

Sun protection behaviours in target populations for skin cancer prevention

Analysis of the 2018 NSW Adult
Population Health Survey

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Cancer Institute NSW

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Executive summary

The *Sun Protection Behaviours in NSW, 2017* report published in 2019 described the NSW population's engagement in sun protection behaviours and whether these have improved over the period 2007 to 2016 in the general population, as well as amongst the priority groups. The 2019 report presented findings from the analysis of two NSW Health surveys:

- *NSW Adult Population Health Survey (APHS) 2007, 2010, 2014 and 2016*
- *NSW Secondary School Health Behaviours Survey (SSHBS), 2014 and 2017.*

This study is an addendum to the *Sun Protection Behaviours in NSW, 2017* report and includes analysis of the *NSW Adult Population Health Survey (APHS), 2018*.

This study also extends the *Sun Protection Behaviours in NSW, 2017* report with a focus on the self-reported shade availability across the adult population over the period 2007 to 2018.

In addition, a summary of sun protection behaviours of the population across socioeconomic status quintiles has been provided based on the APHS 2018 survey results.

Key findings

- Similar to 2016, the APHS 2018 survey shows that age, gender, geography and socioeconomic status contribute to the likelihood of increased sun exposure.
- Self-reported shade availability at sporting areas overall showed a decrease from 2016 to 2018.
- In 2018, the most disadvantaged socioeconomic quintile of the population were more likely to always or often be exposed to the sun and less likely to wear sunglasses than the least disadvantaged socioeconomic quintile. Meanwhile, the population in the most disadvantaged socioeconomic quintile were more likely to report frequent use of protective clothing and a sun-safe hat.

Sun exposure in NSW

These adult groups were more likely to always or often be exposed to the sun:

- young adults
- males aged 40 and over
- people living in regional or coastal NSW
- people who burn then tan or tan only
- people with darker skin.

In 2018, 2.9 million (46%) of the NSW adult population aged 18 years and over were always or often exposed to the sun between 11am and 3pm over the preceding four-week period. This is similar to 2016 results. In 2018, 48% of young adults and 57% of males aged 40 years and over reported such sun exposure.

Sunburn in NSW

According to the NSW APHS 2018, 12% of the NSW population aged 18 years and over were sunburnt at least once in the preceding four-week period in 2018.

The likelihood of getting sunburnt decreased steadily with age, with 23% of those aged 18 to 24 years being sunburnt in the preceding four-week period, compared with 0.9% of people aged 85+ years.

752,000

people aged 18+ years were sunburnt at least once in the preceding four-week period in 2018.

Sun protection behaviour in NSW

5,428,000

people aged 18+ engaged in at least one protection behaviour in the preceding four-week period in 2018.

In 2018, the most commonly used sun protection behaviour amongst the adult population was the use of sunglasses, followed by protective clothing and shade use which is consistent with 2014 and 2016. 87% of the NSW adult population engaged in at least one

sun protection behaviour in the preceding four-week period, while only 39% engaged in at least three sun protection behaviours and only 6% engaged in all five desired sun protection behaviours. However, these behaviours are not uniform across the population; the use of sun protection behaviours increased with skin sensitivity and age.

Skin type

Similar to 2016, people with Fitzpatrick skin types 1 and 2 (highly sensitive and/or fair skin, see Appendix A) were less likely to have had high sun exposure, and more likely to have engaged in other protection behaviours. Conversely, people of skin type 3 were more likely to spend time in the sun and engaged in fewer protection behaviours.

Age and behaviour preferences

In 2018, adults aged 18 to 24 were more likely to have always or often been exposed to the sun and experienced severe sunburn (23%), and less likely to use sunscreen (29%), protective clothing (34%), sunglasses (43%, a significant decrease from 49% in 2016), or a hat (15%). Of all the sun protection behaviours, they were most likely to seek shade (43%, unchanged from 2016).

Socioeconomic status

In 2018, the most disadvantaged socioeconomic quintile of the population were less likely to wear sunglasses than the least disadvantaged socioeconomic quintile, whilst more likely to wear protective clothing and wear a sun-safe hat.

Priority populations

APHS 2018 survey data for the priority populations identified in the *NSW Skin Cancer Prevention Strategy*, young adults (18–24 years) and males 40+ years, was examined.

Figure 1 summarises the sun exposure levels, sunburn episodes, sun protection behaviours and skin types of these two priority populations.

Figure 1: Summary of sun exposure, sunburn, protection behaviours and skin type of two priority populations

693,000 people	Young adults (18–24 years)
<p>Higher levels of sun exposure and sunburn than the overall population</p> <p>Lower uptake of protection behaviours than the overall population except for shade use, which has increased significantly since 2007</p> <p>46% were at higher risk with skin type 1 & 2; 23% were skin type 3</p> <p>Those with skin type 3 spent more time in the sun than skin types 1 & 2</p>	
1,848,000 people	Males 40+ years
<p>Higher levels of sun exposure than the overall population</p> <p>Higher uptake of protective clothing and hats but lower uptake of other protection behaviours</p> <p>Males in general are less likely than females to consider their skin as sensitive; 42% of males reported having skin types 1 or 2, compared to 46% of females</p> <p>Those with skin type 3 had as much sun exposure as those with skin type 1 or 2, and were more likely to get sunburnt – making this group at risk, despite considering themselves not sensitive.</p>	

Introduction

This report is an addendum to *Sun protection behaviours in NSW, 2017* and includes analysis of NSW APHS 2018 data.

The purpose of this addendum is to supplement the overview of sun protection behaviours in the NSW adult population with a focus on the socioeconomic status across the adult population and self-reported shade availability.

This report is structured as follows:

- Section 2 provides a summary of the sun protection behaviours in the overall population which are assessed in the NSW APHS 2018, particularly behaviour changes during the period from 2016 to 2018.
- Section 3 shows sun protection behaviours and self-reported shade availability across the adult population in 2018. Furthermore, it outlines how these behaviours and self-reported shade availability varies by other demographic factors such as age, sex, geography and socioeconomic status in the NSW population aged 18 years old and over.
- Section 4 provides a focus on high-risk individuals with various Fitzpatrick skin types (see Appendix A) or high levels of sun exposure, particularly quantifying and describing these groups, and investigating their use of protection behaviours. As for the *Sun Protection Behaviours in NSW, 2017* report, the focused priority populations are young adults (18–24 years old) and males 40 years old and over.

NSW Adult Population Health Survey skin module

As in 2007, 2014 and 2016, the *Adult Population Health Survey (APHS)* 2018 (typically conducted February to December) asked the following questions on sun protection behaviours over the last four weeks.

Table 1: Questions and answers for sun protection behaviours in NSW APHS 2007, 2014, 2016 and 2018

Measure	Questions	Answer options
Sun exposure	In the last four weeks, how often did you go out in the sun for more than 15 minutes between 11am and 3pm?	1. Always 2. Often 3. Sometimes 4. Rarely 5. Never X. Don't know R. Refused
Shade use	In the last four weeks, when you were out in the sun for more than 15 minutes, how often did you seek shade?	
Sun-safe hat use	In the last four weeks, when you were out in the sun for more than 15 minutes, how often did you wear a broad brimmed hat or cap with a back flap?	1. Always 2. Often
Sunscreen use	Still thinking about the last four weeks, how often did you apply a broad-spectrum sunscreen with an SPF of 15 or more to your exposed skin?	3. Sometimes 4. Rarely/Never X. Don't know R. Refused
Protective clothing use	Still thinking about the last four weeks, how often were you deliberately dressed in clothing to protect you from the sun?	
Sunglasses use	In the last four weeks, when you were out in the sun for more than 15 minutes, how often did you wear sunglasses?	
Sunburn episodes	Still thinking about the last four weeks, how often did you get sunburnt, so your skin was still sore or tender the next day?	1. Not at all 2. Once 3. Twice 4. 3 or 4 times 5. 5 or more times X. Don't know or don't recall R. Refused

Skin sensitivity	Suppose your/child's skin was exposed to strong sunshine at the beginning of summer with no protection at all. If you/child stayed in the sun for 30 minutes, would your/his/her skin:	1. Just burn and not tan afterwards 2. Burn first then tan afterwards 3. Not burn at all, just tan X. Don't know or don't recall R. Refused
Skin colour	How would you describe your/child's skin colour when you don't/he/she doesn't have any tan?	1. Very fair 2. Fair 3. Medium 4. Olive 5. Dark 6. Very dark 7. Black X. Don't know or don't recall R. Refused
Shade in sporting areas	In your local area, when you are/child is outside do you/does child find it easy to find shade in sporting areas?	
Shade at public pool	In your local area, when you are/child is outside do you/does child find it easy to find shade at the outdoor public swimming pool?	1. Yes 2. No 3. Not applicable X. Don't know R. Refused
Shade at public park	In your local area, when you are/child is outside do you/does child find it easy to find shade at the public park?	

Changes in sun protection behaviours over the period 2016 to 2018

Table 2 shows how sun exposure, sunburn and key sun protection behaviours (i.e. use of protective clothing, shade, sun-safe hats, sunglasses and sunscreen) have changed between 2016 and 2018. In addition, a comparison of self-reported shade availability at the public park/in sporting areas/at the outdoor public swimming pool between 2016 and 2018 is conducted.

Key findings

- Males always/often wearing protective clothing increased from 41.1% in 2016 to 45.0% in 2018.
- From 2016 to 2018 in metropolitan areas, the population always/often wearing sunglasses dropped from 60.9% to 56.7%.
- Self-reported shade availability at sporting areas decreased from 69.8% in 2016 to 65.0% in 2018.

Table 2: Sun protection behaviours from the NSW APHS

Measure	In the last four weeks		
	2016 (N=13,398)	2018 (N=13,021)	Statistically significant change*
Always/Often had at least 15 minutes of sun exposure between 11am and 3pm	47.4%	46.2%	
<i>Young adults aged 18-24</i> always/Often had sun exposure	52.3%	48.4%	
Always/Often sought shade	40.3%	40.8%	
Always/Often wore a sun-safe hat (not a cap)	33.8%	34.8%	
Always/Often applied SPF15+ sunscreen	35.5%	33.9%	
Always/Often wore protective clothing	39.5%	42.2%	
<i>Males who always/Often wore</i> protective clothing	41.1%	45.0%	↑
Always/Often wore sunglasses	63.6%	60.8%	
<i>Young adults aged 18-24</i> always/Often wore sunglasses	48.6%	43.3%	↓
<i>Aged group 25-34 always /Often</i> wore sunglasses	65.0%	59.0%	
<i>In metropolitan areas always</i> /Often wore sunglasses	60.9%	56.7%	↓
Got sunburnt :			
• Zero times	89.8%	87.9%	
• > = 1 time	10.2%	12.1%	

<i>Young adults aged 18-24 got sunburnt:</i>	18.6%	23.0%	
Found it easy to find shade at:			
• Public parks	82.8%	80.3%	
Found it easy to find shade at:			
• Sporting areas	69.8%	65.0%	↓
<i>Young adults (aged 18 to 24) Found it easy to find shade at sporting areas</i>	76.5%	70.7%	
Found it easy to find shade at:			
• Outdoor swimming pools	75.8%	73.2%	

Statistically significant changes: Behaviour improved



Behaviour worsened



N: Total number of respondents. "Refused", "Not applicable" and "Do Not Know" are not counted. Small variation exists in number of respondents across each measure.

* Two-proportion z-test

Sun protection behaviours by demographic factors

This section compares sun protection behaviours across the overall population across demographic factors such as age, sex, geography* and socioeconomic status.

This section also compares self-reported shade availability over the period.

Key findings

Protection behaviours

- The proportion of males who always or often used protective clothing was 45% in 2018 (significantly increased from 41% in 2016).
- In 2018, the proportion of respondents in metropolitan areas who always/often wore sunglasses was 57% (significantly lower than 61% in 2016).

Socioeconomic status

- In 2018, the more disadvantaged socioeconomic quintiles of the population were more likely to:
 - have always or often been exposed to the sun for more than 15 minutes between 11am to 3pm
 - have used sunscreen, protective clothing and a sun-safe hat, but less likely to have worn sunglasses.
- Across the five socioeconomic quintiles, the proportion that found it easy to find shade at public parks/in sporting areas/at outdoor public swimming pools was similar.

Shade availability

- Overall, the proportion of the population who found it easy to find shade in sporting areas significantly decreased from 70% in 2016 to 65% in 2018.
- In 2018, males aged 40 years and older were more likely than the overall NSW adult population to find shade in sporting areas and at public parks.
- In 2018, young adults were more likely than the overall NSW adult population to find shade at outdoor public swimming pools.

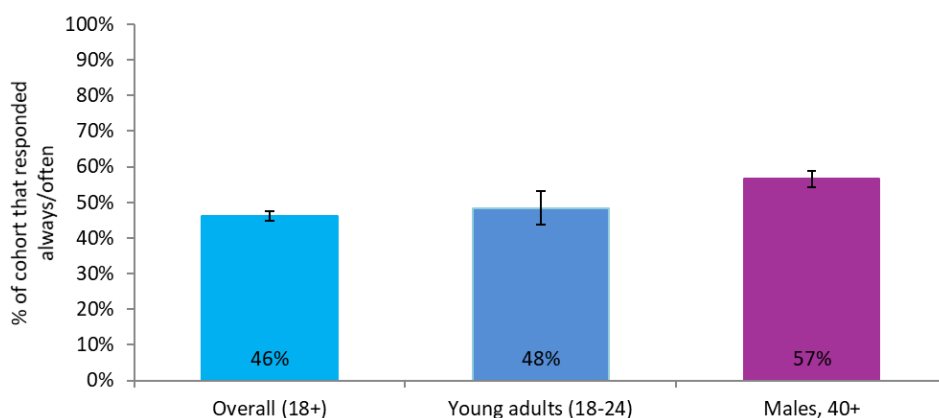
* Local health districts (LHDs) were classified into coastal, regional/rural, and metropolitan (Sydney Metro) areas. Coastal LHDs include Mid North Coast, Northern NSW, Hunter New England, Illawarra Shoalhaven, Central Coast, and Southern NSW. Regional/rural LHDs include Nepean Blue Mountains, Far West, Murrumbidgee, Western NSW, and Albury Wodonga Health Victoria. Metropolitan LHDs include Sydney, South Eastern Sydney, Western Sydney, South Western Sydney, and Northern Sydney.

Sun exposure

In the last four weeks, how often did you go out in the sun for more than 15 minutes between 11am and 3pm?

As in 2016, in 2018 males aged 40 and above were more likely to be exposed to the sun for more than 15 minutes between 11am to 3pm in the preceding four-week period compared to the overall NSW adult population (Figure 1).

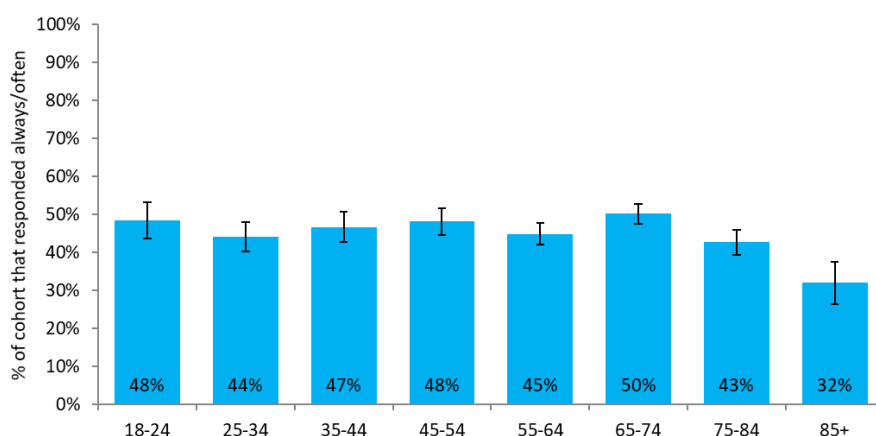
Figure 1: Proportion of people that were always or often exposed to the sun, by population group, NSW, 2018



Age

Sun exposure tended to decrease with age. Figure 2 indicates that in 2018 around 48% of adults aged 18 to 74 were always or often exposed to the sun for more than 15 minutes between 11am to 3pm in the preceding four-week period compared to around 38% of adults aged 75.

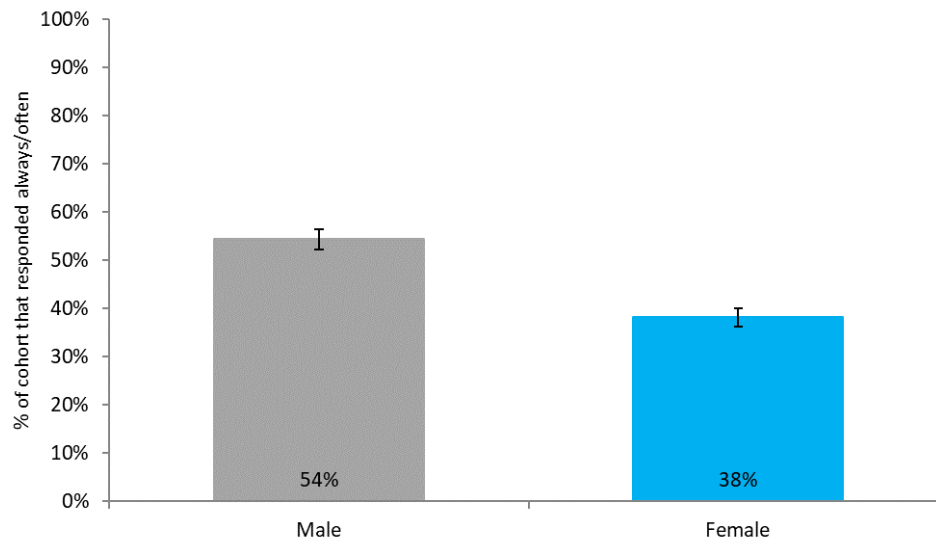
Figure 2: Proportion of adults that were always or often exposed to the sun, by 10-year age group, NSW, 2018



Gender

As in 2016, the proportion of males who were always or often exposed to the sun for more than 15 minutes between 11am to 3pm in the preceding four-week period was significantly higher than that of females in 2018.

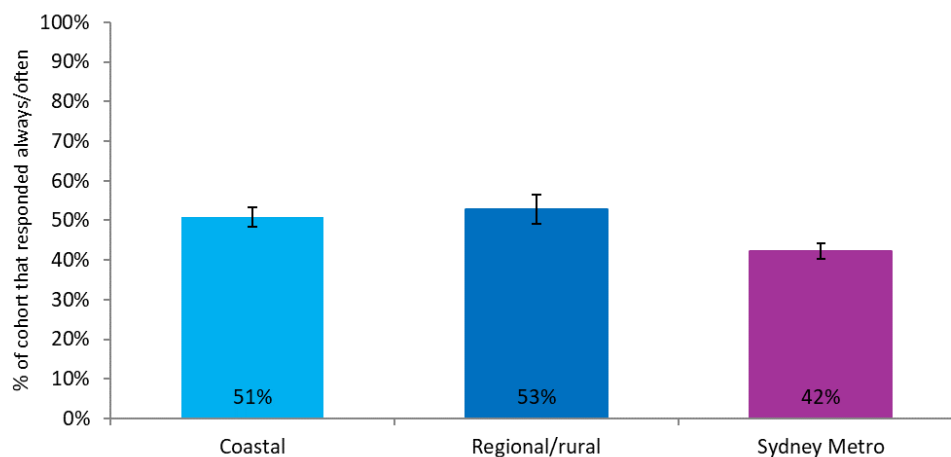
Figure 3: Proportion of adults always or often exposed to the sun, by gender, NSW, 2018



Geographic location

In 2018, around 51% of the population in coastal Local Health Districts (LHDs) and 53% of regional/rural LHD populations were always or often exposed to the sun for more than 15 minutes in the preceding four weeks (Figure 4), significantly higher than 42% of the population in the Sydney Metro area. The incidence of melanoma was highest amongst LHDs in coastal areas (Appendix C – Sun protection behaviours by local health district).

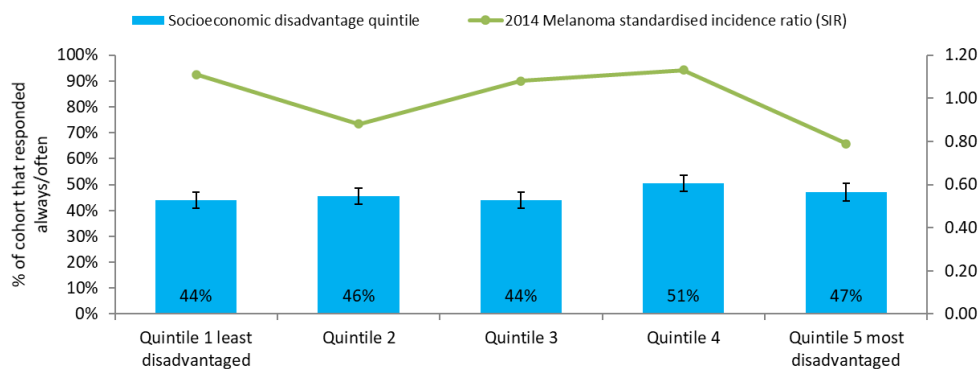
Figure 4: Proportion of adults always or often exposed to the sun, by geographical area, NSW, 2018



Socioeconomic status

In 2018, the more disadvantaged socioeconomic quintiles of the population were more likely to have always or often been exposed to the sun for more than 15 minutes between 11am-3pm in the preceding four weeks. There is no clear relationship between sun exposure across socioeconomic quintiles and incidence of melanoma.

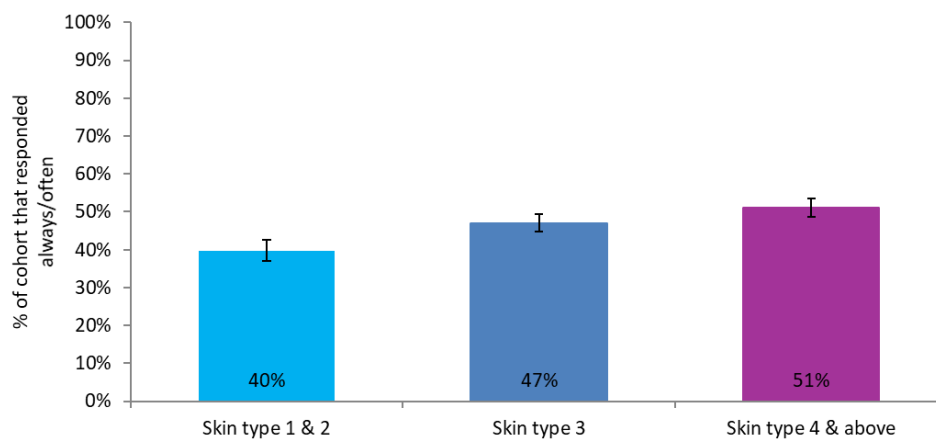
Figure 5: Proportion of adults always or often exposed to the sun, by socioeconomic quintile, NSW, 2018



Skin type

In 2018, adults with skin type 1 or 2 (highly sun-sensitive skin or fairer skin colours) were less likely than those with skin type 3 and above to have always or often been exposed to the sun for more than 15 minutes between 11am-3pm in the preceding four weeks, which is similar to the survey results in 2016.

Figure 6: Proportion of adults always or often exposed to the sun, by skin type, NSW, 2018

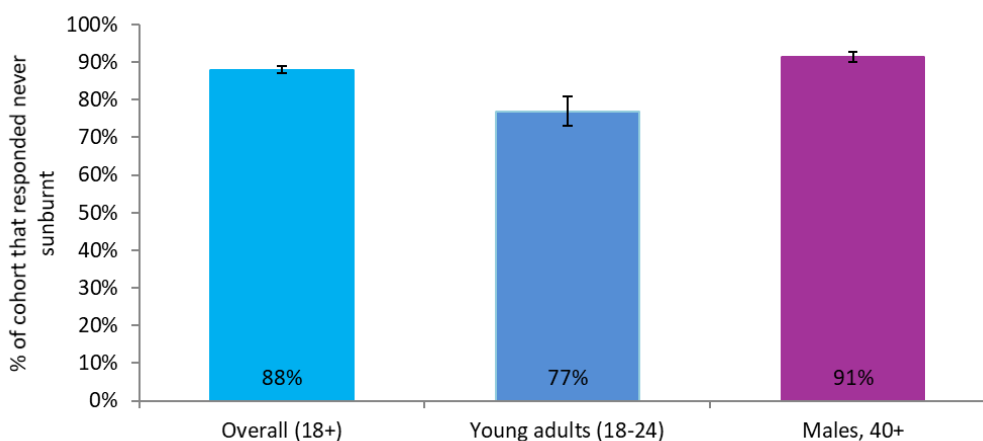


Sunburn episodes

In the last four weeks, how often did you get sunburnt, so your skin was still sore or tender the next day?

In 2018, around 88% of the NSW adult population did not get sunburnt in the preceding four weeks. In contrast, only 77% of young adults did not get sunburnt (Figure 7).

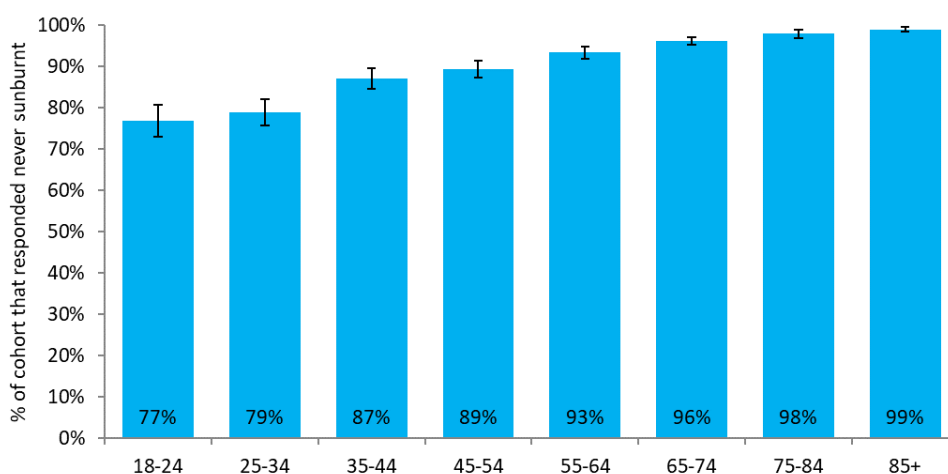
Figure 7: Proportion of adults that were never sunburnt, by population group, NSW, 2018



Age

As in 2016, in 2018 the proportion of adults in older age groups that did not get sunburnt in the preceding four-week period is significantly higher than that of adults under 34 years of age (Figure 8). This is consistent with the broadly decreasing levels of sun exposure in older age groups as seen in Figure 2.

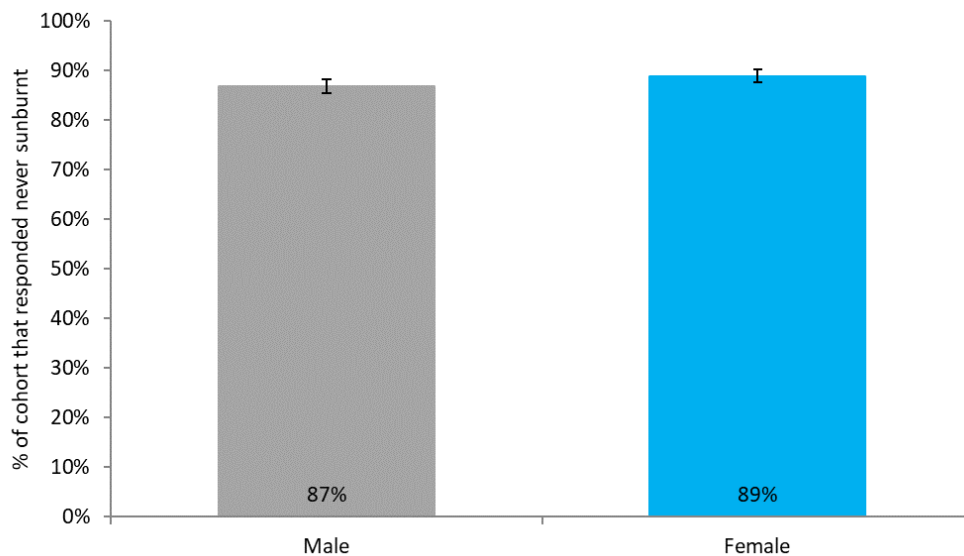
Figure 8: Proportion of adults that were never sunburnt, by 10-year age group, NSW, 2018



Gender

As in 2016, in 2018 although a much higher proportion of males were always or often exposed to the sun (Figure 9), a similar proportion of males and females did not get sunburnt in the preceding four weeks.

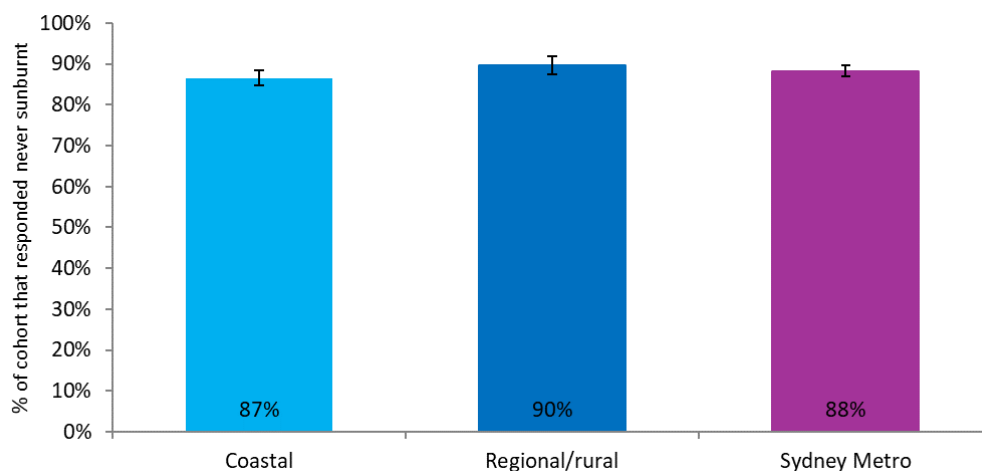
Figure 9: Proportion of adults that were never sunburnt, by gender, NSW, 2018



Geographic location

There was no significant difference across LHDs in the proportion of the population who were never sunburnt in the preceding four weeks in 2018. The proportion sustaining sunburn in individual LHDs is included in Appendix C – Sun protection behaviours by local health district.

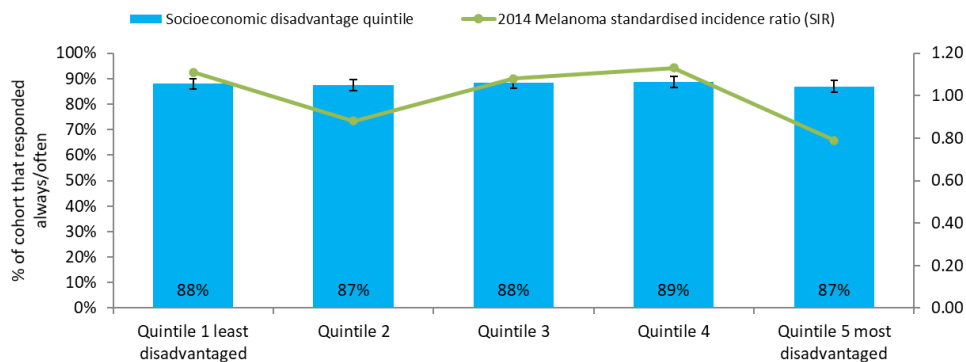
Figure 10: Proportion of adults that were never sunburnt, by geographical area, NSW, 2018



Socioeconomic status

As in 2016, no pattern was observed in 2018 between socioeconomic status and the proportions of the population who were never sunburnt in the preceding four weeks (Figure 11).

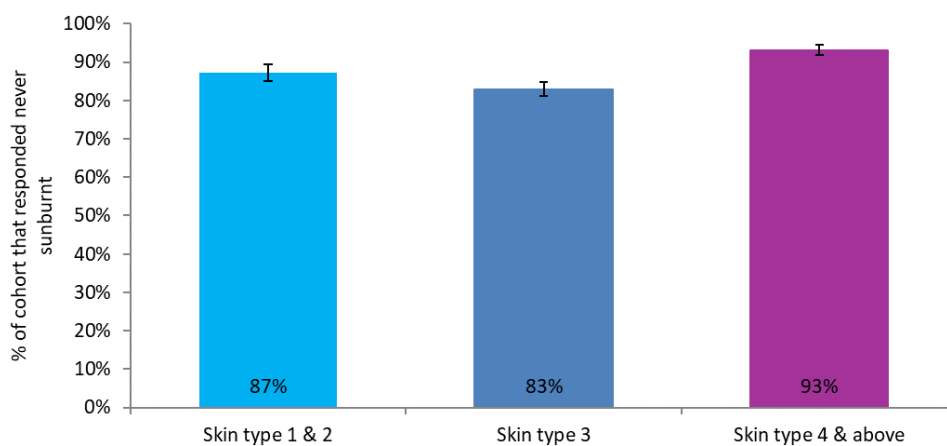
Figure 11: Proportion of adults that were never sunburnt, by socioeconomic status quintile, NSW, 2018



Skin type

In 2018, adults with skin types 1 or 2 (sun-sensitive skin or fairer skin) were significantly more likely to have had an episode of sunburn, compared with those with skin types 4 or above (despite the former having less exposure to the sun).

Figure 12: Proportion adults that were never sunburnt, by skin type, NSW, 2018

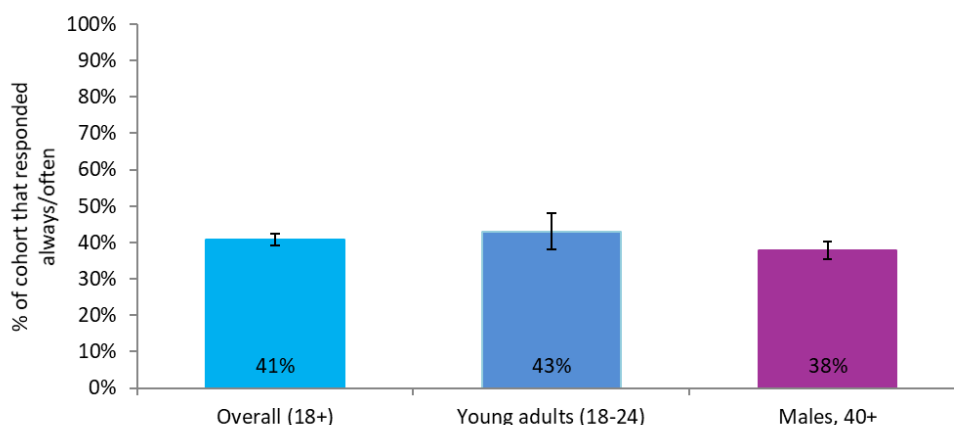


Shade use

In the last four weeks, when you were out in the sun for more than 15 minutes, how often did you seek shade?

In 2018, overall around 41% of the NSW adult population always or often sought shade when they were out in the sun for more than 15 minutes between 11am and 3pm. Similar proportions of young adults (43%) and males over 40 years (38%) sought shade.

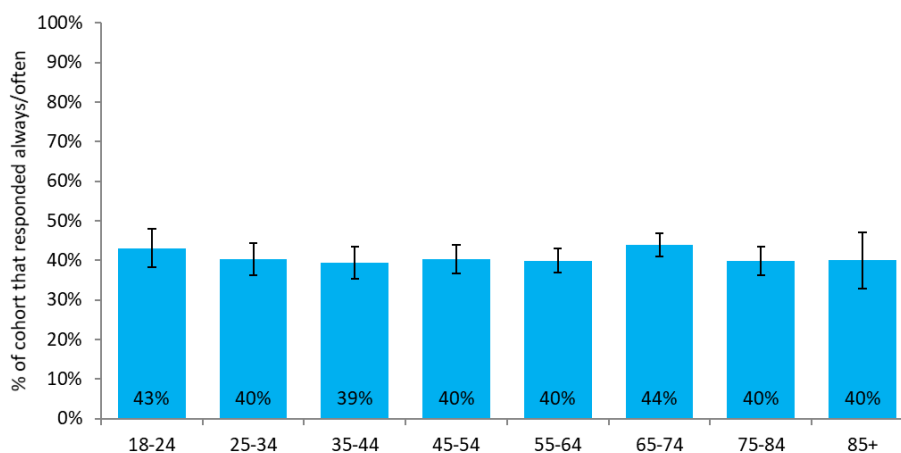
Figure 13: Proportion of adults that always or often sought shade, by population group, NSW, 2018



Age

As in 2016, approximately 40% of the population in all age groups always or often sought shade in 2018 when out in the sun for more than 15 minutes between 11am and 3pm in the last four weeks.

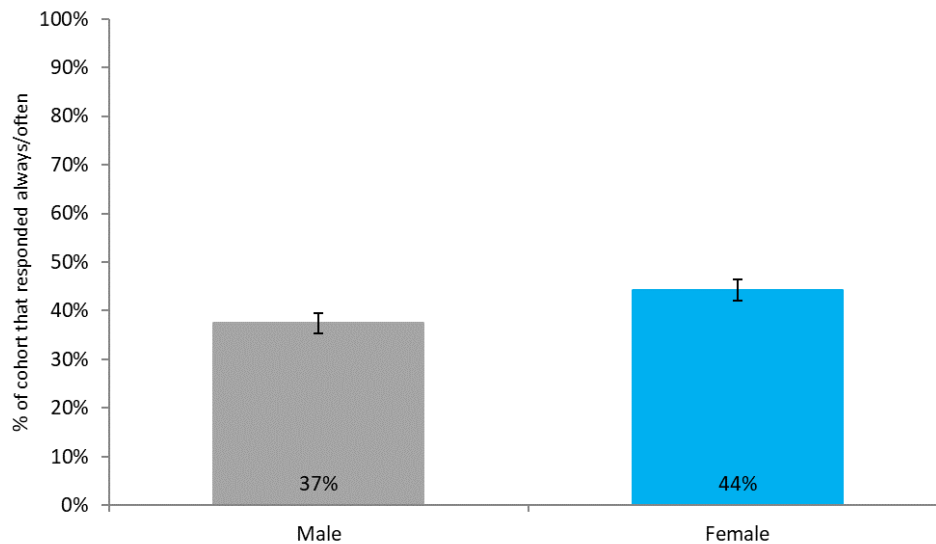
Figure 14: Proportion of adults that always or often sought shade, by 10-year age group, NSW, 2018



Gender

In 2018, the proportion of males who always or often sought shade (37%) when out in the sun between 11am and 3pm in the preceding four weeks, was lower than that of females (44%).

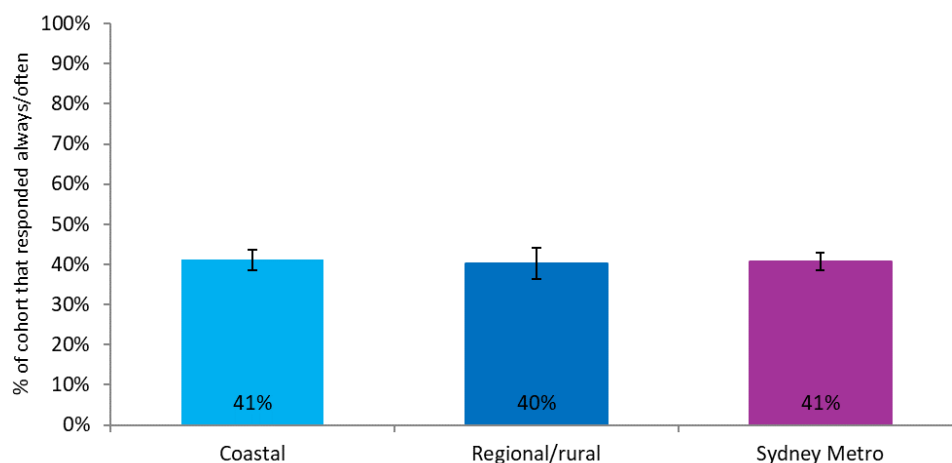
Figure 15: Proportion of adults that always or often sought shade, by gender, NSW, 2018



Geographic location

There are no major differences across LHDs in the proportion of people that always or often sought shade when out in the sun for more than 15 minutes between 11am to 3pm in the preceding four weeks. Shade use in individual LHDs is included in Appendix C – Sun protection behaviours by local health district.

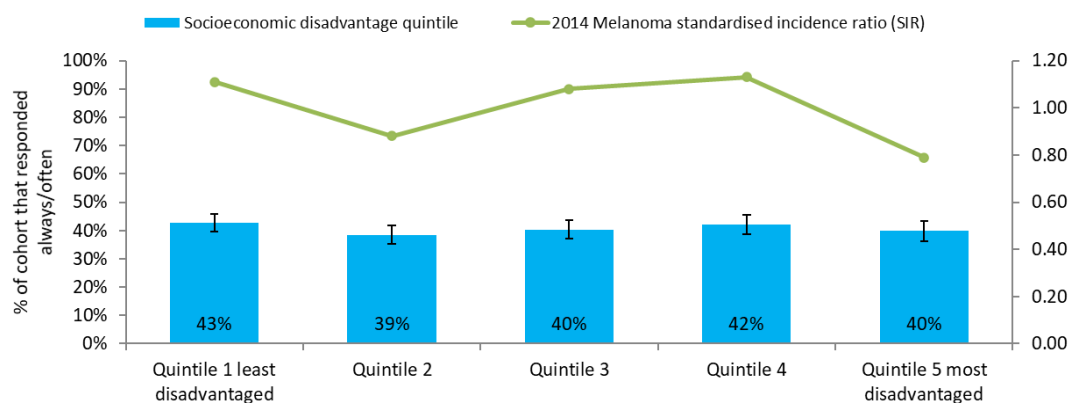
Figure 16: Proportion of adults that always or often sought shade, by geographical area, NSW, 2018



Socioeconomic status

Across the five socioeconomic quintiles, the proportion of the population that always or often sought shade when out in the sun for more than 15 minutes between 11am to 3pm in the preceding four weeks was similar. There was no apparent relationship between the proportion of each socioeconomic quintile seeking shade and 2014 melanoma standardised incidence ratio.

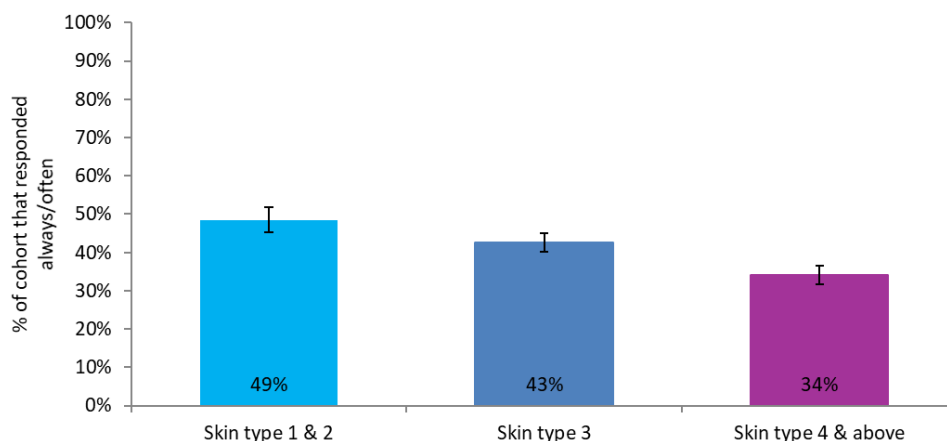
Figure 17: Proportion of adults that always or often sought shade, by socioeconomic quintiles, NSW, 2018



Skin type

Generally in 2018, adults with skin type 1, 2 or 3 were more likely to seek shade than those with skin type 4 or above when out in the sun for more than 15 minutes between 11am to 3pm in the preceding four weeks.

Figure 18: Proportion of adults that always or often sought shade, by skin type, NSW, 2018



Shade availability in sporting areas

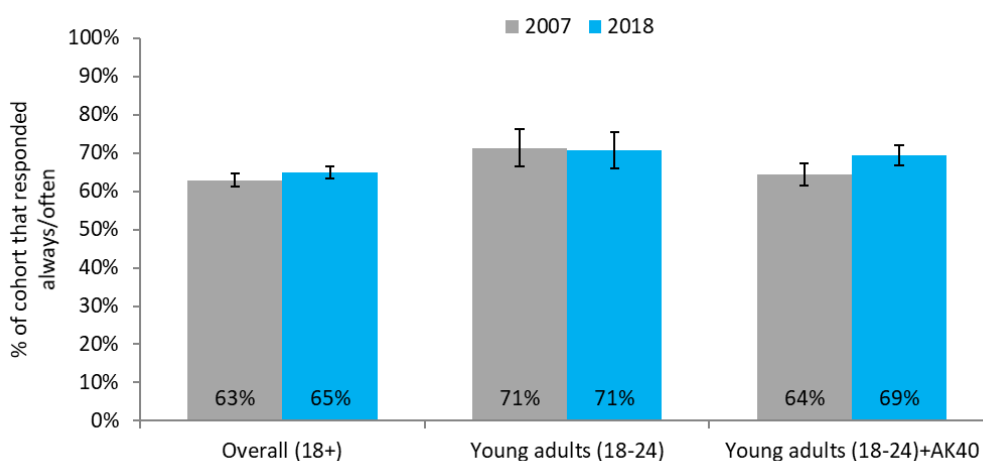
In your local area, when you are outside do you find it easy to find shade in sporting areas?

Overall, the proportion of the population who found it easy to find shade in their local sporting areas significantly decreased from 70% in 2016 to 65% in 2018.

Young adults were more likely to find shade in local sporting areas compared with the overall NSW adult population.

There are significant increases in reported shade availability in local sporting areas from 2007 to 2018 from males aged 40 and over (up from 64% in 2016 to 69% in 2018).

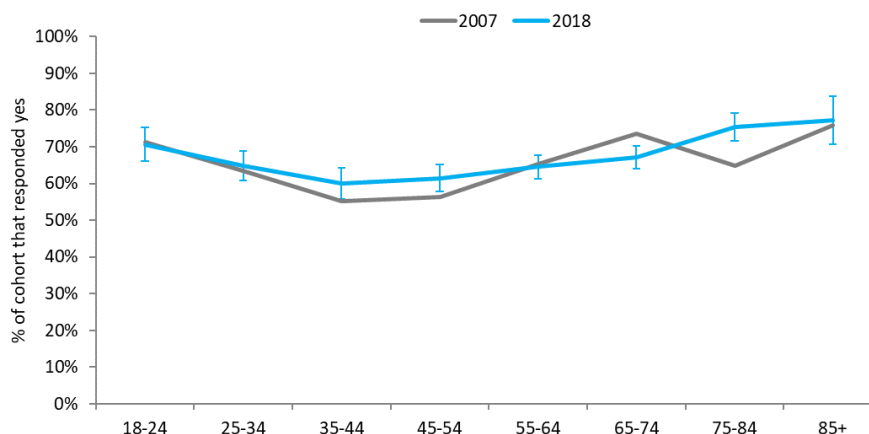
Figure 19: Proportion of adults that found it easy to find shade in local sporting areas, by population groups, NSW, 2007 and 2018



Age

Middle aged people (35-54 years) were least likely to report that it was easy to find shade in their local sporting areas.

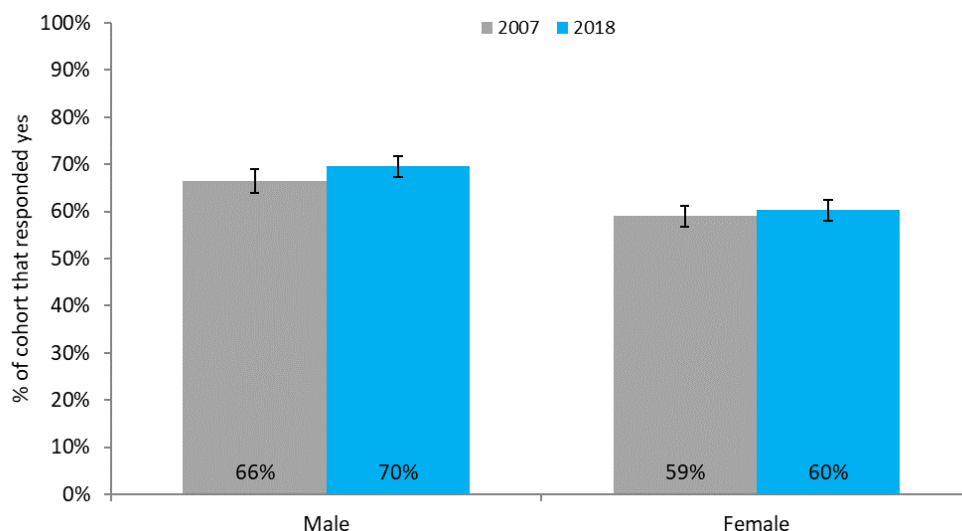
Figure 20: Proportion of adults that found it easy to find shade in local sporting areas, by 10-year age, NSW, 2007 and 2018



Gender

Males were more likely to report that they found it easy to find shade in their local sports areas than females (70% and 60% in 2018 respectively).

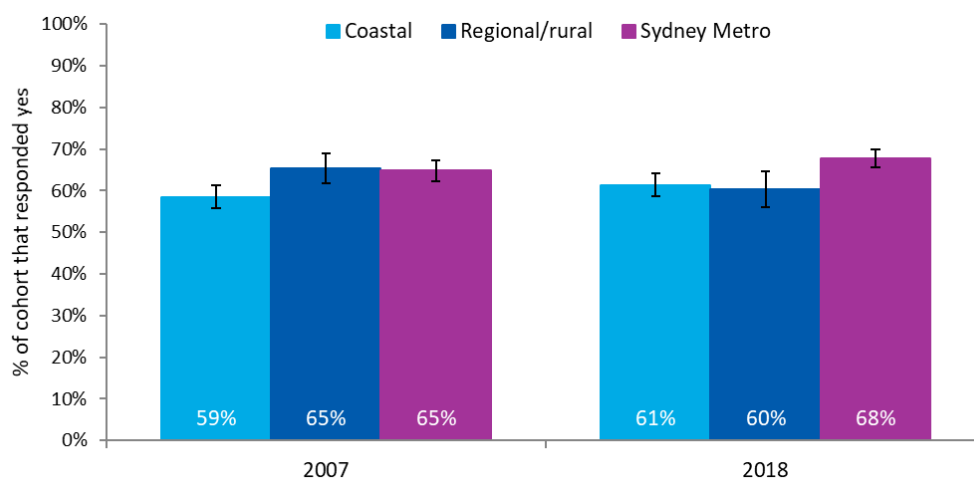
Figure 21: Proportion of adults that found it easy to find shade in local sporting areas, by gender, NSW 2007 and 2018



Geographic location

There were no significant differences in the proportion of people that found it easy to find shade in sports areas from 2007 to 2018 across LHD types: coastal, regional/rural and metropolitan. In 2018, more people reported that they found it easy to find shade in sports areas in metropolitan LHDs than in Coastal LHDs. Reported shade availability in sports areas for individual LHDs are included in Appendix C – Sun protection behaviours by local health district.

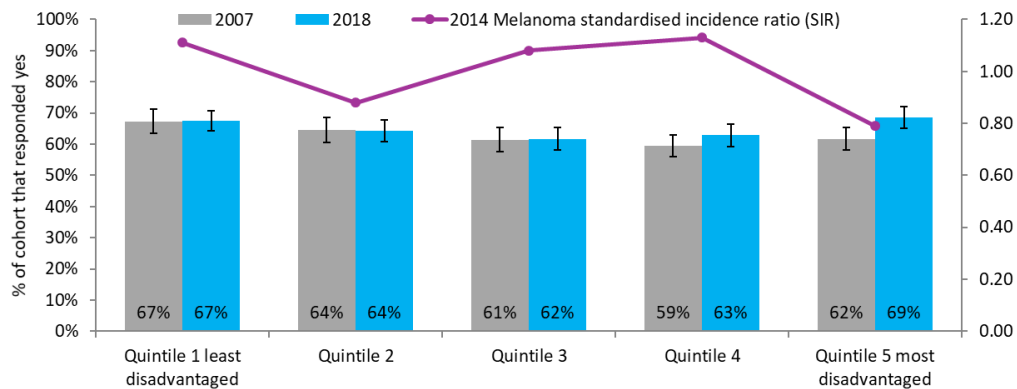
Figure 22: Proportion of adults that found it easy to find shade in local sporting areas, by geographical areas, NSW, 2007 and 2018



Socioeconomic status

Across the five socioeconomic quintiles, the proportion of the population who find it easy to find shade in local sporting areas is similar.

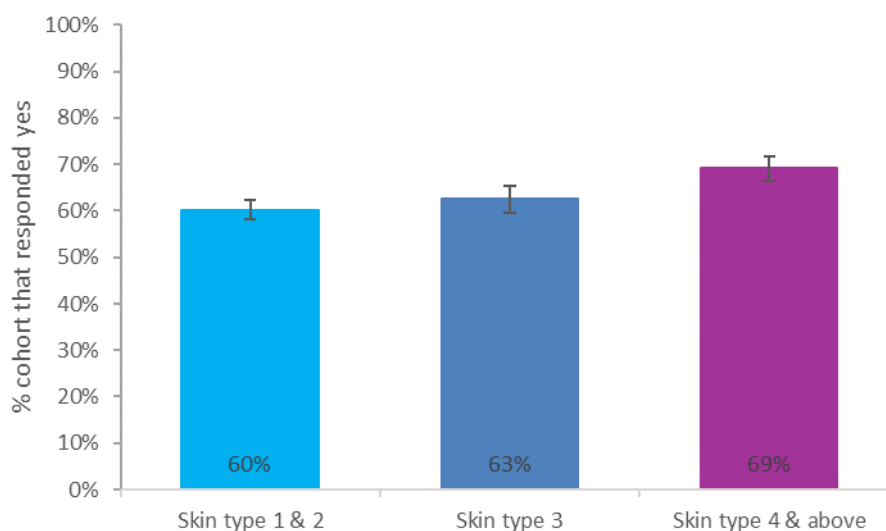
Figure 23: Proportion of adults that found it easy to find shade in local sporting areas, by socioeconomic quintile, NSW, 2016 and 2018



Skin type

In 2018, adults with skin type 1, 2 or 3 were less likely than those with skin type 4 or above to say that it is easy to find shade in their local sports areas.

Figure 24: Proportion adults that found it easy to find shade in local sporting areas, by skin type, NSW, 2018

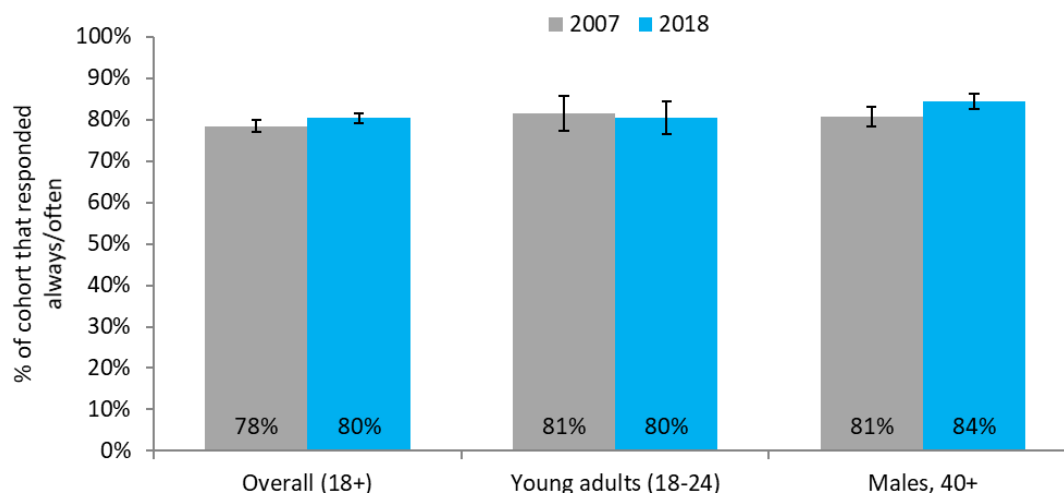


Shade availability at the public park

In your local area, when you are outside do you find it easy to find shade at the public park?

Overall and in each population group below, there was no significant change in the proportion of people who easily found shade at the public park from 2007 to 2018.

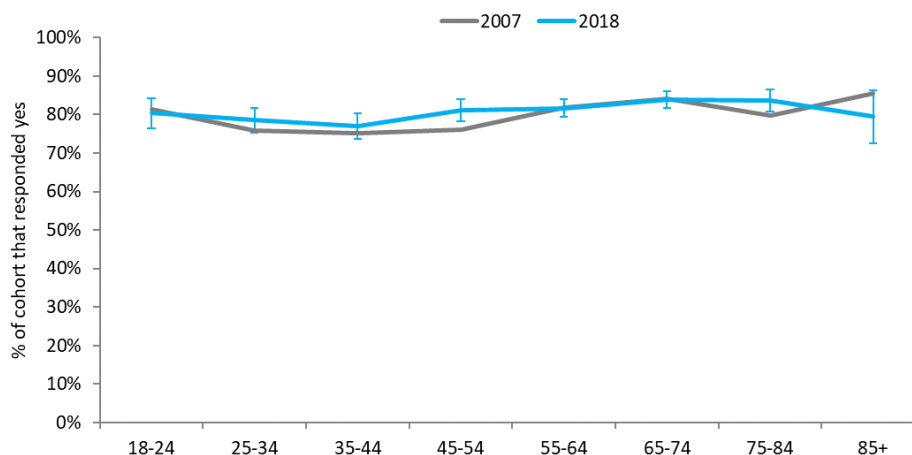
Figure 25: Proportion of adults that found it easy to find shade at the local public park, by population group, NSW, 2016 and 2018



Age

Across the age groups, the proportion of the population who believe it is easy to find shade at the public park is similar.

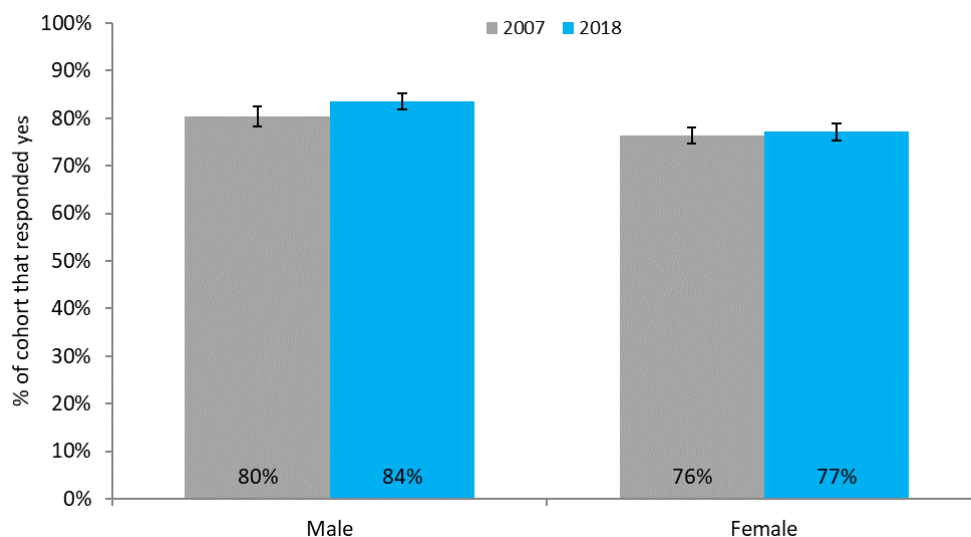
Figure 26: Proportion of adults that found it easy to find shade at the local public park, by 10-year age group, NSW, 2007 and 2018



Gender

Males are more likely to report that it is easy to find shade at the local public park than females (84% and 77% in 2018 respectively).

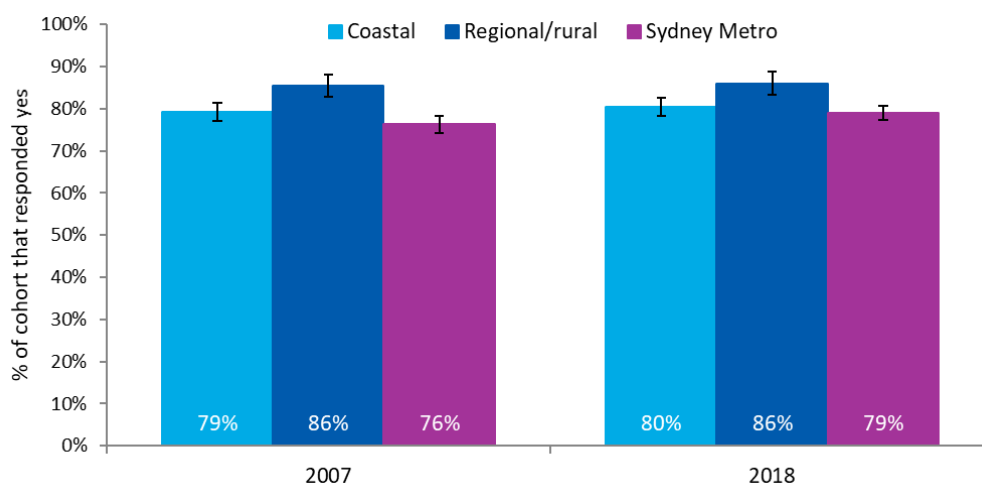
Figure 27: Proportion of adults that found it easy to find shade at the local public park, by gender, NSW, 2007 and 2018



Geographic location

Regional and rural LHDs have the highest proportion of people who report that it is easy to find shade at their local public park. Reported shade availability at their local public park in individual LHDs is included in Appendix C – Sun protection behaviours by local health district.

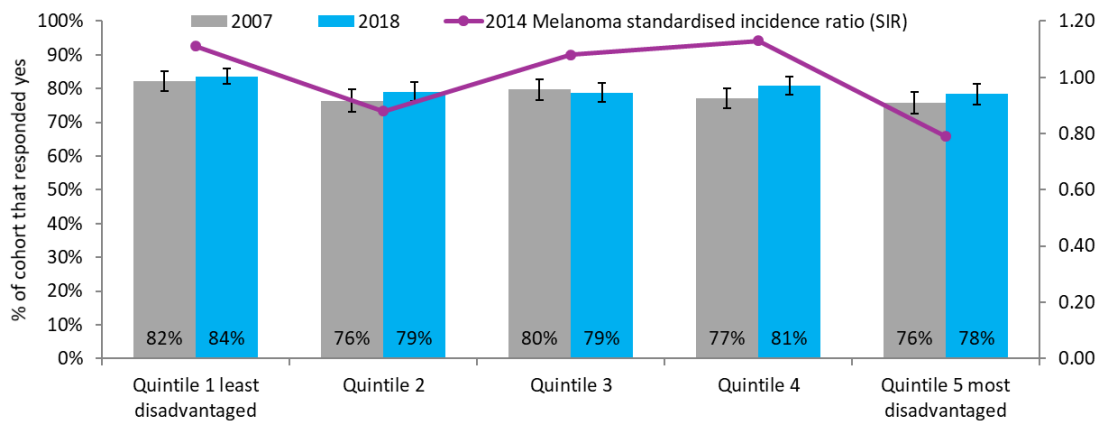
Figure 28: Proportion of adults that found it easy to find shade at the local public park, by geographical area, NSW, 2007 and 2018



Socioeconomic status

Across the five socioeconomic quintiles, the proportion of the population who report that it is easy to find shade at the local public park is similar.

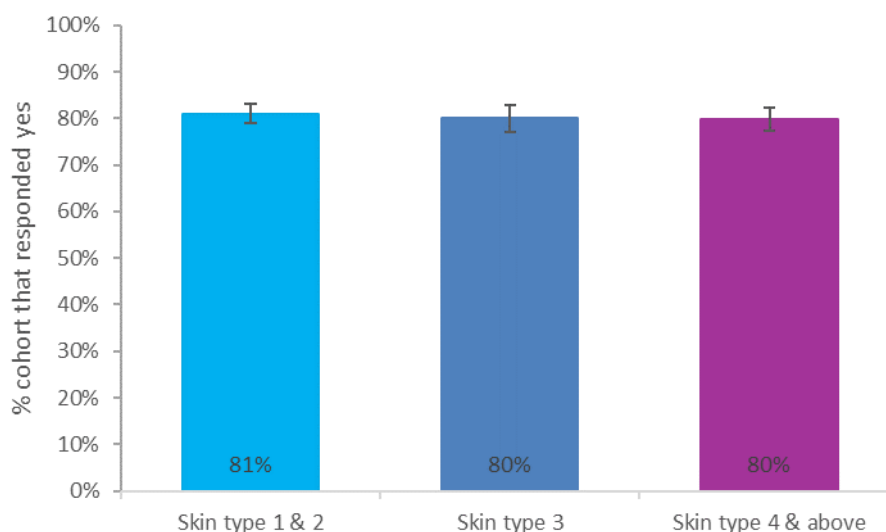
Figure 29: Proportion of adults that find it easy to find shade at the public park, by socioeconomic status quintile, NSW, 2016 and 2018



Skin type

There was no clear relationship between the reported shade availability at the local public park and skin type.

Figure 30: Proportion of adults that found it easy to find shade at the local public park, by skin type, NSW, 2018

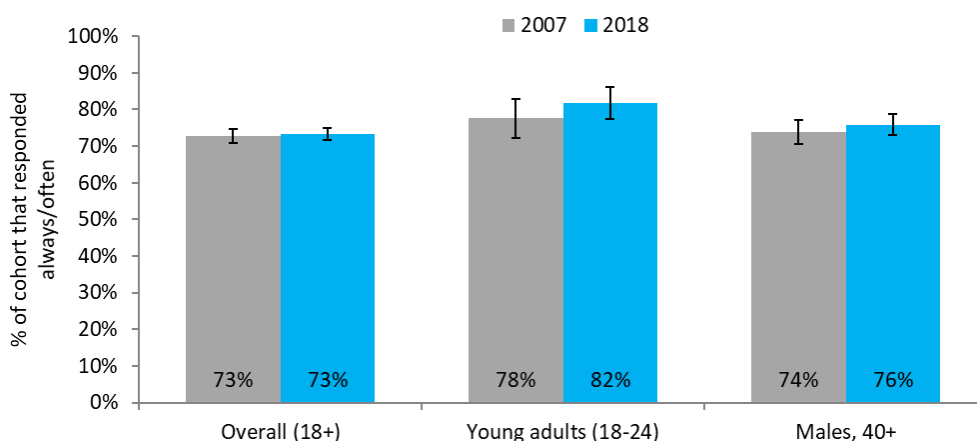


Shade availability at the local outdoor public swimming pool

In your local area, when you are outside do you find it easy to find shade at the outdoor public swimming pool?

Overall, and for each population group below, there was no significant change in the proportion of people who were able to easily find shade at their outdoor swimming pool between 2007 and 2018.

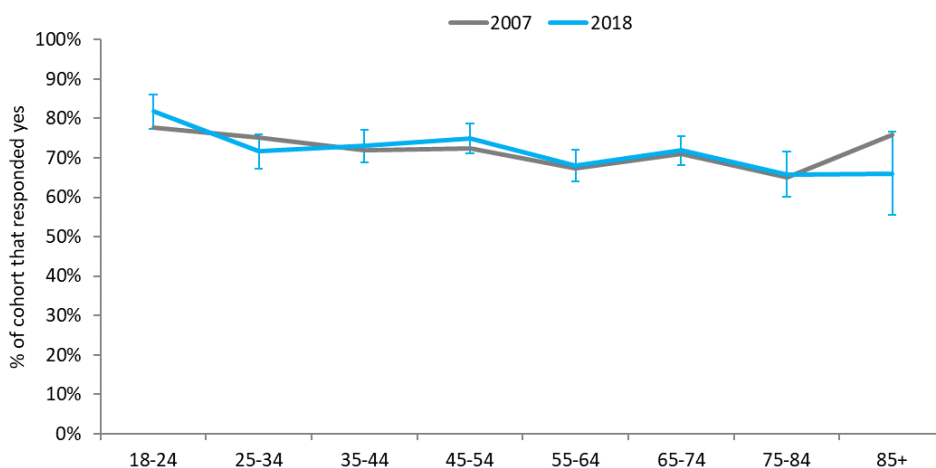
Figure 31: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by population group, NSW, 2007 and 2018



Age

There was no clear relationship between age and reported shade availability at the local outdoor public swimming pool in 2018.

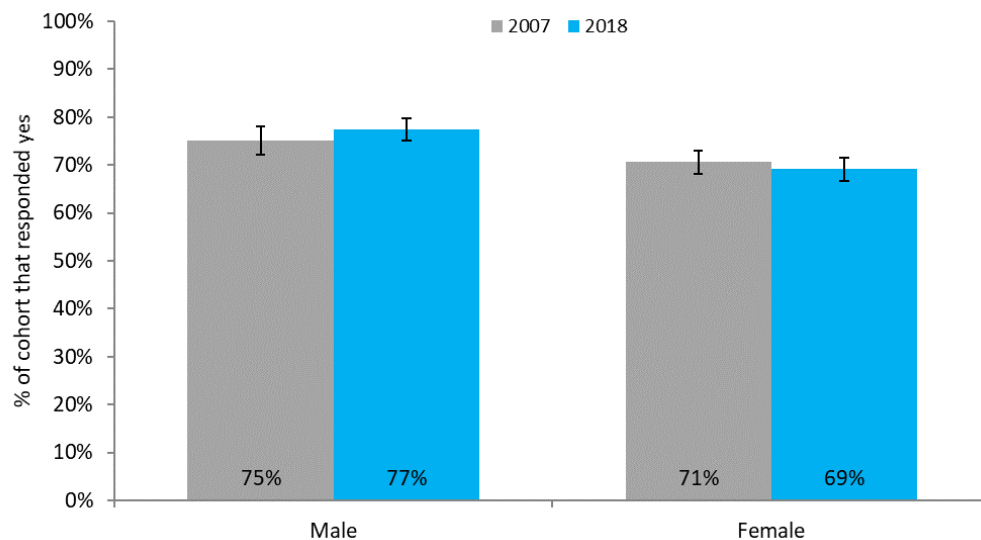
Figure 32: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by 10-year age group, NSW, 2007 and 2018



Gender

Males were more likely than females to report that it is easy to find shade at their local outdoor public swimming pool (77% and 69% in 2018 respectively).

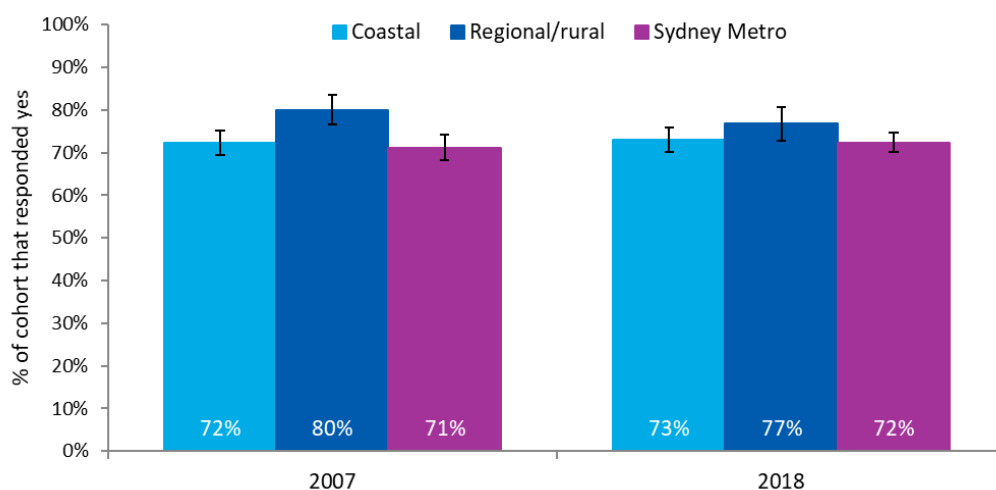
Figure 33: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by gender, NSW, 2007 and 2018



Geographic location

There were no significant differences in the perceived ease of finding shade at the local outdoor public swimming pool across LHDs. Shade use in individual LHDs is included in Appendix C – Sun protection behaviours by local health district.

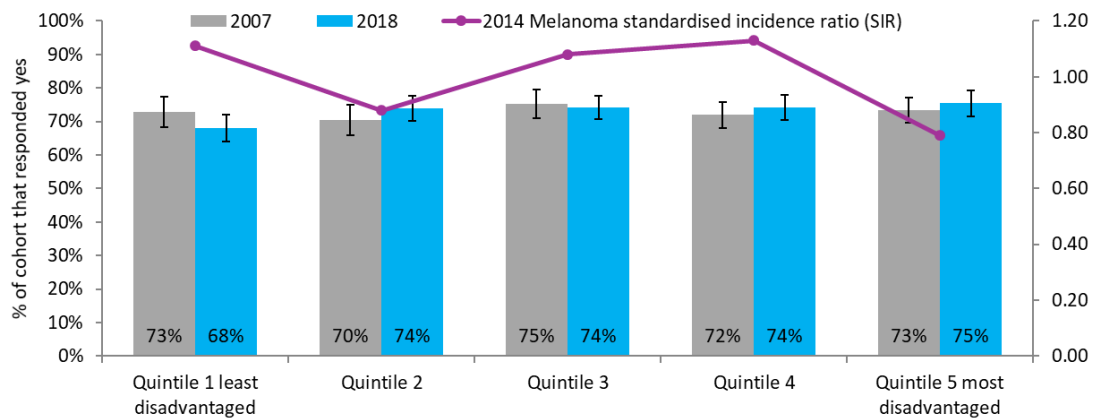
Figure 34: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by geographic area, NSW, 2007 and 2018



Socioeconomic status

Across the five socioeconomic quintiles, similar proportions of people reported that it is easy to find shade at their local outdoor public swimming pool.

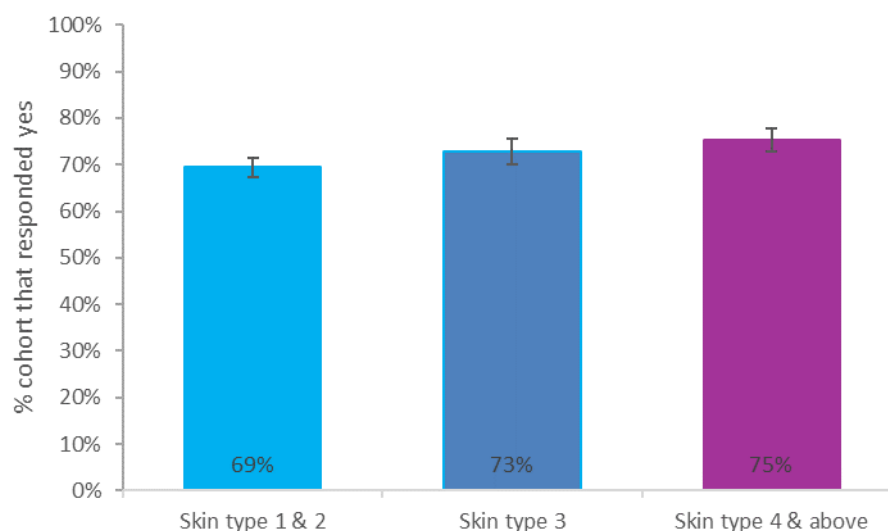
Figure 35: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by socioeconomic status quintile, NSW, 2016 and 2018



Skin type

In 2018, adults with skin type 1 or 2 were less likely than those with skin type 4 or above to report that it is easy to find shade at their outdoor public swimming pool.

Figure 36: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by skin type, NSW, 2018

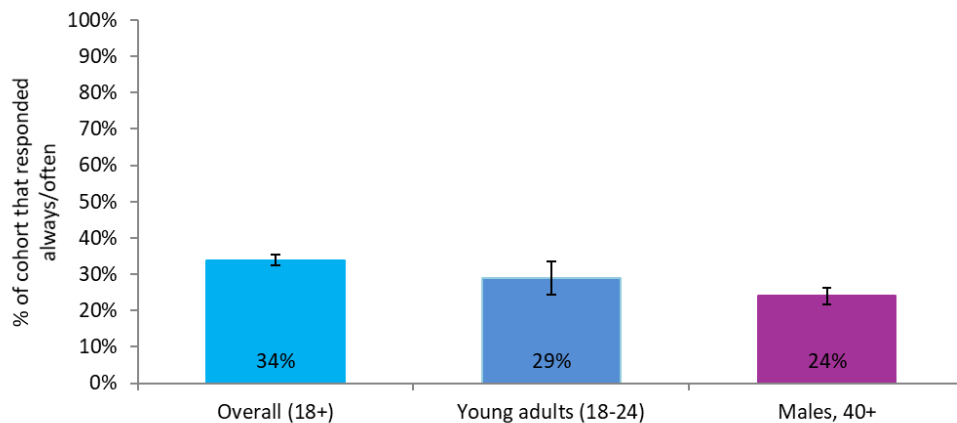


Sunscreen use

In the last four weeks, how often did you apply a broad-spectrum sunscreen with an SPF of 15 or more to your exposed skin?

Similar to 2016, in 2018 34% of the overall adult population, but only 24% of males aged 40 years or over, always or often applied sunscreen in the preceding four weeks.

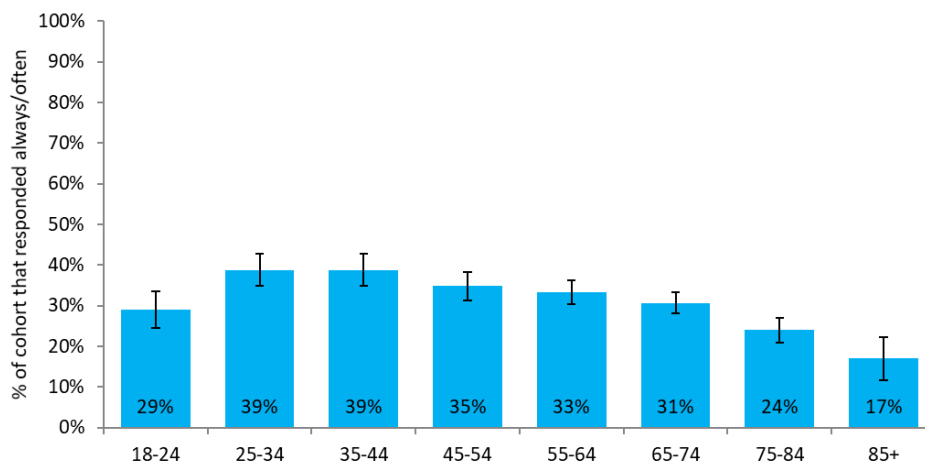
Figure 37: Proportion of adults that always or often used sunscreen, by population group, NSW, 2018



Age

Reflecting findings from the 2016 PHS, those in the 25-34 and 35-44 age groups were most likely to report use of sunscreen (2016: 43% in the 35-44 age group).

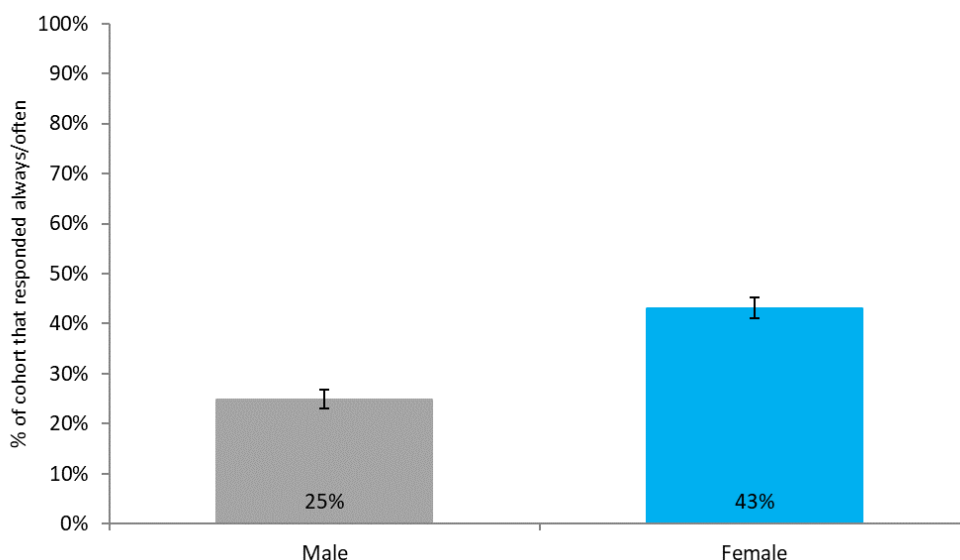
Figure 38: Proportion of adults that always or often used sunscreen, by 10-year age group, NSW, 2018



Gender

Similar to 2016, in 2018 the proportion of females that always or often used sunscreen is significantly higher (43%) than males (25%).

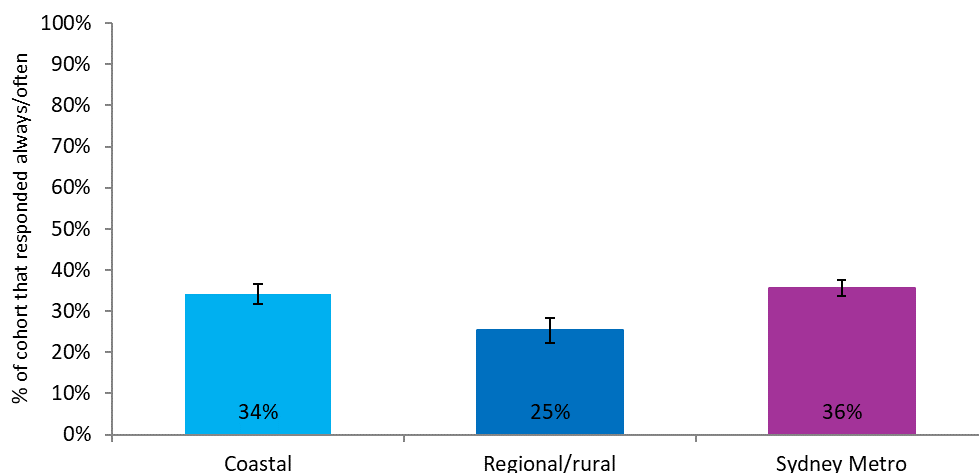
Figure 39: Proportion of adults that always or often used sunscreen, by gender, NSW, 2018



Geographic location

Metropolitan areas tend to have higher proportions of people who always or often use sunscreen in 2018 than regional and coastal areas. In particular, 44% of the adult population in South Eastern Sydney always or often used sunscreen (Appendix C – Sun protection behaviours by local health district). For the majority of regional and rural LHDs, less than 30% of the population reported that they always or often used sunscreen in the preceding four weeks.

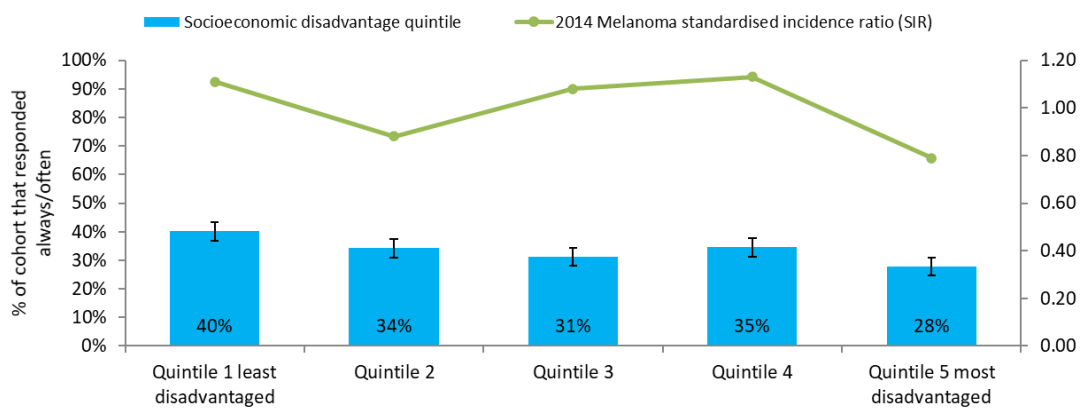
Figure 40: Proportion of adults that always or often used sunscreen, by geographical area, NSW, 2018



Socioeconomic status

The population in the least disadvantaged socioeconomic quintile were more likely to report frequent sunscreen usage than those in other quintiles, especially the most disadvantaged quintile.

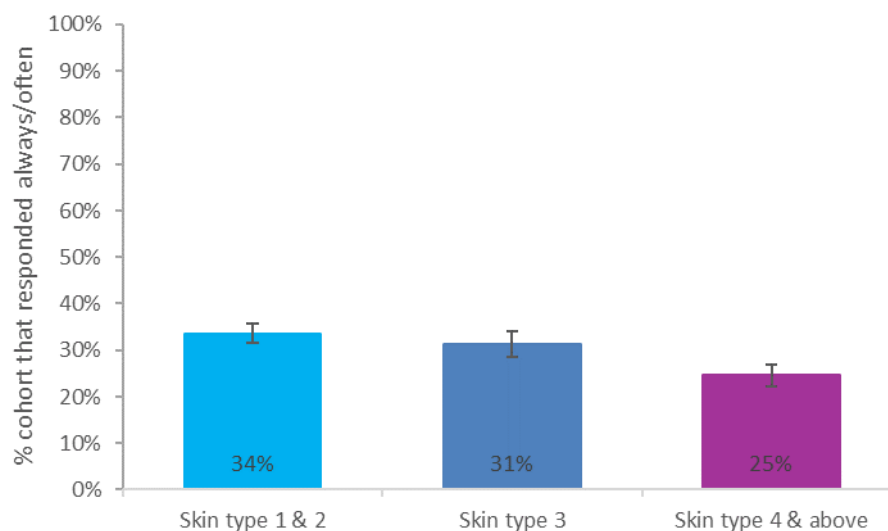
Figure 41: Proportion of adults that always or often used sunscreen, by socioeconomic status quintile, NSW, 2018



Skin type

In 2018, adults with skin type 1 or 2 were more likely than those with Skin type 4 and above to use sunscreen frequently.

Figure 42: Proportion adults that always or often used sunscreen, by skin type, NSW, 2018

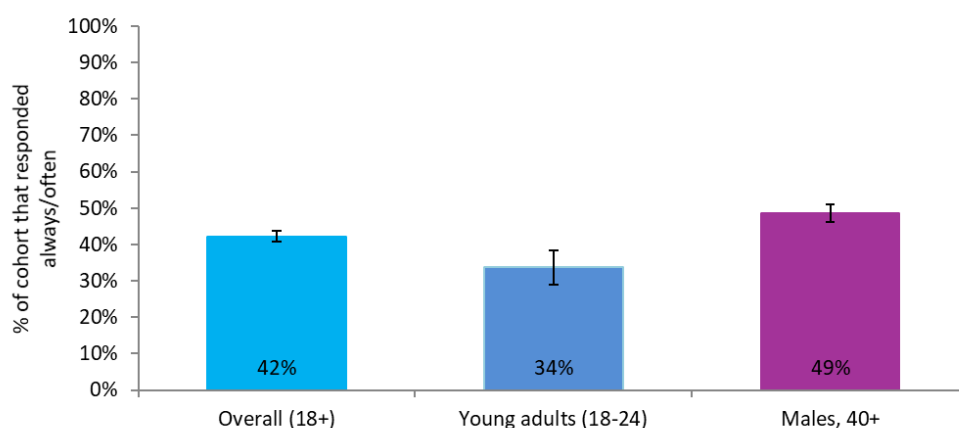


Protective clothing use

In the last four weeks, how often were you deliberately dressed in clothing to protect you from the sun?

Compared to the overall adult population (42%), a higher proportion of males over the age of 40 (49%), and a lower proportion of young adults (34%), always or often used protective clothing. From 2006 to 2018, the use of protective clothing improved in males aged 40 and older from 45% to 49%.

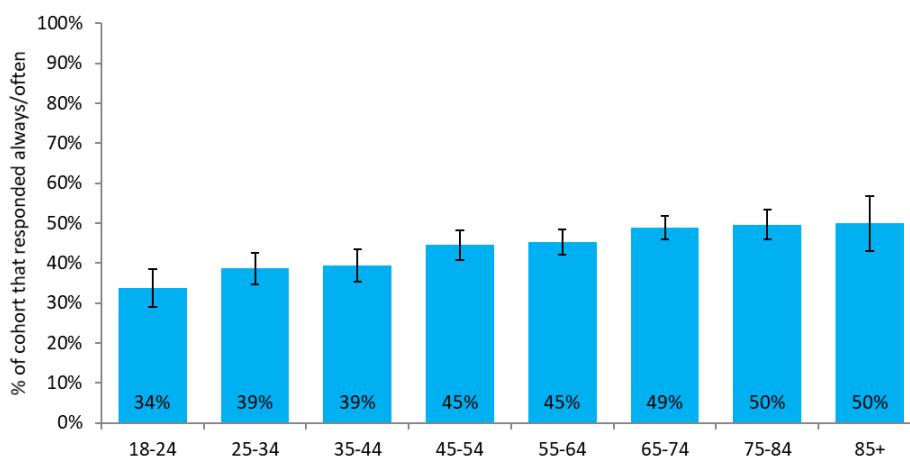
Figure 43: Proportion of adults that always or often used protective clothing, by population group, NSW, 2018



Age

In 2018, the use of protective clothing tended to increase with age. This upward trend with increasing age was similar in 2016.

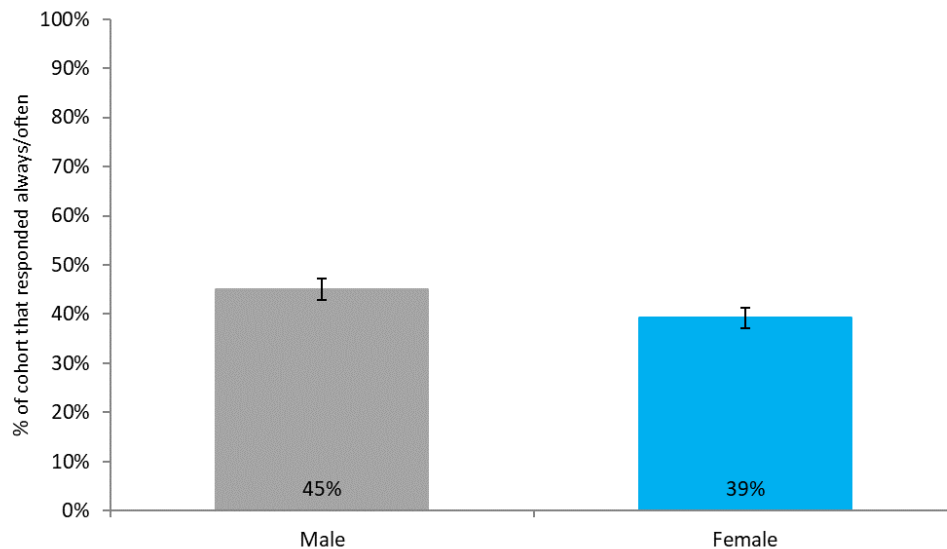
Figure 44: Proportion of adults that always or often used protective clothing, by 10-year age group, NSW, 2018



Gender

The proportion of males who always or often used protective clothing significantly increased from 41% in 2016 to 45% in 2018 and was also higher than that of females (39% in 2018).

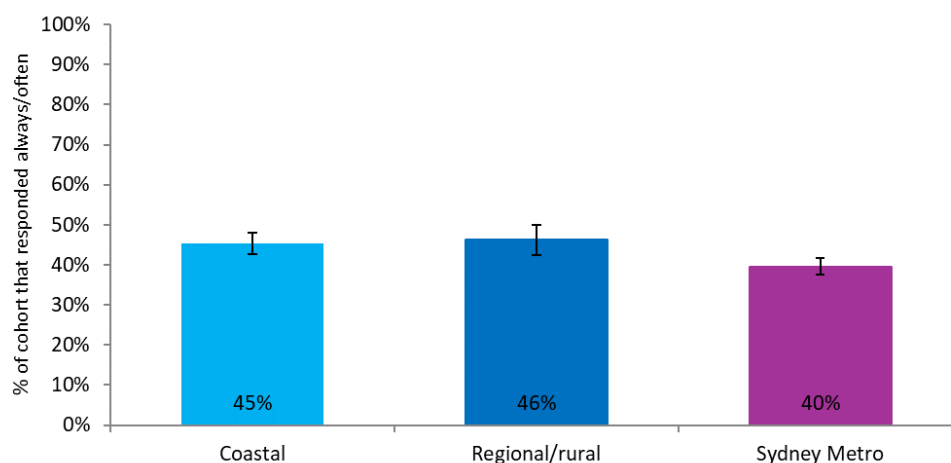
Figure 45: Proportion of adults, that always or often used protective clothing, by gender, NSW, 2018



Geographic location

Regional and rural LHDs have the highest proportion of people who always or often used protective clothing (46%), followed by coastal areas (45%), then metropolitan areas (40%). Protective clothing use in individual LHDs is included in Appendix C – Sun protection behaviours by local health district.

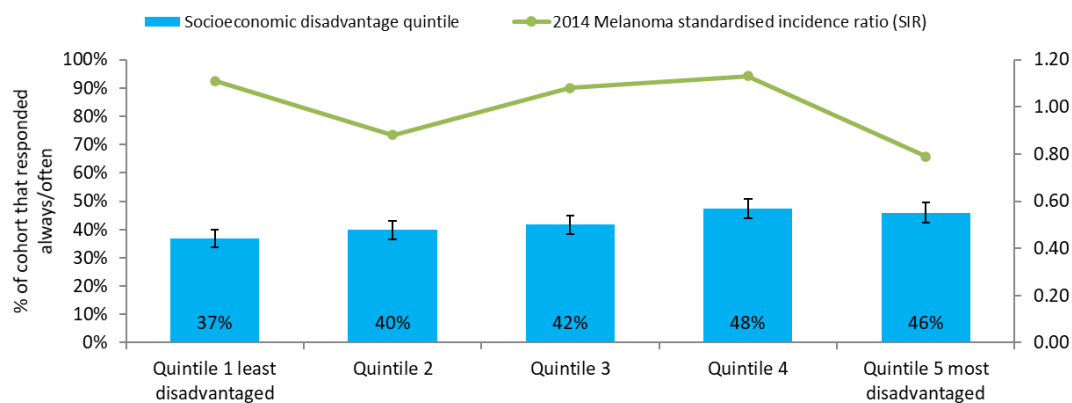
Figure 46: Proportion of adults that always or often used protective clothing, by geographical area, NSW, 2018



Socioeconomic status

The adult population in the two most disadvantaged socioeconomic quintiles were more likely than their counterparts in the least disadvantaged quintiles to report wearing protective clothing always or often.

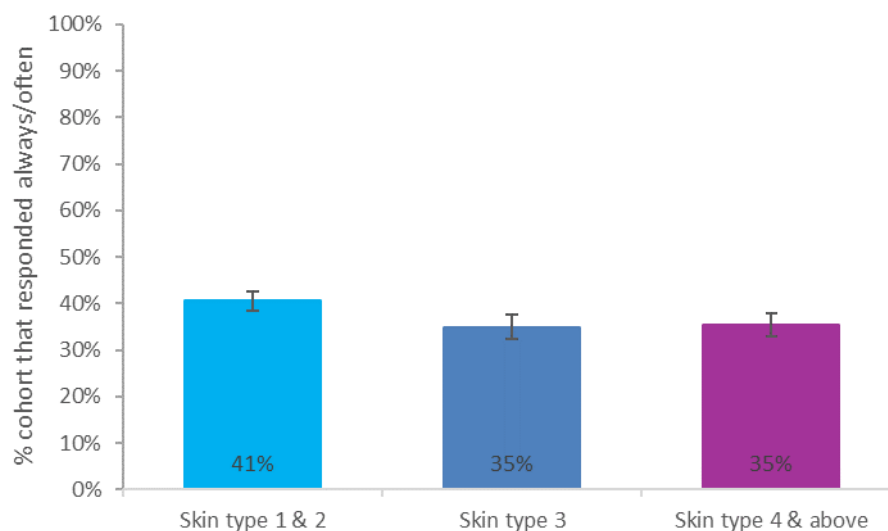
Figure 47: Proportion of adults that always or often used protective clothing, by socioeconomic status quintile, NSW, 2018



Skin type

In 2018, adults with skin type 1 or 2 were more likely to use protective clothing frequently than skin type 3 and above.

Figure 48: Proportion of adults that always or often used protective clothing, by skin type, NSW, 2018

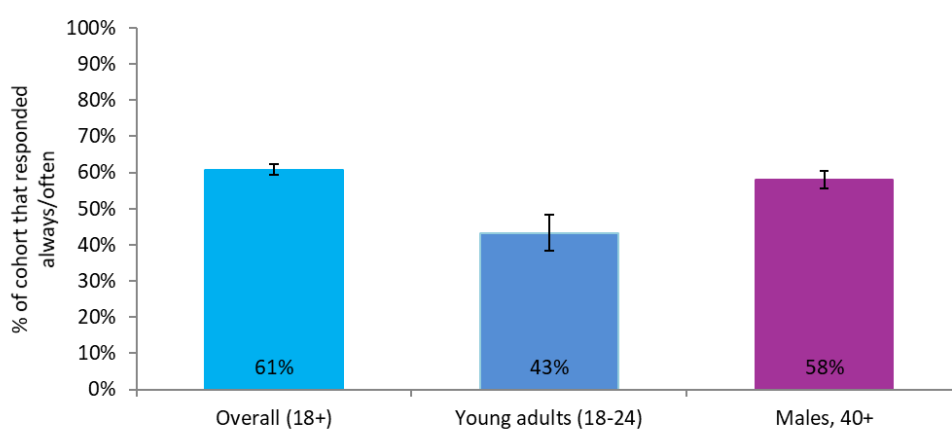


Sunglasses use

In the last four weeks, when you were out in the sun for more than 15 minutes, how often did you wear sunglasses?

In 2018, 61% of the overall population reported always or often wearing sunglasses when in the sun for over 15 minutes within the preceding four weeks, which is similar to 64% in 2016. Compared with the overall population, a considerably lower proportion of young adults always or often wore sunglasses (43%), which decreased significantly from 49% in 2016. In 2018, 58% of the males aged 40 or older always or often use sunglasses, similar to 61% in 2016.

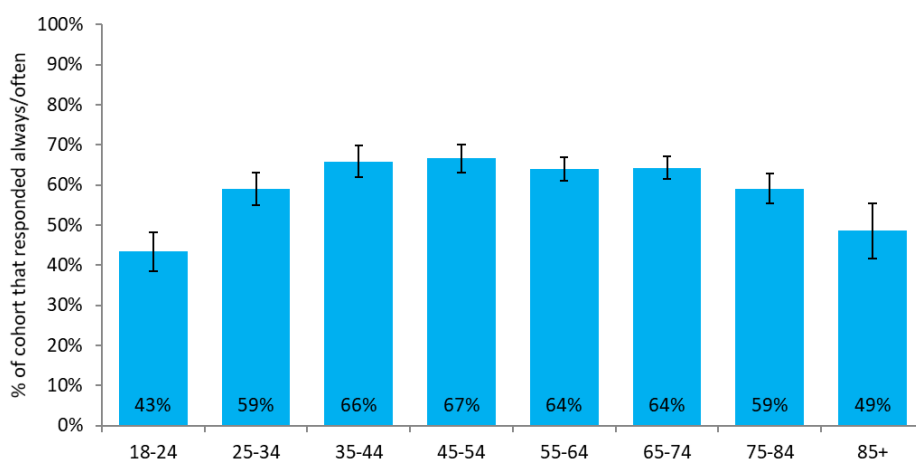
Figure 49: Proportion of adults that always or often wore sunglasses, by population group, NSW, 2018



Age

The use of sunglasses tends to be highest for the 35 to 54 age group. Adults aged 18 to 24 years old were least likely to always wear sunglasses or often.

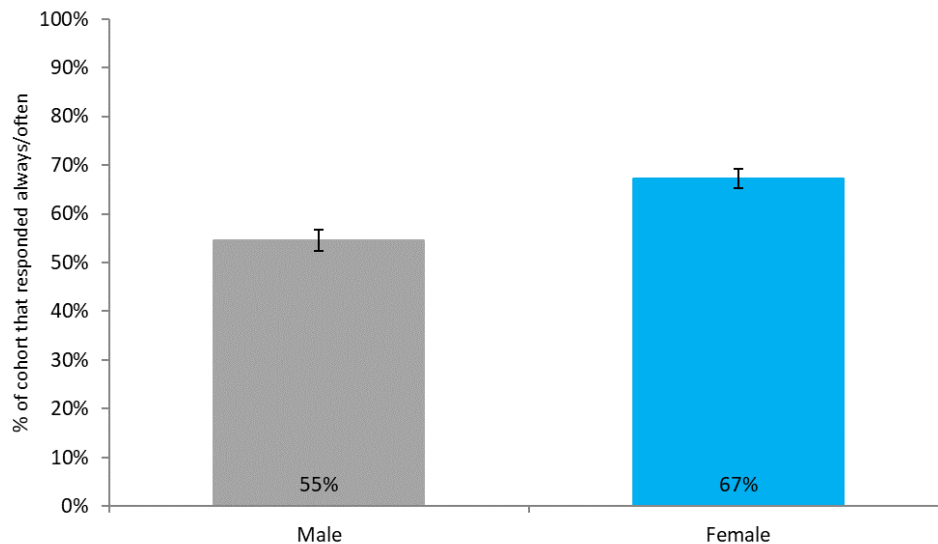
Figure 50: Proportion of adults that always or often wore sunglasses, by 10-year age group, NSW, 2018



Gender

In 2018, more females always or often wore sunglasses (67%) than males (55%).

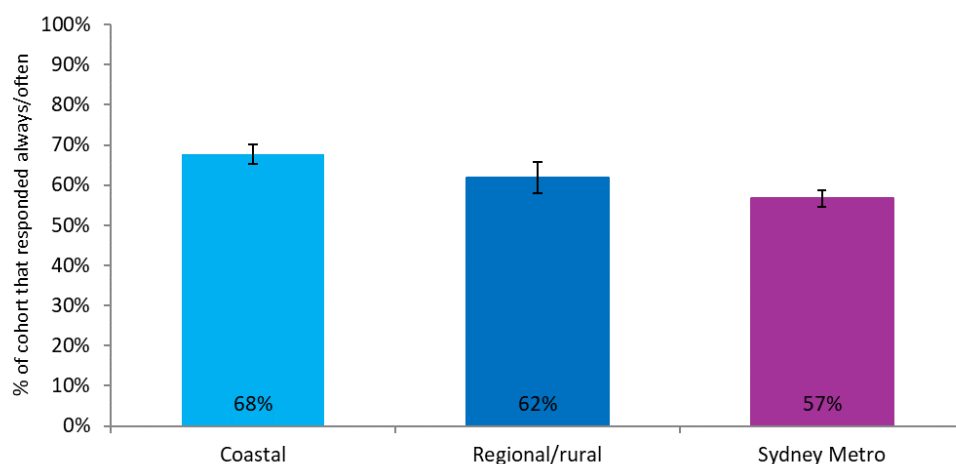
Figure 51: Proportion of adults that always or often wore sunglasses, by gender, NSW, 2018



Geographic location

As shown in Figure 52, the use of sunglasses was higher in coastal LHDs and lower in metropolitan areas. Use of sunglasses in individual LHDs is included in Appendix C – Sun protection behaviours by local health district. The proportion of respondents in metropolitan areas who always/often wear sunglasses dropped significantly from 61% in 2016 to 57% in 2018.

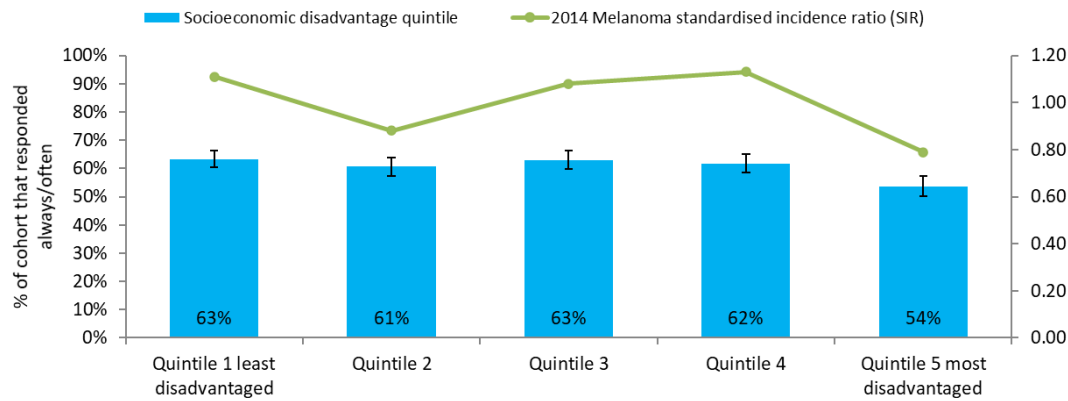
Figure 52: Proportion of adults that always or often wore sunglasses, by geographical area, NSW, 2018



Socioeconomic status

Adults in the most disadvantaged socioeconomic quintile were least likely to wear sunglasses always or often when out in the sun for more than 15 minutes.

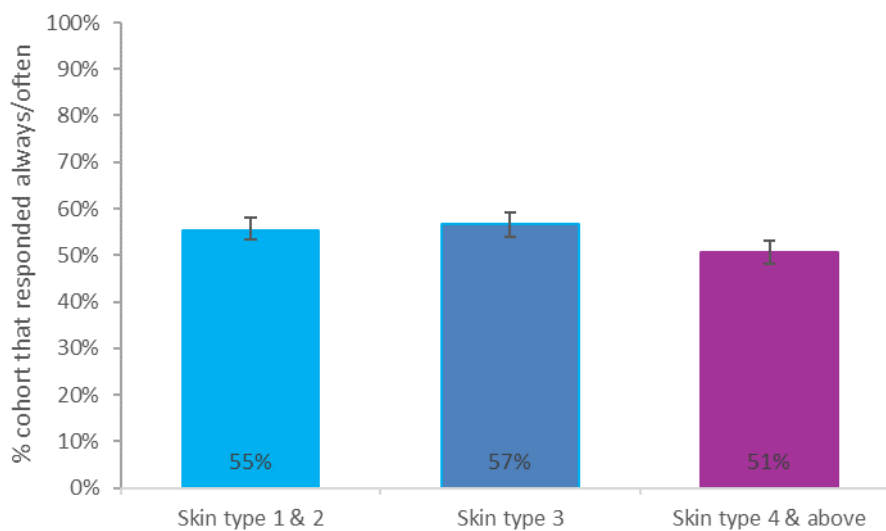
Figure 53: Proportion of adults that always or often wore sunglasses, by socioeconomic status quintile, NSW, 2018



Skin type

In 2018, there was no clear relationship between always or often wearing sunglasses and skin type.

Figure 54: Proportion of adults that always or often wore sunglasses, by skin type, NSW, 2018

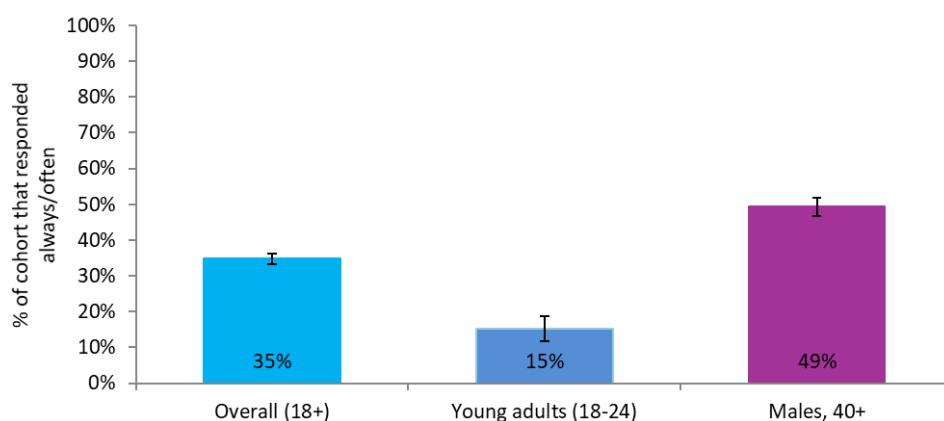


Sun-safe hat use

In the last four weeks, when you were in the sun for more than 15 minutes, how often did you wear a broad brimmed hat or cap with a back flap?

Similar to 2016, overall in 2018 about 35% of the adult population reported that they always or often wore a sun-safe hat when in the sun for more than 15 minutes in the preceding four-week period. Only 15% of young adults and nearly half of males over 40 years (49%) reported that they always or often wore a sun-safe hat.

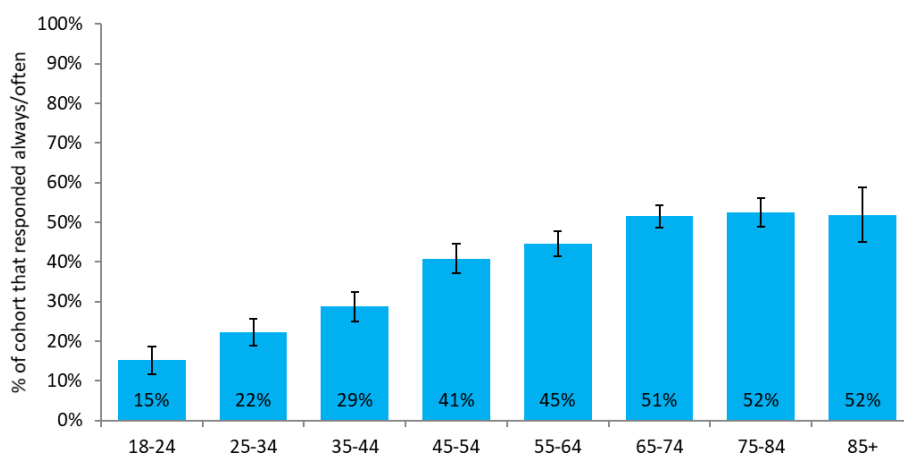
Figure 55: Proportion of adults that always or often wore a sun-safe hat, by population group, NSW, 2018



Age

In 2018, there was a strong increasing relationship between the use of sun-safe hats and age as shown in Figure 56.

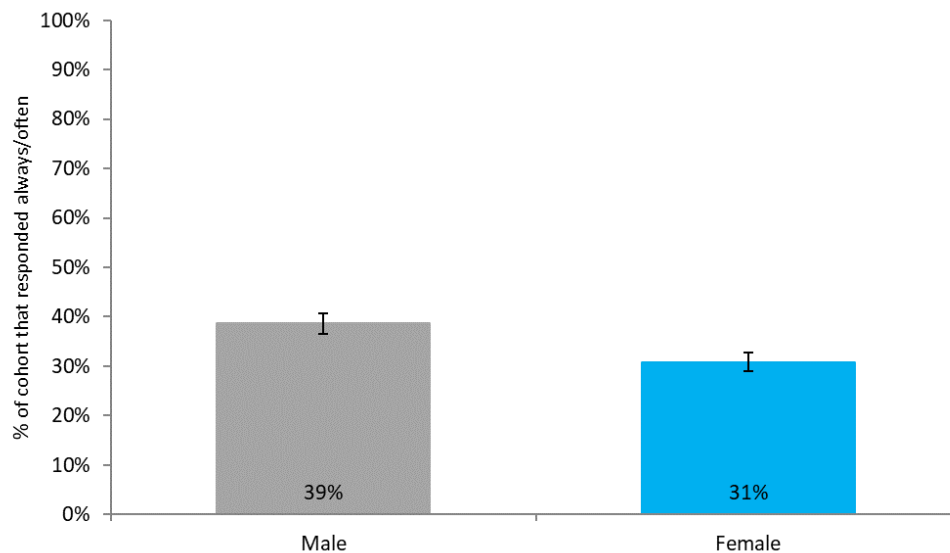
Figure 56: Proportion of adults that always or often wore a sun-safe hat, by 10-year age group, NSW, 2018



Gender

As in 2016, in 2018, males (39%) were more likely than females (31%) to report that they always or often wore a sun-safe hat between 11am and 3pm in the preceding four-week period.

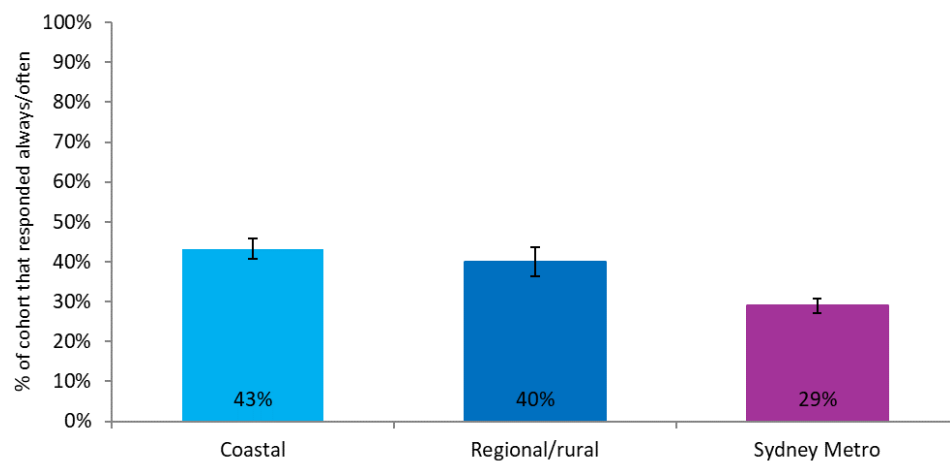
Figure 57: Proportion of adults that always or often wore a sun-safe hat, by gender, 2018



Geographic location

In 2018, the use of sun-safe hats was significantly higher in coastal areas (43%) and regional/rural areas (40%) than in the Sydney metropolitan area (29%).

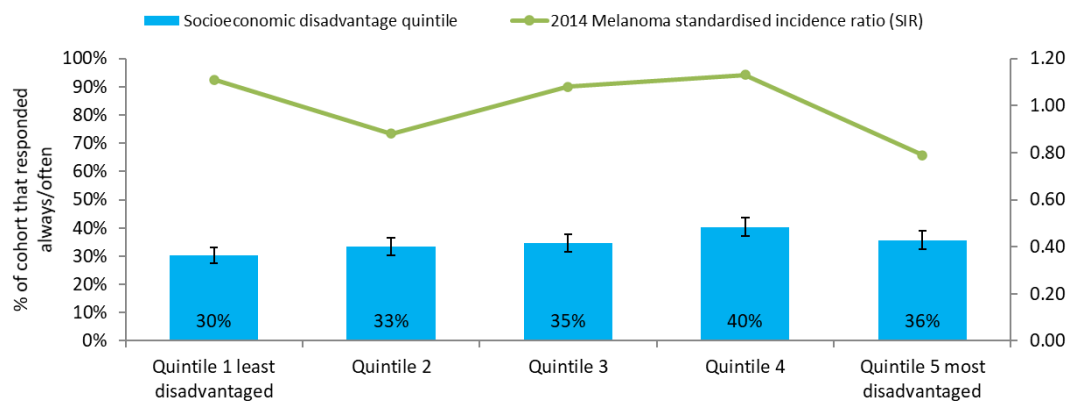
Figure 582: Proportion of adults that always or often wore a sun-safe hat, by geographical area, NSW, 2018



Socioeconomic status

The adult population in the two most disadvantaged socioeconomic quintiles were more likely to report wearing a sun-safe hat always or often than those in the least disadvantaged quintiles. There is no clear relationship between wearing a sun-safe hat always or often and incidence of melanoma across socioeconomic quintiles.

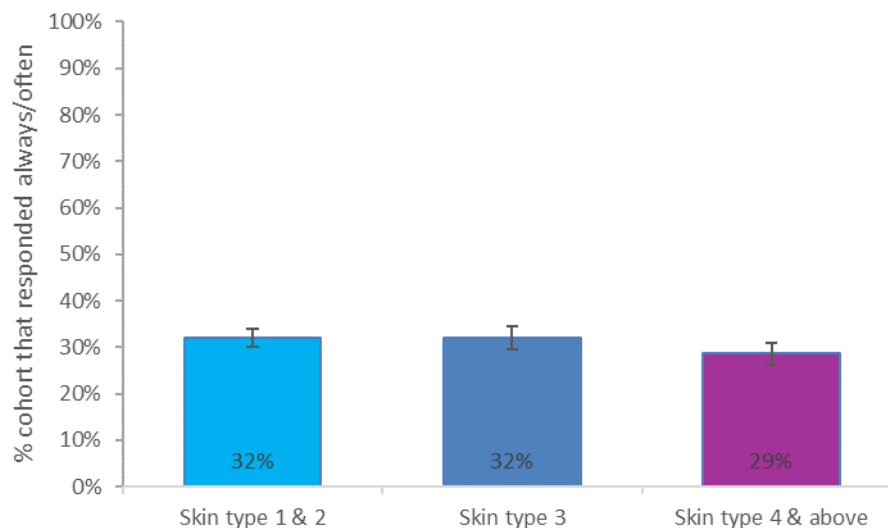
Figure 59: Proportion of adults that always or often wore a sun-safe hat, by socioeconomic status quintile, NSW 2018



Skin type

In 2018, there was no clear relationship between always or often wearing a sun-safe hat and skin type.

Figure 60: Proportion of adults that always or often wore a sun-safe hat, by skin type, NSW, 2018



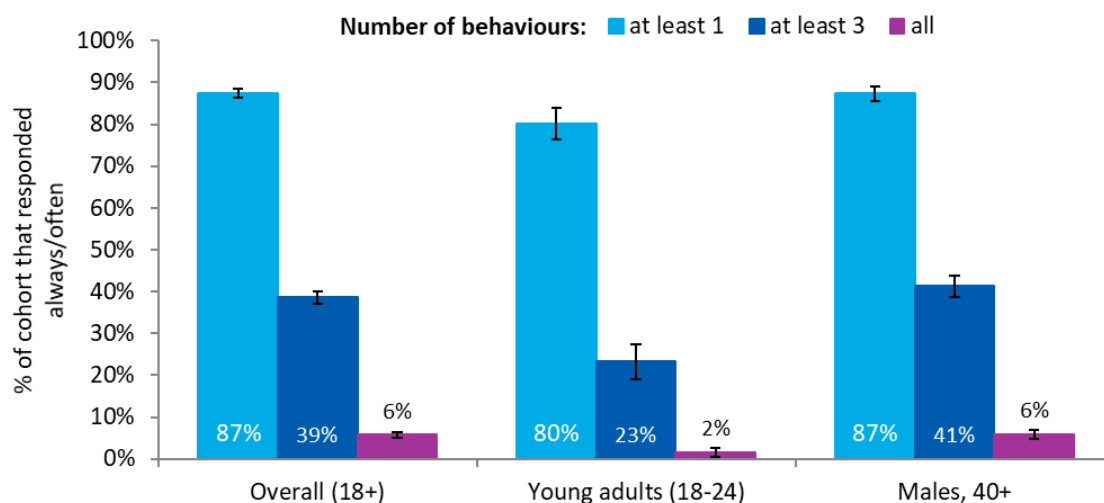
Engagement across multiple sun protection behaviours

In 2018, 87% of adults reported always or often undertaking one or more sun protection behaviours in the preceding four-week period. Almost 4 in 10 (39%) reported always or often undertaking three or more sun protection behaviours. Only 6% reported always or often undertaking all five recommended sun protection behaviours.

Young adults were least likely to engage in multiple sun protection behaviours, with only 23% always or often engaging in three or more behaviours (compared to 39% of the overall population). Only 2% of young adults always or often engaged in all five sun protection behaviours.

Engagement across multiple sun protection behaviours in males 40 years old and over is similar to that of the overall population.

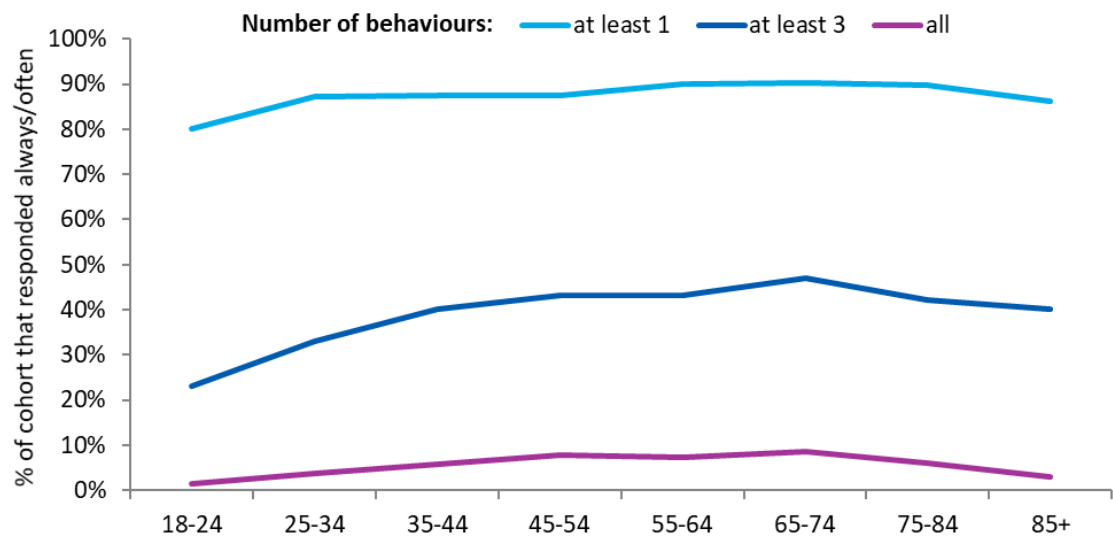
Figure 61: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, NSW, 2018



Age

In 2018, 45-54 year olds and 65-74 year olds were most likely to report undertaking all sun protection behaviours always or often in the preceding four-week period. Those aged 65-74 years were most likely to engage always or often in at least three behaviours. Young adults aged 18-24 consistently reported lowest usage of protection behaviours.

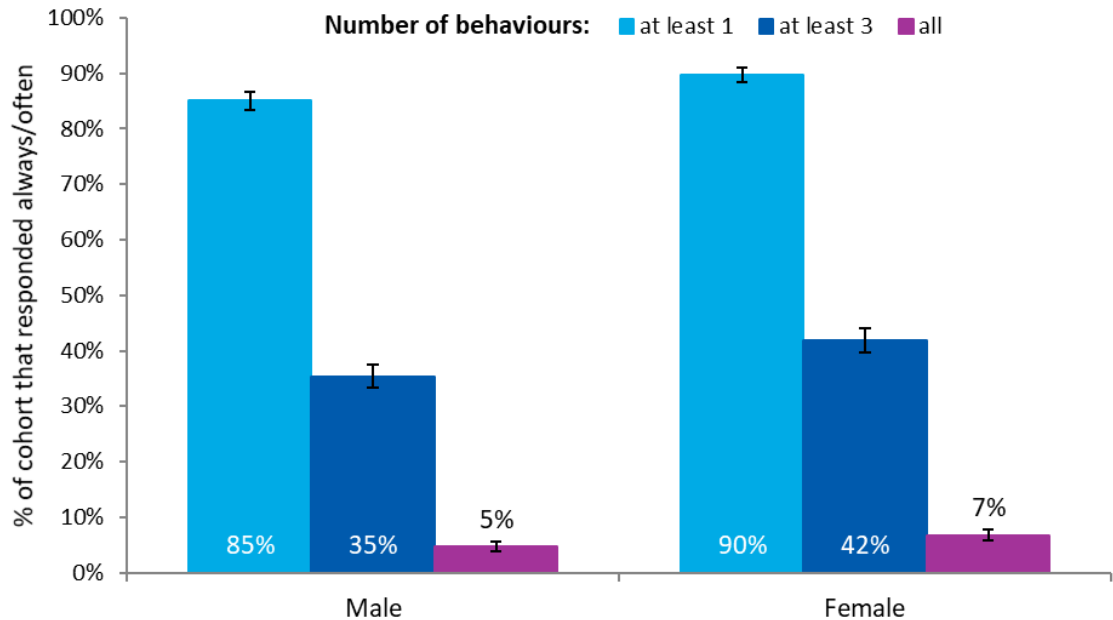
Figure 62: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, by 10-year age group, NSW, 2018



Gender

In 2018, significant differences were also observed by gender, with females being more likely than males (35%) to engage in at least three sun protection behaviours always or often (42%).

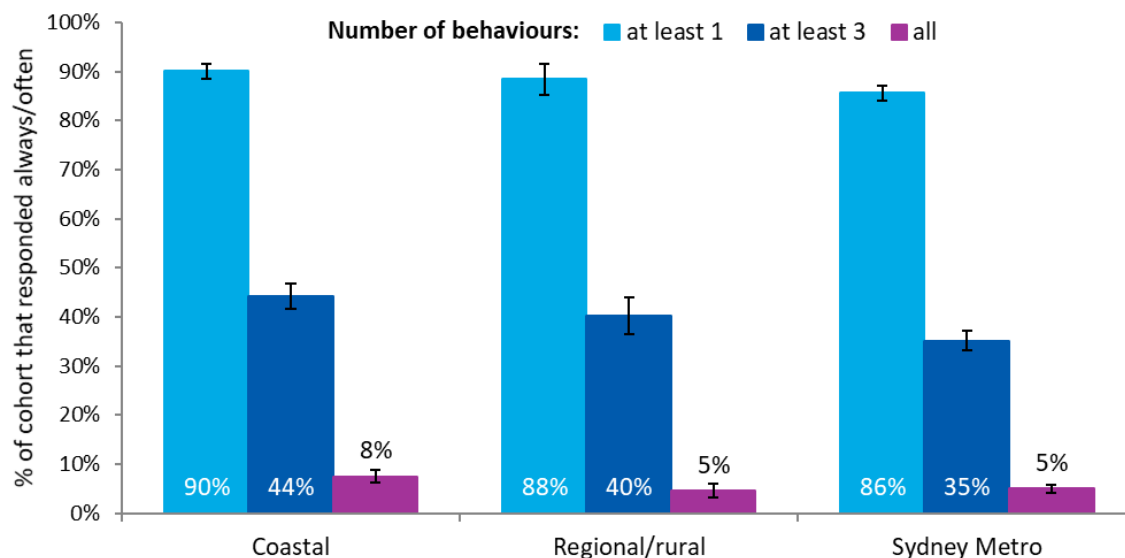
Figure 63: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, by gender, NSW, 2018



Geographic location

Adults living in coastal and regional/rural local health districts (LHDs) were more likely than those in the Sydney Metro area (35%) to engage in at least three sun protection behaviours always or often.

Figure 64: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, by geographical area, NSW, 2018

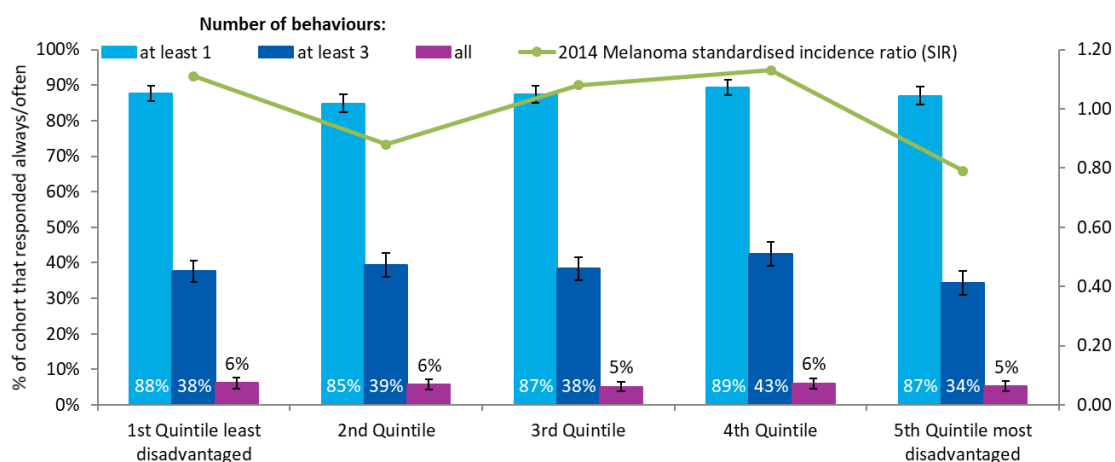


Socioeconomic status

The vast majority of all five socioeconomic quintiles (85% to 89%) reported undertaking one or more sun protection behaviours always or often when out in the sun for more than 15 minutes in the preceding four-week period. Approximately 4 in 10 engaged in three or more sun protection behaviours always or often (lowering to a third of those in the most disadvantaged quintile). Regardless of socio-economic status, a small minority (approximately 5% to 6%) reported that they had undertaken all five sun protection behaviours always or often within the previous four weeks.

There is no clear relationship between the 2014 Melanoma Standardised Incidence Ratio (SIR) and the number of reported sun protection behaviours undertaken.

Figure 65: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, by socioeconomic status quintile, NSW, 2018

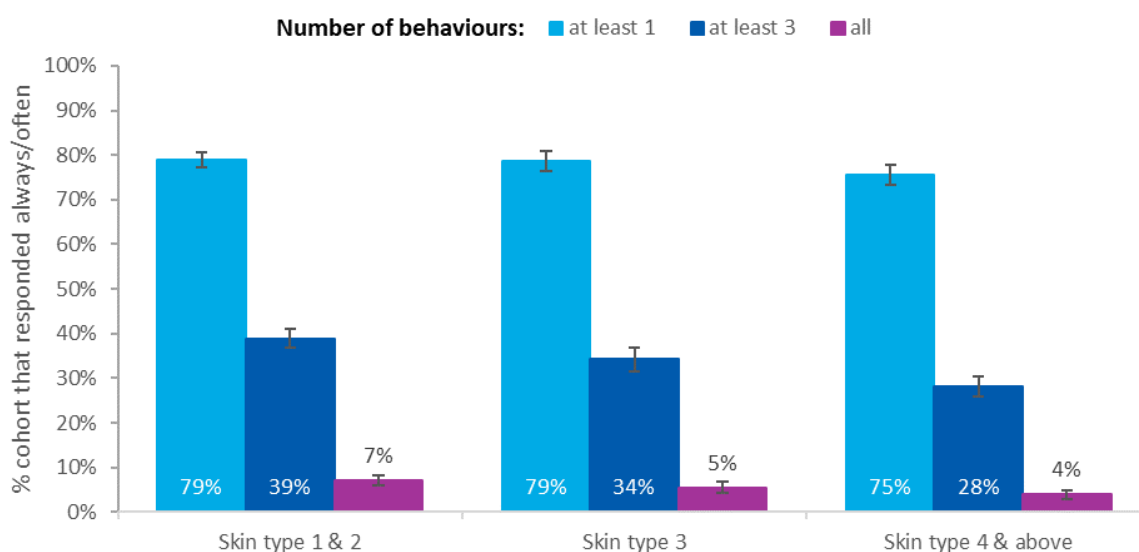


Skin type

The largest difference in behaviours across skin type in 2018 is observed in the engagement of at least three sun protection behaviours, with the highest engagement from adults with skin type 1 or 2 (39%), followed by those with skin type 3 (34%), and skin type 4 and above (28%).

Engagement in at least 1 sun protection behaviour dropped from 2018 to 2016 across each skin type – from 90% to 79% for skin types 1 & 2, from 88% to 79% for skin type 3 and from 84% to 75% for skin types 4 and above.

Figure 66: Proportion adults that engaged in at least 1, at least 3, and all sun protection behaviours, by skin type, NSW, 2018



High-risk priority populations

This section aims to quantify and describe the demographics and use of sun protection behaviours in some high-risk individuals, including:

- those with skin types 1 or 2 (defined in Appendix B – Fitzpatrick Classification System)
- those with high levels of sun exposure within the priority populations (i.e. males aged 40 years and above and young adults aged 18–24 years).

Individuals with high levels of sun exposure are defined as those who stated they always or often had sun exposure for more than 15 minutes between 11am and 3pm in the preceding four-week period.

Key findings

Males aged 40 years and above

- Males aged 40 years and above with skin types 4 or above (that is, those with dark skin whose skin does not burn at all, or those with dark skin) were more likely to report high sun exposure and less likely to adopt sun protection behaviours than their counterparts with skin types 1, 2 or 3.
- Hunter New England and South Western Sydney were the LHDs with the largest populations of males aged 40 years and above with skin types 1 or 2.
- Sunscreen was the least commonly used sun protection behaviour; whereas, the use of sunglasses was the most common.
- Men with skin types 4 or above were least likely to use shade, sunscreen and protective clothing.

Young adults aged 18 to 24 years

- The most common sun protection behaviour undertaken always or often by young adults was wearing sunglasses, followed by using shade. This population's use of sun-safe hats was particularly low.
- Young adults with skin types 1 or 2 had lower levels of sun exposure compared with males aged 40 years and above. However, they experienced more sunburn, with 32% reporting at least one sunburn episode in the preceding four weeks.
- Young adults with skin type 3 had the highest levels of engaging in four or more sun protection behaviours, especially use of sunglasses.
- There were more than 320,000 people aged 18–24 years with skin types 1 or 2, making up 48% of the young adult population.

Demographics of the population by skin type

In 2018, around 2.75 million NSW residents aged 18 and over had skin type 1 or 2 (an increase of over 150,000 people compared to 2016). Throughout this section, horizontal bar charts have been used to depict the number (and in some tables, percentage) of people who meet each demographic criterion.

Table 3: Adult population (aged 18+), by Fitzpatrick skin type, NSW (weighted responses), 2018

Skin Type	Number of People	% of People
1	671,076	11%
2	2,075,238	33%
3	1,606,080	26%
4 and above	1,863,590	30%
Unknown	19,592	0%
Total	6,235,577	100%

Age

The age distribution within skin types 1 and 2, 3 and 4 and above were very similar.

Table 4: Adult population (aged 18+) by Fitzpatrick skin type (weighted responses), NSW, 2018

Age group	1 & 2	3	4 & above
18-24	320,313	162,566	209,642
25-34	511,357	308,871	352,583
35-44	445,325	286,093	333,796
45-54	474,072	276,701	292,901
55-64	422,755	242,630	268,559
65-74	316,771	185,377	224,167
75-84	181,130	102,432	134,882
85+	74,590	41,410	47,059
Total	2,746,314	1,606,080	1,863,590

Sex

In 2018, around 46% of all females reported their skin type as either 1 or 2, compared with 42% of all males. Similarly, around 27% of males reported their skin type as 4 or above compared with around 25% of females. This is consistent with the skin types across genders in 2016.

Table 5: Adult population (aged 18+) gender by Fitzpatrick skin type (weighted responses), NSW, 2018

Gender	1 & 2	3	4 & above
Female	1,466,377	853,239	847,450
Male	1,279,937	752,841	1,016,141
Total	2,746,314	1,606,080	1,863,590
Female	46.3%	26.9%	26.8%
Male	42.0%	24.7%	33.3%

Geography

In 2018, the LHDs with the largest populations of people with skin types 1 or 2 were Hunter New England, South Eastern Sydney, South Western Sydney and Northern Sydney.

Since 2016, several LHDs have experienced large increases in the number of residents who have skin types 1 or 2. For example, South Eastern Sydney LHD and Sydney LHD have had increases of over 47,000 people and over 33,000 people with skin types 1 or 2 respectively.

Table 6: Adult LHD populations (aged 18+) by Fitzpatrick skin type (weighted responses), NSW, 2018

LHD	Skin Type		
	1 & 2	3	4 & above
Hunter New England	353,094	192,803	184,971
South Eastern Sydney	342,219	210,001	212,024
South Western Sydney	315,253	195,168	216,230
Northern Sydney	289,311	197,883	265,075
Western Sydney	275,130	187,104	291,714
Sydney	258,149	131,269	169,915
Central Coast	149,471	65,566	75,300
Illawarra Shoalhaven	145,064	90,005	90,509
Nepean Blue Mountains	129,780	69,408	72,232
Northern NSW	109,153	66,841	62,200
Western NSW	103,355	51,742	57,644
Southern NSW	85,688	44,230	54,063
Murrumbidgee	82,083	36,317	48,792
Mid North Coast	80,379	48,311	44,482
Albury Wodonga Health Victoria	17,703	13,721	10,204
Far West	10,482	5,711	8,236
Total	2,746,314	1,606,080	1,863,590

Socioeconomic status

Across all socioeconomic quintiles, adults with skin types 1 and 2 make up the largest proportion of the population, followed by skin type 4 and above, then skin type 3.

Table 7: Adult population (aged 18+) socioeconomic status (SEIFA) quintiles, by Fitzpatrick skin type (weighted responses), NSW, 2018

Quintile of Disadvantage	Skin Type		
	1 & 2	3	4 & above
1st Quintile least disadvantaged	601,472	348,519	388,181
2nd Quintile	513,155	334,505	372,827
3rd Quintile	572,581	326,898	382,928
4th Quintile	534,054	332,891	340,452
5th Quintile most disadvantaged	463,190	261,511	378,634
Total	2,744,452	1,604,325	1,863,023
1st Quintile least disadvantaged	44.9%	26.0%	29.0%
2nd Quintile	42.0%	27.4%	30.5%
3rd Quintile	44.6%	25.5%	29.9%
4th Quintile	46.9%	26.3%	26.9%
5th Quintile most disadvantaged	42.0%	23.7%	34.3%

Males aged 40 years and over

Males 40 years old and over are one of the key priority populations of the *NSW Skin Cancer Prevention Strategy*.

There are 1.8 million males aged 40 years old and over in NSW, which constitute 29% of the total adult population[†]. Of those in 2018, around 42% have skin types 1 or 2 and around 24% have skin type 3 (Table 8).

Table 8: Male population (aged 40+), by Fitzpatrick skin type (weighted responses), NSW, 2018

Skin Type	Number of People	% of People
1	151,407	8%
2	636,694	34%
3	451,553	24%
4 and above	607,998	33%
Unknown	11,099	1%
Total	1,858,749	100%

Age

Table 9 shows the distribution of the population of NSW males aged 40 years and over (in 10 year age groups) by skin type. The largest age group with skin types 1 or 2 is 50 to 59 years old, with approximately 229,000 people.

Table 9: Male population (40+ years), by Fitzpatrick skin type (weighted responses), NSW, 2018

Age group	Skin Type		
	1 & 2	3	4 & above
40-49	221,588	132,167	173,954
50-59	229,248	115,540	148,582
60-69	173,827	101,838	138,232
70-79	107,526	64,421	101,193
80-89	48,346	32,637	42,142
90+	7,565	4,950	3,895
Total	788,100	451,553	607,998

[†] Population projections based on data from the NSW Department of Planning and Environment (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Geography

Similar to the overall population trend, the LHDs with the largest populations of males 40 years old and over with skin types 1 or 2 were Hunter New England, South Western Sydney, Northern Sydney and South Eastern Sydney.

Table 10: Male LHD population (aged 40+), by Fitzpatrick skin type (weighted responses), NSW, 2018

LHD	Skin Type		
	1 & 2	3	4 & above
Hunter New England	104,240	57,602	73,273
South Western Sydney	102,260	59,960	48,466
Northern Sydney	94,742	60,293	57,626
South Eastern Sydney	76,879	33,699	95,873
Western Sydney	72,910	51,542	75,217
Sydney	52,548	36,282	48,927
Central Coast	42,924	34,204	30,921
Nepean Blue Mountains	42,411	17,451	25,850
Illawarra Shoalhaven	38,640	19,912	29,041
Northern NSW	37,523	21,282	26,896
Murrumbidgee	32,054	15,824	21,596
Western NSW	31,324	11,441	20,748
Southern NSW	28,159	9,214	18,814
Mid North Coast	23,066	16,385	24,090
Albury Wodonga Health Victoria	5,227	4,388	6,138
Far West	3,192	2,073	4,524
Total	788,100	451,553	607,998

Socioeconomic status

There was no clear relationship between the socioeconomic status quintile of males aged 40 years and over and skin type.

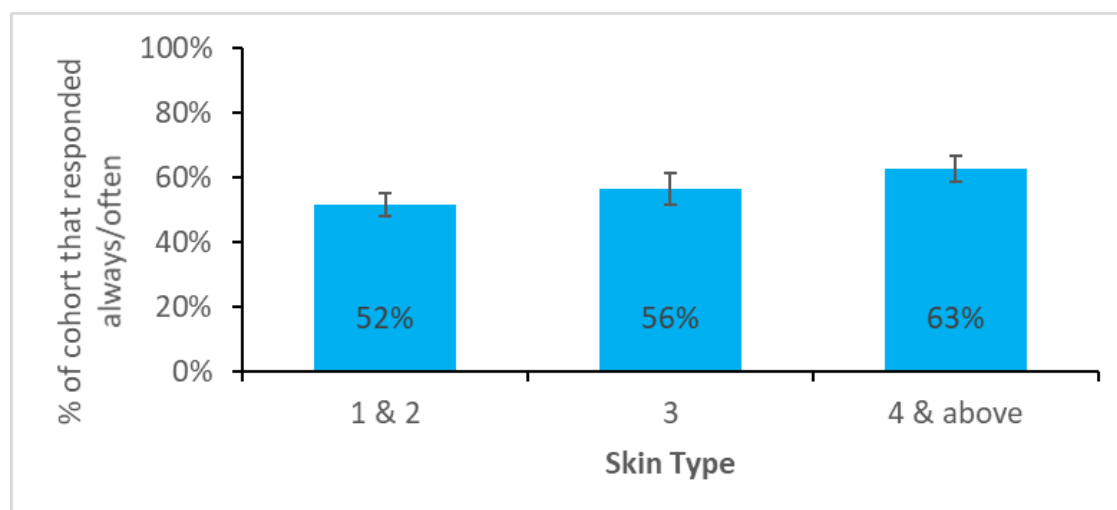
Table 11: Male adult socioeconomic quintiles (aged 40+), by Fitzpatrick skin type (weighted responses), NSW, 2018

Quintile of Disadvantage	Skin Type		
	1 & 2	3	4 & above
1st Quintile least disadvantaged	179,627	90,598	98,479
2nd Quintile	136,101	98,047	131,651
3rd Quintile	164,126	88,980	132,335
4th Quintile	170,347	91,215	119,534
5th Quintile most disadvantaged	137,065	82,105	125,507
Total	787,266	450,946	607,506
1st Quintile least disadvantaged	48.7%	24.6%	26.7%
2nd Quintile	37.2%	26.8%	36.0%
3rd Quintile	42.6%	23.1%	34.3%
4th Quintile	44.7%	23.9%	31.4%
5th Quintile most disadvantaged	39.8%	23.8%	36.4%

Sun exposure

High sun exposure refers to reporting having had sun exposure for more than 15 minutes between 11am and 3pm 'always' or 'often' during the preceding four-week period. In 2018, males aged 40 years and over generally reported a high level of sun exposure (Figure 67). Those with skin types 4 or above were more likely than their counterparts with skin types 1 and 2 to report high sun exposure.

Figure 67: Adult males (aged 40+) who always or often had high sun exposure, by Fitzpatrick skin type, NSW, 2018



Sunburn episodes

Among males 40 years old and over, 12% of those with skin types 1, 2 and 3 reported experiencing one or more sunburns (with skin sore or tender the next day) within the preceding four weeks. A very small minority reported 3 or more sunburns in the last four weeks (1% of skin types 1 and 2, 2% of skin type 3).

Table 12: Number of sunburns amongst NSW males aged 40 and over who reported high sun exposure by skin type, 2018

Sunburn	Skin Type		
	1 & 2	3	4 & above
5 or more times	0%	0%	0%
3 or 4 times	0%	2%	1%
Twice	2%	2%	1%
Once	9%	8%	3%
Not at all	88%	88%	95%
1 or more	12%	12%	5%
3 or more	1%	2%	1%

Sun protection behaviours

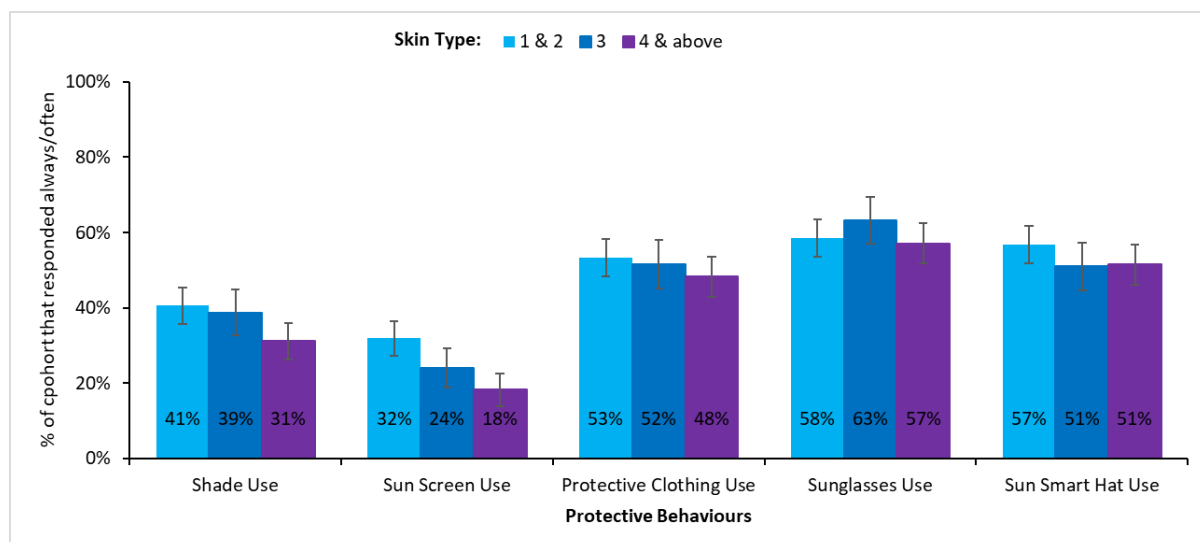
Amongst males aged 40 years old and over with high sun exposure, those with skin types 1, 2, or 3 were more likely to engage in four or more protection behaviours.

Table 13: Distribution of the number of sun protection behaviours used by males aged 40 years or over who have high sun exposure by skin type, NSW, 2018

Count of Protective Behaviours	Skin Type		
	1 & 2	3	4 & above
1 or more	87%	91%	86%
4 or more	25%	20%	18%

In 2018, use of sunscreen was the least common sun protection behaviour, whereas sunglasses use was the most common (Figure 68). Those with skin type 4 were less likely to engage in the use of shade and sunscreen.

Figure 68: Proportion of all protection behaviours used by 40 years old and over with high sun exposure by skin type, NSW, 2018



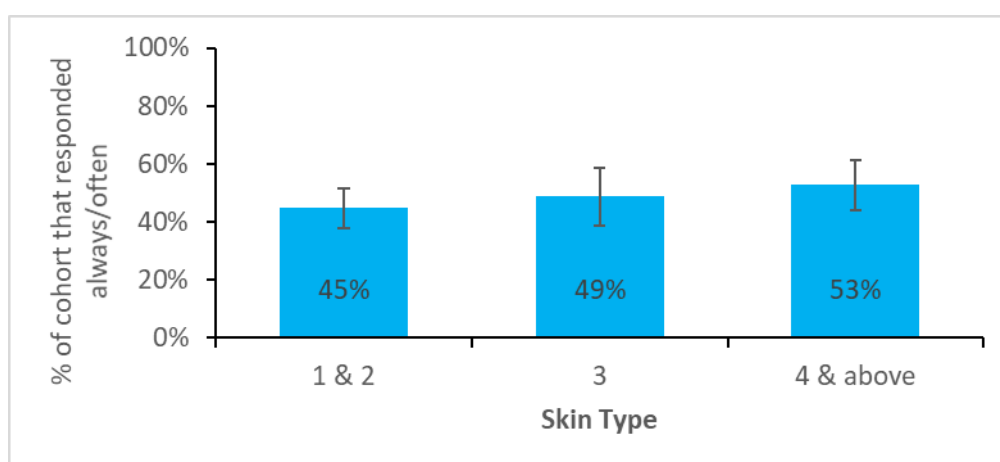
Sun protection behaviours for young adults aged 18 to 24 years by skin type

The following section illustrates the differences in sun protection behaviours among young adults aged 18 to 24 years with high sun exposure, by skin type.

Sun exposure

In 2018, young adults aged 18 to 24 years generally reported that they had high sun exposure. Of adults aged 18 to 24 years, those with skin types 1 or 2 had the lowest proportion reporting high sun exposure (45%) and those with skin type 4 and above had the highest proportion reporting high sun exposure (53%).

Figure 69: Proportion of young adults aged 18- 24 years that had high sun exposure by skin type, NSW, 2018



Sunburn episodes

Table 14 indicates that in 2018 those young adults (aged 18-24 years) with skin types 1 or 2 were more likely to experience any episodes of severe sunburn (1 or more) than those with skin type 4 and above.

Table 14: Distribution of the number of severe sunburns, 18 to 24 year olds with high sun exposure, 2018

Sunburn	Skin Type		
	1 & 2	3	4 & above
5 or more times	0%	0%	0%
3 or 4 times	4%	6%	4%
Twice	13%	5%	5%
Once	14%	18%	9%
Not at all	68%	71%	82%
1 or more	32%	29%	18%
3 or more	5%	6%	4%

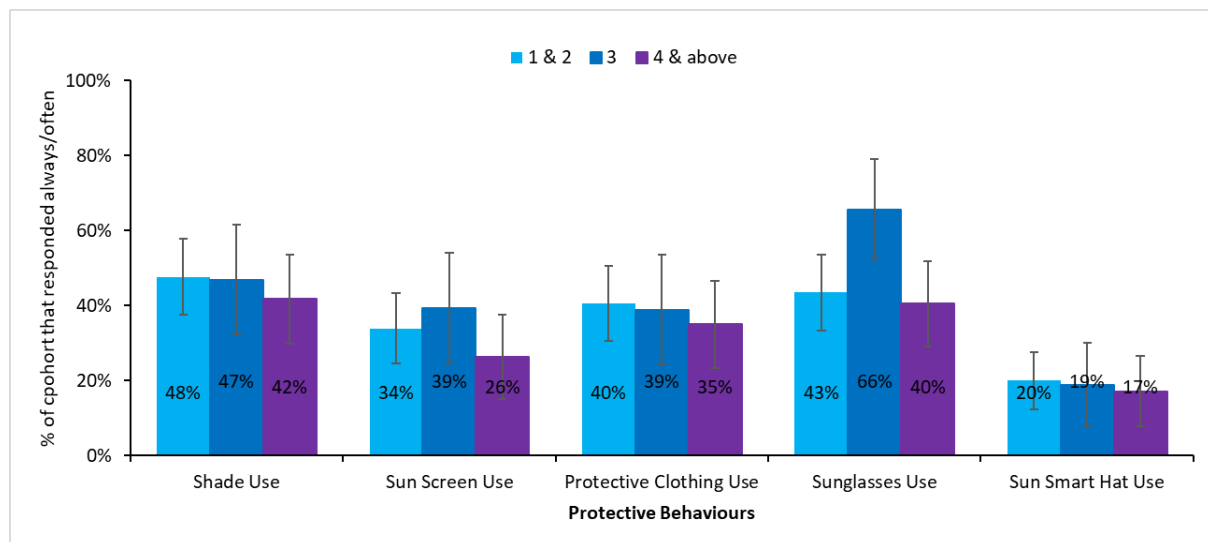
Sun protection behaviours

Overall, young adults with skin type 3 had the highest levels of engaging in four or more sun protection behaviours, especially use of sunglasses (Figure 69). Young adults with skin types 1, 2 or 3 were more likely than those with skin type 4 to engage in four or more sun protection behaviours.

Table 15: Distribution of the number of sun protection behaviours used, 18 to 24 year olds with high sun exposure by skin type, NSW, 2018

Count of Protective Behaviours	Skin Type		
	1 & 2	3	4 & above
1 or more	83%	90%	81%
4 or more	16%	24%	10%

Figure 70: Proportion of all sun protection behaviours used, 18 to 24 year olds with high sun exposure, NSW, 2018



Appendices

Appendix A – Methodology

This report presents the findings from the analysis of the 2018 NSW APHS taking 2016 and 2007 APHS results as benchmarks.

The NSW APHS is collected through a telephone survey of about 15,000 people from all over NSW. NSW residents are sampled with dual overlapping frames for landlines and mobiles. The final sample is representative of each of the state's 15 local health districts. The Sun Module is part of the APHS and has been collected in 2007, 2010, 2014 and 2016 and 2018.

The survey data was weighted to account for probabilities of selection, as well as post-stratification, to match the final sample to the state population. These weights are used in this report to compute total population numbers and rates.

The information is self-reported; therefore, responses are subject to reporting and recall biases. Responses might differ depending on the weather or season when the survey is conducted. Also, responses of "Do Not Know or do not recall", "Refused" and "N/A" were excluded from analyses. The magnitude of the bias is unknown and its correction is difficult. As long as the biases are fairly random, the aggregate estimates of indicators will be fairly adequate.

Appendix B – Fitzpatrick Skin Classification System

The Fitzpatrick Skin Classification System assigns people to one of six categories based on their skin colour and their propensity to burn and tan. Based on the responses to questions on skin colour and sensitivity in the APHS and SSHBS, each respondent was classified according to the rules summarised in Table 16.

Table 16: Derivation of Fitzpatrick classification from skin colour and sun-sensitivity

NSW Population Health Survey 2016		Fitzpatrick Skin
Skin colour	Skin sun-sensitivity	Type Classification
Very fair	Just burn and not tan afterwards	1
Fair	Just burn and not tan afterwards	2
Medium	Burn first then tan afterwards	3
Olive	Burn first then tan afterwards	3
Medium	Not burn at all, just tan	>= 4
Olive	Not burn at all, just tan	>= 4
Dark	Not burn at all, just tan	>= 4
Very dark	Not burn at all, just tan	>= 4
Black	Not burn at all, just tan	>= 4

If a respondent's combination of skin colour and sun-sensitivity is not described in Table 16, they were allocated to a classification based on skin colour (Table 177). If the respondent's skin colour information was unavailable, the classification was based on skin sun-sensitivity (Table 18).

Table 17: Derivation of Fitzpatrick classification from skin colour only

NSW Population Health Survey 2016 Skin colour	Fitzpatrick Skin Type Classification
Very fair	1
Fair	2
Medium or Olive	3
Dark, Very Dark or Black	≥ 4

Table 18: Derivation of Fitzpatrick classification from skin sensitivity only

NSW Population Health Survey 2016 Skin sensitivity	Fitzpatrick Skin Type Classification
Just burn and not tan afterwards	1
Burn first then tan afterwards	2
Not burn at all, just tan	≥ 4

Appendix C – Sun protection behaviours by local health district

Figure 71: Proportion of adults always or often exposed to the sun and Melanoma Standard Incidence Ratios by local health district, NSW, 2018

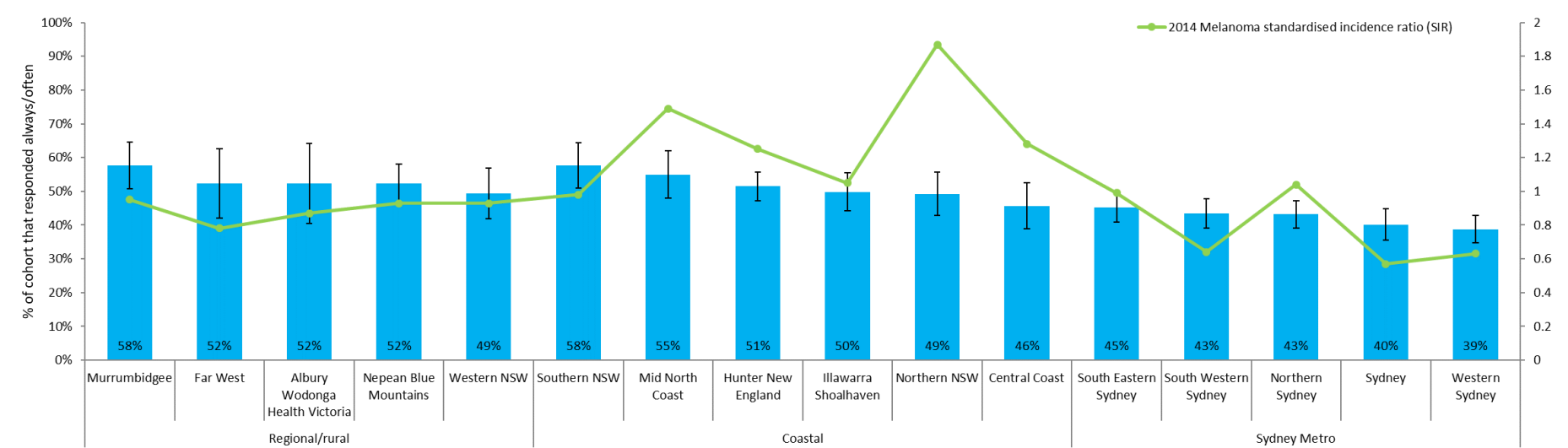


Figure 72: Proportion of adults never sunburnt and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

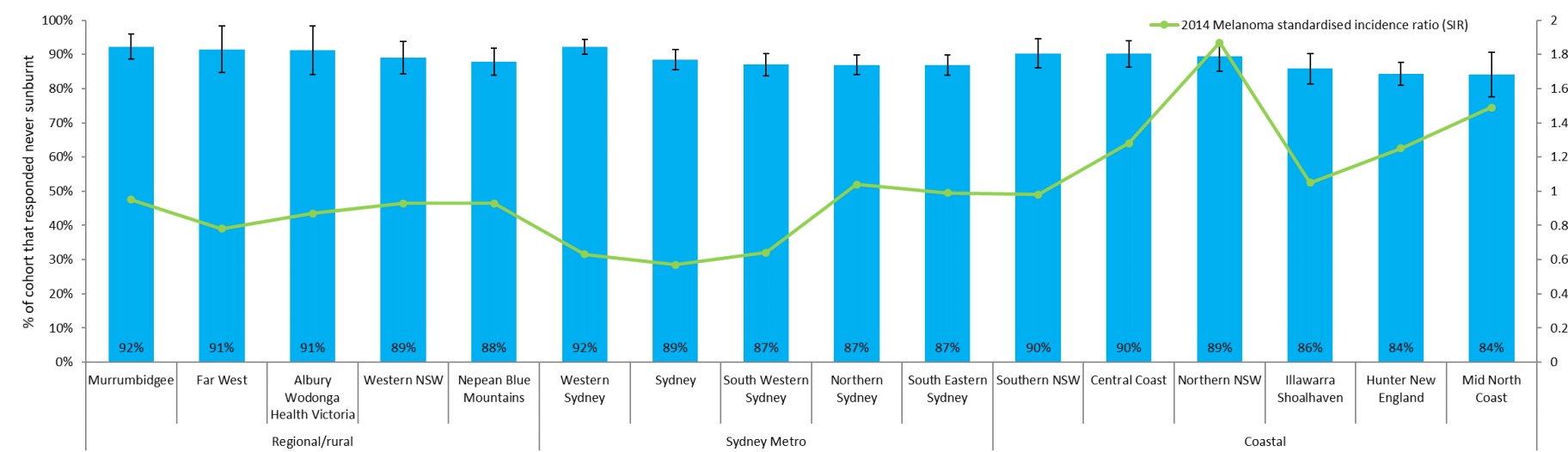


Figure 73: Proportion of adults that always or often sought shade and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

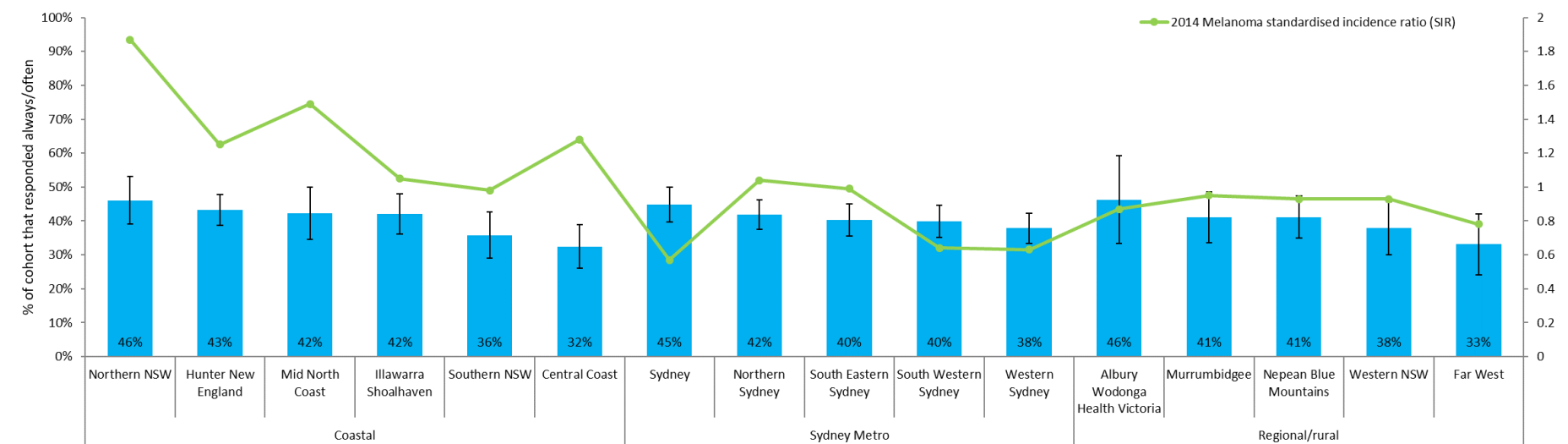


Figure 74: Proportion of adults that found it easy to find shade in local sporting areas, by local health district, NSW, 2018

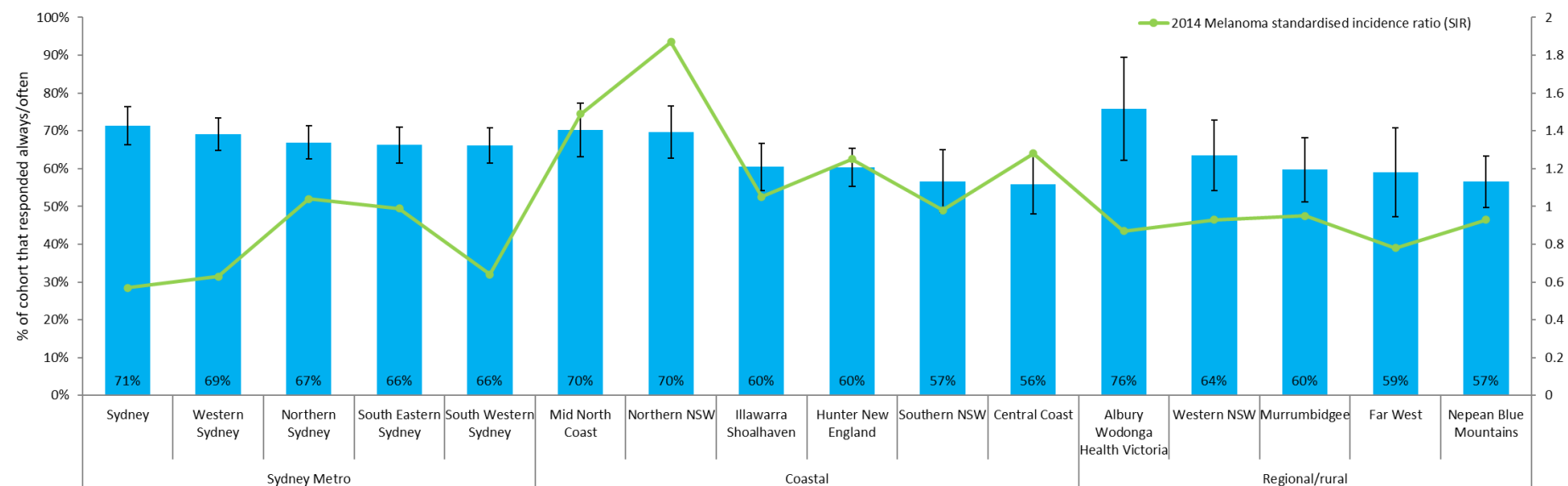


Figure 75: Proportion of adults that found it easy to find shade at the local public park, by local health district, NSW, 2018

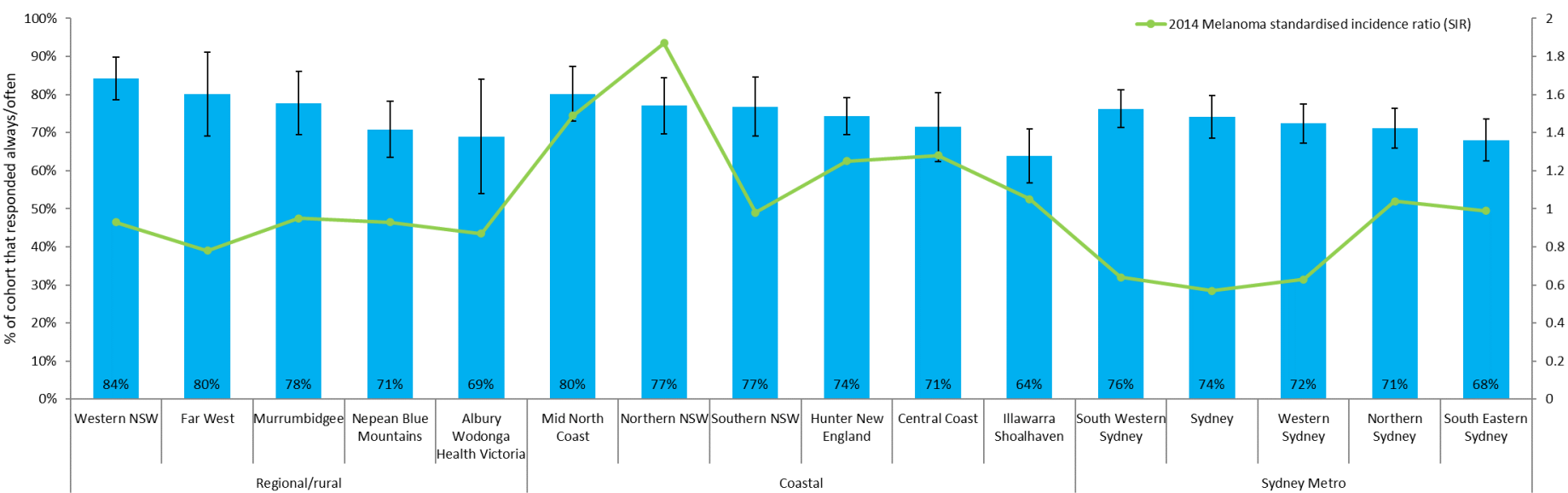


Figure 76: Proportion of adults that found it easy to find shade at their local outdoor public swimming pool, by local health district, NSW, 2018

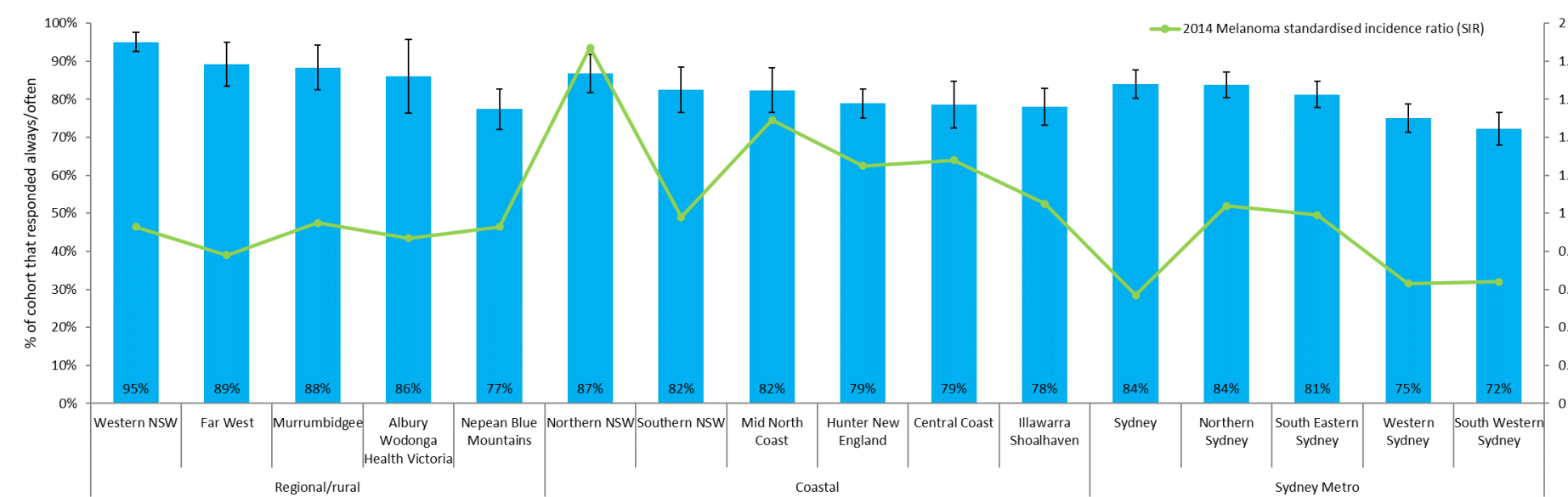


Figure 77: Proportion of adults that always or often used sunscreen and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

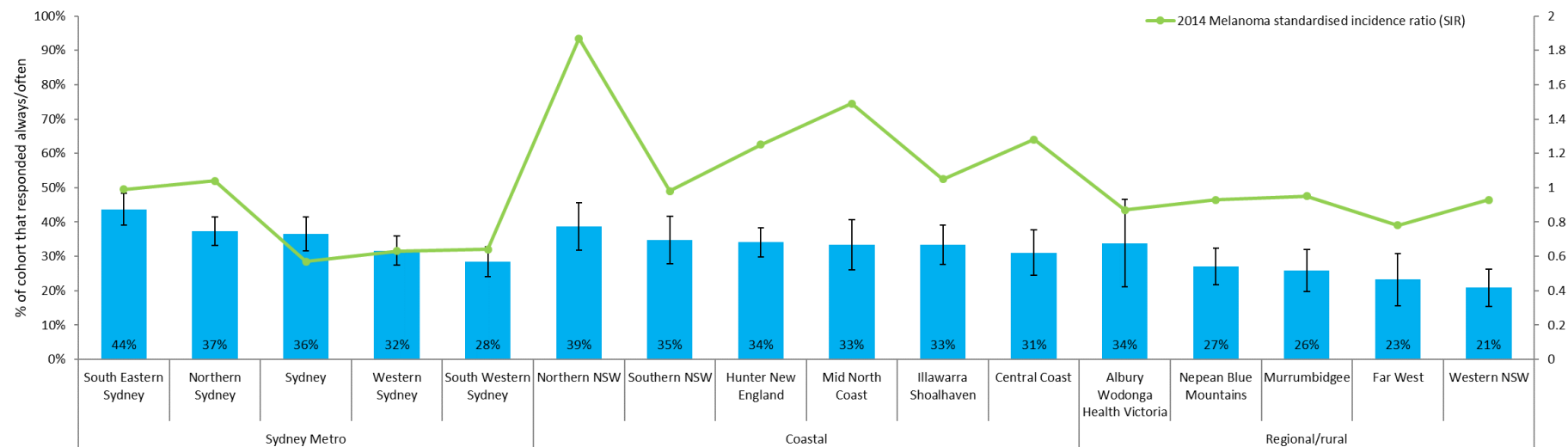


Figure 78: Proportion of adults that always or often used protective clothing and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

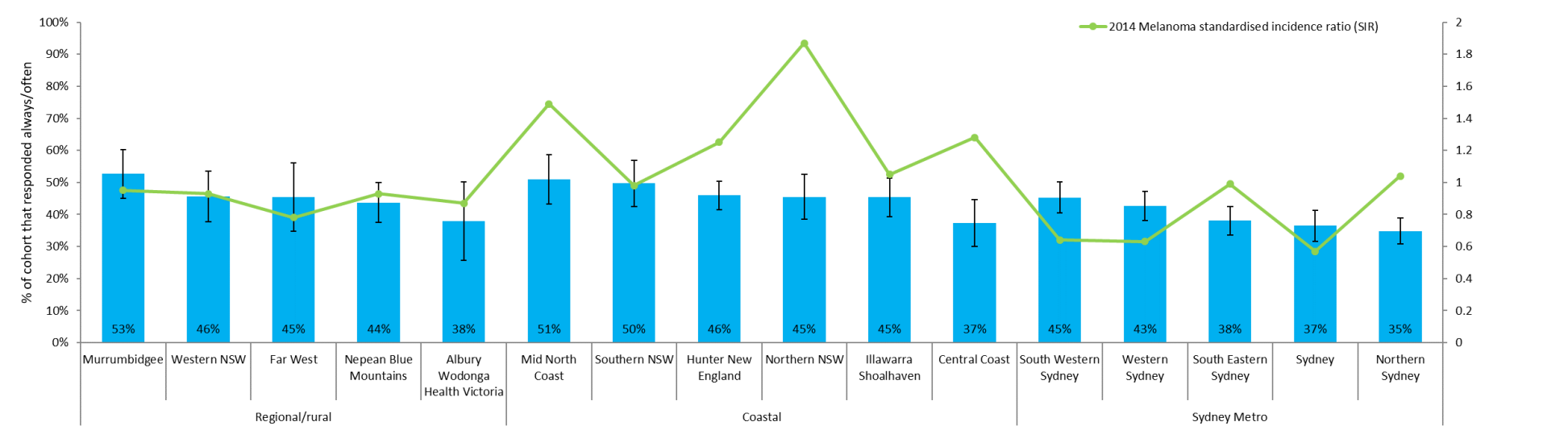


Figure 79: Proportion of adults that always or often wore sunglasses and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

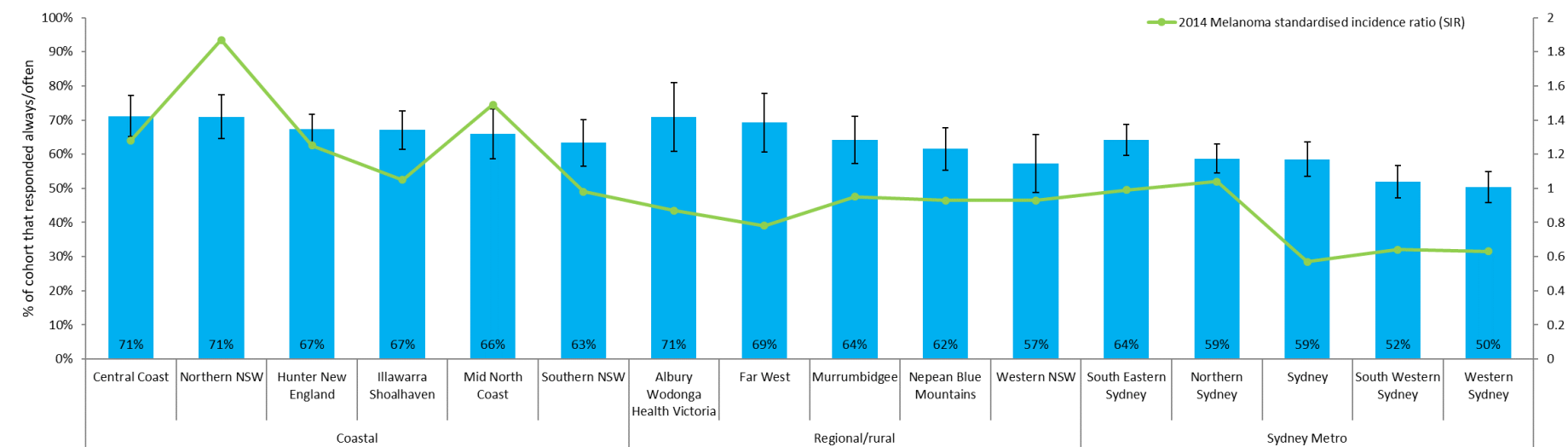


Figure 80: Proportion of adults that always or often wore a sun-safe hat and Melanoma Standard Incidence Ratios, by local health district, NSW, 2018

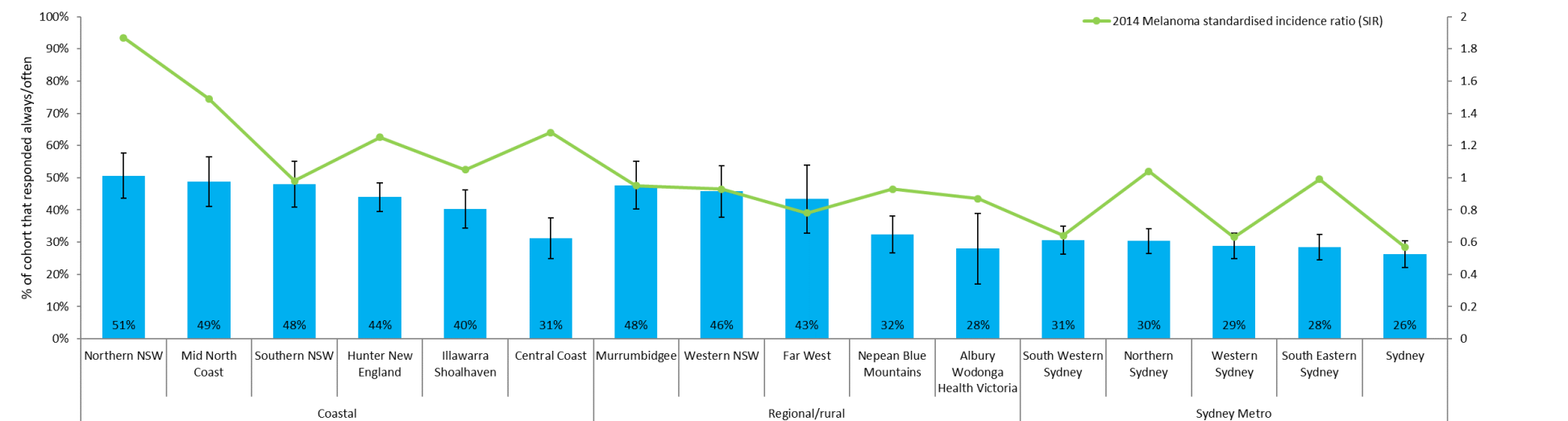
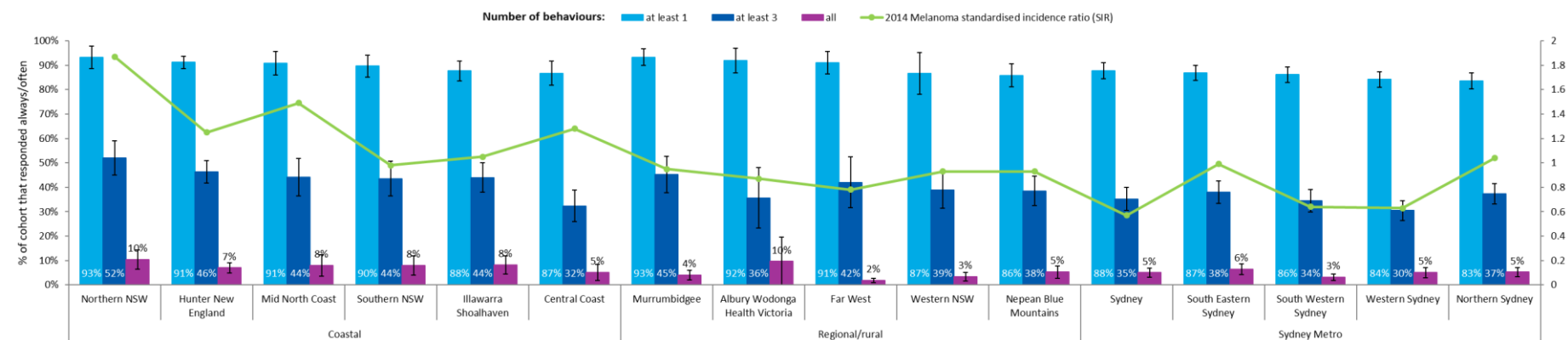


Figure 81: Proportion of adults that engaged in at least 1, at least 3, and all sun protection behaviours, by local health district, NSW, 2018



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