s all about living—and getting stuck in with my mates. All those TV ads are over the top—like I KNOW about the risks …You’ve got to talk our language man—not some old dude lecturing me again.’ In girls, the graphic nature of some campaigns was found to be alienating. Humorous campaigns were found to be entertaining and consistent with the language that adolescents use in their daily lives. However, a lack of serious skin cancer-related undertone in such campaigns was perceived to be patronizing and frivolous.

Subjective norms
Parental reminders
While parental directives were an enabler for use of sun protection, such directives also carried negative associations, such as nagging and pestering. ‘Sun protection? That’s mum at the front door wagging her finger at me definitely!’ ‘I hate it—she’s always in my face about packing suncream … like MUM I’m only going to the oval for an hour or so!’ Later, absence of a reminder from parents was a reason given for not using sun protection.

Peer perceptions
All groups reported that fear of judgement or ridicule from friends is a significant barrier to using sun protection. Some groups believed that sun protective behaviour may be perceived by peers as overly cautious, worrisome or cowardly. ‘I guess some people might think you’re a worry wart! ‘Ooh, the sun—quick put on some sun screen.’’ ‘The shade?! Yes, “excuse me guys, I’m just going to go stand under this tree”!! WEIRDO’. Sun protection was regarded as discordant with their spirit of risk taking and desire to be viewed as independent and autonomous.

Peer dynamic
Fear of separation and disengagement from the peer group dynamic also impeded the use of sun protection practices. The desire to feel included in the social aspect of their activities and avoid feeling isolated limited adolescents’ willingness to practice sun protection. ‘As if I’m going to go and sit in the shade when we’re hanging outside at the plaza, the boys would think I’m a loser.’ ‘If all the chicks are running into the waves, you’re not gonna wait around looking for your sun cream are you!’

Fashion and product attributes
Concern about the impact on appearance was nominated as a reason for not using sun protection. Clothing choices were predominantly driven by fashion trends, rather than sun protection. In most groups, long-sleeved shirts were not considered...
fashionable or practical in hot weather. The greasiness of sunscreen on the skin and the negative effect of hats on hair were also noted as barriers to using sun protection. ‘Have you ever had sunscreen run into your eyes—it KILLS!’ ‘I hate wearing hats—you take it off after an hour and you’ve got hat head.’

**Perceived behavioural control**

**Lifestyle**

Perceptions that sun protection needs to be premeditated and planned constituted a significant barrier. Specifically, the lifestyle of all groups was largely characterized by spontaneity and impulsiveness, rather than planning ahead. ‘Like on a sunny day, you just want to get outside ASAP!’ Sun protection was not often thought of unless prompted and was viewed as a behaviour requiring excessive conscious effort and time. Groups noted that practical reasons such as forgetfulness and inconvenience prevented them from using sun protection, as it was often not considered until they were already in the sun or burning had already occurred. ‘Normally I’m just out. I didn’t mean to get burnt—it just wasn’t something I planned for! To be honest—I don’t really think that far ahead!’

**Discussion**

This study has produced further and important insights that have substantive implications for the development of sun protection programmes and messages for adolescents in the future. Overall, a dark negative sentiment was found to surround perceptions of sun protection in this target group. Adolescents in this study perceived sun protection as ‘a big deal’ and a hassle that gets in the way of the spontaneous, carefree and social lifestyle they desire. Tanning was seen as an inconsequential yet positive by-product of having a good time, and sun protection was perceived to have little relevance in the broader context of other youth concerns such as looking good, fitting in with peers and living life to the full without fear of potential consequences. As discussed in further detail below, adolescents did not necessarily overexpose themselves to the sun deliberately but were very influenced by the environment and situation in which they found themselves.

This study showed that the influence of peer pressure and desire for a tan outweighed the perceived benefits of sun protection, consistent with other research [6, 14, 15]. The sense of pride and confidence that participants reported when having a natural tan was reflective of the larger Australian culture of valuing a tan as a sign of health and attractiveness. To make progress in improving adolescent sun protection practices, it is necessary to denormalize tanning and improve tanning attitudes, rather than focus on increasing knowledge. A Swedish study of 184 adolescents found that a skin cancer educational intervention in schools was effective in improving knowledge [26]. However, the intervention had a limited impact on tanning attitudes and readiness to ‘give up sunbathing’. Working with the fashion and media industries to improve the way that tanned skin and sun protective clothing and behaviour is portrayed has been raised as a potentially more effective strategy to change social norms [8, 10, 27].

This study reinforced the previously documented importance of peer acceptance and fitting in with the group during adolescence [6, 8, 28]. Programmes and messages need to take these contextual factors into account by recognizing the significance of peer behaviour, youth culture and address peers as a group rather than individuals. Messages that have peer relevance, rather than an authoritative tone, have potential to resonate with this group.

This study highlighted the role of parents in facilitating sun protection and developing the normative sun protection behaviour in adolescents. Previous Australian research has found that the most consistent predictor of children’s sun protection was of the parent’s own sun protection behaviour, with children being over nine times more likely to use shade and sunscreen if their parents modelled this behaviour [29]. However, a new finding in this study was that repeated directives from parents were often cited as annoying or irritating,
potentially contributing to negative sun protection attitudes. While parents can play an important role in contributing to sun protection, their effectiveness can be increased by adopting an encouraging and enabling tone that does not alienate adolescents and moves them towards continuing positive sun protective choices in adulthood.

Another interesting finding of the study was the extent to which the lifestyle of adolescents impacted on their perceived behavioural control. The study found that adolescents, by desire and nature, focused on the present time and their actions tended to be unplanned and spontaneous. This is reflected in cognitive-behavioural research that shows that the stage of cognitive development during adolescence means that the ability to plan is less advanced than in adulthood [30]. In contrast, sun protective behaviours were seen to require planning and premeditation and were therefore inconvenient and a ‘hassle’. This study suggests that adolescents do not plan for or consider sun protection until already outdoors, which has implications for the context in which sun protection messages are received. Sun protection messages should be delivered at the time and point of behaviour to have the greatest benefit.

These study findings have clear implications for future initiatives in skin cancer prevention with adolescents. By providing new evidence on how the spontaneous unplanned nature of the adolescent mindset and lifestyle applies in the context of sun protection, we now further understand the importance of enabling adolescents to practice sun protection through supportive environments in which sun protection is accessible and convenient. Providing sun protection at the point of sun exposure when adolescents are already outdoors has the potential to have more impact than expecting young people to individually plan in advance for sun protection. This is particularly important in circumstances where adolescents have little control, such as when shade may be limited during sporting and recreational activities. The importance of environmental strategies is supported by other recent Australian studies. An Australian cluster randomized controlled trial found that environmental change increased students’ use of newly erected shaded areas at schools [31]. An earlier qualitative Australian study [15] using focus group methodology concluded that sun protection policies in youth sporting teams that include the provision of protective clothing and sunscreen were a motivating factor for use of sun protection.

Second, this research provides an important insight about communication messages in skin cancer prevention approaches targeting this group. Participants’ perceptions that sun protection requires conscious planning and premeditation indicates the need to ‘normalize’ sun protective behaviour. Positioning sun protection as a daily habitual behaviour, in a similar vein to regular unconscious behaviours that promote social acceptability and peer acceptance, such as deodorant use and brushing teeth, has potential as a new approach. Sun protection could be framed as a behaviour that fits seamlessly and unconsciously into the spontaneous funfilled lifestyle that adolescents so desire.

Further campaign messages need to consider the tendency for adolescents to solely associate sun protection with aquatic activities and sunscreen. Efforts need to be made to broaden this limited perception of sun protection to include non-aquatic activities, as well as continue to reinforce the salience of other forms of sun protection [10].

This qualitative study supports the value of the Theory of Planned Behaviour to reveal, categorize and understand the complexity of the factors that shape adolescent sun protection behaviour. The findings indicated that attitudes, subjective norms and perceived behavioural control were perceived to be a relevant influence on sun protection. Most notably, positive attitudes towards the sun and tanned skin and attitudes that burning is not a significant deterrent appear to reduce adolescent’s intention to adopt sun protective behaviour. Subjective norms such as fear of being judged and separated from peers seem to be a key influence on sun protection behaviours, potentially outweighing the pressure from parents. Within the domain of perceived behavioural control, the positive influence of good awareness about sun protection behaviour appears to be impeded by a perceived inability to lead a planned, cautious and premeditated lifestyle.
with which sun protection is associated. A number of quantitative studies have explored the application of the Theory of Planned Behaviour to sun protection behaviours [27, 32]. A US study of university undergraduates generally supported the utility of the Theory of Planned Behaviour as an explanatory model for high-risk behaviour. Participants were assessed on their psychological and behavioural tendencies towards sun exposure-related behaviours (sunbathing, tanning salon use and sunscreen use). Attitudes were strongly associated with high-risk intentions (e.g. not using sunscreen, salon use), whereas subjective norms were less so. Perceived behavioural control was found to moderate the relationship among attitudes, norms and intentions to sunbathe and tan at a salon [33].

Another US study applied the Theory of Planned Behaviour to the understanding of sunscreen use among 199 school students aged 9–13 years. Questionnaires measuring sun-related attitudes, beliefs, perceived control and intentions were administered. Higher rates of sunscreen use at 1 month follow-up were predicted by stronger intentions to use sunscreen assessed 1 month previously. Further, stronger intentions to use sunscreen were found to be related to more positive attitudes towards sunscreen use, stronger beliefs that peers and parents favoured sunscreen use and greater perceptions of personal control in using sunscreen. The study confirmed the Theory’s hypothesis that attitudes, subjective norms and perceived behavioural control influence sunscreen use [34].

This study produced insights about the potential for messages containing humour and those perceived to be on a young person’s ‘wavelength’. Dark irreverent humour, rather than a ‘don’t do it’ approach, was particularly well regarded. However, it was important to contain an underlying element of seriousness in order to retain credibility. Further, it is crucial that messages targeting this group focus on immediate and short-term impacts of UV exposure, rather than long-term potential risks such as skin cancer. One of the barriers to sun protection revealed through this study was an attitude of invincibility and a desire to take risks. This is consistent with youth literature showing that adolescence is a time of risk taking and pushing the boundaries [20].

To conclude, several methodological notes of caution must be acknowledged. First, there was potential for the facilitator to influence the group dynamic and hence the participant behaviours and responses. This potential was minimized by the use of a facilitator of the same gender who invested the necessary time with the group to build rapport and minimize the effect of their presence to ensure the most normal behaviour as possible could be observed. Second, it is difficult to determine whether the presence of peers influenced participant responses. It is possible that responses were more accurate as the presence of peers may have resulted in participants having a sense of accountability. Alternatively, participants may have modified their responses to be consistent with their peers’ views. To reduce any possible impact, the individual collages were completed in the absence of peers. Consistent themes were found between the information collected individually and in the presence of peers by comparing and contrasting individual and friendship group findings. Further, wherever possible, participants were asked to commit their responses to paper first to gauge individual reactions prior discussing with the group. Lastly, there was potential for the sample to be biased as participants were recruited from a research agency database.

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**Conflict of interest statement**

None declared.
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