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# Young people and skin cancer: challenging powerful images

**T**his article describes the first attempt in this country to assess the effect on adolescents of educational material on sun and skin cancer.

Public education campaigns have been run in the last ten years to promote early detection of melanoma and to increase public awareness about the dangers of sun exposure. As in anti-smoking campaigns, educationalists working on sun exposure have powerful images in the media to fight. Since Coco Chanel in the 1920s first made it fashionable to be brown, a suntan has become highly desirable. Glossy magazines still project the image of attractive young women as brown, and small children soon adopt the attitudes of their seniors.

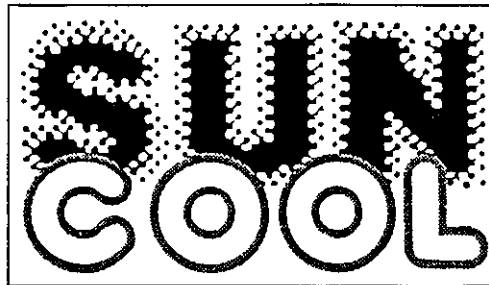
We therefore see children as an important target group for health education about the sun and skin cancer. There is an additional scientific argument for this. Epidemiological studies have shown that melanoma patients often give a history of severe sunburn before the age of 15. There is, therefore, reason to suppose that young

people may be particularly susceptible to the ill-effects of sun exposure.

## Types of skin cancer

There are many varieties of skin cancer, but the commonest in order of decreasing frequency are basal cell carcinomas (BCCs; rodent ulcers), squamous cell carcinomas (SCCs), and melanomas. Excessive sun exposure plays a role in the aetiology of all three, although the relationship of melanoma to sun exposure is more complex than that of the other two. For BCCs and SCCs, the incidence is proportional to the fairness of skin (tendency to burn) and

the total cumulative dose of sun. The fairer the individual and the more sun-exposed that individual is, the greater the likelihood of developing BCCs or SCCs. Therefore, these tumours are common in outdoor workers such as farmers, cricket professionals, and those who have leisure pursuits such as golf or gardening. Melanomas also occur in these chronic overdosers,



The knowledge and attitude questionnaires were completed by the pupils two months after the educational input in May. The knowledge questionnaire was repeated after the summer holidays, and additional 'sun-related behaviour' questions were also included.

#### Sample knowledge statements

1. Sun damage to the skin rarely happens in the UK because the sun here is quite weak.
2. A suntan protects you against skin cancer.
3. The ozone layer protects us from too much UV light.
4. People with blue eyes and freckles are more at risk from skin cancer.
5. People who only go out into the sun for two weeks a year are not likely to get skin cancer.

#### Sample attitude statements

1. I feel more healthy with a suntan.
2. It is worth a lot of effort to get a suntan.
3. A suntanned person looks more healthy.
4. Most of my friends think that a suntan is a good thing.
5. There is little chance that I'll get skin cancer.

#### Behaviour questions

1. Did you sunbathe during the summer holidays?
2. When it was sunny did you  
Cover up your skin?  
Wear a sunscreen?  
Sit in the shade?  
Wear a hat?
3. Did you use a sunscreen during the summer holidays?
4. Did you get sunburnt during the summer holidays?

but they are more likely in people who have their sun exposure intermittently: typically, fair individuals of high socioeconomic status who work inside but go for short sharp bursts of sunshine in the summer holidays.

All these three types of skin cancer are becoming commoner. BCCs and SCCs already represent a very significant workload for dermatologists and surgeons. They are notably also occurring earlier in life, and affected individuals have to undergo surgery or radiotherapy to treat them. Commonly this is on the face and is, therefore, often traumatic for the individual, even though treatment is relatively easy. It is the increase in melanoma which is particularly worrying, however, because the rate of increase has been dramatic. It has been doubling every ten years, and if detected late carries a considerable

mortality.

### The educational package

We therefore designed a health education package for use in secondary schools which was intended to increase knowledge about the sun and skin cancer, to change attitudes to sun exposure, and possibly to change behaviour. The important principles we wished to convey were:

- Excessive sun exposure causes skin cancer.
- What a melanoma looks like.
- That melanoma can be fatal but that if detected early is curable.
- That some individuals are particularly susceptible to skin cancer and should, therefore, take particular care: people with fair skin, red hair, freckles, and those who burn in the sun or have a lot of moles.
- We also had to convey the point that the darker the skin the less likely is an individual to develop skin cancer.

The package (available from the International Cancer Research Fund at £8.35) consisted of a text called *Sun, Skin, Moles and Melanoma* for photocopying in schools, a colour booklet called *Suncool*, and a video. *Suncool* was intended to be a bright, positive booklet with a message that it can look good to cover up. The video, featuring Melanie Hill (who plays Aveline in the TV programme *Bread*), was intended to make the children more receptive to the text.

### The project

Seven schools were recruited in order to reflect a wide spread of social and regional factors: two from the private sector, one secondary modern, one technical college and three comprehensives. They were in Liverpool, Rotherham, Rugby, London and Brentwood. In each school five parallel classes from the same year were chosen and treated as below:

1. No special education.
2. The class read through the text and took home *Suncool*.
3. As above, but they also watched the video.
4. As 2, but homework was set to design posters for public education.
5. As 2, but they had an additional discussion later in the week about issues raised by the package.

The educational intervention took place in May 1990. Just before they finished summer

Table 1. Mean knowledge score 2 months after intervention.

Group	Knowledge score	SD	Pupils
1	19.5	3.3	133
2	21.2	3.3	101
3	22.6	3.0	95
4	22.8	4.8	87
5	20.5	5.9	110
Mean	21.2	4.4	526

Table 2. Mean knowledge score by reported 'sun-related behaviour'.

	Knowledge score	SD	n	p
Use sunscreen? Yes	23.1	3.18	105	0.005
	No	21.9	3.21	
Wear hat? Yes	21.6	4.16	22	0.27
	No	22.4	3.14	
Cover up? Yes	22.7	2.74	50	0.37
	No	22.2	3.42	
Sit in shade? Yes	22.5	3.12	139	0.26
	No	22.0	3.35	
Get sunburnt? Yes	22.0	3.35	116	0.31
	No	22.4	3.27	

Table 3. Mean attitude score 2 months after intervention.

Group	Attitude score*	SD	Pupils
1	3.55	1.77	133
2	4.18	2.00	100
3	4.62	2.18	95
4	4.51	1.83	83
5	4.73	1.98	101
Mean	4.26	1.98	522

\* Higher = 'better'

Table 4. Mean attitude score by reported 'sun-related behaviour'.

	Attitude score*	SD	n	p
Use sunscreen? Yes	4.92	1.99	104	<0.004
	No	4.15	1.81	
Wear hat? Yes	4.88	2.31	21	0.39
	No	4.50	1.90	
Cover up? Yes	5.62	1.83	50	<0.0001
	No	4.19	1.84	
Sit in shade? Yes	4.71	1.86	137	<0.02
	No	4.05	2.07	
Get sunburnt? Yes	4.27	1.86	113	0.27
	No	4.54	1.94	

\* Higher = 'better'

term in July, a questionnaire designed to test knowledge and attitudes was answered by all the pupils. Specimen questions are shown in the panel.

After the summer holidays they answered a second questionnaire with behavioural questions about sun exposure during the preceding holiday and the same attitudinal questions as in the first questionnaire.

The questionnaires were returned by post, coded, and the data put into the computer. This was analysed by total scores for knowledge and for what we felt was the 'correct' attitude.

### Results

The mean age of the pupils was 14, with equal numbers of boys and girls. The July questionnaire was answered by 543 pupils, while 466 answered the September one and 262 were identified as answering both.

#### Knowledge

Those with no intervention (group 1) had significantly lower knowledge scores than the other groups ( $p < 0.01$ ) (Table 1). Knowledge scores were higher for girls ( $p < 0.001$ ). There was no significant difference in knowledge with age.

There was no association between level of knowledge in the first questionnaire and sunburn (reported in the second questionnaire following the summer holidays). Nor was there any association with knowledge and wearing a hat, covering up from the sun, or sitting in the shade. The only significant association with increased knowledge was wearing a sunscreen ( $p < 0.005$ ) (Table 2).

#### Attitude

The reported attitude score in July showed a highly significant difference between group 1 and groups 2-5 ( $p < 0.01$ ) (Table 3). Correlation occurred between the attitudes in July and September, suggesting retention of reported attitudes after the summer holidays ( $r = 0.58$ ,  $n = 249$ ,  $p < 0.001$ ).

Wearing a sunscreen ( $p < 0.004$ ), covering up in the sun ( $p < 0.0001$ ), and sitting in the shade ( $p < 0.02$ ) were significantly associated with 'better' attitudes (Table 4). Those who did not sunbathe had significantly 'better' attitudes than those who did (Table 5).

#### Behaviour

There was no difference in behaviour according to group. There was, however, a significant difference in behaviour according to where they

<i>Sunburn</i>	<i>Mean attitude score*</i>	<i>SD</i>	<i>Pupils</i>
Yes	3.31	2.08	164
No	3.98	2.12	137

\* Higher = 'better'

**Table 5. Mean attitude score in relation to sunburn among those who reported sunbathing.**

	<i>Wore sunhat</i>	<i>Wore sunscreen</i>
Warmer country	29/141 (21%)	100/132 (78%)
UK	14/151 (9%)	60/145 (41%)
Elsewhere	2/22 (9%)	11/21 (52%)
Nowhere	5/100 (5%)	16/91 (18%)

**Table 6. 'Sun-related behaviour' according to type of summer holiday taken.**

took their holiday. More wore a sunhat and applied a sunscreen if they travelled abroad ( $p < 0.001$ ) (Table 6).

## Discussion

As previously stated, this was the first attempt in this country to assess the effect on adolescents of educational material on sun and skin cancer.

We were impressed by the high mean knowledge score, suggesting that children of this age already have quite good knowledge of this subject. This is not surprising, in view of the recent interest of the media in this subject and the public education campaigns that have been held around the country. These, although not national, have tended to receive national coverage.

Although it was already high, we were able to

demonstrate that the pupils who experienced the intervention had significantly increased levels of knowledge over the control (untaught) group 1, although there was no significant difference in the levels of knowledge between groups 2-5.

The attitudes, also, were significantly different between group 1 and groups 2-5. These are reported attitudes, and may merely reflect knowledge of what was expected, so we felt that behaviour might be a more accurate indicator of true attitudes to sunshine and sunburn. However, there was no significant difference in overall behaviour between the five groups.

The correlation between knowledge and behaviour was poor. The only behaviour which correlated with increased knowledge was wearing a sunscreen.

The exercise appeared to be enjoyed in the schools, and we had a number of posters returned to us which were made as part of the study. However, perhaps we have first to convince teachers: in one school it was noted that the gym teachers who supervised the project were conspicuous by their sunbathing during lunch breaks.

This project was an attempt to start assembling health education materials for schools on the subject of skin cancer, something that is not always perceived as important by the general public. Even though we have not succeeded in altering behaviour to any measurable extent, we have at least made a difference to knowledge and reported attitudes. We hope that our materials and experiences may be helpful to schools trying to promote this important but neglected dimension of health education.