

Drivers for Sun Protection in Black South Africans

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ABSTRACT

Sun protection behaviour studies are almost exclusively carried out in populations with fair skin for the obvious reason that people with unpigmented skin are more susceptible to the health impacts of excess solar ultraviolet radiation exposure. In a dataset of 1,271 Black South Africans, we analysed factors related to sun protection applied when spending time outdoors including awareness of skin cancer, gender, age, and Living Standards Measure (LSM) where 1-4 equates to the lowest, 5-7 intermediate and 8-10 the highest LSM status. The most important driver for Black South Africans to use sun protection was whether they were aware of skin cancer (OR: 2.6 for those who were aware versus those who were not, $p < 0.0001$). Sunscreen was preferred by respondents in LSM 8-10 whereas people in the lowest group (LSM 1-4) favoured shade, umbrellas and hats. One in two respondents claimed to use some form of sun protection which appears to be higher than deeply-pigmented populations in other countries.

INTRODUCTION

Surveys of sun protection behaviour are almost exclusively carried out in populations with lightly-pigmented skin for the obvious reason that people with pale, naturally unpigmented skin are more susceptible to solar damage, especially skin cancer. We recently reported the results of an on-line survey examining the prevalence of sunburn and use of sun protection in people self-reporting with black skin who lived in either the United Kingdom, South Africa or Nigeria [1]. In the present study we have limited our focus to Black South Africans and use as our dataset results from 1,271 individuals who participated in the Nielson OMNIBUS study; details are described elsewhere (Ethics Approval NAS323/2019).[2]

MATERIALS AND METHODS

The factors considered in whether or not respondents used any form of sun protection when spending time outdoors were their awareness of skin cancer, determined by asking the question “Are you aware of skin cancer?”, gender, age, and Living Standards Measure (LSM), which is a means of segmenting South African people according to their living standards, where 1-4 equates to the lowest, 5-7 intermediate and 8-10 the highest LSM status.

These factors were treated as dichotomous variables: awareness of skin cancer is either yes or no; gender is either male or female; age was classified as either less than 35 years of age

or 35 years and older; and LSM status as either 1 to 6 or 7 to 10. Logistic regression (StatsDirect statistical software version 3.2.8) was employed to examine the importance of these four factors.

Additionally, participants who used sun protection were asked to list those they typically used, which included shade, sunscreen, clothing, umbrellas, hats and sunglasses.

RESULTS

The results of logistic regression are summarised in Table 1. It appears that the most important driver for Black South Africans to use sun protection is whether or not they are aware of skin cancer, with an odds ratio of 2.6 compared with those people who claim to be unaware of skin cancer.

Table 1. Odds ratios of different parameters as drivers for sun protection

Parameter	Odds Ratio	95% CI	p-value
Aware of skin cancer	2.62	1.94 to 3.53	< 0.0001
Age \geq 35 years	0.94	0.75 to 1.19	0.62
Female	1.46	1.16 to 1.83	0.0011
LSM \geq 7	1.51	1.19 to 1.91	0.0005

Other significant factors were gender (females more likely than males to use sun protection) and LSM status (highest LSM groups more likely than lower groups to use sun protection). We also found that younger people (< 35 years) were no more or less likely to use sun protection than older people. Clear differences between LSM groups were observed in terms of their use of different sun protection modalities. These are illustrated in Figure 1.

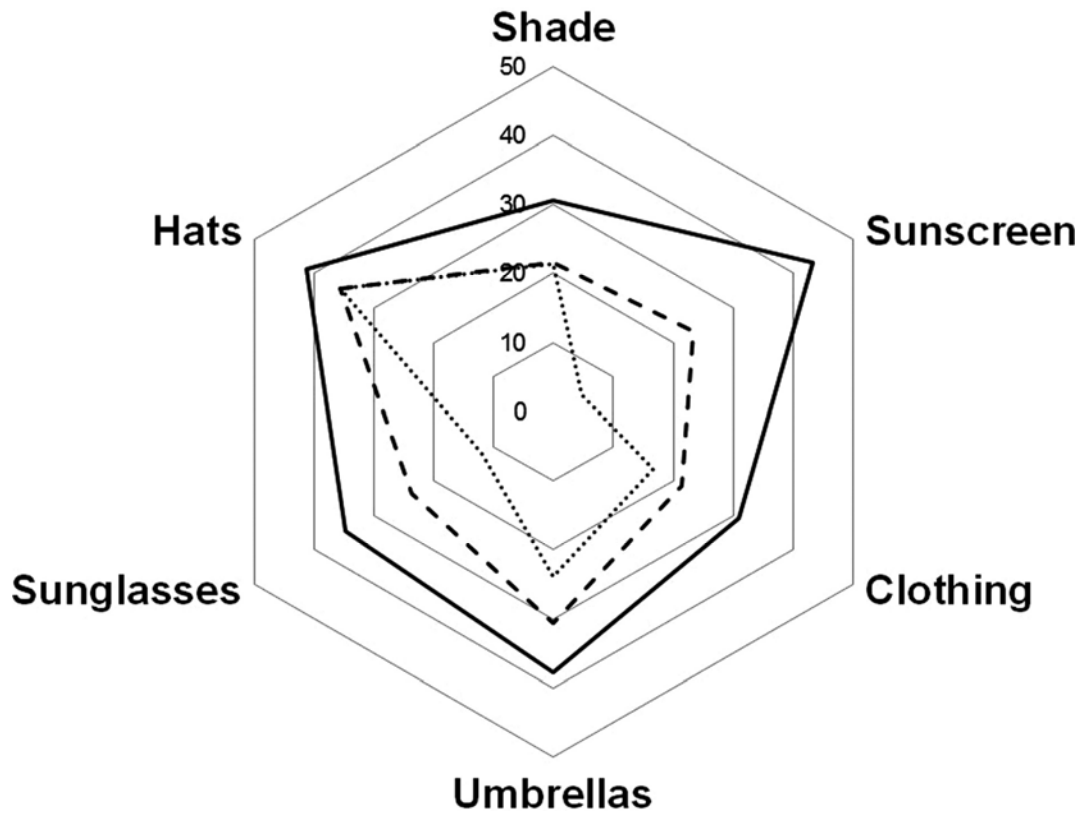


Figure 1. A radar plot showing the percentage of respondents in low (1-4; dotted line), intermediate (5-7; dashed line) and high (8-10; solid line) LSM groups who use different sun protection modalities

In the most economically robust group (LSM 8-10) sunscreen is the preferred modality, whereas people in the lowest group (LSM 1-4) favour shade, umbrellas and hats to clothing, sunglasses and especially sunscreen, probably due to the low cost of shade measures and relatively high cost of sunscreen and sunglasses.

DISCUSSION

Overall, we found that 52% of Black South Africans who participated in the survey claimed to use sun protection, with hats and umbrellas being the most popular modalities. This contrasts with the behaviour of black people living in cooler climates, such as the U.K., where two-thirds claim to use no sun protection and in those that do, sunscreen is the most popular [1]. People in the highest LSM group tended to use more sun protection, including more expensive items such as sunscreen and sunglasses, compared with the intermediate and low LSM groups where hats and shade were the most commonly reported modalities.

Whilst 52% of respondents claim to use at least one sun protection modality, the figure is not appreciably lower than 68% of Australians who also claim to use sun protection [3]. Given that laboratory studies have demonstrated an approximate 8 to 10-fold difference in the erythral sensitivity of white (skin types I/II) and black (skin type VI) skin [4,5], it is perhaps surprising that sun protection practices amongst the Black population of South Africa is so high.

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