

Sun-protective behaviours of beach goers in the North-West

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Background

It has been well documented that malignant melanoma is the most common cancer in the 15-44 year old age group in Australia, with an average number of 1,127 new cases per year between 1999 and 2003.¹ In addition, an average of 374,000 cases of non-melanocytic skin cancer (NMSC) also occur each year, the majority found in males over the age of 40 years.¹ The cost to the health system for treating malignant melanoma is almost \$30 million per year, while the cost for treating NMSC is estimated to be around \$264 million per year.² For these reasons, the design and implementation of health promotion interventions to lower the incidence of all skin cancers has become an important priority for Australia. Campaigns such as *SunSmart* have now been in place for almost three decades.³

Cumulative exposure to ultra-violet radiation (UVR), especially during childhood and for people with a fair skin type, has been identified as the single-most-preventable risk factor for developing skin cancer.⁴ In addition, adolescents tend to have the lowest sun protection rates⁵ and therefore should be the key targets for primary prevention efforts, since preventing exposure to UVR will yield the greatest results.

The *SunSmart* campaign has been widely used in Australia to promote healthy sun behaviours among individuals and to initiate environmental policy change, primarily to improve the quality of sun protection available.⁶ The effectiveness of the campaign is well documented, with *SunSmart* predicted to prevent 1,900 premature deaths, 20,000 cases of melanoma and 49,000 cases of NMSC over the next 20 years.³ However, there is little evidence of *SunSmart* messages on and around beaches in north-west Western Australia, where the UV level reaches 11 on most days throughout the dry season from May to October.

The following report details the findings of the Beach Goers Observational Study (BGOS) that was undertaken to identify the sun-protective behaviours of beach goers in the north-west WA, with the intention of influencing the development of a health promotion intervention.

Methods

The BGOS was a cross-sectional, observational survey of 26 beach locations in north-west WA (Table 1). The observations were recorded between 10 am and 3 pm over 10 days, and included both adults and children. A tape measure was used

Abstract

Issue addressed: The study investigates the sun-protective behaviours of beach goers in the north-west of Western Australia as the basis for a new health promotion intervention to be implemented in the area.

Methods: A cross-sectional, observational survey of 1,498 beach goers in 25 beach locations across north-west Western Australia. Details of sun-protective clothing (none, hat with no shirt, shirt with no hat and full coverage) were recorded, as was time on beach, age and gender. Environmental audits were also completed to characterise the effects of the natural and built environments on sun-protective behaviours.

Results: Both females and children had the lowest rates of sun protection – 33.7% of females were found to wear shirts with no hats, compared to 29.0% of males, and they were less likely to be fully covered than males (30.3% compared to 41.5%). Children were more likely to wear shirts with no hats (43.1%) compared to adults (28.2%).

Conclusions: Female and child beach goers represent two groups that are at a higher risk of developing skin cancer and, therefore, should become targets for a sustainable, effective and multi-component health promotion program.

Key words: Sun protection, health promotion, skin cancer, sun behaviour.

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So What

A multi-component health promotion campaign targeting sun protective behaviour for beach goers in north-west Western Australia is needed.

to measure a 50 metre stretch of sand that was then divided into five zones, depending on the proximity to the water. Two observers independently collected the observational data – being the number of new people on the beach in each zone at each hour. Sun protective clothing was categorised as: everything (broad-brimmed hat, hat with neck protection, or cap and long-sleeved shirt, or long or short-sleeved rash vest); no protection (no hat, no shirt, singlet or other non-protective upper garment); or having an area of covering missing, such as hat no shirt or shirt no hat. Gender and estimates for age were recorded, with children categorised as those appearing to be under 15 years of age.

In addition, environmental beach audits were completed to assess the natural and built beach environments. The UV Index was sourced for each beach area on the day of observation from the Bureau of Meteorology website. The environmental observations included: the tide; the availability of shade; the presence of rocks and sand coverage. Additionally, road, boat and pedestrian access; the presence of amenities; picnic areas; signs and nearby facilities was also recorded. All data was coded numerically and entered into SPSS version 14 for analysis. Descriptive statistical analysis was conducted. Ethical approval for the study was granted by the University of Western Australia, Human Research Ethics Committee.

Results

A total of 1,498 beach goers were observed in the study. There was an almost even split of males and females (49.3% and 50.7%, respectively) with 78.8% being adults and 21.2%

children. Of the data collected, the most popular time to visit the beach was 3 pm, when 28.6% of beach goers were observed. The majority of beach goers were found to be wearing everything (35.8%), with the next highest group being the shirt but no hat wearers (31.4%). Figure 1 shows the distribution of beach goers by sun protection, gender and age status. Adults were found to be more likely to wear no sun-protective clothing, compared with children, but more children wore shirts with no hats (43.1%) compared to adults (28.2%). Females of all ages were found to be more likely to wear a shirt without a hat (33.7%), compared with males (29.0%), and were less likely to wear full sun-protective clothing (30.3% compared to 41.5% for males). The differences in the prevalence of sun protection behaviours were statistically significant between children and adults ($\chi^2=717.55$, $p<0.001$), and males and females ($\chi^2=413.66$, $p<0.001$).

Results from the environmental audit show that no signage regarding the need for sun-protection was recorded on any of the beaches, despite many other signs present. However, Coral Bay and Exmouth Visitor Centre did provide information about the UV Level. At Tantabiddi in Exmouth, a sunscreen station was observed, however, it was in an unmaintained and dilapidated state. The UV Index ranged from 9-11 on the days and in the locations of the BOGS.

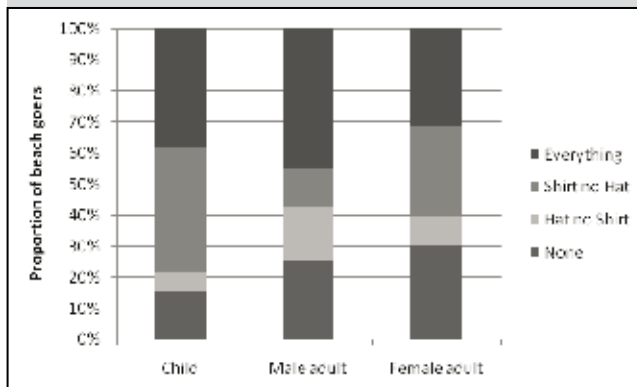
Discussion

This study has found that a large proportion of beach goers in north-west WA do not wear adequate sun protective

Table 1: Beach locations and dates the BGOS was conducted.

Beach location	Date visited	School holiday	Weekend
Cable Beach – North	9/07/2009	✓	✗
Cable Beach – South			
Town Beach – Boat Launch	10/07/2009	✓	✓
Town Beach – Caravan Park			
Pretty Pool – North	15/07/2009, 17/07/2009, 2/08/2009	✗	✓
Pretty Pool – South			
Cemetery Beach – Rocks	15/07/2009	✓	✗
Cemetery Beach – North			
Port Hedland Spoil Bank	16/07/2009	✓	✗
Port Hedland Yacht Club			
Finucane Lookout	17/07/2009	✓	✗
Finucane Island	18/07/2009	✓	✓
Eighty Mile Beach – North	21/07/2009	✗	✗
Eighty Mile Beach – South			
Eighty Mile Beach – Caravan Park	29/08/2009	✗	✓
Dampier – Boat Launch			
Dampier – Yacht Club	30/08/2009	✗	✓
Dampier – Hampton Beach			
Point Samson – North	30/08/2009	✗	✓
Point Samson – South			
Tantabiddi – Boat Launch	30/08/2009	✗	✓
Turquoise Bay			
Turquoise Drift	30/08/2009	✗	✓
Coral Bay – North			
Coral Bay – South	30/08/2009	✗	✓
Coral Bay – South			

Figure 1: Proportion of beach goers by sun protection, gender and age status.



clothing. In particular, females and children should become key target groups for sun protection campaigns, since they were recorded to have the lowest sun-protection rates. Since more females were observed to be wearing shirts without hats and less sun-protective clothing overall, there remains a need to encourage this group towards thorough sun protection. In addition, females have been shown to be more vulnerable to implicit messages in fashion magazines about wearing less sun-protective clothing, which contradicts public health messages concerning skin cancer prevention.⁷ Therefore, new health promotion strategies need to be developed that influence both explicit and implicit sun-protection fashion trends.⁷

Children were also observed to have poor sun-protective behaviour. In the *Australia's Young People Report*, only 9% of adolescents aged 12-17 years routinely undertook all sun-protection precautions, and this figure has remained stable since 1993.⁸ Given that malignant melanoma is the most frequent cancer among 15-44 year olds, and episodes of sunburn during childhood is a preventable risk factor, children have become a key focus of nearly all health promotion campaigns.⁸ In particular, the *SunSmart* campaign has been successful in raising the awareness of the dangers of sun overexposure among adolescents, however the link between knowledge and behaviour is yet to be seen.⁵ The BGOS has identified that females and children are important groups in NWWA to target for a multi-component health promotion intervention. The results from this study form the basis for such an intervention, which would ideally involve promoting

the *SunSmart* message on all NWWA beaches through signage and a mass media campaign.

Limitations of the study were that observers did not interview beach goers to identify more detailed demographic information, or other sun protective behaviours, such as the frequency of sunscreen application.

Conclusion

Malignant melanoma and NMSC place a considerable burden on the health system and contribute to a significant number of premature deaths in Australia. Consequently, there is a need to develop new health promotion campaigns with the aim of changing and improving sun-protective behaviours. It is also well known that positive changes in behaviour have the potential to significantly reduce the incidence of all skin cancers.⁴ The BGOS was designed to characterise the sun-protective clothing habits of beach goers in north-west WA, for the purpose of influencing the development of a health promotion intervention specific to the area. The study revealed that both females and children are high-risk groups for developing skin cancer since they had the lowest skin-protection rates. Therefore, the results from this study can be used to inform the development of a comprehensive multi-component program.

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