

Sunscreen use and environmental awareness among beach-goers in Cape Town, South Africa

Yasmin von Schirnding¹, Nicolene Strauss¹, Angela Mathee¹,
Priscilla Robertson¹, and Renette Blignaut²

¹ Research Institute for Environmental Diseases, Medical Research Council, P.O.B. 19070, Tygerberg 7505, Republic of South Africa

² Institute for Biostatistics, Medical Research Council, P.O.B. 19070, Tyberberg 7505, Republic of South Africa

ABSTRACT

Background. The potential impact on health of increased exposure to sunlight has caused increased concern in recent years. In South Africa little is known of peoples' sunbathing habits, use of sunscreens, and factors influencing these practices.

Aims. The aims of the study were to determine sunscreen usage among the South African beach-going public, to determine sunbathing practices of beach-goers and to determine factors influencing peoples' sunbathing habits.

Methods. Cluster sampling at 3 popular Cape Peninsula beaches was used to select a sample of 231 white adult beach-goers. Questionnaires were administered to obtain information on the use of sunscreens, frequency of use, peoples' sunbathing activities, their susceptibility to sunburn and ability to tan, whether there was a history of severe sunburn, and knowledge and awareness of environmental issues. Information was also obtained on personal characteristics and socio-demographic factors.

Results. 50% of respondents were using a sunscreen on the day of the interview. More women than men, and people over 25 years of age relative to younger persons, made frequent use of sunscreen lotions. A sun protection factor (SPF) of 15 or more was being used by 5% of the population. With respect to peoples' knowledge and awareness of the environment, 90% of the population cited skin cancer as a potential consequence of over-exposure to sunlight, although, in general, knowledge of environmental issues was poor.

Conclusions. A major effort is needed to improve attitudes and

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practices in South Africa with respect to sun-tanning activities.

Key words: sunscreen, sun protection factor, environmental awareness, ozone layer, sunlight, skin cancer, sunbathing

INTRODUCTION

In many countries there has been an increase in the incidence of melanomas reported in recent years, which is thought to be associated in part with exposure to sunlight (1). There has also been increasing concern about the potential impact on health of the depletion of the stratospheric ozone layer (caused mainly by chlorofluorocarbons (CFCs) used in aerosols, refrigerators, air conditioning units and elsewhere) (2). It has been estimated that a 1% decrease in stratospheric ozone may lead to an 8% increase in skin cancers in fair-skinned people (3), although reliable predictions are difficult to obtain. Over-exposure to ultraviolet radiation has also been linked to erythema, actinic damage, effects on the immune system, and cataracts in human populations (4).

In contrast to countries such as the USA and Australia, where intensive public awareness campaigns have been launched over the years, in South Africa little is known about people's sunbathing habits. The aims and objectives of this study were (i) to determine sunscreen usage among the South African beach-going public, (ii) to determine sunbathing practices of beach-goers, and (iii) to determine factors influencing peoples' sunbathing habits (knowledge and awareness of the environment, personal characteristics).

METHODS

Study population

The study population comprised white adults (18 years of age or more) at popular bathing beaches in the Cape Peninsula (Clifton, Llandudno, Muizenberg). Cluster sampling was used to select a sample, and respondents in individual clusters were identified using random numbers. The sample comprised 231 people, of whom 80% were predominantly English speaking, two-thirds were local Capetonians

and the rest, visitors. 70% of the respondents were under 30 years of age.

Data collection

Questionnaires were administered to obtain information on the use of sunscreens (brand name, sun protection factor (SPF), frequency of use, peoples' sunbathing activities (including changes in practices over the past 2-3 years), their susceptibility to sunburn and ability to tan, and whether there was a history of severe sunburn (causing pain or blistering for two or more days). Information was also obtained on peoples' educational status and occupation, their knowledge and awareness of environmental issues (the greenhouse effect, ozone depletion, environment-friendly products) and on personal characteristics (hair colour, colour of eyes). Chi-square tests (and Fisher's Exact Test where appropriate) were used to compare subgroups.

RESULTS

Frequency of sunscreen use

Overall, 72% of the population reported using sunscreen lotions at the beach most or all of the time, although only 50% of respondents were using a sunscreen on the day of the interview. A significantly higher percentage of women than men, and of people over 25 years of age relative to younger persons, made frequent use of sunscreen lotions (Figs. 1 and 2). At the time of the interview, more women than men were using sunscreen lotion (74% versus 49%, $p = 0.000$). 15% of the population were using an SPF of 7 or more on the body (Fig.3), with a higher percentage using an SPF of 7 or more on the face (43% of women, and 18% of men, $p = 0.001$). Younger men used a lower SPF on their bodies than older men ($p = 0.032$). 23% of the population thought that an SPF of 15 or more would be necessary to provide complete protection (Fig.4), whilst 6% actually used an SPF of 15 or more.

Sunbathing activities

The majority of the population (65%) were at the beach during the

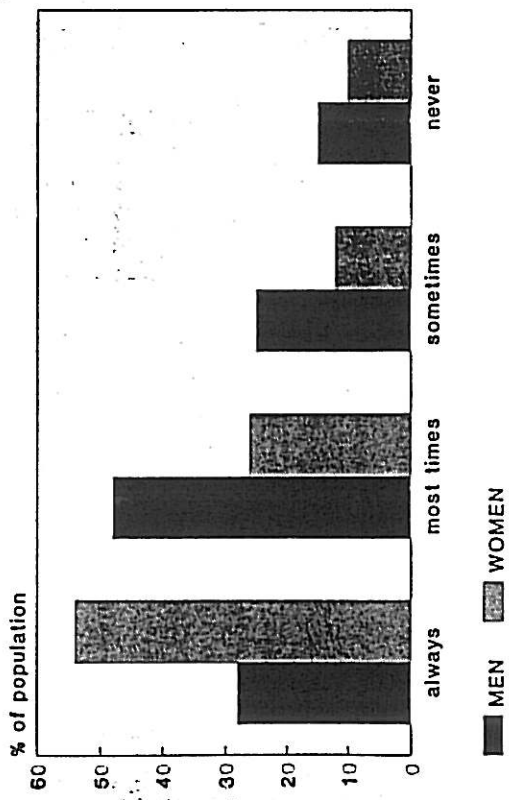


Fig. 1. Use of sunscreen lotion by men and by women.

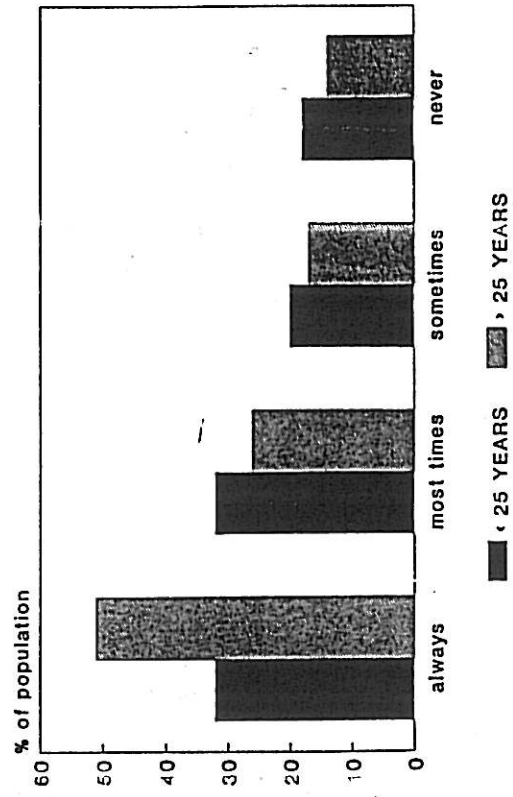


Fig. 2. Use of sunscreen lotion according to age.

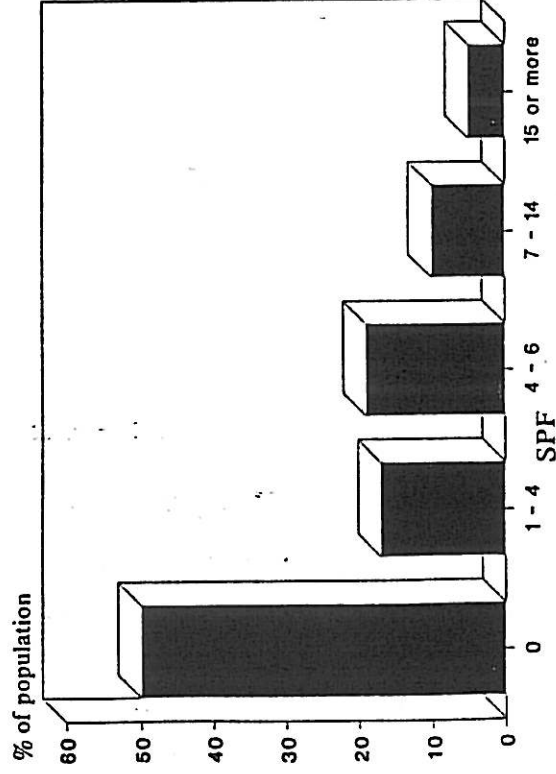


Fig. 3. Sun protection factor (SPF) used on body at time of interview.

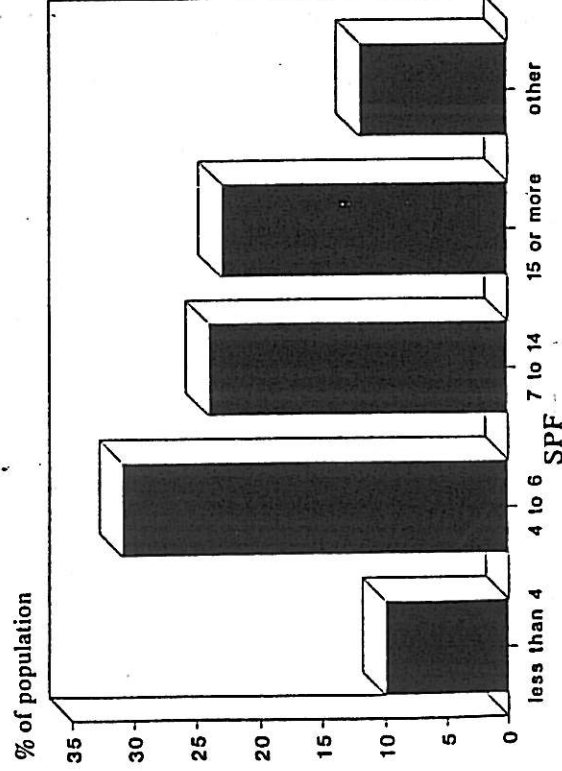


Fig. 4. Sun protection factor (SPF) thought necessary to provide complete protection.

hottest part of the day, between (12 and 3 pm) and 67% of respondents had spent more than 10 days sunbathing in direct sunlight the past summer. 48% of respondents reported that their sunbathing habits had changed in the past 2-3 years (Table 1). This change in practices was associated with concern about the adverse effects of the sun on the skin (Table 2), and with a history of severe sunburn (pain for 2 or more days or blistering, as a child or adult) (Table 3, $p = 0.014$).

Table 1

Reported changes in sunbathing habits in the past 2-3 years

Less time in the sun	60%
More sunscreen lotion	24%
Other protective measures	5%
More time in sun	7%
Other	4%

Table 2

Reasons given for changes in sunbathing practices

Non-specific concerns	35%
Adverse skin effects (dehydration, wrinkling, ageing etc.)	14%
Concern about skin cancer	18%
Lack of opportunity	18%
Other	15%

Table 3

Relationship between experience of severe sunburn and change in sunbathing habits

Severe sunburn	% who changed habits
Yes	58
No	42

Environment: Knowledge and attitudes

With respect to peoples' knowledge of the environment, 69% of respondents had some knowledge of the ozone layer, whilst only 31% had any knowledge of the greenhouse effect. 90% of the population cited skin cancer as a potential adverse effect of over-exposure to sunlight (Figure 5), whilst a much lower percentage, 50%, cited this as a potential consequence for health arising from the depletion of the ozone layer (Fig. 6). 74% of respondents thought that measures taken to protect and improve the physical environment in South Africa were inadequate, whilst 16% thought measures were adequate, and 19% did not know.

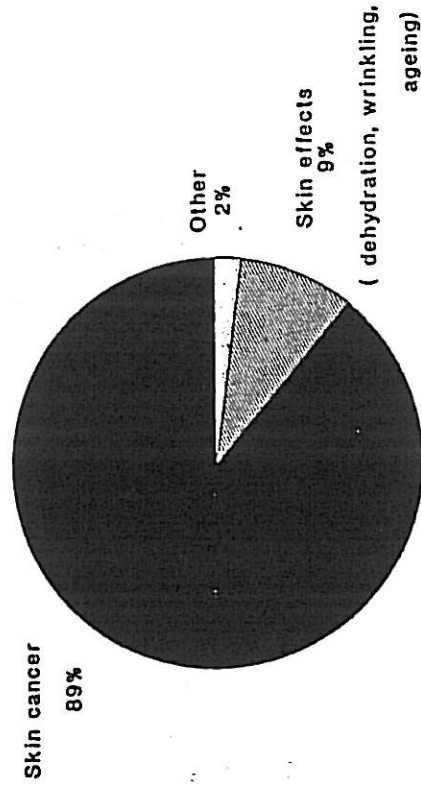


Fig. 5. Perception of adverse consequences for health of over-exposure to sunlight (% of study population).

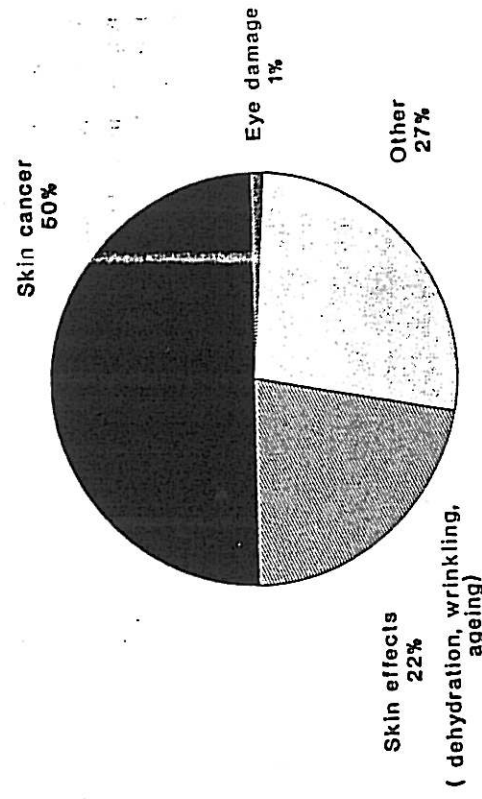


Fig. 6. Perception of adverse consequences for health of depletion of the ozone layer (% of study population).

DISCUSSION

This study has shown that inadequate sun-protection measures are taken by the general public when sunbathing. For example, 50% of the sample studied were using no protection at all on the day of the interview, although 70% of the sample reported that they regularly used sunscreen products at the beach. In a similar study of the adult beach-going public conducted by Ross et al. (5) in Puerto Rico, 50% of local residents were reported to be regular users of sunscreens at the beach, whilst 77% of tourists used sunscreens regularly.

Of significance was the fact that whilst 23% of the population studied here thought an SPF of 15 was necessary to provide complete protection, only 6% used an SPF of 15 or more. It has been estimated that regular use of sunscreen products of SPF of 15 in the first 18 years of life reduces the risk of non-melanoma skin cancer by 78% (6) although complete protection is not guaranteed. Of interest was the fact that around 90% of the sample were aware that over-exposure to sunlight was associated with an increase in the risk of skin cancer which compares favourably with the findings of the Puerto Rico

study (5), in which 95% of the population studied were similarly knowledgeable and aware of the adverse effects of UV radiation. The general level of awareness and knowledge of the environment was poor, however.

It is concluded that a major effort is needed to improve attitudes and practices with respect to sun-tanning activities among the beach-going public in South Africa. Research is also needed to determine the effectiveness and comparability of sun protection factors advertised in the respective suntanning lotions.

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