

# Sun Exposure Survey 2013: Topline Time Series Report

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Information on the methodology has partly been supplied by TNS Ltd.

Data preparation and analysis was conducted by Danny Tu (HPA).

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## REVIEW

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The report has not undergone external peer review.

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# 1 SUMMARY

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## 1.1 BACKGROUND

The Health Promotion Agency (HPA) undertakes the Sun Exposure Survey (SES) every three years. The purpose of this ongoing research is to collect consistent information on attitudes and behaviours towards sun exposure, to facilitate comparison with historical survey data, and to inform future decision making in the sun safety and skin cancer prevention sector.

The SES was formerly known as the Triennial Sun Protection Survey (TSPS), which had been conducted in 1994, 1997, 2000, 2003 and 2006. Following a review of the TSPS in 2009 the SES was developed, with a focus on the same measures to allow the continued identification of trends over time, and the inclusion of some new questions. The SES is conducted with adults between the ages of 18 and 54 years and teens between the ages of 13 and 17 years.

This report provides an overview of findings for the adult sample (18-54 years) of the 2013 SES. Three types of result are presented in this report: (1) time series results with age adjusted data from the 2010 SES and the first five waves of the TSPS, (2) results comparing questions asked in 2010 and 2013 only, and (3) results for questions that were asked for the first time in 2013. In this report these results are grouped into five key thematic sections: skin type, sun sensitivity and sunburn; outdoor activity; sun protection behaviour; sun protection knowledge; and tanning.

## 1.2 METHODOLOGY

The 2012/13 data collection comprised a total of 1754 interviews with 1250 adults and 504 teens. The sample frame was based on Random Digit Dialling (RDD). Quotas were set for broad geographic region, regional council boundary, age group, and gender. The use of RDD allows accurate representation of the geographic area surveyed since calls are scattered across the entire area and responses therefore reflect the underlying population characteristics.

The data collection method was Computer Assisted Telephone Interviewing (CATI). Interviewing was undertaken by Digipoll interviewers who were trained in the questionnaire prior to commencing the work. The interviews were carried out between 21 January and 12 March 2013 on Monday, Tuesday and Wednesday between the hours of 4:00pm and 8:30pm.

## 1.3 KEY FINDINGS

### 1.3.1 Skin Type and Sunburn History

The majority of respondents reported that they had “fair” or “medium” skin types, with fewer respondents reporting “very fair”, “olive”, “dark”, “very dark or black” skin types. When asked to describe their untanned skin’s reaction to strong sunshine, the majority of respondents stated that they would “burn first and then tan afterwards”. The remaining respondents mostly reported that they would either “just tan” or “just burn”. Over three quarters of respondents reported no history of skin cancer in their family.

Around one-half of respondents reported that they had experienced moderate to severe sunburn in the past. This figure has not changed significantly since 2010.

Just under one-quarter of respondents reported that they were sunburnt on either Saturday or Sunday of the previous weekend, a figure that has not changed significantly since 2000.

Respondents mainly attributed their sunburn to having “forgot to protect” or because they “didn’t wear clothing/didn’t use sun protection”.

The main parts of the body sunburnt in 2013 were the face, the arms (below the elbows), and the shoulders.

### **1.3.2 Outdoor Activity**

In 2013 a significantly higher proportion of respondents reported having spent 15 minutes or more outdoors the previous weekend compared to all TSPS and SES survey waves since 1994.

When asked whether the time they had spent outdoors was the amount of time they intended, a significantly higher proportion in 2013 reported that they had “not intended any particular time” compared with 2010. The majority of respondents in 2013 reported that they had spent “about the amount of time outdoors as they intended” or that they “had not intended any particular time”.

A significantly higher proportion in 2013 reported that they had participated in walking, running or tramping as their main outdoor activity, compared to all TSPS and SES survey waves since 1994. Gardening also remained a popular outdoor activity in 2013, however fewer respondents reported participating in this activity compared to 2010. In 2013, around six out of 10 respondents who were outdoors reported engaging in activities that were based in or next to water.

### **1.3.3 Sun Protection Behaviour**

The majority of respondents who reported being outdoors in 2013 said they had everything on hand to protect their skin from the sun, a significant increase compared to 2010.

Less than one-half of respondents in 2013 reported having worn some form of head covering, a significant decrease since 2010. More than one-half of respondents wore sunglasses in 2013, the same proportion as in 2010.

Just over one-half of respondents reported using sunscreen in 2013, representing a slight increase since 2010 and the highest proportion reporting sunscreen use across all survey waves since the commencement of the TSPS in 1994. There was a significant increase in the proportion of respondents who applied sunscreen to their nose, neck, ears, and arms (above the elbows) compared to 2010.

While the majority of respondents reported that they had stayed out of the sun or in the shade at some time when they were outside, around four out of 10 had not.

### **1.3.4 Advertising and Information Awareness**

In 2013 three quarters of respondents recalled some advertising about sun safety, a significant decrease since 2010. The most commonly recalled message in 2013 was ‘Slip, Slop, Slap’.

Around one half of respondents recalled promotions specifically relating to the skin damage caused by skin exposure; however few respondents could name the exact promotions they recalled.

### **1.3.5 Knowledge of skin cancer and risk factors**

In 2013 the majority of respondents agreed with the statements “I feel confident I can protect myself from skin cancer” and “Even if treated, Melanoma can lead to loss of life”. Agreement with the statement “Melanoma can be easily treated by a GP” was more split, with around one-half disagreeing, around three out of 10 agreeing, and the remainder unsure.

When asked about which factors they thought increased the chances of a person getting skin cancer, the majority of respondents mentioned “sun exposure”, though this was a significantly lower proportion than in 2010. The next most popular response in 2013 was “not using sun protection”.



In relation to their own perception of risk of getting skin cancer, around four out of 10 respondents thought they had a “medium” risk, while two out of 10 rated their risk as “high”. A higher proportion of respondents considered themselves to have a “low” or “medium” risk compared to 2010.

### **1.3.6 Attitudes to Getting a Tan**

The majority of respondents reported that they had not tried to get a tan during the previous weekend and did not intend to sunbathe to get a tan for the rest of the summer. However, less than one half of respondents reported that they planned to actively avoid getting a suntan. Very few respondents reported that they were likely to use a fake tan.

In 2013 a slightly higher proportion of respondents agreed with the statement “I feel more healthy with a suntan” compared to respondents in 2010. A higher proportion of respondents also agreed with the statement “Most of my friends think a suntan is a good thing”, and a significantly higher proportion of respondents agreed strongly with this statement compared with 2010.

In 2013 just under one half of respondents agreed with the statement “protecting my skin from the sun can result in not getting enough vitamin D”. Around nine out of 10 respondents (87%) agreed with the statement “I often encourage others to protect their skin from the sun”.

## Summary of Respondents' Attitudes and Sun Behaviour in 2013 and Previous Years

|   | 1994 | 1997 | 2000 | 2003 | 2006 | 2010 | 2013 |
|---|------|------|------|------|------|------|------|
|   | %    | %    | %    | %    | %    | %    | %    |
| <b>Sun exposure and sunburn</b>                           |      |      |      |      |      |      |      |
| Spent 15 minutes or more outside during previous weekend  | 76   | 76   | 80   | 75   | 73   | 81   | 91   |
| Sunburnt during the previous weekend                      | 11   | 34   | 24   | 21   | 23   | 20   | 23   |
| Ever been severely sunburnt                               | 47   | 48   | 39   | 42   | 37   | 51   | 48   |
| <b>Sun protection behaviour</b>                           |      |      |      |      |      |      |      |
| Wore a hat  | 35   | 34   | 39   | 41   | 43   | 48   | 38   |
| Wore sunscreen  | 39   | 31   | 37   | 45   | 51   | 51   | 55   |
| Wore sunglasses   | 58   | 43   | 54   | 57   | 54   | 61   | 60   |
| <b>Attitudes towards suntanning</b>                       |      |      |      |      |      |      |      |
| Agree "A suntan makes me feel better about myself"        | 46   | 41   | 44   | 53   | 44   | 44   | 49   |
| Agree "Most of my friends think a suntan is a good thing" | 46   | 48   | 53   | 54   | 50   | 47   | 58   |
| Agree "I feel more healthy with a suntan"                 | 31   | 30   | 42   | 37   | 35   | 39   | 44   |
| <b>Advertising awareness</b>                              |      |      |      |      |      |      |      |
| Recalled sun safety advertising                           | 79   | 73   | 59   | 59   | 70   | 88   | 75   |

Note: the data presented in this table represents respondents aged 18 – 54 years. Because previous surveys included respondents aged up to 69 years, the figures presented here will differ to figures presented in reports for the TSPS in previous years.

## 2 BACKGROUND

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### 2.1 PURPOSE

The Health Promotion Agency (HPA) undertakes the Sun Exposure Survey (SES) every three years. The purpose of this ongoing research is to collect consistent information on attitudes and behaviours towards sun exposure, to facilitate comparison with historical survey data, and to inform future decision making in the sun safety and protection sector.

Topics focused on in the SES include:

- Skin type, skin sensitivity and personal sunburn history
- Outdoor activity and sun safety
- Sun protection behaviours in the previous weekend
- Sun safety knowledge, including awareness of sources of sun protection advice and advertising
- Perceptions of risk in relation to skin cancer
- Attitudes towards tanning

The SES was formerly known as the Triennial Sun Protection Survey (TSPS), which had been conducted in 1994, 1997, 2000, 2003 and 2006. Following a review of the TSPS in 2009 the SES was developed, with a focus on the same measures to allow the continued identification of trends over time, and the inclusion of some new questions. The SES is conducted with adults between the ages of 18 and 54 years and teens between the ages of 13 and 17 years.

### 2.2 HISTORY

#### 2.2.1 The Triennial Sun Protection Survey

The TSPS commenced in 1994 and was managed by the Cancer Society of New Zealand (CSNZ), in collaboration with the Department of Preventative and Social Medicine at the University of Otago. The survey was based on a seminal study from Victoria, Australia. The aims of the survey were to describe patterns and associations in outdoor behaviour including; activities, sun protection, attitudes, knowledge, tanning preferences, and sunburn.

The TSPS survey population was largely driven by a need for cost-effectiveness and included adults (15 to 69 years, approximately n=1,250 per wave) and some children (12 to 14 years, inclusion varied across years). New Zealand's five largest metropolitan centres (Auckland, Hamilton, Wellington, Christchurch, and Dunedin) were included in the survey. The exclusion of rural and other urban populations meant that the findings could not be generalised.

A number of issues were identified following the 2005/06 wave of the TSPS. These issues included a drop in response rates (down to 21% in the 2006 survey), along with associated response bias issues, and problems with the representativeness of the sample, in addition to consistent data collection and analysis across surveys. Further to the identification of these issues, a review of the TSPS was initiated with the aim of improving the survey.

An Expert Reference Group (ERG) was established in 2009, comprised of experts in the field of skin cancer prevention and sun safety research to provide advice on methodology and questionnaire content. In addition to this a review of 'global' practice and options for a sun exposure survey was conducted by an independent research company (see *Review of Practice*

*and Options for the New Zealand Sun Exposure Survey, Watts, Heinemann, Marsh and Graham 2009).*

The review process was initiated to inform the development of a revised quantitative survey, so to improve evidence available on prevalence and trends in sun safety behaviour to aid future sector decision making. The substantial review undertaken in 2009 laid the foundation for the 2010 SES, which was funded jointly by the Health Sponsorship Council (HSC) and CSNZ. The 2013 survey has been designed to be highly consistent with the structure and methodology of the 2010 survey.

A table showing key question themes of each survey between 1994 and 2013 is attached as Appendix one.

### **2.2.2 Oversight of the survey from 2013 onwards**

The SES was initially co-funded by HSC and CSNZ and managed by HSC. From 2013, the survey is solely funded and managed by the Health Promotion Agency (HPA). The HPA is a Crown Entity established July 1, 2012 under the New Zealand Public Health and Disability Amendment Act 2012, by a merger of HSC and the Alcohol Advisory Council (ALAC).

## 3 METHODOLOGY

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This chapter summarises the methodology used for the SES in 2013. For a full account of the methodology used please refer to the methodology report (Methodology Report: Sun Exposure Survey, 2013) prepared by TNS.

### 3.1 SAMPLING

The 2013 SES was comprised of two samples, an adult sample and a teen sample. The target population for the adult sample was 18-54 years and the target population for the teen sample was 13-17 years.

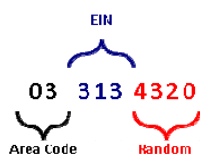
A total of 1754 interviews were carried out comprising 1250 adults and 504 teens. An objective of the study was to achieve a nationally representative sample of those aged 13 years to 54 years, and the approach to sampling reflected this aim. The sample frame was based on Random Digit Dialling (RDD).

A quota of interviews was set for broad geographic region, regional council boundary, age group and gender. Quota targets were established based on known population distributions from the 2006 census data for both adult and teen samples.

Basing the 2013 survey on RDD represented a different approach from the 2010 survey, which involved designing a sampling frame from the White Pages Directories. The use of RDD in 2013 was initiated to overcome potential selection bias. Specifically, this method was introduced to avoid the exclusion of a significant proportion of the population due to inaccurate and incomplete White Pages Directory information as a result of unlisted numbers, disconnected numbers, and people having changed residence.

The core principle of the Random Digit Dialling (RDD) method for sampling is targeting Exchange Information Numbers (EIN). Each EIN is attached to a geographic area, per the example below in Figure 3.1. The last four numbers are randomised:

**Figure 3.1: Example of Exchange Information Numbers**



This allows accurate representation of the geographic area surveyed since calls are scattered across the entire area and thus responses reflect the underlying population characteristics. Respondents were selected from each household using the 'next birthday' rule, this being consistent with the 2010 survey.

Quota targets were established based on known population distributions from the 2006 census data for both the adult and teen samples. Quota targets were established as 'hard' targets that had to be achieved and 'soft' targets that permitted a variation of +/-10%. Targets were set for broad geographic region, regional council boundary, age group and gender.

### 3.1.1 Fine weather criteria

During the fieldwork period meteorological data was accessed by the survey provider, TNS Ltd. The data included temperature, sky condition and Ultraviolet Index (UVI) reading. Scores were applied for each hour between 11am and 4pm and summed for the day. The scoring system is detailed in Table 3.1 below:

**Table 3.1 Fine Weather Criteria**

| <b>Temperature</b>  | <b>Score</b> |
|---|--------------|
| Greater than or equal to 20 degrees                           | 1.0 pt       |
| Greater than or equal to 15 degrees, and less than 20 degrees | 0.5 pt       |
| Less than 15 degrees  | 0.0 pt       |

| <b>Sky Conditions</b>     | <b>Score</b> |
|---------------------------|--------------|
| Fine                      | 1.0 pt       |
| Cloudy                    | 0.5 pt       |
| Any form of precipitation | 0.0 pt       |

| <b>UVI<sup>(1)</sup></b>                     | <b>Score</b> |
|--|--------------|
| Greater than, or equal to 10                 | 1.0 pt       |
| Greater than or equal to 6, and less than 10 | 0.5 pt       |
| Less than 6                                  | 0.0 pt       |

Note: (1) The UV Index was rounded to the nearest whole number for the calculations

Interviews were only conducted in areas in which at least one weekend day received a score greater than 10. The interviews were then conducted the following week in relation to the eligible day when a respondent reported being outdoors for 15 minutes or more between 10am and 4pm.

## 3.2 DATA WEIGHTING

Data from this survey were weighted so that no specific population was over- or under-represented in the survey sample. Since the most recent census data available is 2006, the HPA provided counts that included estimated growth to 2013.

### 3.2.1 Selection weights

The data were weighted to ensure that they reflect the underlying population. Selection weights adjust for the probability of a person being selected for participation in the survey from within a household with more than one occupant. In the case of respondents included in the adult sample (aged 18-54 years), a single respondent was randomly chosen and all eligible adults had an equal chance of selection. In the small number of cases where the number of people in the household was not answered, the selection weight used was the average selection weight for those in the same gender, ethnicity and age group.

### 3.2.2 Benchmarking

Benchmarking refers to the adjustment of the data to ensure they are representative of the New Zealand population after selection weights have been applied.

For this survey benchmarks were gender by age groups (18-24, 25-34, 35-44, and 45-54) and by prioritised ethnic groups (Māori, Pacific, Asian, and European/Other).

Prioritising ethnic groups involves including each respondent in one ethnic group only, rather than every ethnicity they identify with. For example, if a respondent identified as Pacific and French then they will have been grouped into the Pacific ethnic group as part of the benchmark weighting process.

### 3.2.3 Age Standardisation

The age structure of the population is not static and this can impact the extent to which health related data can be compared over time. To mitigate the possibility of any impact, age standardisation has been applied using the World Health Organisation (WHO) standard population (Ahmed et al 2000). The population adjustments made using the WHO standard were made to each gender by ethnic group used in the benchmarking.

## 3.3 DATA COLLECTION

The data collection method was Computer Assisted Telephone Interviewing (CATI). Interviewing was undertaken by Digipoll, a specialist data collection provider based in Hamilton, by trained interviewers who were fully briefed on the questionnaire prior to commencing the work.

### 3.3.1 Interviewing

The interviews were carried out between 21 January and 12 March 2013 on Monday, Tuesday and Wednesday between the hours of 4:00pm and 8:30pm.

All calls, including arranged call-backs were made to areas that met the 'fine weather' criteria the previous weekend. Call backs could be made in subsequent weeks providing fine weather criteria had been met the previous weekend. Each respondent received an initial call and up to six call-backs at different times or days if they could not be contacted. Appointments were made with respondents who were willing to participate but not at the time the call was made.

The average interview duration was 17.45 minutes. The adult survey had an average duration of 18 minutes and the teen survey an average duration of 16.12 minutes.

### 3.3.2 Response rate

A total of 36,350 telephone calls were made using random-digit dialling. Of these, 24,779 were not to valid residential numbers or were not answered after multiple attempts. This resulted in a valid sample of 11,571.

**Table 3.2 provides details of the call outcomes for the survey:**

| <b>Description</b>                       | <b>Calls</b> | <b>% of Total</b> |
|--|--------------|-------------------|
| Total Calls                              | 36,350       |                   |
| Un-contactable / Disconnected / Fax etc. | 24,779       |                   |
| Total Available Sample                   | 11,571       |                   |
| <b>Call Outcomes</b>                     |              |                   |
| Not Eligible                             | 3,161        |                   |
| Quota Target Full                        | 1,822        |                   |
| Total Not Eligible                       | 4,983        |                   |
| Total Available & Eligible Sample        | 6,588        |                   |

### Outcomes from Eligible Respondents

### % of Available / Eligible

|                             |       |     |
|-----------------------------|-------|-----|
| Refused                     | 2,440 | 37% |
| Not Available During Survey | 2,225 | 34% |
| Language or Health Barriers | 169   | 3%  |
| Survey Complete             | 1,754 | 27% |
| Total Outcomes              | 6,588 |     |

A total of 6,588 respondents were classified as being eligible having removed those who were screened out for reasons such as being outside of the target age group or because the quota target for the age, gender or location had already been filled. Of these 37% refused the survey and a further 34% were unavailable for interview on the days that the survey was conducted. Because interviews were undertaken only on a Monday to Wednesday and related to the prior weekend, this further limited availability. Stated unavailability during the survey period is also frequently a soft refusal and therefore cannot necessarily be considered distinct from 'refusals'.

The completed interviews represent 27% of the available and eligible sample.

### 3.4 QUESTIONNAIRE DEVELOPMENT

As with the 2010 SES, the 2013 survey used two separate questionnaires for the adult (aged 18-54 years) and the youth samples (aged 13-17 years). Although separate questionnaires were used for the youth and adult groups, many of the same questions were asked of both groups.

As a preliminary phase of the project, the survey provider (TNS) undertook cognitive testing with eight respondents to ensure the questions asked of respondents were appropriate, effective and easily understood. Following this process a number of relatively minor wording changes were made to the questionnaire.

Prior to the main phase of the data collection, a pilot was conducted across 100 respondents. The pilot confirmed that the questionnaire was working well and it was recommended that reference be made to the Ministry of Health in the introduction to help maximise the response rate.

#### 3.4.1 Key differences between the 2013 Survey and Previous Surveys

The final questionnaire was based on the 2010 questionnaire, and therefore includes questions that allow comparison with previous TSPS surveys from 1994. Due to shifting areas of interest in 2013 a small number of questions that appeared in the 2010 survey were not included in the 2013 survey. New questions were added that reflect specific areas of interest in 2013 and include:

- respondent's perceptions of why they got sunburnt
- availability of shade while doing main outdoor activity
- for those participants who reported no shade available, likelihood of using shade, had it been available
- attitudes relating to the following: Vitamin D deficiency, encouragement of others to protect their skin, individual perception of ability to protect oneself from skin cancer, ease of treating melanoma by a GP and melanoma leading to loss of life
- attitudes about tanning causing skin to age faster and likelihood of already having some permanent damage to skin from sun exposure (only asked of respondents aged 13-24 years)
- unprompted recall of promotions about the 'Don't Let the Sun Get Under Your Skin' campaign



- unprompted and prompted recall and understanding of the Sun Protection Alert and any behaviour as a result of having seen/heard it
- attitudes toward the role of local councils in providing shade in public spaces and willingness to pay more in rent or rates so that councils can provide more shade
- family history of skin cancer
- percent of work week spent working outdoors.

The 2013 SES includes three types of question:

- Questions that have been repeated over several years since 1994.
- Questions that were asked for the first time in 2010 and repeated in 2013.
- Questions asked for the first time in 2013.

## 3.5 GENERAL POINTS TO NOTE

### 3.5.1 Interpreting comparisons between years

In this report results from the 2013 SES are compared with previous TSPS and SES survey results for adults 18-54 between 1994 and 2010 for questions that have been consistently repeated. As noted in the 2010 SES report, results presented from the 1994-2006 TSPS may differ from those reported previously since this data will have been:

- recalculated using the same formulae or questions that are comparable with the 2010 SES
- reanalysed using only data from respondents aged 18-54, to maintain comparability with the 2010 adult data
- weighted by age, gender and ethnicity to be representative at the five metropolitan areas that respondents were selected from
- age-standardised, to ensure that the different distributions of age over the different years do not affect comparisons (see 3.3.3 for further explanation).

A number of questions have been asked for the first time in 2013 and 2010. The statistics for these responses have not been age-standardised and are presented without any comparisons.

### 3.5.2 “The day in question” as referred to in the text

In the 2013 SES respondents were asked about their activities on either Saturday or Sunday of the previous weekend. Remaining consistent with the 2010 SES, respondents were first asked whether they had spent 15 minutes or more outdoors on either day at the weekend, and then whether they were sunburnt on either day. Interviews were conducted in relation to the day that met the fine weather criteria. If both days met the criteria then the interview was conducted in relation to the day that the respondent was outdoors for at least 15 minutes between 10am and 4pm. If the respondent was outdoors during that time on both days then one day was randomly selected. If the respondent got sunburnt then priority was given to the day on which they got burnt (assuming it met the fine weather criteria).

### 3.5.3 Significance testing

Only differences that are statistically significant (that is, for which the p-value is less than 0.05) have been commented on in the text of this report. Statistical significance was measured either by looking at 95% confidence intervals or using t-tests.

### 3.5.4 Presentation of results

For some questions, a breakdown in responses for 2013 only will be presented, followed by a comparison with previous years. These sections will be clearly marked. All data being compared with previous years has been age-standardised.

Questions that were added for the first time in 2010 and that were repeated in 2013 have been compared to show any significant differences between these.

Questions that were only asked in 2013 for the first time are presented alone, using data that has not been age-standardised. Sub-group analyses are not presented in this report, but will be explored in future publications.

In the tables comparing responses between surveys, an asterisk indicates that there is no data.

Below the graphs and tables, the “base” is defined – this relates to the group of respondents for which the responses are being presented (for example, “outside during the previous weekend” or “sunburnt the previous weekend”). Please note that the “base” number applies to unweighted counts unless otherwise specified.

### 3.6 SAMPLE PROFILE

Table 3.3 presents the adult 18 to 54-year-old samples from each of the TSPS waves and the 2010 and 2013 SES.

**Table 3.3: Sample profile, 18 to-54 years, 1994 to 2013, crude weighted proportions**

|                    | 1994 | 1997 | 2000 | 2003 | 2006 | 2010 | 2013 |
|--------------------|------|------|------|------|------|------|------|
|                    | %    | %    | %    | %    | %    | %    | %    |
| <b>Gender</b>      |      |      |      |      |      |      |      |
| Male               | 49   | 49   | 49   | 50   | 49   | 49   | 49   |
| Female             | 51   | 51   | 51   | 50   | 51   | 52   | 51   |
| <b>Age</b>         |      |      |      |      |      |      |      |
| 18 to 24 years     | 22   | 20   | 19   | 19   | 20   | 19   | 20   |
| 25 to 34 years     | 31   | 30   | 29   | 29   | 26   | 25   | 25   |
| 35 to 44 years     | 27   | 28   | 28   | 28   | 29   | 30   | 27   |
| 45 to 54 years     | 20   | 21   | 23   | 24   | 25   | 26   | 28   |
| <b>Ethnicity*</b>  |      |      |      |      |      |      |      |
| Māori              | 10   | 11   | 11   | 11   | 10   | 14   | 13   |
| Pacific            | 3    | 5    | 5    | 4    | 5    | 6    | 6    |
| Asian              | 6    | 7    | 8    | 9    | 12   | 10   | 7    |
| Other              | 2    | 2    | 0    |      | 1    | 2    | 19   |
| European           | 79   | 76   | 76   | 77   | 73   | 69   | 64   |
| <b>Skin type**</b> |      |      |      |      |      |      |      |
| Very Fair          |      |      | 25   | 25   | 21   | 11   | 13   |
| Fair               |      |      | 27   | 29   | 34   | 32   | 32   |
| Medium             |      |      | 22   | 24   | 19   | 28   | 28   |

|  |    |    |    |    |    |    |    |
|--|----|----|----|----|----|----|----|
| Olive                                      |    |    | 23 | 21 | 22 | 22 | 21 |
| Dark                                       |    |    | 2  | 2  | 4  | 5  | 6  |
| Very dark/ black                           |    |    | 0  | 0  | 1  | 1  | 1  |
| <b>Highest qualification</b>               |    |    |    |    |    |    |    |
| Nothing/None                               | 15 | 14 | 10 | 7  | 3  | 10 | 6  |
| Secondary qualification                    | 49 | 44 | 43 | 46 | 33 | 36 | 32 |
| Other tertiary qualification except Degree | 17 | 19 | 17 | 17 | 32 | 23 | 18 |
| Degree                                     | 17 | 20 | 27 | 27 | 29 | 30 | 34 |
| Other (includes overseas qualification)    | 1  | 2  | 1  | 1  | 1  | 0  | 6  |
| Don't know/Refused                         | 1  | 1  | 3  | 1  | 1  | 1  | 5  |
| <b>Percent of work week spent outdoors</b> |    |    |    |    |    |    |    |
| 0%   | *  | *  | *  | *  | *  | *  | 41 |
| 1-14%                                      | *  | *  | *  | *  | *  | *  | 20 |
| 15-29%                                     | *  | *  | *  | *  | *  | *  | 10 |
| 30-44%                                     | *  | *  | *  | *  | *  | *  | 5  |
| 45-59%                                     | *  | *  | *  | *  | *  | *  | 6  |
| 60-74%                                     | *  | *  | *  | *  | *  | *  | 3  |
| 75-79%                                     | *  | *  | *  | *  | *  | *  | 4  |
| 90% or more                                | *  | *  | *  | *  | *  | *  | 7  |
| Don't know                                 | *  | *  | *  | *  | *  | *  | 4  |

\* Note: for 2000–2013 respondents who identified with more than one ethnic group have been assigned to one of their ethnic groups in order of Māori, Pacific, Asian, Other, European (prioritisation). This means, for example, that someone who identifies with both Māori and Pacific ethnic groups were analysed as part of the Māori ethnic group. In the 1994 and 1997 TSPS waves a single-response ethnicity question was used, so no prioritisation has been applied.

\*\* Note: skin type was not asked about in 1994 or 1997.

## 4 SKIN TYPE, SUN SENSITIVITY AND SUNBURN

### 4.1 SKIN TYPE

All respondents were asked about how they would describe their natural, untanned skin at the end of winter, in order to ascertain how likely people were to burn.

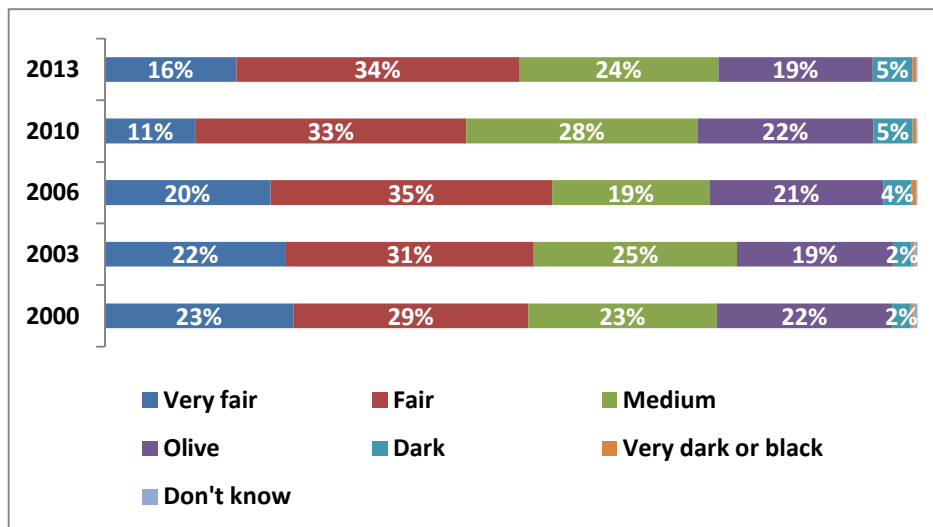
#### 2013

In 2013, around one-third (34%) of respondents reported that they were fair skinned, while under two out of 10 (16%) reported that their skin was very fair. Around one-quarter (24%) reported that their skin type was “medium”, with around two out of 10 (19%) identifying their skin type as “olive” and smaller proportions reporting dark (5%) or very dark (3%) skin (see Figure 4.1).

#### Time-series

The skin type question was asked from 2000 onwards. In 2013 respondents were more likely to report that their skin was “very fair” compared to 2010 (16% compared to 11%) and less likely to report their skin was medium (24% compared with 28%).

Figure 4.1: Self-described skin type, 18 to-54-years old, age-standardised proportions, 2000 to 2013



Base: all respondents

### 4.2 PERCEPTION OF SENSITIVITY TO THE SUN

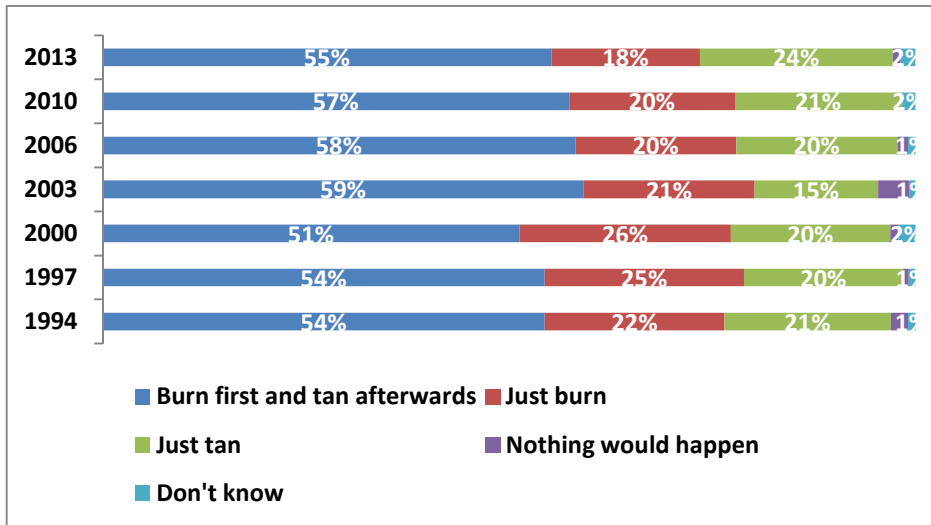
All respondents were asked what would happen if their untanned skin was exposed to strong sunshine for 30 minutes at the beginning of summer, using no sun protection at all.

#### 2013

In 2013, just over one-half (55%) of respondents said they would “burn first and tan afterwards”, while around two out of 10 (18%) respondents said they would “just burn” and just under one-quarter (24%) said they would “just tan” (see Figure 4.2).

## Time-series

**Figure 4.2: Untanned skin's reaction to 30 minutes of strong sunshine, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**

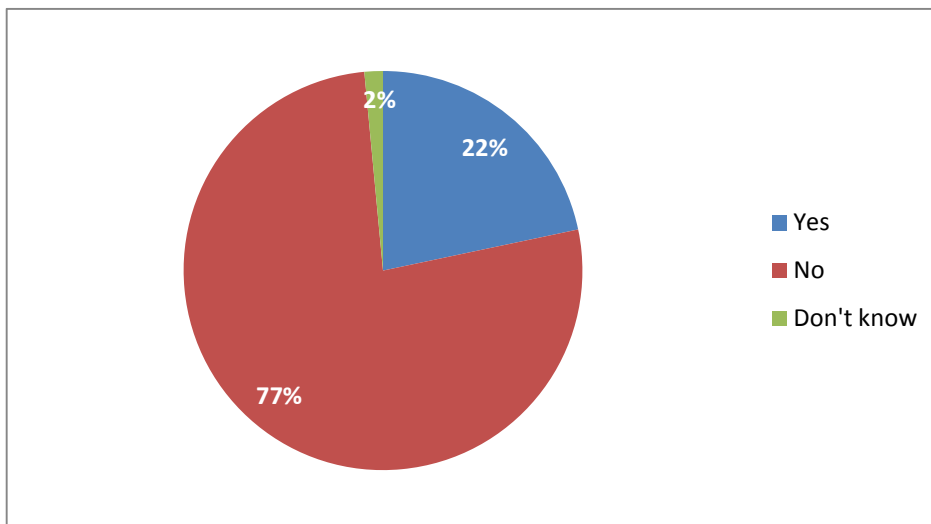


Base: all respondents

## 4.3 FAMILY HISTORY OF SKIN CANCER

In 2013 a new question was added to the SES, which asked respondents about the historical incidence of skin cancer in their family. Two out of 10 respondents (22%) reported that they did have a history of skin cancer in their family, while nearly eight out of 10 (77%) did not (see Figure 4.3).

**Figure 4.3: Family history of skin cancer, 18 to 54-year-olds, age-standardised proportions, 2013**



Base: all respondents

## 4.4 SUN BURN HISTORY

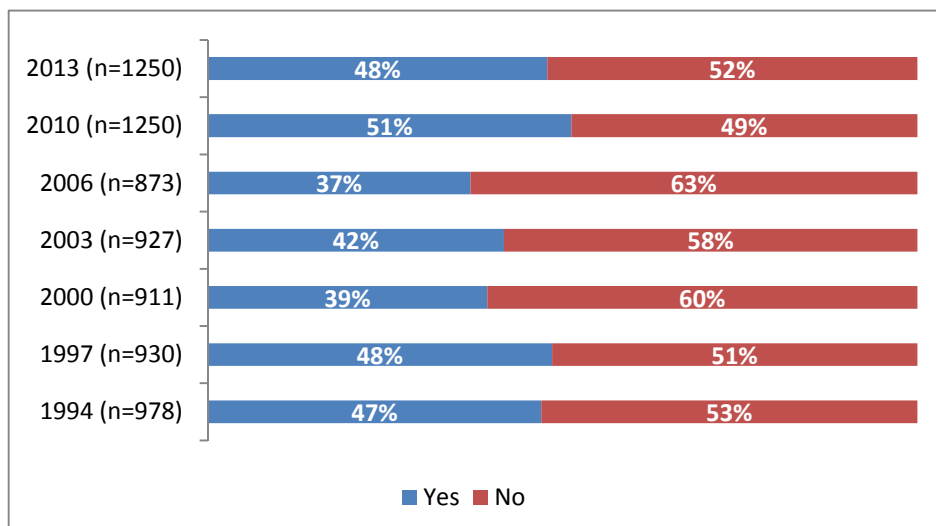
All respondents were asked whether they had ever experienced moderate to severe sunburn, defined as sunburn that results in blisters or pain for at least two days (apart from the previous weekend).

## 2013

In 2013 just under one-half (48%) of respondents reported that they had experienced moderate to severe sunburn in the past, and around one-half (52%) had not. The proportion of respondents reporting moderate to severe sunburn has not changed significantly since 2010.

### Time series

**Figure 4.4: Previous history of moderate/severe sunburn, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



Base: all respondents

### 4.4.1 Recent sunburn

All respondents who had spent at least 15 minutes outside during the previous weekend (see Section 5.1) were asked whether they had been sunburnt (defined as, experienced reddening of the skin after being in the sun) on Saturday or Sunday of the weekend just passed.

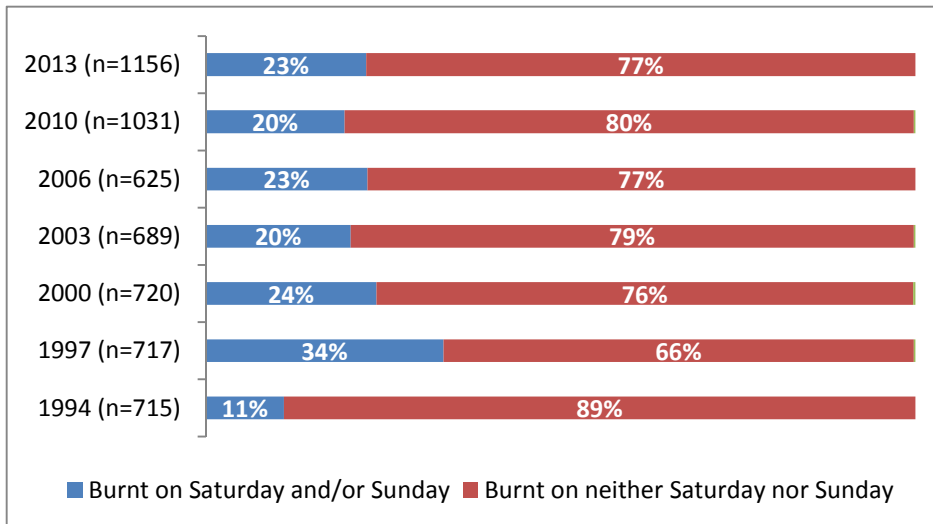
## 2013

In 2013 around two out of 10 respondents (23%, 17-28%) reported that they had been sunburnt on either Saturday or Sunday of the previous weekend.

### Time series

The proportion of respondents reporting that they were sunburnt on either Saturday or Sunday of the previous weekend has not changed significantly since 2000.

**Figure 4.5: Sunburn during previous weekend, 18 to 54-year-olds, age standardised proportions, 1994 to 2013**

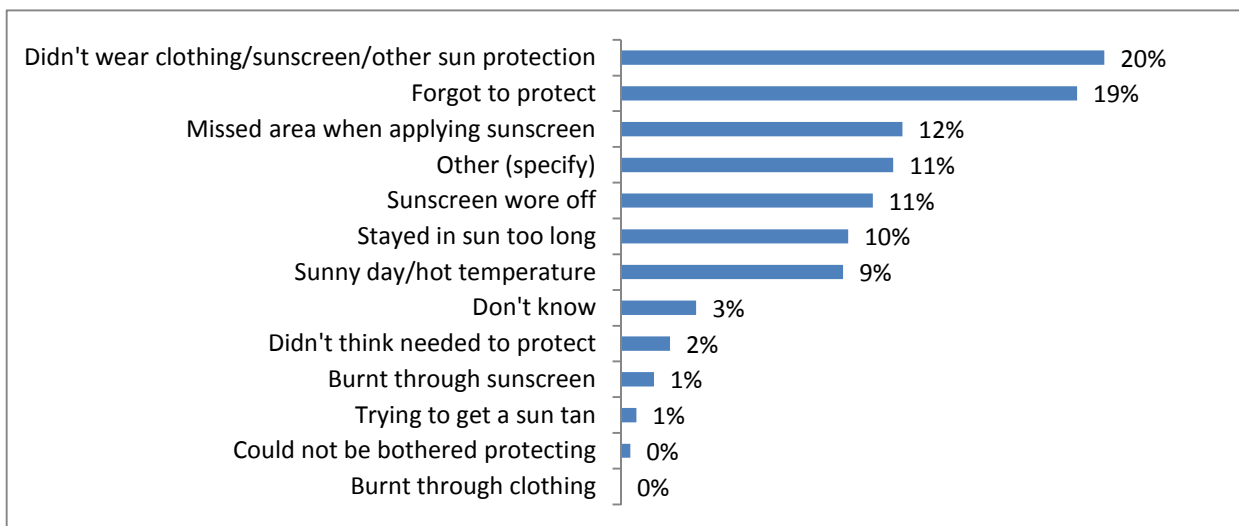


Base: outdoors previous weekend

#### 4.1.2 Reason for sunburn

All respondents who reported getting sunburnt were asked to identify the main reason they got sunburnt. This question was asked for the first time in 2013. Two out of 10 respondents (20%) reported that they got sunburnt because they did not wear clothing, sunscreen or other sun protection, and around two out of 10 reported that they forgot to protect (19%). Other reasons reported by at least one out of 10 were that they missed areas when applying sunscreen (12%), the sunscreen wore off (11%), and 'other' reasons (11%).

**Figure 4.6: Perception of main reason for getting sunburnt, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



Base: sunburnt previous weekend (n=209)

#### 4.3.3 Parts of the body sunburnt

Respondents who had been sunburnt on either or both days during the previous weekend were asked to identify which parts of their body were sunburnt.

## 2013

In 2013, as shown in Table 4.4, the body part most likely to have been sunburnt was the arms (below the elbows) for almost one-half of respondents (48%) who reported sunburn. Other body parts that at least three out of 10 respondents reported as having been sunburnt were: the face (42%), the neck (38%), the shoulders (47%), the nose (30%), and the arms above the elbows (39%).

## Time-series

**Table 4.4: Areas of the body sunburnt, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**

|  | 1994       | 1997       | 2000       | 2003       | 2006       | 2010       | 2013       |
|--|------------|------------|------------|------------|------------|------------|------------|
|  | %          | %          | %          | %          | %          | %          | %          |
| Face                                       | 31         | 38         | 38         | 29         | 32         | 40         | 42         |
| Arms - below elbows                        | *          | 36         | 29         | 30         | 27         | 37         | 48         |
| Neck                                       | 29         | 33         | 26         | 19         | 36         | 33         | 38         |
| Shoulder                                   | 15         | 15         | 26         | 31         | 33         | 31         | 47         |
| Nose                                       | 8          | 29         | 25         | 16         | 15         | 30         | 30         |
| Arms - above elbows                        | *          | 28         | 19         | 24         | 21         | 27         | 39         |
| Chest                                      | 5          | 5          | 10         | 6          | 15         | 18         | 23         |
| Legs - below knees                         | *          | 20         | 17         | 12         | 15         | 16         | 27         |
| Back                                       | 13         | 14         | 12         | 21         | 22         | 15         | 24         |
| Hands                                      | *          | 11         | 6          | 8          | 4          | 12         | 9          |
| Ears                                       | 1          | 9          | 7          | 3          | 6          | 10         | 19         |
| Legs - above knees                         | *          | 14         | 9          | 6          | 12         | 9          | 15         |
| Feet                                       | 3          | 4          | 7          | 3          | 6          | 9          | 19         |
| Stomach                                    | 1          | 1          | 6          | 3          | 7          | 8          | 5          |
| Scalp                                      | *          | 23         | 9          | 2          | 5          | 8          | 16         |
| Other                                      | *          | 0          | 1          | *          | *          | 2          | *          |
| Arms                                       | 28         | *          | *          | *          | *          | *          | *          |
| Legs                                       | 27         | *          | *          | *          | *          | *          | *          |
| Head                                       | 2          | *          | *          | *          | *          | *          | *          |
| Back of knees                              | 1          | *          | *          | *          | *          | *          | *          |
| Don't know                                 | *          | 0          | *          | 1          | *          | *          | 1          |
| <b>Base: Sunburnt previous weekend (n)</b> | <b>104</b> | <b>177</b> | <b>159</b> | <b>126</b> | <b>139</b> | <b>198</b> | <b>209</b> |



## 5 OUTDOOR ACTIVITY

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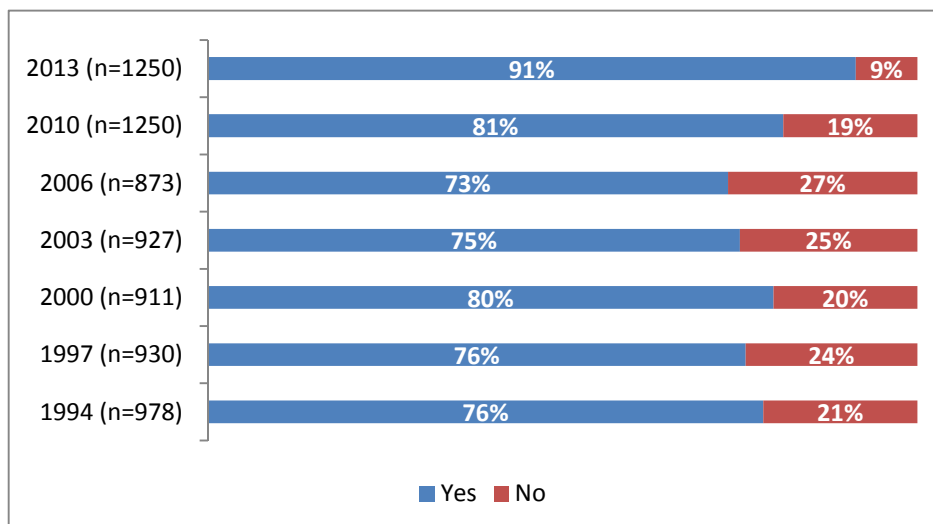
### 5.1 TIME OUTDOORS DURING THE PREVIOUS WEEKEND

All respondents were asked whether they had spent 15 minutes or more outdoors between 10am and 4pm on the previous Saturday and/or Sunday. One of these days was then chosen to ask about in more detail (see Section 3.6).

#### Time series

In 2013, nine out of 10 respondents reported that they had spent 15 minutes or more outdoors between 10am and 4pm on the previous Saturday or Sunday during the previous weekend, a significantly higher proportion than in 2010 (91% compared with 81%). This represents the highest proportion of respondents reporting having spent 15 minutes or more outdoors the previous weekend across all survey waves since 1994.

**Figure 5.1: Spent 15 minutes or more outside during previous Saturday and/or Sunday, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



Base: all respondents

The proportion of respondents who spent 15 minutes or more outside on both Saturday and Sunday has increased significantly from 30% in 1994 to 60% in 2013.

The difference in proportions of people spending time outdoors between the 1994-2006 surveys and the 2010 and 2013 surveys may in part relate to differing sampling methods. From 2010 onwards respondents are selected from rural and urban locations around New Zealand, rather than drawing only from New Zealand's five main metropolitan areas (see Section 2.1).

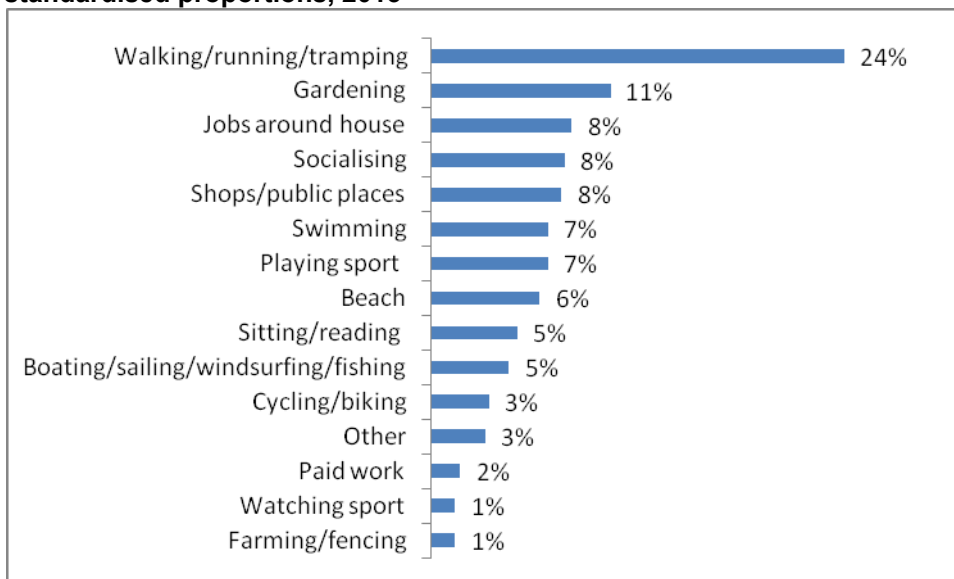
### 5.2 OUTDOOR ACTIVITIES

Respondents who had spent at least 15 minutes outdoors during the previous weekend were asked to describe what activity they had spent the most time doing.

#### 2013

In 2013, the most popular activities were walking, running and tramping and gardening. Two out of 10 (24%) of respondents reported participating in walking, running or tramping. One out of 10 reported participating in gardening (11%).

**Figure 5.2: Main outdoor activity participated in during previous weekend, 18 to 54-year-olds, age-standardised proportions, 2013**



Base: outdoors during previous weekend: (n=1156)

### Time series

The main outdoor activities respondents reported participating in for TSPS and SES surveys from 1994 to 2013 is shown in Table 5.3.

In 2013 a significantly higher proportion of respondents reported that they participated in walking, running or tramping (22% compared with 13% in 2010), representing the highest proportion for this activity since the commencement of the TSPS in 1994. This was also the case for swimming, with 7% reporting that they participated in this activity (see Table 5.3).

**Table 5.3: Main outdoor activities participated in during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**

|   | 1994       | 1997       | 2000       | 2003       | 2006       | 2010        | 2013        |
|---|------------|------------|------------|------------|------------|-------------|-------------|
|   | %          | %          | %          | %          | %          | %           | %           |
| Gardening   | 27         | 25         | 17         | 15         | 18         | 16          | 11          |
| Walking/running/tramping                              | 14         | 16         | 18         | 17         | 16         | 13          | 24          |
| Shops/public places                                   | 2          | *          | 2          | 6          | 3          | 11          | 8           |
| Jobs around house                                     | 8          | 10         | 11         | 10         | 8          | 11          | 8           |
| Socialising   | 6          | 2          | 11         | 7          | 10         | 9           | 8           |
| Beach   | 2          | 6          | 4          | 6          | 9          | 8           | 6           |
| Playing sport   | 7          | 17         | 9          | 11         | 10         | 6           | 7           |
| Sitting/reading                                       | 18         | 7          | 8          | 7          | 7          | 5           | 5           |
| Boating/sailing/windsurfing/fishing                   | 3          | 1          | 4          | 3          | 2          | 5           | 5           |
| Other   | 2          | 7          | 7          | 3          | 4          | 4           | 3           |
| Paid work   | 3          | 2          | 3          | 4          | 3          | 4           | 2           |
| Farming/fencing                                       | 2          | 2          | *          | 1          | 1          | 3           | 1           |
| Swimming  | 1          | 1          | 2          | 4          | 4          | 3           | 7           |
| Watching sport  | 3          | 1          | 1          | 4          | 4          | 3           | 1           |
| Cycling/biking  | 1          | *          | 1          | 1          | 2          | 2           | 3           |
| Don't know  | 3          | *          | 1          | 4          | *          | *           | *           |
| <b>Base: Outdoors during the previous weekend (n)</b> | <b>715</b> | <b>717</b> | <b>720</b> | <b>689</b> | <b>625</b> | <b>1013</b> | <b>1156</b> |

## 5.2.1 Water-based activities

### 2013

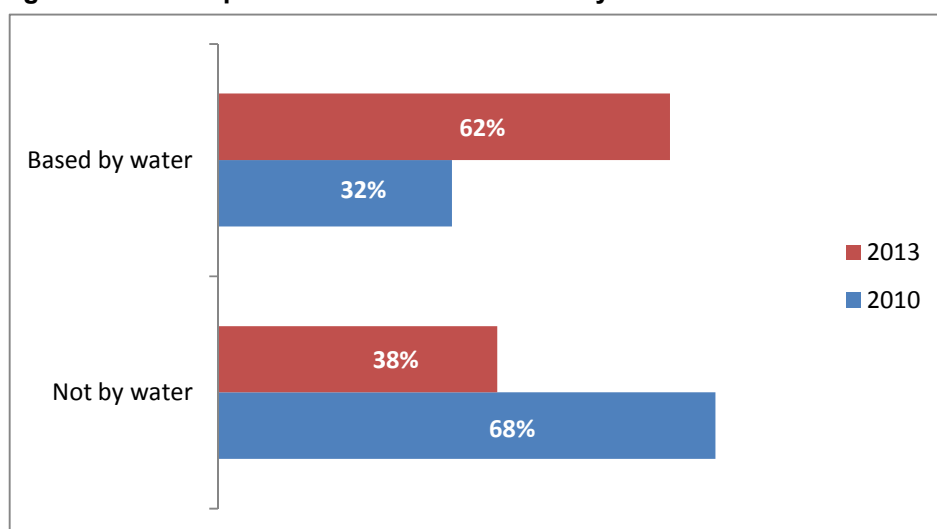
In 2013, respondents who reported taking part in an activity that was not specifically water-based were asked whether their activity was based in, or next to, water. This was then used to calculate the proportion of respondents who were in, on, or around, water while they were doing their main activity outside on the previous weekend.

Over one-third of respondents reported that they had been based in or next to the water while undertaking their main activity, while over six out of 10 (62%) had not.

### 2010 and 2013 comparison

In 2013 a significantly higher proportion of respondents reported being based in or next to water while participating in their main outdoor activity than in 2010 (62% compared with 32%).

**Figure 5.3: Participation in activities based in/by water 2010 and 2013 comparison**



Base: outdoors previous weekend

## 5.3 TIME SPENT DOING OUTDOOR ACTIVITY

Respondents who had spent 15 minutes or more outdoors during the previous weekend were asked how long they had spent outside doing the main activity they mentioned, and the approximate times during the day that they began and finished the outdoor activity.

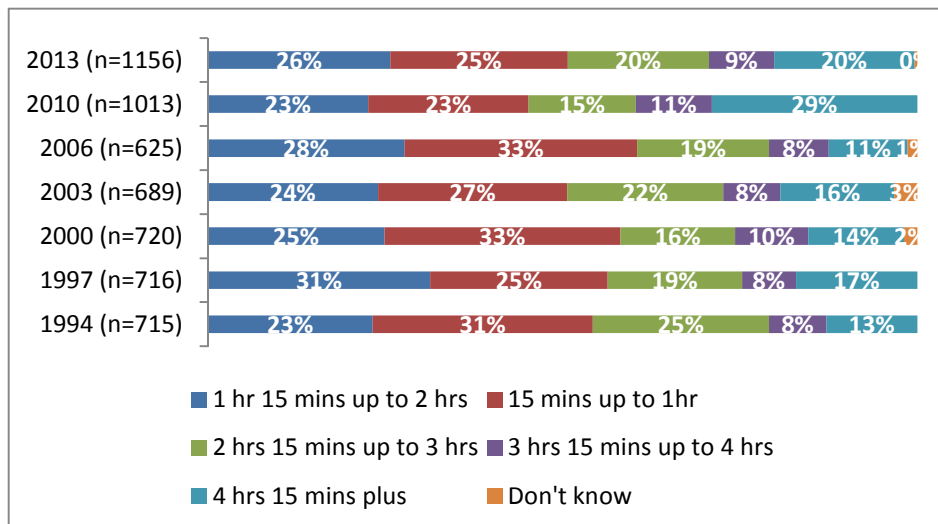
### 2013

In 2013, one-half (51%) of respondents who had been outdoors spent two hours or less doing their main activity. Two out of 10 (20%) reported spending more than four hours doing their main activity the previous weekend (see Figure 5.4).

### 2010 and 2013 comparison

The proportion of respondents reporting that they spent at least four hours and 15 minutes or more decreased significantly in 2013 (20% compared with 29% in 2010). The proportion of respondents who reported spending between two hours and 15 minutes and three hours doing outdoor activity the previous weekend increased one-third (20% compared with 15% in 2010).

**Figure 5.4: Amount of time spent doing outdoor activity during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994-2013**



Base: outdoors during previous weekend

### 5.3.1 Planned duration of outdoor activity

#### 2013

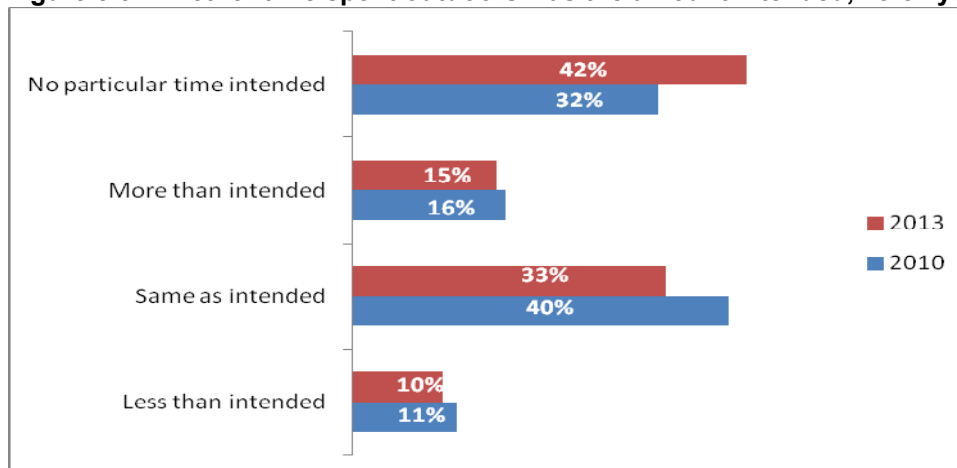
In 2013 respondents who had spent 15 minutes or more outdoors the previous weekend were asked to consider how much time they had spent outdoors on the day in question, compared to the amount of time they had anticipated being outdoors for.

Just greater than three out of 10 (33%) respondents spent about the amount of time outdoors as they intended. Around four out of 10 (42%) said that they had not intended any particular time when they went outside. Under two out of 10 (15%) respondents spent more time outdoors than they intended, and one out of 10 (10%) spent less time outdoors than intended (see Figure 5.5).

#### 2010 and 2013 comparison

In 2013 a significantly higher proportion of respondents reported that they had no particular time intended to be outdoors than in 2010 (42% compared with 32%) and a significantly lower proportion reported that they had spent the same amount of time as they intended. Similar proportions reported spending more time than intended in 2013 and 2010 (15% and 16% respectively) (see Figure 5.5).

**Figure 5.5: Whether time spent outdoors was the amount intended, 18-54 year olds, 2010 and 2013**



Base: outdoors during previous weekend

## 6 SUN PROTECTION BEHAVIOURS

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### 6.1 PREPARATION TO PROTECT FROM THE SUN

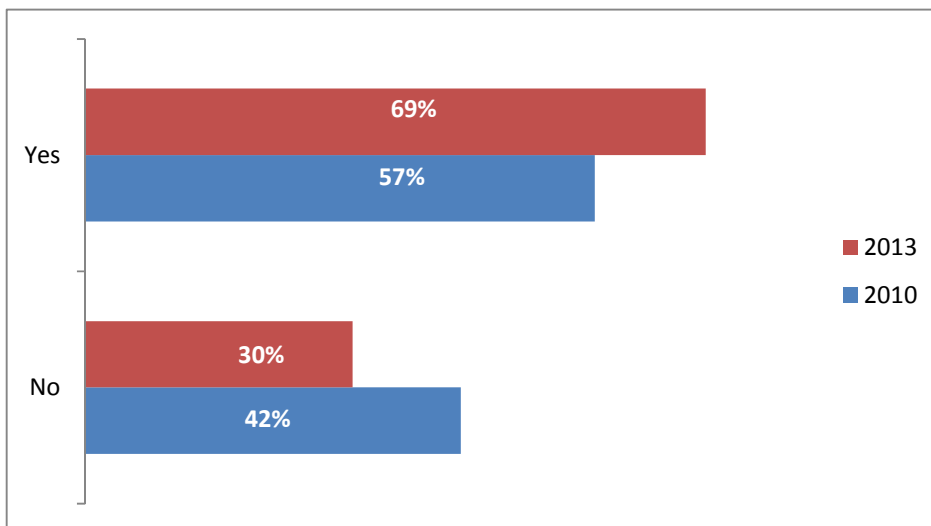
In 2013, respondents who had spent 15 minutes or more outdoors during the previous weekend were asked whether they had things they needed on hand to protect their skin from the sun if they needed to on the day in question.

Around seven out of 10 (69%) respondents said that they had had things on hand, while three out of 10 (30%) had not.

#### 2010 and 2013 comparison

In 2013 a significantly higher proportion of respondents reported that they had everything at hand that they needed to protect their skin from the sun than in 2010 (69% compared with 57%).

**Figure 6.1 Whether had everything needed at hand to protect their skin from the sun**



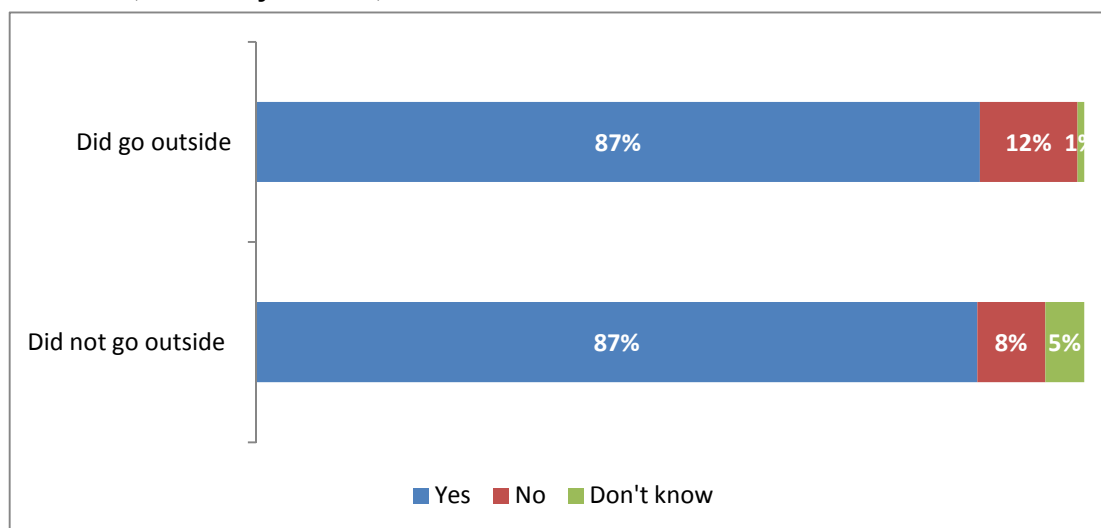
Base: outdoors previous weekend

#### 6.1.2 Perception that the weather could cause sunburn

In 2013, all respondents were asked whether the weather on Saturday or Sunday *had made them think that they could expect to get sunburnt if they went outside without protecting their skin.*

Of the respondents who had been outdoors at the weekend, around nine out of 10 (87%) reported that the weather conditions made them think they could get sunburnt, while around one in 10 (12%) said that it did not. Of those who did not go outside at the weekend, the same proportion reported that they thought they could get sunburnt based on the weather conditions (87%).

**Figure 6.2 Whether thought they could get sunburnt during the previous weekend due to the weather conditions, 18 to 54-year-olds, 2013**



## 6.2 USE OF CLOTHING TO COVER UP

Respondents who had spent 15 minutes or more outdoors during the previous weekend were asked which parts of their body were covered or shaded by clothing.

### 2013

In 2013 at least eight out of 10 respondents reported that their stomach (90%), back (88%) had chest (82%) had been covered by clothing.

### Time series

Significantly fewer respondents in 2013 reported that their legs above the knee were covered by clothing compared to any other year since 2000. The proportion of respondents who reported that their arms above the elbows were covered also decreased significantly to 29% in 2013, the lowest proportion of all since 1997.

A significantly lower proportion of respondents reported that their shoulders were covered by clothing in 2013 compared with 2010 (62% compared with 75%). The proportion of respondents reporting that their legs (below the knees) were covered by clothing also dropped significantly in 2013 to 9%, the lowest proportion since 1997.

**Table 6.2: Body parts covered up by clothing while outdoors during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1997 to 2013**

|                     | 1997 | 2000 | 2003 | 2006 | 2010 | 2013 |
|---------------------|------|------|------|------|------|------|
|                     | %    | %    | %    | %    | %    | %    |
| Stomach             | 90   | 88   | 87   | 87   | 92   | 90   |
| Back                | 87   | 80   | 80   | 81   | 92   | 88   |
| Legs - above knees  | 33   | 81   | 78   | 79   | 92   | 55   |
| Chest               | 85   | 85   | 82   | 81   | 89   | 82   |
| Shoulders           | 78   | 73   | 67   | 62   | 75   | 62   |
| Arms - above elbows | 79   | 68   | 65   | 55   | 66   | 29   |
| Feet                | 54   | 35   | 37   | 41   | 49   | 48   |
| Legs - below knees  | 37   | 37   | 40   | 32   | 28   | 9    |
| Neck                | 52   | 41   | 34   | 30   | 19   | 24   |

|   |            |            |            |            |             |             |
|---|------------|------------|------------|------------|-------------|-------------|
| Arms - below elbows                                   | 24         | 20         | 25         | 20         | 16          | 11          |
| Hands   | 13         | 9          | 11         | 11         | 7           | 11          |
| Scalp   | 33         | 32         | 36         | 37         | 3           | *           |
| Ears  | 21         | 24         | 23         | 23         | 3           | *           |
| Face  | 27         | 28         | 27         | 32         | 2           | *           |
| Nose  | 23         | 24         | 24         | 25         | 2           | *           |
| None  | *          | 1          | 1          | 0          | 1           | 3           |
| Buttocks  | 76         | *          | *          | *          | *           | *           |
| Don't know  | *          | 0          | *          | *          | *           | 2           |
| <b>Base: Outdoors during the previous weekend (n)</b> | <b>717</b> | <b>720</b> | <b>689</b> | <b>625</b> | <b>1013</b> | <b>1156</b> |

In 2010, the description of clothing was expanded to note that “clothing” included towels, scarves and covered shoes, but *not* hats. This will account for some difference in responses from 2010 onwards.

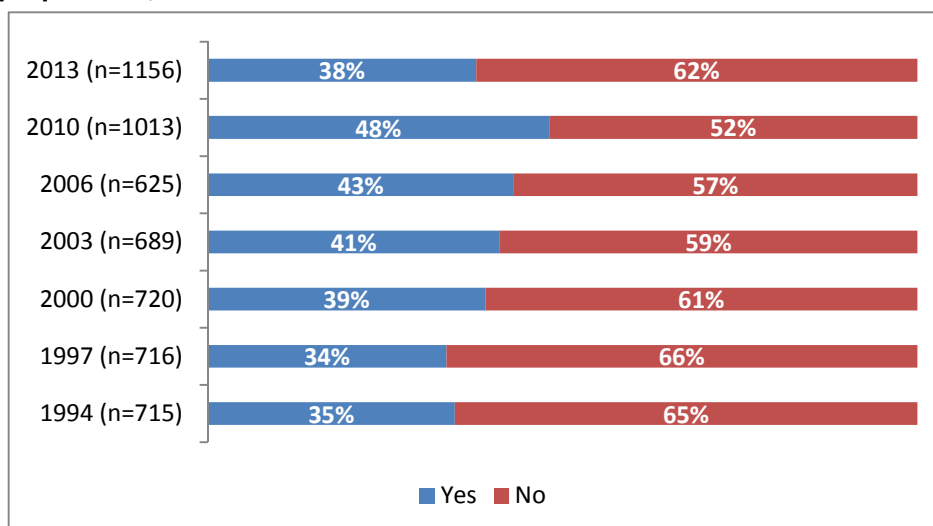
### 6.3 HAT USE

All respondents who had spent 15 minutes or more outdoors during the previous weekend were asked whether they were wearing something on their head most of time, such as a hat, cap, visor or helmet.

In 2013, around four out of 10 (38%) of respondents who had been outdoors reported that they had worn something on their head (see Figure 6.3).

#### Time series

**Figure 6.3: Use of hat while outdoors during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



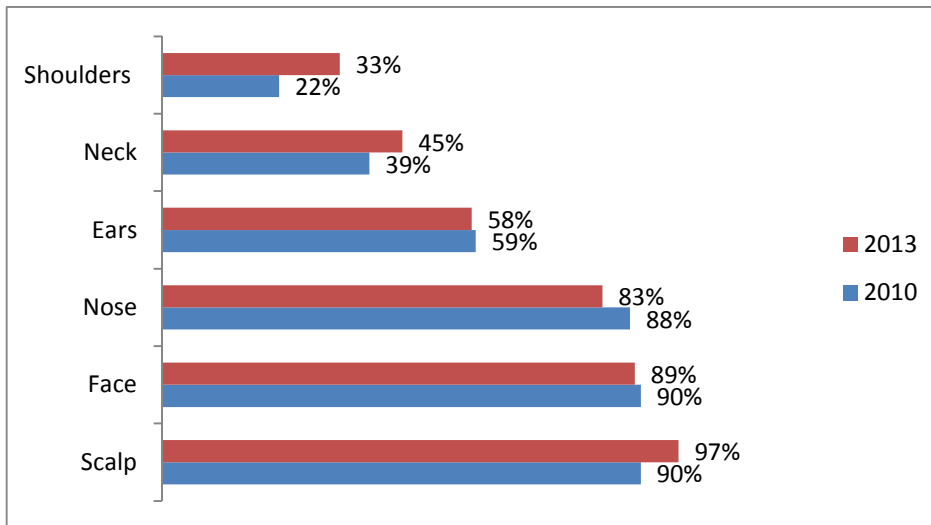
Base: outdoors previous weekend

#### 6.3.1 Body parts covered by hat

Respondents who reported wearing some form of head covering while outdoors during the previous weekend were asked to identify the body parts that were protected by the head covering while they were doing their main outdoor activity.

## 2012/13 comparison

Figure 6.4: Coverage by hats worn while outdoors during previous weekend, 18 to 54-year-olds, 2010 and 2013



Base: wore a hat outdoors previous weekend

## 6.4 SUNGLASS USE

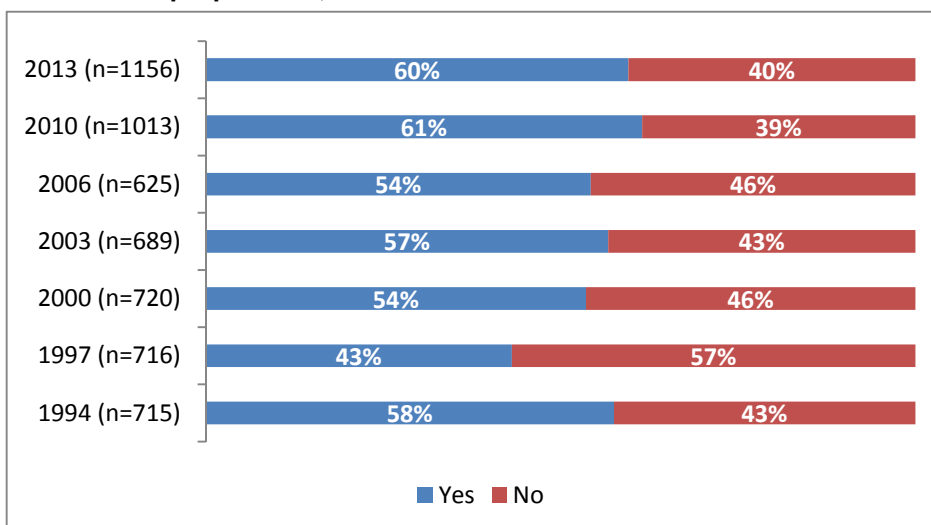
Respondents who had spent 15 minutes or more outdoors during the weekend were asked whether they had worn sunglasses most of the time while doing their main activity.

### 2013

In 2013, six out of 10 (60%) respondents who had been outdoors had worn sunglasses, while four out of 10 (40%) had not (see Figure 6.5).

### Time series

Figure 6.5: Wearing of sunglasses while outdoors during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013



Base: outdoors previous weekend



## 6.5 SUNSCREEN USE

All respondents who had spent at least 15 minutes outdoors during the previous weekend were asked what parts of their body were covered by sunscreen for most of the time while they were doing the main activity they had mentioned.

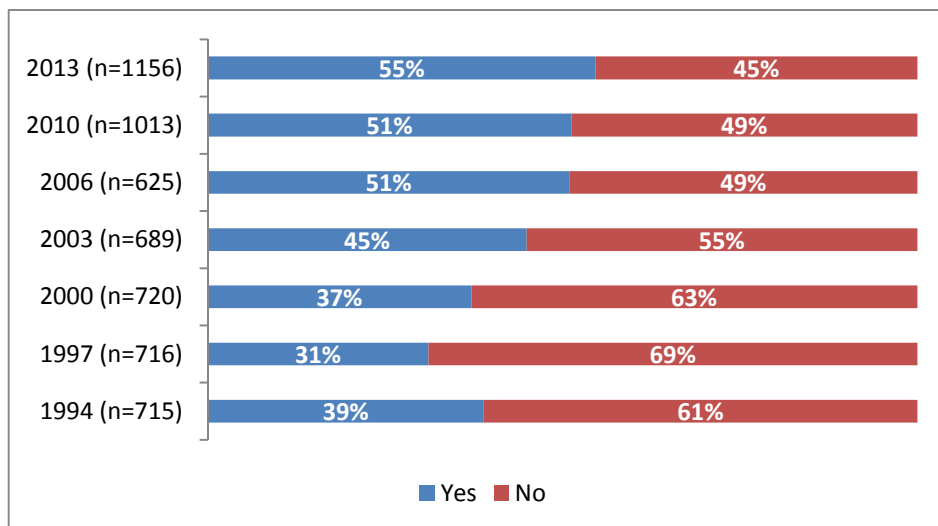
### 2013

In 2013, just over one-half of respondents (55%) who had been outdoors for at least 15 minutes reported using sunscreen.

### Time series

The proportion of respondents who reported that they used sunscreen increased slightly since 2010 from (51% to 55% in 2013). This represents the highest proportion reporting sunscreen use across all waves of the survey since 1994.

**Figure 6.6: Use of sunscreen while outdoors during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



Base: outdoors previous weekend

### 6.5.1 Body parts covered by sunscreen

#### 2013

In 2013 the body parts most likely to be covered by sunscreen were the face, for around one-half of all respondents (52%) and the most (51%) (see Table 6.6).

Since 2010 there has been a significant increase in the proportion of respondents who applied sunscreen to their nose (51% in 2013 compared with 41% in 2010), neck (45% in 2013 compared with 35% in 2010), ears (37% in 2013 compared with 27% in 2010), arms above the elbows (34% in 2013 compared with 20% in 2010) and their shoulders (28% 2013 compared with 14% in 2010). The proportion of respondents applying sunscreen to all body parts was highest in 2013 compared to respondents in all other survey waves since 1994.

**Table 6.6: Body parts covered by sunscreen while outdoors during previous weekend, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**

|   | 1994       | 1997       | 2000       | 2003       | 2006       | 2010        | 2013        |
|---|------------|------------|------------|------------|------------|-------------|-------------|
|   | %          | %          | %          | %          | %          | %           | %           |
| None  | 61         | 69         | 63         | 55         | 49         | 49          | *           |
| Face  | 24         | 27         | 33         | 41         | 44         | 47          | 52          |
| Nose  | 25         | 28         | 33         | 41         | 46         | 41          | 51          |
| Neck  | 20         | 13         | 19         | 19         | 28         | 35          | 45          |
| Arms - below elbows                               | *          | 17         | 18         | 19         | 31         | 32          | 40          |
| Ears  | 7          | 10         | 12         | 13         | 17         | 27          | 37          |
| Hands   | 7          | 12         | 12         | 10         | 20         | 23          | 26          |
| Legs - below knees                                | *          | 11         | 11         | 13         | 21         | 20          | 26          |
| Arms - above elbows                               | *          | 7          | 12         | 12         | 21         | 20          | 34          |
| Shoulders   | 17         | 3          | 8          | 10         | 15         | 14          | 28          |
| Feet  | 4          | 5          | 4          | 7          | 9          | 12          | 19          |
| Back  | 5          | 1          | 4          | 7          | 9          | 10          | 15          |
| Legs - above knees                                | *          | 5          | 7          | 6          | 9          | 9           | 19          |
| Stomach   | 3          | 1          | 2          | 6          | 5          | 6           | 10          |
| Scalp   | *          | *          | 2          | 7          | 4          | 4           | 10          |
| Chest   | 4          | 2          | 4          | 7          | 12         | *           | ?           |
| Head  | 4          | 2          | *          | *          | *          | *           | *           |
| Arms  | 26         | *          | *          | *          | *          | *           | *           |
| Legs  | 19         | *          | *          | *          | *          | *           | *           |
| Knees   | 3          | *          | *          | *          | *          | *           | *           |
| <b>Base: Outdoors during the previous weekend</b> | <b>715</b> | <b>717</b> | <b>720</b> | <b>689</b> | <b>625</b> | <b>1013</b> | <b>1156</b> |

## 6.5.2 Reapplication of sunscreen

### 2013

In 2013, respondents who had spent 15 minutes or more outdoors during the previous weekend were asked how many times they applied sunscreen during the day in question.

In 2013, as shown in Table 6.7, around three out of 10 (32%) respondents who were outdoors applied sunscreen once, while fewer respondents (15%) applied it twice. Smaller proportions applied sunscreen three times (5%) four times (1%) or more than four times (1%).

### Time-series

Between 1997 and 2006 respondents were asked whether they had reapplied sunscreen and, if so, how many times. This question was altered in 2010 to form a single questions asking about the overall number of times sunscreen was applied during the day in question. In 2013 fewer respondents reported not applying any sunscreen (45%). This represents the lowest proportion indicating that they did not apply sunscreen across all survey waves since 1997.

**Table 6.7: Number of times sunscreen applied, 18 to 54-year-olds, age-standardised proportions, 1997 to 2013**

|   | <b>1997</b> | <b>2000</b> | <b>2003</b> | <b>2006</b> | <b>2010</b> | <b>2013</b> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
|   | <b>%</b>    | <b>%</b>    | <b>%</b>    | <b>%</b>    | <b>%</b>    | <b>%</b>    |
| Did not apply sunscreen                           | 69          | 63          | 55          | 49          | 49          | 45          |
| Applied sunscreen once                            | 21          | 23          | 30          | 29          | 31          | 32          |
| Applied sunscreen twice                           | 5           | 6           | 7           | 8           | 12          | 15          |
| Applied sunscreen three times                     | 4           | 5           | 4           | 9           | 6           | 5           |
| Applied sunscreen four times                      | 1           | 2           | 2           | 3           | 1           | 1           |
| Applied sunscreen more than four times            | 1           | 1           | 2           | 2           | 2           | 1           |
| Don't know  |             |             |             | 1           | 0           | 0           |
| <b>Base: Outdoors during previous weekend (n)</b> | <b>716</b>  | <b>719</b>  | <b>688</b>  | <b>625</b>  | <b>1013</b> | <b>1156</b> |

## 6.6 USE OF SHADE

### 2013

In 2013 respondents who had spent 15 minutes or more were asked whether they had stayed out of the sun or stayed in the shade at any time while undertaking their main outdoor activity.

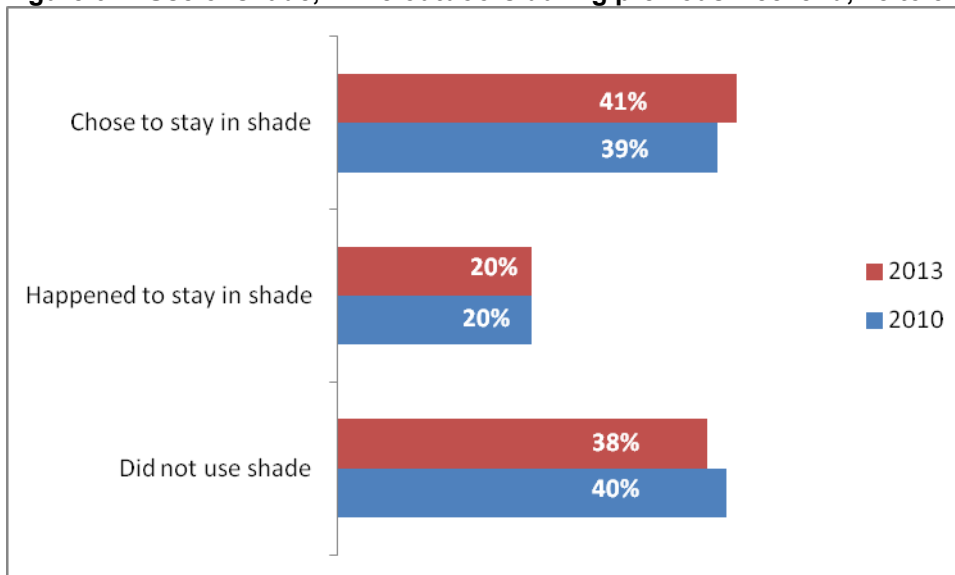
Six out of 10 respondents (61%) said that they had stayed out of the sun or in the shade at some time while they were outside. Around four out of 10 (38%) had not.

Those who had stayed in the shade or out of the sun were asked whether they had “*made a choice to use shade*”, or whether it had “*just happened*”. Of those who had been in the shade, the majority (41%) had chosen to stay in the shade, and two out of 10 (20%) said they “*just happened to be in the shade*” (see Figure 6.7).

### 2010/13 comparison

There were no significant differences between 2010 and 2013.

**Figure 6.7: Use of shade, while outdoors during previous weekend, 18 to 54-year-olds, 2010 and 2013**

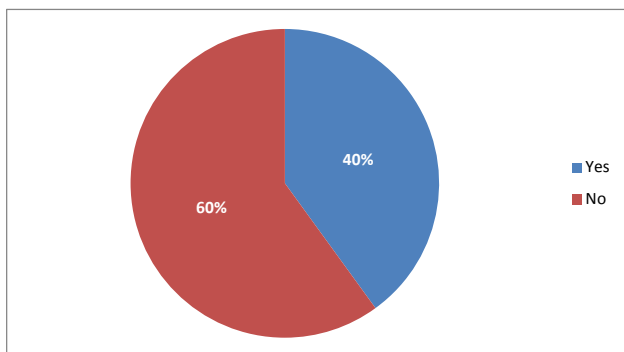


Base: outdoors previous weekend

### 6.6.1 Availability of shade

In 2013 respondents were asked whether shade was available while they were doing their main activity. Four out of 10 (40%) respondents reported that shade was available to them, while six out of 10 (60%) reported that it was not (see Figure 6.8).

**Figure 6.8: Availability of shade while doing outdoor activity the previous weekend, 18-54 year olds, age-standardised proportions, 2013**

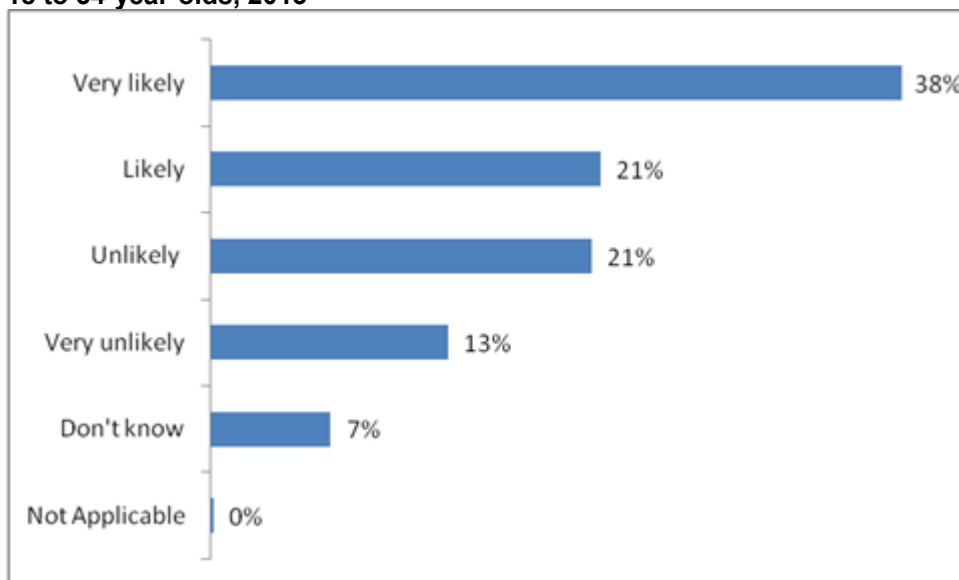


Base: outdoors previous weekend

### 2013

Respondents were also asked in 2013 how likely it is that they would have used shade, had it been available to them. Over one-half of respondents (59%) reported that they were likely to make use of shade had it been available, including around four out of 10 (38%) who reported that they were very likely. Around three out of 10 respondents (35%) reported that they were unlikely or very unlikely to use shade. The remainder (6%) did not know whether they would had made use of shade had it been available (see Figure 6.9).

**Figure 6.9: Likelihood of using shade if available during main outdoor activity the previous weekend, 18 to 54-year-olds, 2013**



Base: Shade not available during outdoor activity previous weekend (n=269)

## 7 SUN PROTECTION KNOWLEDGE

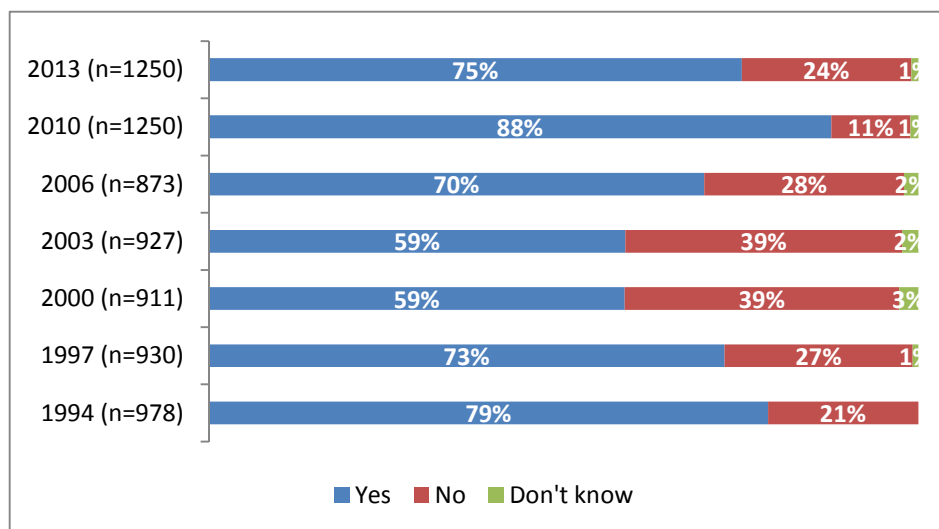
### 7.1 RECALL OF ADVERTISING AND SUN PROTECTION INFORMATION

All respondents were asked whether they had seen any advertising in recent summers about the dangers of too much exposure to the sun.

#### Time-series

In 2013, three quarters of respondents (75%) recalled some advertising about sun safety. This has decreased significantly since 2010, when around nine out of 10 (88%) respondents recalled advertising.

**Figure 7.1 Recall of sun safety advertising, 18 to 54-year-olds, age-standardised proportions, 1994 to 2013**



Base: all respondents

#### 7.1.2 Messages recalled from advertisements

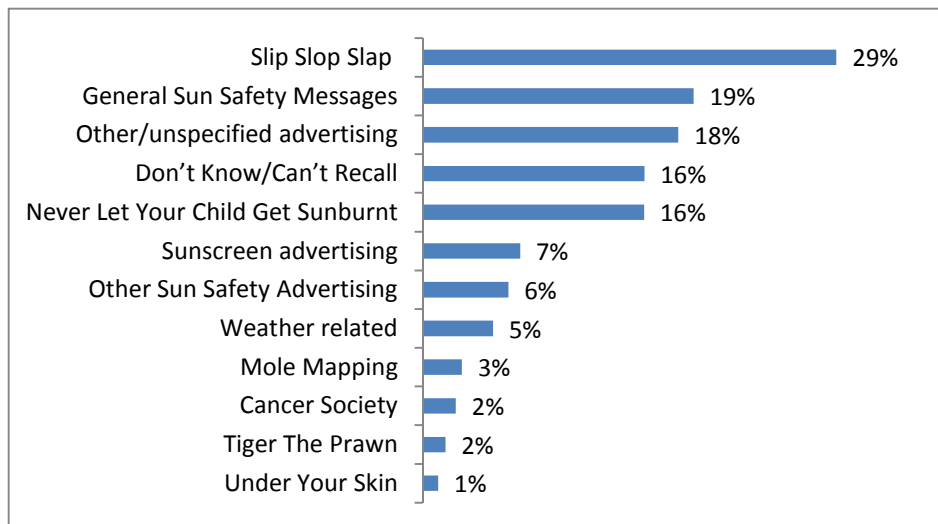
Respondents who recalled sun safety advertising about the dangers of too much exposure to the sun were asked to describe what they had seen.

#### 2013

In 2013 the most commonly recalled sun safety advertising message was “slip, slop, slap, wrap”, with one in three referring to this advertisement. Just under two out of 10 (16%) referred to the HSC mass media campaign Never Let Your Child Get Sunburnt, significantly fewer than in 2010 (44%).

Adverts relating to the “slip, slop, slap, wrap” message were not run by the HPA in 2012. However, the HPA distributed wallet sized cards around New Zealand promoting the Sun Protection Alert, which detailed the “slip, slop, slap” message on one side. The “slip, slop, slap” message is also commonly reported in the media in the summer months, which may account for the higher numbers of respondents recalling this message in comparison to other sun safety messages.

**Figure 7.2: Sun safety advertising messages recalled, 18 to 54-year-olds, age standardised proportions, 2013**

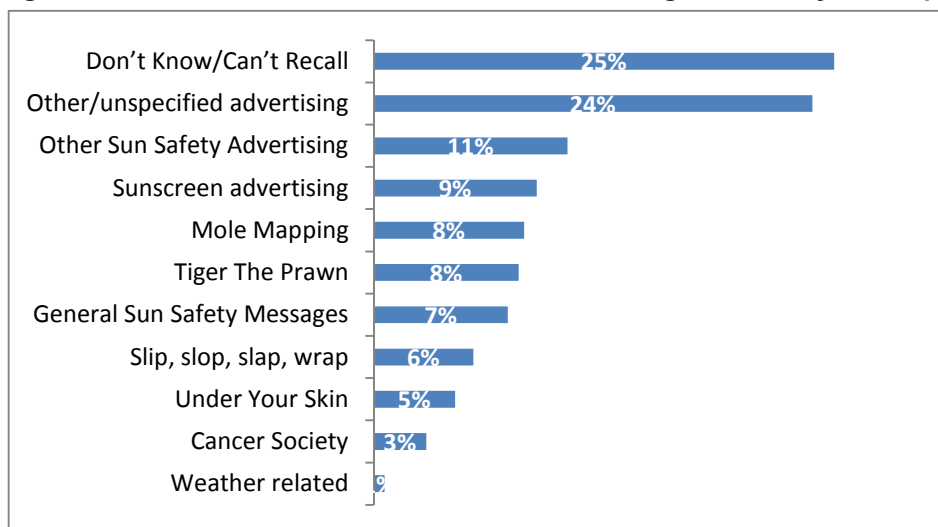


Base: Recalled sun safety advertising (n=941)

### Recall of specific promotions – skin damage

In 2013 respondents were also asked whether they had seen or heard any promotions specifically about the skin damage caused by sun exposure. Responses were relatively split with just under one-half of respondents (46%) reporting that they had heard of specific promotions, while one-half (51%) had not (see Figure 7.3).

**Figure 7.3: Promotions recalled about the skin damage caused by sun exposure**



Base: Recalled promotions about skin damage cause by sun exposure (n=611)

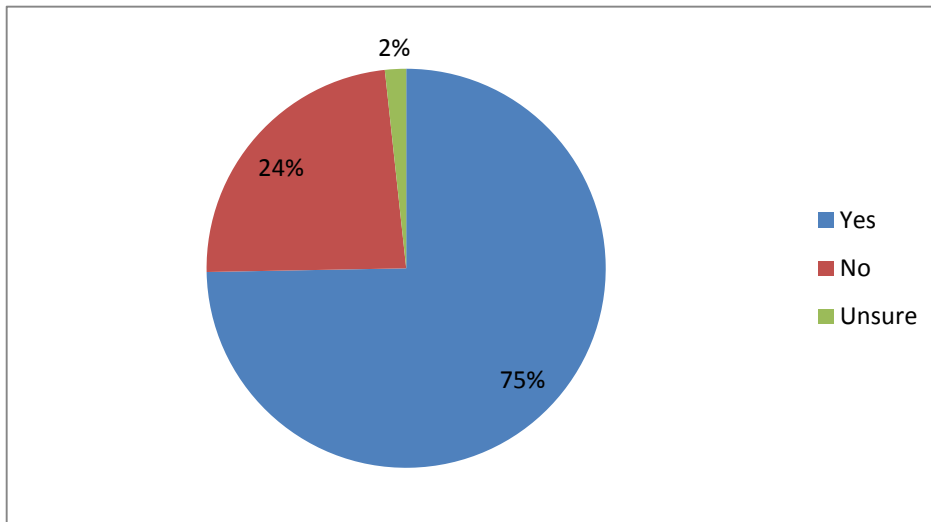
Amongst those who reported that they had seen or heard of promotions specifically about the skin damage that can be caused by skin exposure, a quarter (25%) could not recall the exact promotion, while just under a quarter (24%) cited other/unspecified advertising. Smaller proportions of respondents referred to specific advertising, such as Tiger the Prawn (8%), mole mapping (8%), sunscreen advertisements (9%), 'Slip, Slop, Slap, Wrap' (6%) and 'Don't Let the Sun Get Under Your Skin' (5%).

## 7.2 SUN PROTECTION ALERT

All respondents were asked in 2013 about their use of the weather forecast ahead of outdoor activities.

In 2013 three quarters of respondents (75%) reported looking at the weather forecast ahead of outdoor activities, and around two out of 10 (24%) did not (see Figure 7.4).

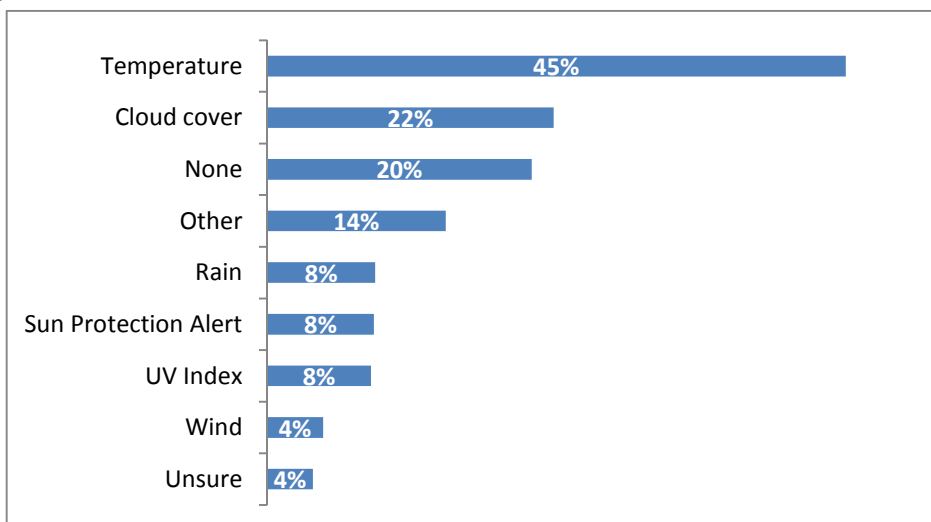
**Figure 7.4: Looking at the weather forecast before outdoor activities**



Base: All respondents

Respondents were asked to describe what aspects of the weather forecast they used to prompt them about sun protection. Around four out of 10 respondents referred to 'temperature', two out of 10 (22%) to 'cloud cover', and two out of 10 (20%) reported that they did not pay attention to any specific aspects of the weather forecast. Fewer respondents referred to 'rain' (8%), UV index (8%) and Sun Protection Alert (8%) (see Figure 7.5).

**Figure 7.5: Use of specific information from the weather forecast to prompt about using sun protection**



Base: Looks at weather forecast ahead of outdoor activity (n=905)



## Sun Protection Alert and UV Index

Those respondents mentioning the Sun Protection Alert and the UV Index were asked to identify where they saw or heard this information.

Of those respondents who mentioned the Sun Protection Alert, three in 10 (31%) reported seeing or hearing this on the TV and another three in 10 from the MetService. Around two in 10 mentioned newspaper (16%) or radio (17%).

Amongst those respondents who made reference to the UV Index, just under one-half (47%) had seen or heard this information from the MetService, while four out of 10 (47%) cited the television as the source of this information and around two in 10, the newspaper (24%).

Respondents who mentioned the Sun Protection Alert and the UV index were also asked to identify how they interpreted this information.

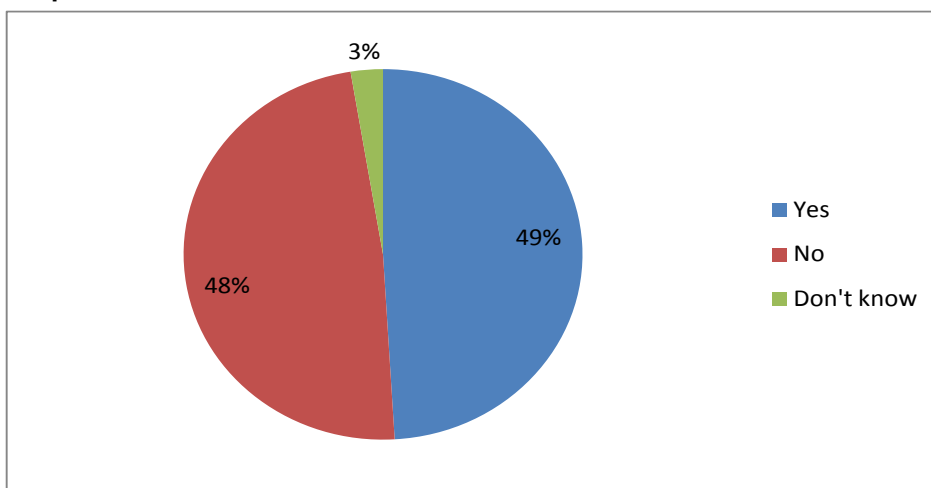
Respondents who referred to the Sun Protection Index were most likely to report that this information was about when to protect from the sun/unsafe times to be in the sun (33%). Other interpretations reported by at least two in 10 respondents included “safe times to be in the sun” (26%), “to cover up” (24%) or “to use sunscreen” (22%).

Of those who referred to the UV Index, most commonly respondents understood this to be about “the strength of the sun’s (UV) rays” (42%). Around three out of 10 (31%) perceived this information to be telling them “the length of time it will take to burn”.

## Weather forecast and sun protection

All respondents who did not mention the UV Index or the Sun Protection Alert were asked whether they had seen a feature in the weather forecast with information on the times of day when sun protection was needed. Around one-half of respondents (49%) reported that they had seen or heard of this feature, while just under one-half (48%) had not (see Figure 7.6).

**Figure 7.6: Awareness of feature in the weather forecast with information on the times of day when sun protection is needed**



Base: Does not mention UV Index or Sun Protection Alert unprompted (n=1100)

## Actions taken

Respondents who had heard of this feature were asked to describe what actions they had taken (if any) as a result of seeing or hearing this information. Around four out of 10 respondents (41%) reported that they had done nothing, while three out of 10 (31%) reported that they had bought or used sunscreen. Around two in 10 (18%) reported buying or using a hat, clothing or sunglasses for additional protection, whilst one in 10 (10%) reported that arranged their schedule to be outdoors when the sun was less strong, or stayed indoors all or part of the day (9%).

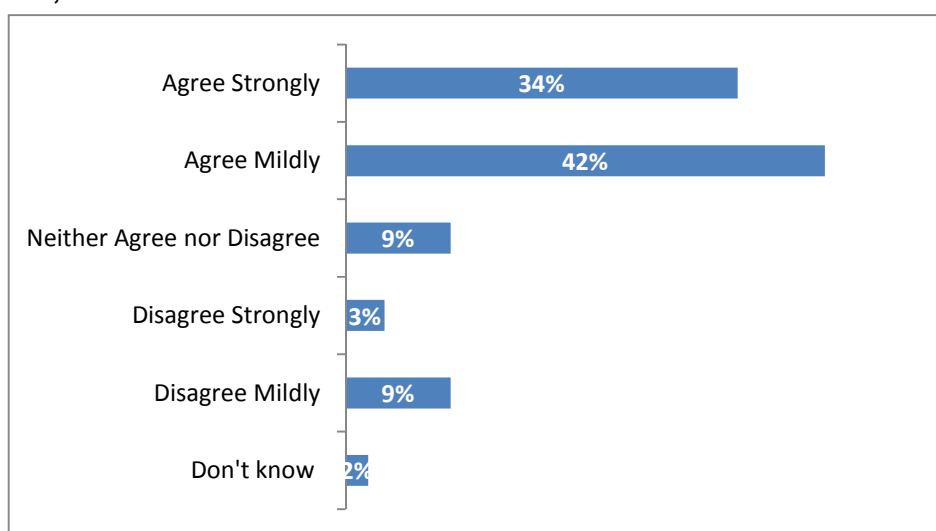
### 7.3 KNOWLEDGE OF SKIN CANCER AND RISK FACTORS

In 2013, respondents were asked about their perceptions of risk and knowledge of risk factors for skin cancer, based on their agreement or disagreement with a number of attitudinal statements. All respondents were asked to indicate their agreement with three statements about skin cancer, choosing one of six responses.

#### **“I feel confident that I can protect myself from skin cancer”, 18 to 54-year-olds, 2013**

In 2013 over three quarters of respondents reported that they agreed with this statement, including around three in 10 who strongly agreed. Around one in 10 disagreed (13%) (see Figure 7.7).

**Figure 7.7: Agreement with “I feel confident I can protect myself from skin cancer”, 18 to 54-year-olds, 2013**

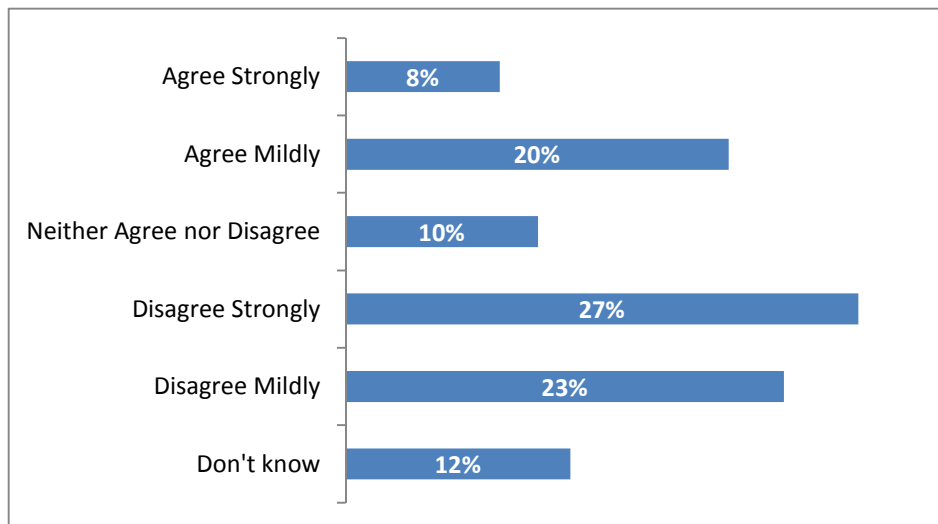


Base: all respondents

#### **“Melanoma can be easily treated by a GP”**

Around three out of 10 respondents (28%) indicated that they agreed with this statement, including around one in 10 (8%) who strongly agreed. One-half of all respondents (50%) disagreed, including around three in 10 who strongly disagreed. Around one in 10 participants reported that they did not know whether melanoma could be easily treated by a GP (see Figure 7.8).

**Figure 7.8: Agreement with “Melanoma can be easily treated by a GP”, 18 to 54-year-olds, 2013**

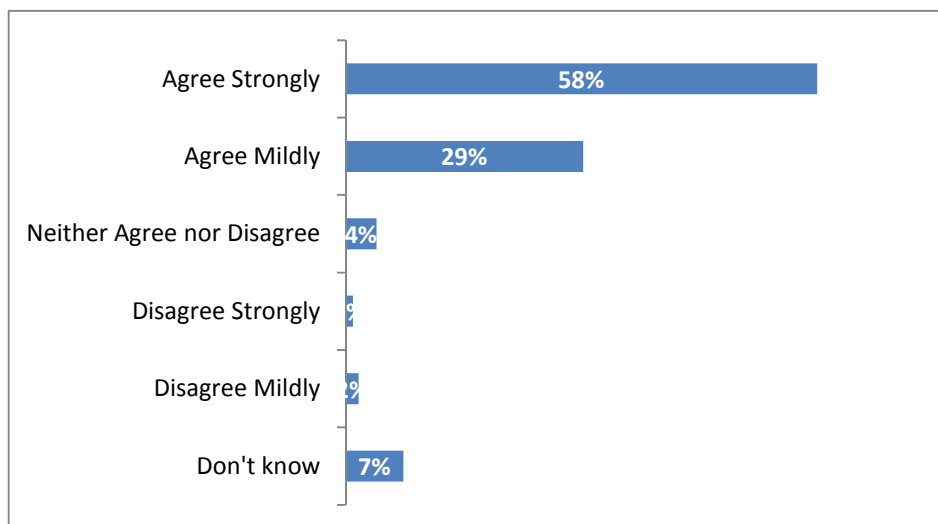


Base: all respondents

### **“Even if treated, Melanoma can lead to loss of life”**

In 2013 around nine out of 10 respondents agreed with this statement, including around six out of 10 (58%) who strongly agreed. Around one in 10 (7%) did not know whether they agreed or disagreed with this statement. A very small proportion of respondents disagreed with this statement (2.5%) (see Figure 7.9).

**Figure 7.9: Agreement with “Even if treated, Melanoma can lead to loss of life”, 18 to 54-year-olds, 2013**



Base: all respondents

## **Factors increasing risk of skin cancer**

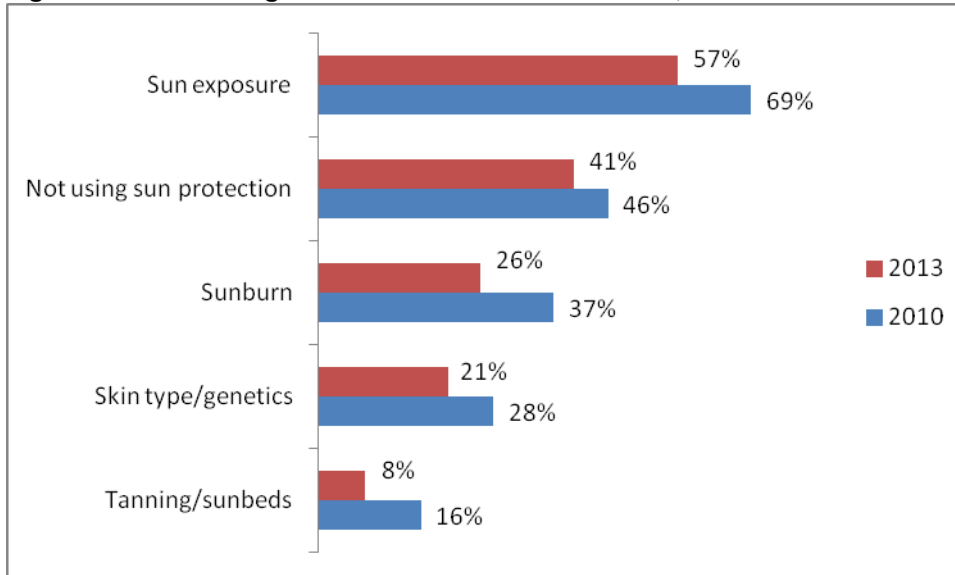
### **2013**

All respondents were also asked to describe what factors they thought increased the chances of a person getting skin cancer. The most commonly cited factor was sun exposure, mentioned by around six out of 10 respondents (57%). Four out of 10 respondents mentioned not using sun protection as a risk factor, including 35% who specifically cited not using sunscreen.

## 2010/13 comparison

In 2013 a significantly lower proportion of respondents cited sun exposure as a factor that could increase the risk of skin cancer (57% in 2013 compared with 69% in 2010), and sunburn (26% in 2013 compared with 37% in 2010). A lower proportion also cited tanning/sunbeds (8% in 2013 compared with 16% in 2010), skin type and genetics (21% in 2013 compared with 28% in 2010) and not using sun protection (41% in 2013 compared with 46% in 2010).

**Figure 7.10 Knowledge of risk factors for skin cancer, 2010 and 2013**



Base: all respondents

## 7.4 SKIN CANCER – INDIVIDUAL RISK PERCEPTION

### 2013

Respondents were asked what they thought their likelihood was of getting skin cancer in the future.

In 2013, around two out of 10 respondents indicated that they thought they had a high likelihood of getting skin cancer in the future, including 5% who thought their risk was very high.

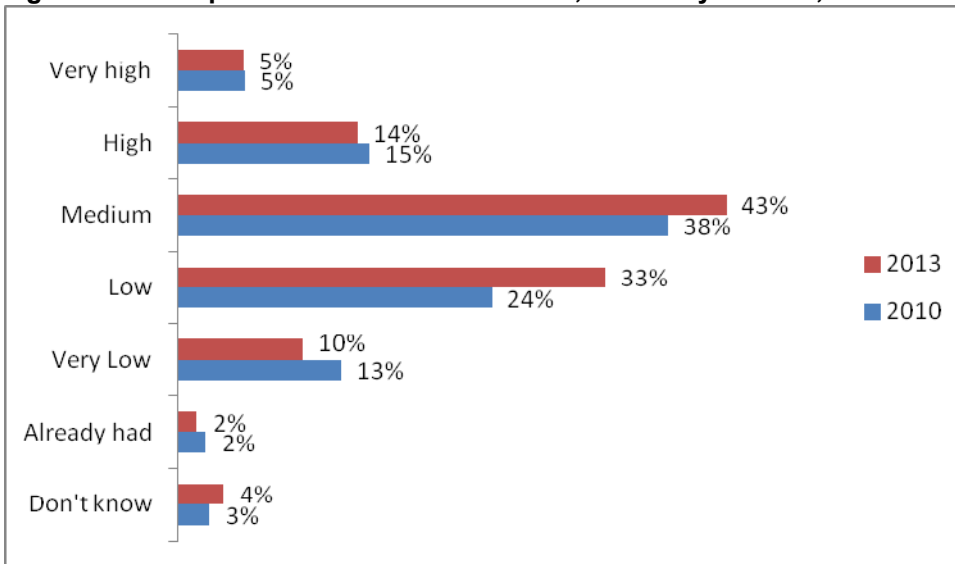
Around four out of 10 respondents (43%) thought they had a medium level risk of getting skin cancer in the future.

The chance of getting skin cancer in the future was considered to be low for around three in 10 respondents (33%), including 10% who thought their risk was very low.

### 2010/13 comparison

A higher proportion of respondents indicated that they thought they had a low likelihood of getting skin cancer in the future in 2013 (33% in 2013 compared with 24% in 2010). The proportion of respondents indicating that they considered themselves to have a “medium” risk of getting skin cancer was also higher (33% in 2013 compared with 24% in 2010).

**Figure 7.11 Self-perceived risk of skin cancer, 18 to 54-year-olds, 2010 and 2013**



Base: all respondents

## 8 TANNING

All adult respondents were asked questions about their behaviours and attitudes regarding sun tanning.

### 8.1 TANNING BEHAVIOURS

Respondents were asked to indicate whether they had tried to get a suntan in the weekend just passed. Around nine out of 10 respondents reported that they did not try to get a suntan in the weekend just passed, while around one out of 10 reported that they had (14%).

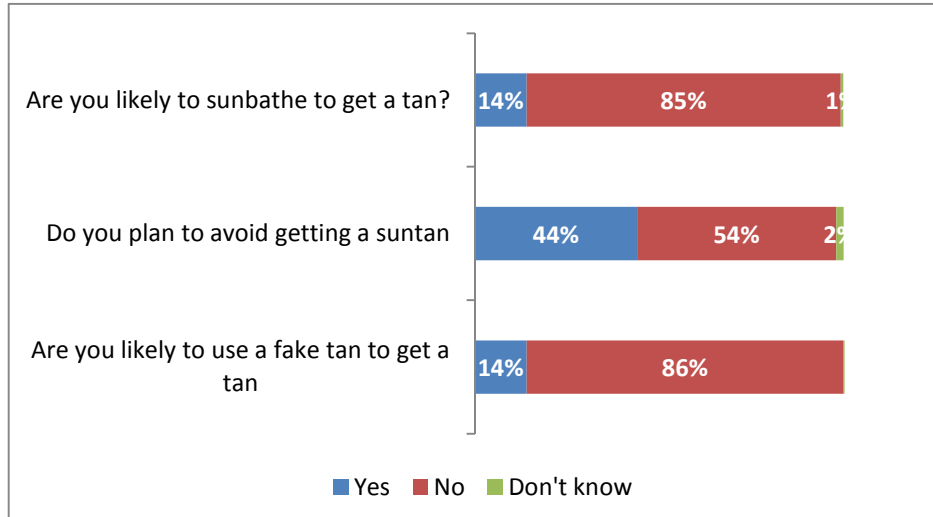
In 2013, respondents were asked a series of three questions relating to tanning behaviours for the rest of the summer. Figure 8.1 provides an overview of responses.

More than eight out of 10 respondents (86%) reported that they were unlikely to use a fake tan to get a sun tan for the rest of the summer. Around one in 10 (14%) reported that they did intend to use a fake tan.

Around four in 10 respondents reported that they intended to avoid getting a suntan for the rest of the summer, while around one-half of respondents (54%) reported that they did not intend to actively avoid this.

Around one in 10 respondents reported that they were likely to sunbathe to get a suntan (14%), while under nine out of 10 (85%) did not.

**Figure 8.1: Intended tanning behaviours for the rest of the summer, 2013**



Base: all respondents (n=1250)

### 8.2 AGREEMENT WITH SUNTANNING STATEMENTS

All respondents were asked to indicate their agreement with five statements about their attitudes to tanning, responding on a five point scale.

#### “I feel more healthy with a suntan”

##### 2013

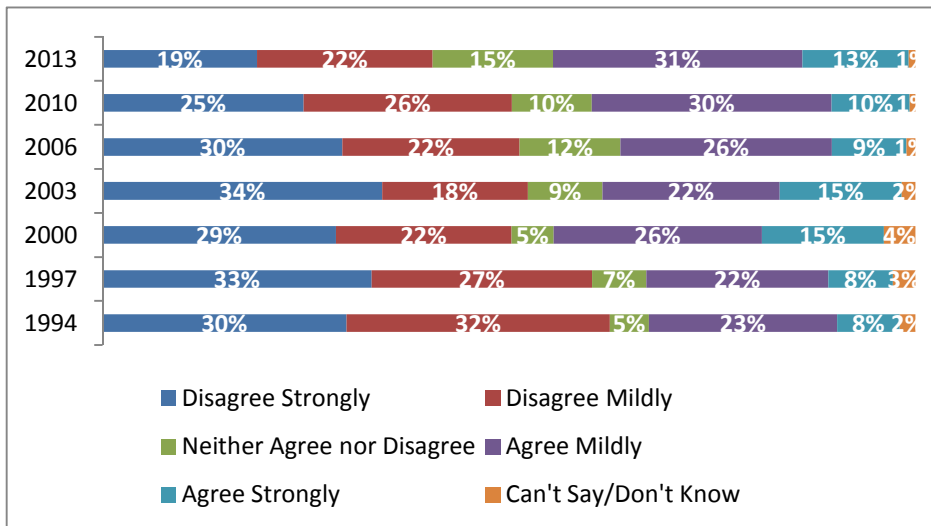
In 2013, four out of 10 (44%) respondents agreed with this statement, including around one in 10 (13%) who strongly agreed. Four out of 10 (41%) of the respondents disagreed, including around

two out of 10 (19%) who strongly disagreed. Other respondents (15%) neither agreed nor disagreed with this statement (see Figure 8.2).

### Time series

A lower proportion of respondents disagreed strongly with this statements (19% compared with 25% in 2010). The proportion of respondents who disagreed represents the lowest proportion of respondents to strongly disagree since 1994.

**Figure 8.2: Agreement with “I feel more healthy with a suntan”, 18 to 54-year-olds, age-standardised proportions**



Base: all respondents

### “Most of my friends think a suntan is a good thing”

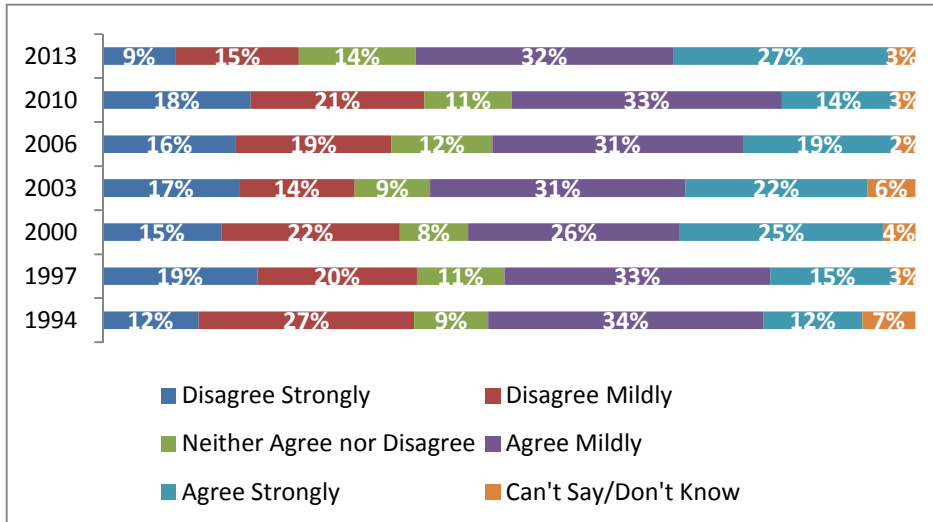
#### 2013

In 2013 over one-half (59%) of respondents agreed with this statement, including 27% who strongly agreed. Around one-quarter (24%) of respondents disagreed, including 9% who strongly disagreed (see Figure 8.3).

### Time series

In 2013 a significantly lower proportion of respondents disagreed strongly with this statement (9% compared with 18% in 2010). This represents the lowest proportion who disagreed strongly since the first TSPS in 1994. A significantly higher proportion strongly agreed (27% in 2013 compared with 14% in 2010), also represented the highest proportion strongly agreeing across all survey waves since 1994.

**Figure 8.3: Agreement with “Most of my friends think a suntan is a good thing”, 18 to 54-year-olds, age-standardised proportions**



Base: all respondents

### “A suntan makes me feel better about myself”

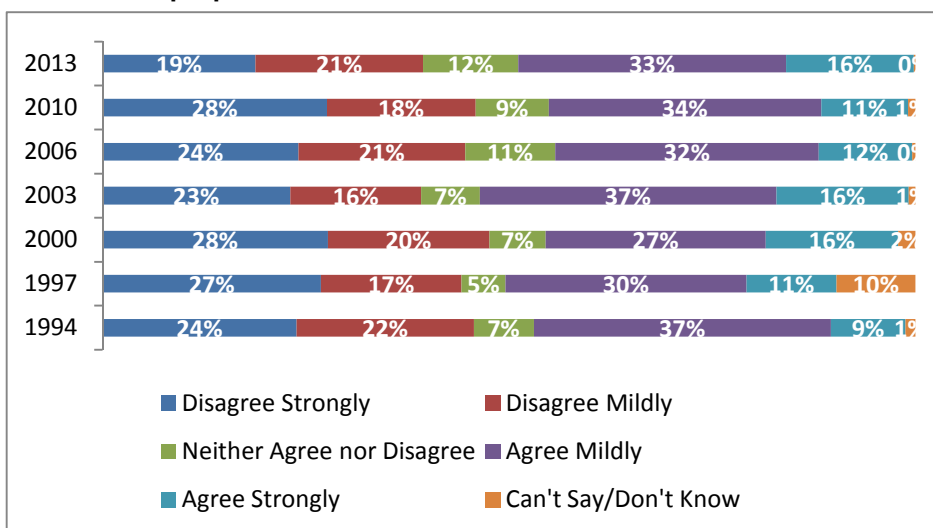
#### 2013

In 2013, almost one-half of respondents (49%) agreed with this statement, including 16% who strongly agreed. Four out of 10 respondents (40%) disagreed, including 19% who strongly disagreed (see Figure 8.4).

#### Time series

A significantly lower proportion of respondents disagreed strongly with this statement in 2013 than in 2010 (19% in 2013 compared to 28% in 2010), representing the lowest proportion who disagreed strongly with this statement since 1994. A higher proportion of respondents strongly agreed with this statement (16% in 2013 compared to 11% in 2010).

**Figure 8.4: Agreement with “A suntan makes me feel better about myself”, 18 to 54-year-olds, age-standardised proportions**



Base: all respondents

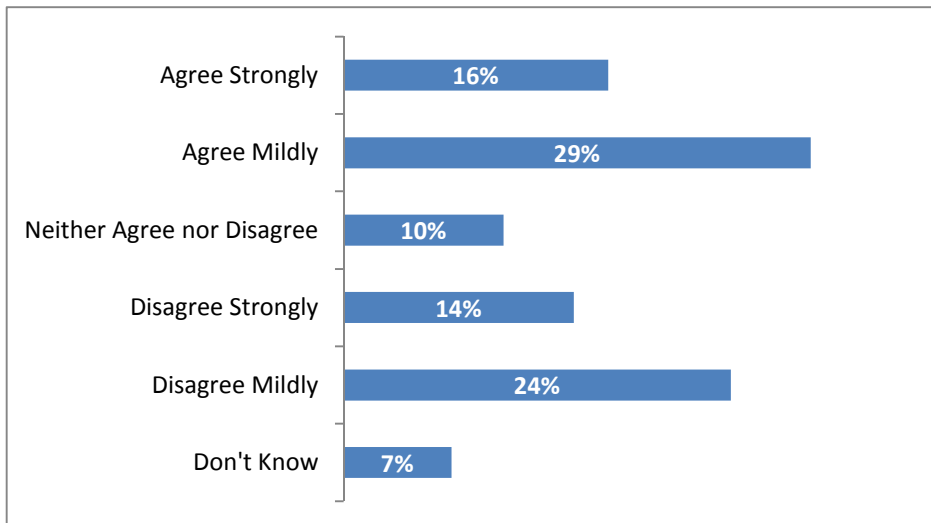


## “Protecting my skin from the sun can result in not getting enough Vitamin D”

### 2013

This statement was included for the first time in 2013. Less than one-half of (45%) agreed with this statement, including nearly two out of 10 (16%) who strongly agreed. Around four out of 10 respondents (38%) reported that they disagreed with this statement, including around one out of 10 (14%) who strongly disagreed. One in 10 respondents (10%) neither agreed nor disagreed with this statement.

**Figure 8.5: Agreement with “Protecting my skin from the sun can result in not getting enough Vitamin D”, 18 to 54-year-olds, age-standardised proportions**



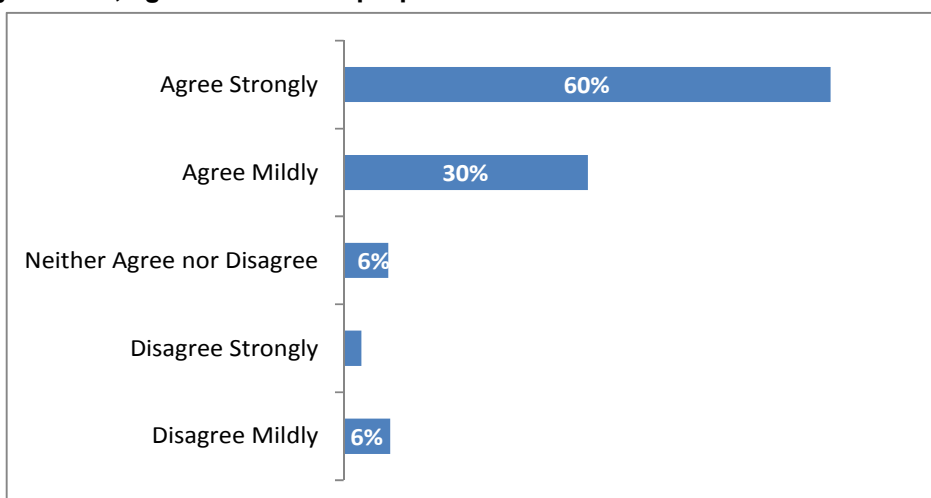
Base: all respondents

## “I often encourage others to protect their skin from the sun”

### 2013

In 2013 around nine out of 10 respondents (90%) agreed with this statement, including six out of 10 (60%) who strongly agreed. Around one out of 10 respondents disagreed, and 6% of this group strongly disagreed.

**Figure 8.6: Agreement with “I often encourage others to protect their skin from the sun”, 18 to 54-year-olds, age standardised proportions**



Base: all respondents

## 9 ENDNOTE

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This report has presented high level findings from the 2013 SES, providing a broad overview of findings across the five main survey themes. Further reports in 2013 will build on this with more in-depth analysis of trends over time and a wider range of variables.

## **APPENDIX 1**

### **Main Variables Collected in the 1994, 1997, 2000, 2003, 2006, 2010 and 2013 Surveys**

Note: ticks mean that question areas were covered in the survey that year – they do not necessarily mean that the questions were asked in an identical fashion. Some differences between the ways that questions were asked between surveys are noted in the report when comparing responses to these questions.

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| Section/module   | Included in:               |             |             |             |             |  |   |  |  |   |  |
|--|----------------------------|-------------|-------------|-------------|-------------|--|---|--|--|---|--|
|  | 1994                       | 1997        | 2000        | 2003        | 2006        | 2010<br>18 to<br>24-<br>year-<br>old<br>sample | 2010<br>Adult<br>(18 to<br>54-<br>year-<br>old)<br>sample | 2010<br>Teen<br>(13 to<br>17-<br>year-<br>old)<br>sample | 2013<br>18 to<br>24-<br>year-<br>old<br>sample | 2013<br>Adult<br>(18 to<br>54-<br>year-<br>old)<br>sample | 2013<br>Teen<br>(13 to<br>17-<br>year-<br>old)<br>sample |
| <b>Demographics</b>  |                            |             |             |             |             |  |   |  |  |   |  |
| Age  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Gender   | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Employment status/ setting   | √                          | √           | √           | √           | √           |  |   |  |  |   |  |
| Outdoor work   |                            |             |             |             |             |  |   |  | √  | √   |  |
| Household composition  |                            |             | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| “Socio-economic status” (based on occupation of main income earner)        |                            |             | √           | √           | √           |  |   |  |  |   |  |
| Household income   |                            |             |             |             |             | √  | √   | √  | √  | √   |  |
| Education  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   |  |
| Ethnicity  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Area of residence  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| City, town or rural area   |                            |             |             |             |             | √  | √   | √  | √  | √   | √  |
|  |                            |             |             |             |             |  |   |  |  |   |  |
|  | <b>Phenotypic factors</b>  |             |             |             |             |  |   |  |  |   |  |
| Skin type (sensitivity to the sun)   | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Skin type (colour)   |                            |             | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Hair colour  | √                          |             |             |             |             |  |   |  |  |   |  |
| Previous severe sunburn  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Frequency of previous severe sunburn                                       | √                          | √           | √           | √           | √           |  |   |  |  |   |  |
| Family history of skin cancer  |                            |             |             |             |             |  |   |  | √  | √   | √  |
|  |                            |             |             |             |             |  |   |  |  |   |  |
|  | <b>Weekend sunburn</b>     |             |             |             |             |  |   |  |  |   |  |
| Body sites burnt   | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Worst area burnt   | √                          | √           | √           | √           | √           |  |   |  |  |   |  |
| Severity of the burn   | √                          | √           | √           | √           | √           |  |   |  |  |   |  |
| Day (s) of occurrence  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Perception of main reason for sunburn                                      |                            |             |             |             |             |  |   |  | √  | √   | √  |
|  |                            |             |             |             |             |  |   |  |  |   |  |
|  | <b>Behavioural factors</b> |             |             |             |             |  |   |  |  |   |  |
| Outdoors at weekend  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Location of outdoor activity (may be different from location of residence) | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Main activity  | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
| Duration of activity   | √                          | √           | √           | √           | √           | √  | √   | √  | √  | √   | √  |
|  |                            |             |             |             |             |  |   |  |  |   |  |
|  |                            | <b>1994</b> | <b>1997</b> | <b>2000</b> | <b>2003</b> | <b>2006</b>                                    | <b>2010</b>   | <b>2010</b>  | <b>2013</b>                                    | <b>2013</b>   | <b>2013</b>  |

|  |   |   |   |   |   |   | 18 to 24-year-old sample | Adult (18 to 54-year-old) sample | 18 to 24-year-old sample | Adult (18 to 54-year-old) sample | Teen (13 to 17-year-old) sample |
|--|---|---|---|---|---|---|--------------------------|----------------------------------|--------------------------|----------------------------------|---------------------------------|
| Timing of activity   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Total time spent outdoors  | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Amount of time spent outside versus amount of time intended                  |   |   |   |   |   | √ | √                        | √                                | √                        | √                                | √                               |
| Choice to stay out of the sun for a period                                   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Whether activity took place in a setting with shade provided                 | √ | √ | √ | √ | √ |   |                          |                                  | √                        | √                                | √                               |
| Type of shade chosen   |   |   | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Whether they would have used shade if shade was provided                     |   |   |   |   |   |   |                          |                                  | √                        | √                                | √                               |
| Staying out of the sun/ in the shade and whether this was a conscious choice |   |   |   |   |   | √ | √                        | √                                | √                        | √                                | √                               |
| Whether activity took place by water   |   |   |   |   |   | √ | √                        | √                                | √                        | √                                | √                               |
| Coverage by clothing   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Wearing of hat   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Type of hat  | √ | √ | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Body parts covered by hat  |   |   |   |   |   | √ | √                        | √                                | √                        | √                                | √                               |
| Wearing of sunglasses  | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Type of sunglasses   |   |   | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Use of sunscreen   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Areas covered by sunscreen   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Reapplication of sunscreen   | √ | √ | √ | √ | √ | √ | √                        | √                                | √                        | √                                | √                               |
| Use of separate makeup/moisturiser with sunscreen                            |   |   |   | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Type of sunscreen (SPF/broad spectrum)                                       | √ | √ | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Time of application of sunscreen   | √ | √ | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Use of UPF clothing  |   |   | √ | √ | √ |   |                          |                                  |                          |                                  |                                 |
| Preparation to protect from the sun  |   |   |   |   |   | √ | √                        | √                                | √                        | √                                | √                               |
| Action taken to improve vitamin D levels                                     |   |   |   |   |   | √ | √                        |                                  |                          |                                  |                                 |

| <b>Weather perception</b>   |   |             |             |             |             |             |  |   |  |   |  |
|---|---|-------------|-------------|-------------|-------------|-------------|--|---|--|---|--|
| Perception of cloud cover   | √ | √           | √           | √           | √           |             |  |   |  |   |  |
| Perception of temperature   | √ |             |             |             |             |             |  |   |  |   |  |
|   |   | <b>1994</b> | <b>1997</b> | <b>2000</b> | <b>2003</b> | <b>2006</b> | <b>2010<br/>18 to<br/>24-<br/>year-<br/>old<br/>sample</b> | <b>2010<br/>Adult<br/>(18 to<br/>54-year-<br/>old)<br/>sample</b> | <b>2013<br/>18 to<br/>24-<br/>year-<br/>old<br/>sample</b> | <b>2013<br/>Adult<br/>(18 to<br/>54-year-<br/>old)<br/>sample</b> | <b>2013<br/>Teen<br/>(13 to<br/>17-year-<br/>old)<br/>sample</b> |
| Looking at the weather forecast before outdoor activities                   |   |             |             |             |             |             |  |   | √  | √   | √  |
| Awareness of Sun Protection Alert   |   |             |             |             |             |             |  |   | √  | √   | √  |
| Awareness of UV Index   |   |             |             |             |             |             |  |   | √  | √   | √  |
| Perception that weather could cause sunburn                                 |   |             |             |             |             | √           | √  | √   | √  | √   | √  |
| <b>Information on sun protection – advertising</b>                          |   |             |             |             |             |             |  |   |  |   |  |
| Awareness of advertising/promotions   | √ | √           | √           | √           | √           | √           | √  | √   | √  | √   | √  |
| Message outtake   | √ | √           | √           | √           | √           |             |  |   |  |   |  |
| Item recall - description   |   |             |             | √           | √           | √           | √  | √   | √  | √   | √  |
| Setting of advertising  | √ | √           | √           | √           | √           |             |  |   |  |   |  |
| <b>Melanoma/ Skin Cancer knowledge</b>                                      |   |             |             |             |             |             |  |   |  |   |  |
| <b>Agreement with statements about what could happen</b>                    |   |             |             |             |             |             |  |   |  |   |  |
| “It may mean loss of a limb”  |   |             |             |             |             | √           |  | √   |  |   |  |
| “It would only leave a small scar, the size of the melanoma”                |   |             |             |             |             | √           |  | √   |  |   |  |
| “It could lead to the loss of life”   |   |             |             |             |             | √           |  | √   | √  | √   | √  |
| “It could reappear on your organs, such as your lungs, liver or brain”      |   |             |             |             |             | √           |  | √   |  |   |  |
| “It could get into your bloodstream and travel to other parts of your body” |   |             |             |             |             | √           |  | √   |  |   |  |
| Knowledge of which size melanoma could be deadly                            |   |             |             |             |             | √           |  | √   |  |   |  |
| “Melanoma can be easily treated by my GP”                                   |   |             |             |             |             |             |  |   | √  | √   | √  |

|   |             |             |             |             |             |   |   |  |   |   |  |
|---|-------------|-------------|-------------|-------------|-------------|---|---|--|---|---|--|
| Knowledge of risk factors for skin cancer                             |             |             |             |             |             | √   | √   | √  | √   | √   | √  |
| Perception of likelihood of getting skin cancer in the future         |             |             |             |             |             |   |   |  | √   | √   | √  |
| "I feel confident that I can protect myself from getting skin cancer" |             |             |             |             |             |   |   |  | √   | √   | √  |
| <b>Tanning/ attitudes</b>   |             |             |             |             |             |   |   |  |   |   |  |
| Like to get a suntan  | √           | √           | √           | √           | √           |   |   |  |   |   |  |
| Attempted to get suntan   | √           | √           | √           | √           | √           | √   |   | √  | √   | √   |  |
| Likelihood of trying to get a tan during rest of summer               |             |             |             |             |             | √   |   | √  | √   | √   |  |
| Whether planning to avoid getting a suntan                            |             |             |             |             |             |   |   |  | √   | √   | √  |
| Depth of preferred suntan   | √           |             |             |             |             |   |   |  |   |   |  |
| Use of sunbed   |             |             | √           | √           | √           |   |   |  |   |   |  |
| Use of tanning products   |             |             | √           | √           | √           |   |   |  |   |   |  |
| Use of fake tan   |             |             | √           | √           | √           |   |   |  | √   | √   | √  |
| "I feel more healthy with a suntan"                                   | √           | √           | √           | √           | √           | √   | √   | √  | √   | √   | √  |
|   | <b>1994</b> | <b>1997</b> | <b>2000</b> | <b>2003</b> | <b>2006</b> | <b>2010<br/>18 to 24-<br/>year-old<br/>sample</b> | <b>2010<br/>Adult<br/>(18 to 54-<br/>year-old)<br/>sample</b> | <b>2010<br/>Teen<br/>(13-17<br/>year old)<br/>sample</b> | <b>2013<br/>18 to 24-<br/>year-old<br/>sample</b> | <b>2013<br/>Adult<br/>(18 to 54-<br/>year-old)<br/>sample</b> | <b>2013<br/>Teen<br/>(13 to 17-<br/>year-old)<br/>sample</b> |
| "This summer I intend to sunbathe regularly to get a suntan"          | √           | √           | √           | √           | √           | √   | √   | √  |   |   |  |
| "Most of my friends think a suntan is a good thing"                   | √           | √           | √           | √           | √           | √   | √   | √  | √   | √   | √  |
| "A suntan makes me feel better about myself"                          | √           | √           | √           | √           | √           | √   | √   | √  | √   | √   | √  |
| "A suntan makes me feel more attractive to others"                    | √           | √           | √           | √           | √           |   |   |  |   |   |  |
| "Most of my close family think that a suntan is a good thing"         | √           | √           | √           | √           | √           |   |   |  |   |   |  |
| "A suntan protects you against melanoma and other skin cancers"       | √           | √           | √           | √           | √           |   |   |  |   |   |  |
| "A tan shows I care about my appearance"                              |             |             |             |             |             | √   |   | √  | √   |   | √  |
| "Seeing tanned people on TV, in films and in                          |             |             |             |             |             | √   |   | √  | √   |   | √  |

|  |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|
| magazines makes me want to have a tan”   |   |   |   |   |   |   |   |   |   |   |   |
| “Tanning is part of the kiwi summer”   |   |   |   |   |   | √ |   | √ | √ |   | √ |
| “Protecting my skin from the sun can result in not getting enough vitamin D”   |   |   |   |   |   |   |   |   | √ | √ |   |
| “I often encourage others to protect their skin from the sun”  |   |   |   |   |   |   |   |   | √ | √ | √ |
| “Over time tanning can make my skin age faster than it naturally would”  |   |   |   |   |   |   |   |   | √ |   | √ |
| “It is likely that I already have some permanent damage to my skin from sun exposure”  |   |   |   |   |   |   |   |   | √ |   | √ |
| <b>Attitudes and risk perception</b>   |   |   |   |   |   |   |   |   |   |   |   |
| Barriers to sunscreen use  | √ | √ | √ | √ | √ |   |   |   |   |   |   |
| Reasons for sunscreen reapplication  |   |   | √ | √ | √ |   |   |   |   |   |   |
| Self-perception of risk of skin cancer in future   |   |   |   |   |   | √ | √ | √ | √ | √ | √ |
| <b>Role of Local Councils</b>  |   |   |   |   |   |   |   |   |   |   |   |
| “I expect local councils to use money from rates to provide shade in public places such as beaches, pools, parks and gardens”      |   |   |   |   |   |   |   |   | √ | √ |   |
| “I would pay\$10/\$20/\$50 more on my annual rates or rent if it mean the local councils could provide more shade in public places |   |   |   |   |   |   |   |   | √ | √ |   |