

This project was developed within the School of Health Sciences, University of Birmingham.

Katherine Colley
Olga van den Akker

Developing a Year 9 safe-sun programme



Adolescents form a particularly high-risk group, in need of specific skin-protective information and advice.

Skin cancer is now widely accepted by health professionals as a very real threat to the white-skinned populations of the world.

Australia suffers the highest rates of skin cancer worldwide, but it is believed that deaths from the disease in this country are at a plateau, and may soon begin to fall. This may be attributed to the relentless efforts made to educate the public about the dangers of intense sun exposure, and to persuade people to take better precautions when outdoors. The 'Slip Slop Slap' campaign of the early eighties (Rassaby et al, 1983) and the ensuing interventions in the general community aimed more specifically at schools, workplaces, beaches and swimming baths, may finally be bringing about a change in public skin-protection behaviour.

Malignant melanoma was a specific target for reduction by the previous government in the UK, and has received attention from this government in the consultation paper on health, *Our Healthier Nation: A Contract for Health* (Cancer Research Campaign, 1998), which emphasises the importance of prevention and early diagnosis (p. 71).

This article reports on the development and implementation of an interactive approach to promoting safe-sun behaviour in adolescents. By examining the current trends in melanoma epidemiology, and the environmental, genetic, cultural and social factors thought to influence

the risk of melanoma, it became apparent that adolescents form a particularly high-risk group in need of specific skin-protective information and advice.

A doubled rate in ten years

Skin cancer is not a disease exclusive to countries with hot and sunny climates. Countries at higher latitudes are also experiencing a 6-7% yearly increase in rates in the rarest but most lethal of skin cancers, malignant melanoma, with UK registrations rising dramatically over the period 1971-1989.

Melanoma is not a cancer that typically occurs in old age, but can be found more evenly distributed across age groups (West Midlands Regional Health Authority, 1995). Of all melanoma cases, 22% occur in the under 40s, whereas only 4% of all other neoplasms occur in this age group.

An examination of melanoma incidence in the under-20s over a 35-year period showed that rates had doubled in 14 to 19 year-olds in the last ten years, although no similar effect was found for those under 14.

Melanoma: the main factors

Current research highlights several factors thought to increase the risk of developing melanoma.

Ozone depletion

The environmental effect of depletion of the ozone layer, by up to 10% in some parts of the world, has allowed an increase in the amount of ultra-violet radiation (UVR) reaching the earth's surface. Although there is as yet no exact evidence concerning the relationship between decreasing ozone and increasing melanoma rates, an association is considered to exist.

Sun exposure

Stronger evidence exists for the effects of UVR on melanoma development, with excessive exposure to the sun (either long-term or as an intermittent dose) implicated as a major contributor to increased risk.

Not only are those living in tropical countries affected; those who take holidays in hotter climates or who participate in outdoor activities are also more likely to receive excessive amounts of UVR.

Young people's lifestyle

As a group, adolescents spend the most time outside in the sun, and it is believed that malignant melanoma risk is elevated with intense UVR in childhood and adolescence, and with childhood sunburn.

Tanning is fashionable

Young adults' desire to acquire a tan is strong, a tan being considered a greater asset to looks than being slim (Cancer Research Campaign, 1998); therefore their lifestyle increases their risk.

Moles and melanoma

Another effect of UVR is that it increases the proliferation of naevi or moles. Moles are rarely present at birth, but appear gradually over the years until mid-adulthood, and then start to disappear. At childhood and adolescence they increase in prevalence more quickly, and are found to be more abundant in children living at lower latitudes who experience more UVR exposure. Moles large in size or number have been linked with an increased risk of melanoma, so it may be concluded that preventing excessive production of moles could prevent an increase in melanoma risk. Such measures would be an important consideration,

particularly at adolescence, when mole production increases.

Targeting adolescents

Given these influencing factors, and their particular importance at adolescence, this age-group should be a target for those seeking to encourage skin-protective behaviour and to promote a better understanding of the risks involved with excess sun exposure.

To help promote an effective safe-sun message, we developed a questionnaire survey designed to achieve high and accurate response rates regarding adolescent beliefs, attitudes and behaviours concerning sun-tanning and skin cancer. The questionnaire survey shaped a safe-sun intervention that was taken into secondary schools and delivered to young adolescents.

The effects of the intervention, which were to be assessed when school recommenced in the autumn, will be presented in a later report.

Stage One: Developing a questionnaire

To provide a framework within which to incorporate relevant social, behavioural and psychological influences towards adolescent sun-tanning, Tones' Health Action Model was used (Tones & Tilford, 1994). This model contains two main features:

1. It examines the interactions between the three systems of beliefs, motivations and social norms that indicate a person's intention to carry out a behaviour, and examines the facilitators of that behaviour.
2. It questions knowledge, attitudes and beliefs, takes into account the influence of other people on an intimate and more widespread scale, and acknowledges emotional responses or drives that may over-ride social values.

Based on findings from previous studies of adolescent sun-tanning, and from focus group sessions of adolescents, a preliminary questionnaire was drawn up and piloted in schools to ascertain its appropriateness. During the piloting process different formatting styles were assessed to make the questionnaire 'adolescent-friendly' and encourage responses that would prove useful and reliable. The end result was designed to appeal visually, be easy to understand, and elicit a high response rate.

A tan is considered a greater asset to looks than being slim.

The survey was designed to record adolescent beliefs, attitudes and behaviours concerning sun-tanning and skin cancer.

Statement	% in agreement
Sunburn turns into a sun tan	42.4%
Anyone can tan if they want to	32.5%
I feel more confident with a tan	52.0%
A tan improves your looks	41.4%
The UK isn't hot enough to be harmful to my skin	25.5%

Table 1. The percentage of adolescents that agreed with statements concerning beliefs and motivations to tan.

Statement	% in agreement			
	Boys	Girls	χ^2 (df)	r
No precautions taken	14.5%	23.4%	5.23 (1)	<0.022
Advice seen	69.8%	84.0%	4.38 (1)	<0.001
Advice understood	66.3%	84.5%	7.98 (1)	<0.005
Advice followed	47.8%	67.0%	7.20 (1)	<0.007

Table 2. Significant associations between gender, skin protection advice, and skin protection behaviour. Note that the percentages understanding and following advice are of the group that saw the advice, not the whole sample.

Statement	χ^2	df	p
Suffering sunburn	19.11	1	<0.001
Burning more than once	24.51	1	<0.001
Believe burn turns to tan	4.29	1	<0.05
Want to fit in with friends	8.35	1	<0.005
Friends desire a tan	39.71	1	<0.001

Table 3. Significant associations found for the belief that a tan gives confidence.

The questionnaire included a section on demographic data, sunburn and suntan experiences, skin protection measures taken, and sources of safe-sun advice. It also sought information about beliefs, motivations and attitudes related to skin cancer and suntans.

Stage Two: The questionnaire survey

The questionnaires were completed by 408 Year 9 pupils from three schools, and analysed using the SPSS computer program. There were found to be widely-held misconceptions about tanning ability, with more than 40% believing that sunburn turns into a tan, a third believing that anyone can develop a tan, and a quarter

feeling that the UK wasn't hot enough to harm the skin. Almost half felt that a tan improves confidence and looks (Table 1).

Gender differences are revealed in Table 2. The girls were significantly more likely than the boys to report seeing, understanding, and following 'safe-sun' advice. However, more girls also reported that they did not protect themselves from the sun (Table 2).

Sunburn was more likely to be suffered if sun cream had been used ($p < 0.007$). This apparently contradictory result may indicate that young people are using it primarily to *promote a tan*, and also are using it incorrectly. This finding has also been reported in research carried out in the Netherlands.

Table 3 shows that tanning behaviour was found to be significantly associated with a desire to improve appearance and confidence, and to fit in with friends. The belief that a tan gives confidence was associated with burning at least once, believing that a burn turns into a tan, and a desire to fit in with friends (and having friends) who desire a tan.

Discussion, and implications of results

The influences of friends, social norms and beliefs are strong motivators to obtain a tan, and their relationship is complex.

- Sun creams would seem to be used not simply as protection from the sun but also to promote a tan, and sunburn is thought by many to be an inevitable part of the tanning process.
- The immediate social and psychological benefits of a tan for these adolescents may mean that the motivation to adopt risky behaviour is stronger than their worries about possible future ill-health.
- Boys are also missing out when it comes to the safe-sun message, and as the male mortality rate for melanoma is greater than for females — despite the incidence of melanoma being lower for men (West Midlands Regional Health Authority, 1995) — they make up a particularly high at-risk group.

We addressed these issues in the next phase of this study, which was to develop an effective safe-sun strategy.

One aim was to raise awareness amongst teenagers of how receptive they are to social norms.

The misconceptions about sun tans and skin cancer identified here may be the driving force behind risky exposure to UVR, and therefore need to be set straight. However providing information alone is considered an ineffective means of changing behaviour (Taylor, 1991), and motivations to tan are strong. Therefore an intervention must not only provide information about the risks of skin cancer, but must also make the risk personal, and then give achievable and practical advice on how best to protect one's skin.

This survey also highlighted the importance of social influence on associating tanning with looking and feeling good, and this issue should also be addressed by raising awareness amongst teenagers of how receptive they are to social norms. Finally, we felt it was important to provide a reminder of the advice given, to help maintain intentions to carry it out.

Stage Three: Carrying out the intervention

The intervention was implemented during a Personal and Social Education class to the 13-14 year olds who participated in the initial survey.

We presented the survey results using overhead projection to show a graphic representation of the survey findings. Particular attention was given to those points that were either misunderstood (for example the beliefs about sunburn turning into sun tan), or important motivators to tan (for example, wanting to do as friends do).

A video entitled *Exposure* was then shown, which was aimed specifically at young adolescents. This highlighted the social and cultural influences on tanning, and sought to promote thought and discussion about the reasons why people like to tan, and the dangers involved with excess sunshine.

The presentation was followed by a period of debate about current sun-protective measures

taken, whether they were considered adequate in the light of the intervention material, how they could be improved, and what problems were involved. An assessment was also made of individual risk, using a self-assessment chart prepared using current known risk factors for melanoma (see next page). This was to make each person more aware of their own risk by thinking about their skin type, general colouring, and how much protection they would need.

A warning card

An important part of this intervention was the production of credit-card-sized safe-sun reminders, funded by Warwickshire Community Education Services. Printed in yellow and black for maximum impact (but also to suggest the colour of sunlight), the cards were laminated to improve their durability, and were small enough to be slipped into pockets or purses.

A background image of a radiation symbol and black chevrons down one side of the cards highlighted the warning nature of the information. On one side this consisted of the four main methods of sun protection as advocated by the Sun Know-how campaign, which was launched by the HEA in 1995, and so echoes the messages to be seen in the general media. On the other side were printed facts that corrected certain misconceptions about sunburn and skin cancer, and a reminder to be aware of skin type and how to protect it, linking in with the self-assessment charts used during class.

Cards were distributed to all pupils present, and were intended to be kept through the summer in the hope that they would provide an occasional reminder and reinforce the advice given.

Stage Four: Future Assessment

Developing a questionnaire that appealed to adolescents proved a successful means of obtaining very useful information. The findings regarding gender differences were striking, and

An assessment was also made of individual risk, using a self-assessment chart.

Self Assessment for Sun Protection

This chart will give you an idea about how much protection your skin needs when in the sun. Choose the description nearest to you for each section and mark your score.

Your appearance	Score
<u>Natural Hair Colour</u>	
Black / Brown	1
Red / Blonde	2
<u>In the Sun</u>	
Skin always tans, rarely burns	1
Skin tans in time, sometimes burns	2
Skin rarely tans, always burns	3
<u>Freckles</u>	
Hardly any/none	1
Some	2
Lots	3
<u>Moles: number</u>	
Hardly any	1
Some	2
Lots	3

If any moles are bigger than a pencil-end then add 2 more points. (As a guide, you can usually feel a mole and not a freckle.)

Now add up your total score

If you scored 4 you have a good built-in defence: help your skin stay healthy by avoiding excess sunshine.

5-9 Your skin needs extra help: make use of skin protection to keep safe in the sun.

10-13 Take every precaution to prevent sunburn, as your skin is very sensitive to the sun.

by understanding adolescent beliefs and motivations towards sun tans, an intervention was devised that incorporated all the major points brought to light.

The results of the intervention were to be assessed from a questionnaire in the summer of 1998, and success will be measured in terms of any decrease in the frequency and degree of

sunburn and any increase in the uptake of skin protective behaviours, particularly in the use of shade and clothing. Results may be affected by the poor summer this year, but sunburn suffered while abroad may give an indication as to the intervention's effectiveness.

A greater use of clothing as a form of skin protection would be preferable to sun cream, as for this age group at least the latter is associated with sunburn, which is considered to be the forerunner of a tan. The difference between male and female death rates from melanoma shows that much needs to be done to reach the male population with an effective safe-sun strategy, and it is hoped that the intervention will encourage more males to protect themselves from sunburn.

If we find no significant difference between males and females for noticing, understanding and following safe-sun advice arising from this intervention, we would interpret this as an encouraging result. It could show that the methods used for this intervention — of feedback of data, highlighting personal risk, with sustained safe-sun guidance — have been effective for the Year 9 males and females who participated.

References

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Contact Katherine Colley at the Medical School, Edgbaston, Birmingham B15 2TT (0121 414 6893).

CAUTION!

Skin cancer is increasing in the UK

Skin can only produce a tan for 20 minutes -
any longer and it just burns

Sun-burn will not turn into a tan

Every sun-burn damages your skin -
and the effects are permanent

Know your skin type and learn to protect it

