



Skin Cancer Prevention Survey 2019

National Cancer Control Programme,
An Clár Náisiúnta Rialaithe Ailse,
King's Inns House,
200 Parnell Street, Dublin 1
Website: www.hse.ie/cancer
T: 01 8287100

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Contents

Summary	1
1. Introduction	3
2. Methodology	4
3. Results	5
3.1 Key Results	5
3.2 Respondents Demographics	7
3.2.1 Age and Gender	7
3.2.2 Location	7
3.3 Skin type	8
3.4 Source of UV Exposure	9
3.5 Sun Protection Behaviours	10
3.6 Use of Sunscreen	11
3.7 UV Index	12
3.8 Sunburn Incidence	13
3.9 Attitudes on Tanning	14
3.10 UV Risk Awareness	14
3.11 Risk Awareness of Sunbeds	14
3.12 Sunbed Use	15
3.13 Information Source	16
4. Conclusion and Recommendations	17
References	40
Appendices	42
Appendix 1 – Skin Cancer Prevention Survey 2019	42
Appendix 2 – Supplementary Tables	28

List of Figures

Figure 1: Age distribution of respondents (n=1,051)	7
Figure 2: Self-reported natural (non sun-exposed) skin colour	8
Figure 3: What happens to skin when exposed to sun as reported by respondents	8
Figure 4: Main source of sun/UV exposure	9
Figure 5: How many weeks abroad or on holidays where the sun normally shines during the last 12 months	9
Figure 6: Sun protection measures used	10
Figure 7: Sunscreen use by gender	11
Figure 8: Where do you access the UV index?	12
Figure 9: How many times have you experienced sunburn (red skin for hours after being in the sun) in the last year by age	13
Figure 10: Sunbed use	15
Figure 11: Sunbed use by gender	15

Summary

Background

Cancer prevention is a cornerstone of the National Cancer Strategy 2017-2026 (NCS) as it offers the most cost effective, long term approach for cancer control¹. Over 13,000 cases of skin cancer are diagnosed annually². This is twice the number compared to 10 years ago and is projected to more than double again by 2045³. Addressing this rising incidence of skin cancer, recommendation 3 of the NCS prioritises the need to develop and implement a national skin cancer prevention plan⁴.

Ultraviolet (UV) radiation is the main risk factor responsible for skin cancers. It is emitted naturally from the sun and also comes from artificial sources such as sunbeds. By adopting UV protective behaviours the majority of skin cancers caused by harmful UV exposure could be prevented.

Aim

The aim of this study was to explore people's knowledge, attitude and behaviour in relation to sun protection and sunbed use. An online survey was developed based on similar work done in Australia and Northern Ireland^{5,6}. This survey was carried out during March and April 2019 to inform the National Skin Cancer Prevention Plan⁴. The national survey was conducted online with adults aged over 18 years living in Ireland.

Results

A total of 1051 respondents aged 18 and above were included in the final analysis (43% male, 57% female). There were respondents from all counties in the Republic of Ireland with the highest number from Dublin followed by Cork and Galway.

Exposure to UV from the sun

Almost half of respondents (45%) stated their main source of UV exposure was 'being out and about' while a quarter (23%) stated 'travel abroad'. During the previous 12 months, over two thirds of respondents (68%) spent a week or longer abroad or on holidays where the sun normally shines.

Sun protective behaviours

Sunscreen is the most commonly used sun protective behaviour, used by almost three-quarters (73%) of respondents. The use of sunscreen is higher among females (81%) compared to males (62%). Only one third of respondents (36%) use shade as a sun protection measure. There is a need for increased awareness that shade and clothing be used as first-line defence against the sun with sunscreen used for additional protection. It is of concern that almost one in ten respondents (9%) take no skin protection measures.

Sunburn

Results show 92% of respondents have experienced sunburn at least once in their lifetime with many recalling multiple episodes. It is of concern that almost 50% of respondents experienced sunburn at least once in the past 12 months. A higher proportion of males (34%) have experienced sunburn while working outdoors compared to females (21%). This highlights the need for an increased awareness of the risks of UV exposure and sunburn among those who work outdoors, one of the target groups in the Skin Cancer Prevention Plan⁴.

Attitudes to tanning

This study examined attitudes to tanning among the population. Almost two thirds (64%) of respondents felt that a suntan makes them feel more healthy. Just over one in three (34%) agreed that it was worth getting a little sunburnt to get a tan. This was higher among males (37%) than females (31%). More females than males (65% vs. 55%) agreed that a suntan makes them feel more attractive and similarly, more females than males (60% vs. 51%) agreed that a suntan makes them feel more confident. These results show that further efforts are needed to change attitudes to tanning and raise the awareness of the risks associated with UV exposure.

Sun Protective Behaviours for children

Of those who care for children under 12 years, sunscreen was also the most commonly used sun protection with 86% reporting using sunscreen as sun protection for children they care for. Similar to the findings among adults, there was a lower use of other skin protective behaviours such as shade and clothing highlighting the capacity to increase these behaviours among children as well as adults.

Sunbed Use

Overall 40% of all respondents have ever used a sunbed (29% of males and 49% of females) and 5% of males and 6% of females stated that they currently use sunbeds. Age is a significant factor for current sunbed use with 11% of those aged under 35 currently using sunbeds compared to 2% of those aged 35 years and older. This highlights an area where targeted interventions among a particular age demographic are needed to reduce the risk of skin cancer.

Conclusion

This exploratory study has yielded insights in to the current knowledge, attitude and behaviours in relation to sun protection and sunbed use among the adult population living in Ireland. This research will serve as a useful baseline to which future research can be compared and inform the implementation of the National Skin Cancer Prevention Plan.

1. Introduction

Ultraviolet (UV) radiation from the sun and artificial sources such as sunbeds is the main risk factor for the development of skin cancer. The International Agency for Research on Cancer (IARC) has classified UV radiation from the sun and sunbeds as carcinogenic to humans (Class 1)⁷.

Both occasional and chronic sun exposure can be harmful. Exposure causing sunburn is the most damaging, but frequent non-burning exposures also significantly increase the risk of skin cancer⁸. Exposure to sunbeds increases the risk of developing skin cancer, a risk which can be avoided by not using sunbeds. The risk of malignant melanoma is increased by 75% when using sunbeds starts before the age of 35 years⁷.

In addition, the effects of UV exposure on skin are not the same for everyone. A person's natural skin colour influences their risk of UV damage and skin cancer. Skin type can be classified on the "Fitzpatrick skin type classification scale"⁹. The scale ranges from 1 (high risk) to 6 (low risk). It considers skin colour (pale to black) and how the skin reacts to UV (i.e. whether it burns easily or tans). Most people living in Ireland have fair skin - Fitzpatrick skin type 1 or 2. People with this skin type burn easily and tan poorly so are particularly vulnerable to UV damage and, as a result, are at a higher risk of skin cancer.

There are many factors contributing to the increase in skin cancer incidence including, an aging population, more leisure time being spent outdoors, increase in foreign travel and sunbed use to name but a few.

The good news is that skin cancer is preventable and there is much evidence as to 'what works' in relation to prevention. Adopting sun protective behaviours, such as the Healthy Ireland SunSmart code (Appendix 1, p.29) and not using sunbeds reduces the risk of developing skin cancer. It is therefore a priority to develop and implement effective evidence-based preventative strategies .

In light of this, the Department of Health has developed a National Skin Cancer Prevention Plan (2019-2022)⁴. The plan was launched in May 2019 with an objective to develop and implement evidence-based strategies to increase awareness and adoption of skin cancer preventative behaviours in different settings and priority groups through cross-sectoral collaboration.

The implementation group has been established to oversee and implement this plan. The plan prioritises children, outdoor workers, those who pursue outdoor leisure activities and sunbed users.

The aim of this study is to explore people's knowledge, attitude and behaviour in relation to sun protection and sunbed use to inform the National Skin Cancer Prevention Plan.

2. Methodology

The aim of this survey was to determine knowledge, attitudes and behaviour in relation to sun-protection and sunbed use in an Irish population (n = 1051, males=452, females=599).

An on-line survey was developed (Appendix 1), based on similar surveys carried out in Australia and Northern Ireland^{5,6}. The survey was reviewed by both the National Skin Cancer Prevention implementation group and researchers in SunSmart Australia.

A Management & Survey Software company, Qualtrics, were utilised to publish and manage the online survey data collection. The survey was promoted across social media platforms, and also through members referrals, customer loyalty web portals and permission-based networks. A nationally representative group of the Irish population aged 18+ was surveyed during March and April 2019. Data was analysed using SPSS Version 24 by report authors.

3. Results

3.1 Key Results

A summary of key results are outlined below



Respondents

- 1,051 survey responses, 43% male, 57% female
- 50% of respondents reported their natural skin colour as very fair/freckled or fair, 45% as medium or olive and 5% as dark or black



UV exposure from the sun

- Almost half of respondents (45%) stated their main source of UV exposure was 'being out and about' while a quarter (23%) stated 'travel abroad'
- During the previous 12 months, over two thirds of respondents (68%) spent a week or longer abroad or on holidays where the sun normally shines while 14% spent four weeks or more



Sun protective behaviours

- Sunscreen is the most commonly used sun protective behaviour, used by almost two-thirds (73%) of respondents. Significantly more females than males reported using sunscreen as a protective measure (81% vs. 62%).
- Only one third of respondents (36%) use shade as a sun protection measure. Females were more likely than males to wear sunglasses and use shade whereas males were more likely to wear hats.
- Almost one in ten respondents (9%) take no skin protection measures
- Among those who care for children under 12; Sunscreen was the most common sun protection, used by 86%. However, only half (51%) stated that they use shade as a sun protective measure and less than half (45%) avoid the midday sun.



Use of sunscreen

- Of those who use sunscreen, almost two thirds (65%) stated they would use it while sunbathing abroad in a warm country, while just under a half (48%) while sunbathing in Ireland
- Over half (56%) of those who use sunscreen in Ireland use SPF less than 30
- Four fifths (80%) of adults who use sunscreen abroad use SPF of 30 or higher



Sunburn

- 50% of all adults experienced sunburn in the past year. This is higher than the Northern Ireland figure of 20%
- Almost half of respondents (49%) have been sunburned five or more times in their lifetime
- Almost half of all respondents (47%) have experienced sunburn while travelling abroad
- Overall, more than a third of males (34%) have experienced sunburn while working outdoors compared to a fifth of females (21%)
- Almost a third of respondents (31%) have experienced sunburn following outdoor sport or recreational activities



Opinion

- 93% of respondents agree that protecting their skin would reduce their risk of skin cancer
- Almost two thirds (64%) of respondents felt that a suntan makes them feel more healthy. This is higher than the Northern Ireland figure of 45%
- Just over one third of respondents (34%) agreed that it was worth getting a little sunburnt to get a tan. This was higher among males (37%) than females (31%)
- More females than males (65% vs. 55%) agreed that a suntan makes them feel more attractive
- Similarly more females than males (60% vs. 51%) agreed that a suntan makes them feel more confident
- Just over half of respondents (52%) agree that tanned skin is damaged skin
- Almost three in four respondents (73%) are happy with their natural skin colour. This is slightly higher among males (74%) than females (71%)



Risk awareness

- Three quarters (76%) of respondents are aware of the risk of skin cancer from sunbeds. This is higher among females (80%) compared to males (71%)
- A higher proportion of females are aware of the risk of skin ageing from sunbeds compared to males (63% vs 46%)



Sunbed use

- Overall 40% of all respondents have ever used a sunbed (29% of males and 49% of females)
- 5% of males and 6% of females currently use sunbeds

3.2 Respondents Demographics

3.2.1 Age and Gender

43% were male and 57% were female. The age distribution of respondents is displayed below in Figure 1.

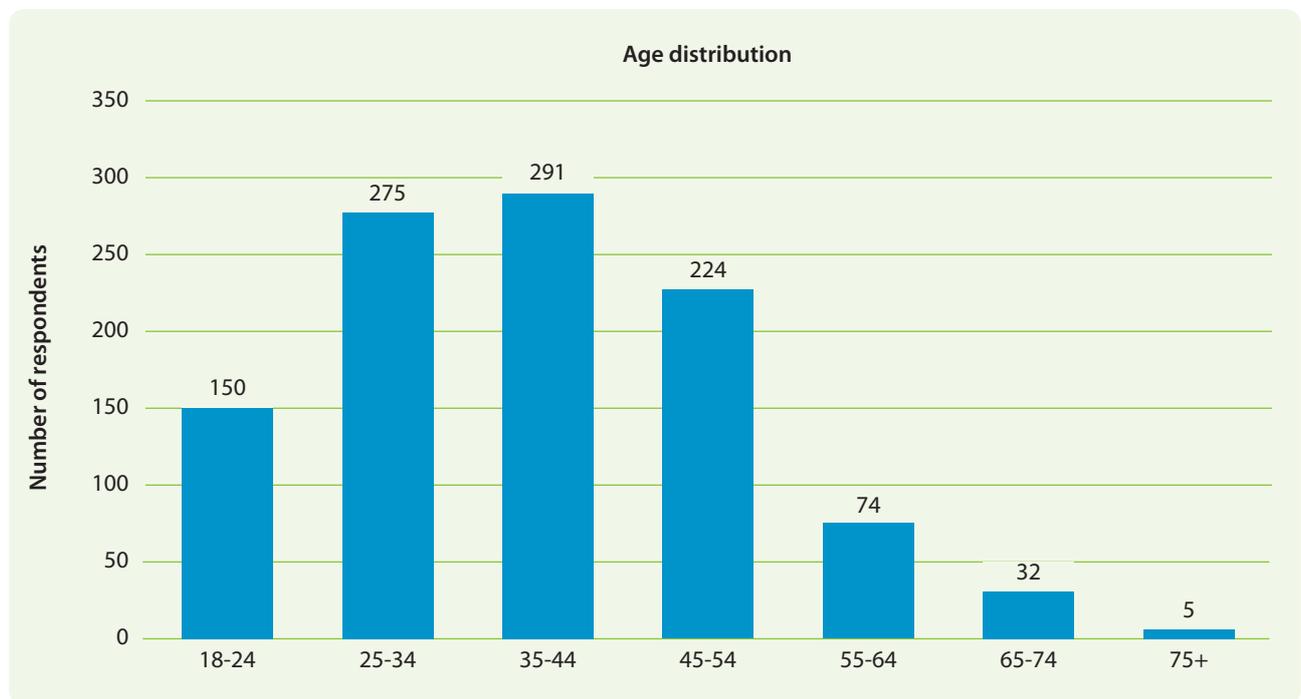


Figure 1: Age distribution of respondents (n=1,051)

3.2.2 Location

All counties in the Republic of Ireland were represented in the final data. There were more respondents from counties which had large cities. The highest number of respondents was from Dublin with 374 followed by Cork at 111.

3.3 Skin type

When asked to describe their natural (non-exposed) skin colour, half of the respondents reported that their skin colour was either very fair or fair skinned. Over a third of respondents (35%) reported that their skin colour was medium, while one in ten reported olive skin colour and 5% reported dark or black skin (Figure 2).

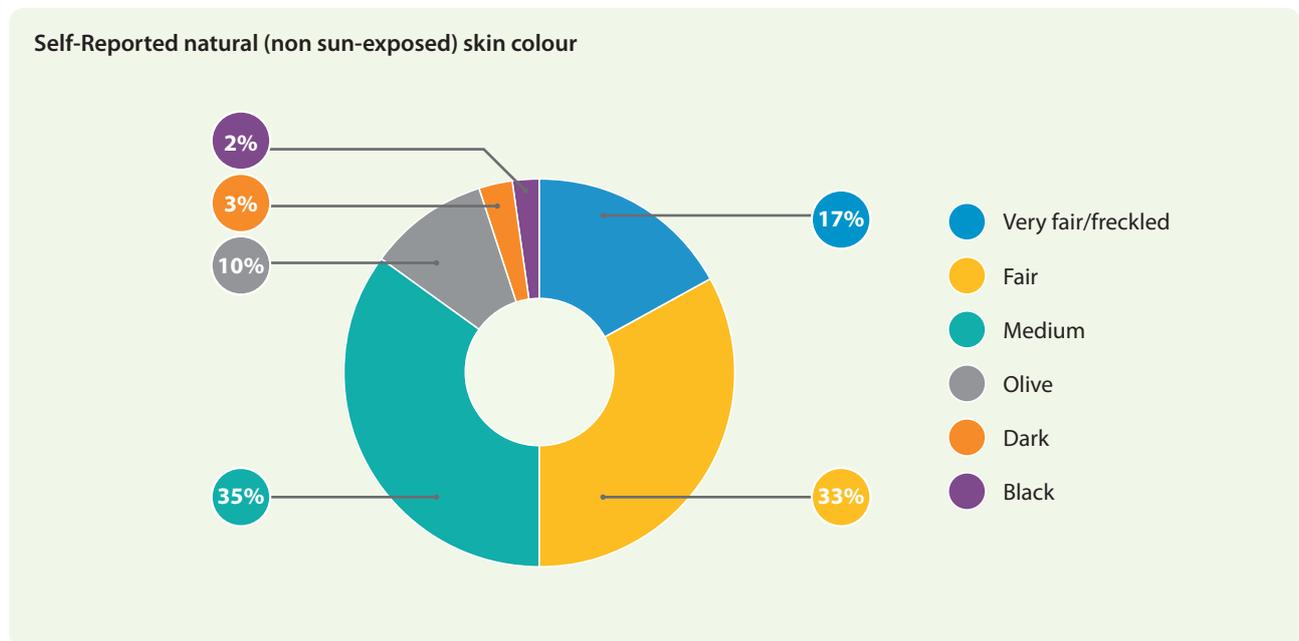


Figure 2: Self-reported natural (non sun-exposed) skin colour

When asked to describe what happens to their skin when exposed to sun the majority of respondents (45%) reported that they sometimes burn, always tan (Fitzpatrick skin type 3). Only 12% reported that they always burn, never tan (Fitzpatrick skin type 1) and almost one quarter (23%) reported that they always burn and sometimes tan (Fitzpatrick skin type 2). Finally, 14% of respondents stated that they never burn and always tan (Fitzpatrick skin type 4), while 3% reported being moderately pigmented (Fitzpatrick skin type 5) and 3% stated being heavily pigmented (Fitzpatrick skin type 6) (Figure 3).

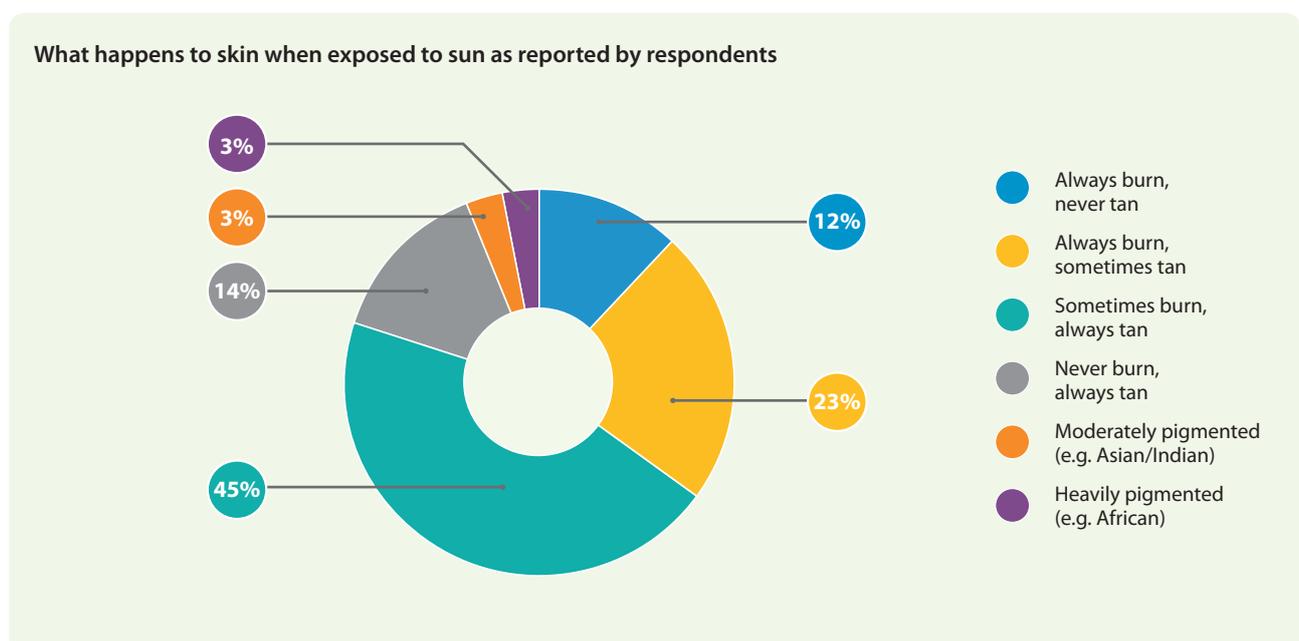


Figure 3: What happens to skin when exposed to sun as reported by respondents

3.4 Source of UV Exposure

Almost half of respondents (45%) stated that their main source of sun/UV exposure was 'being out and about' while almost a quarter (23%) stated 'travel abroad'. One in seven respondents reported that outdoor sport/recreation was their main source of UV exposure, while 14% stated 'working outdoors'. Sunbed/solarium was reported in 3% of respondents (Figure 4).

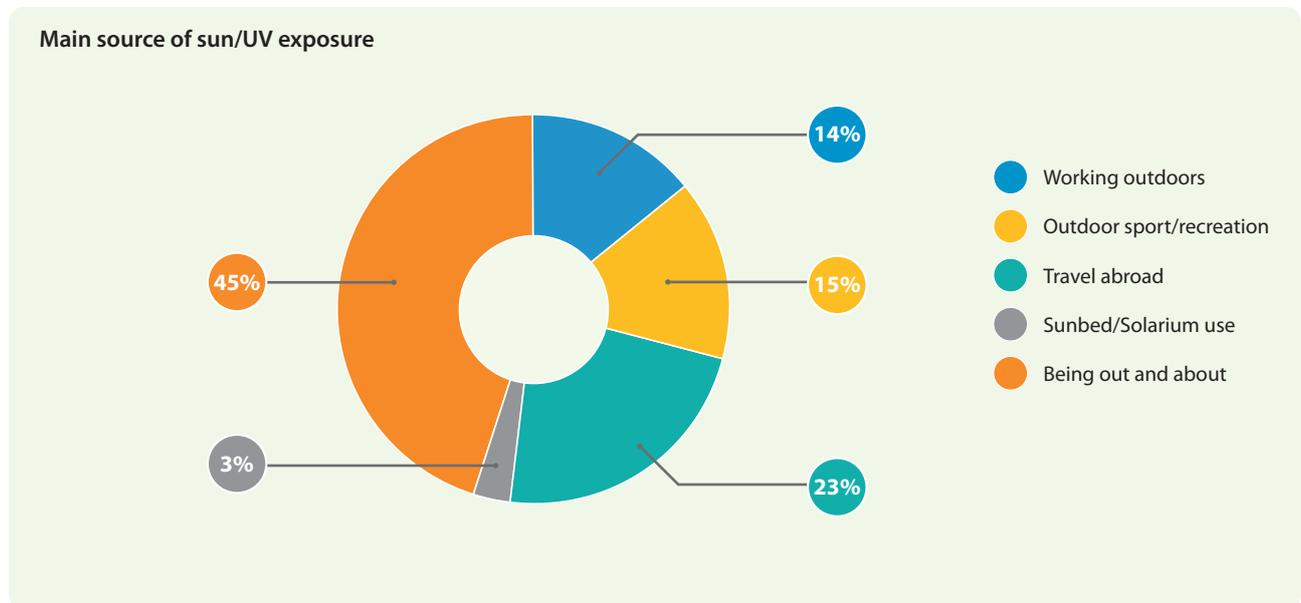


Figure 4: Main source of sun/UV exposure

When travel abroad was examined further, over one third of respondents spent 1-2 weeks abroad or on holidays in the sun in the previous 12 months, over two thirds of respondents (68%) spent a week or longer abroad where the sun normally shines and 14% spent four weeks or more. One in five respondents did not report being abroad during the last 12 months (Figure 5).

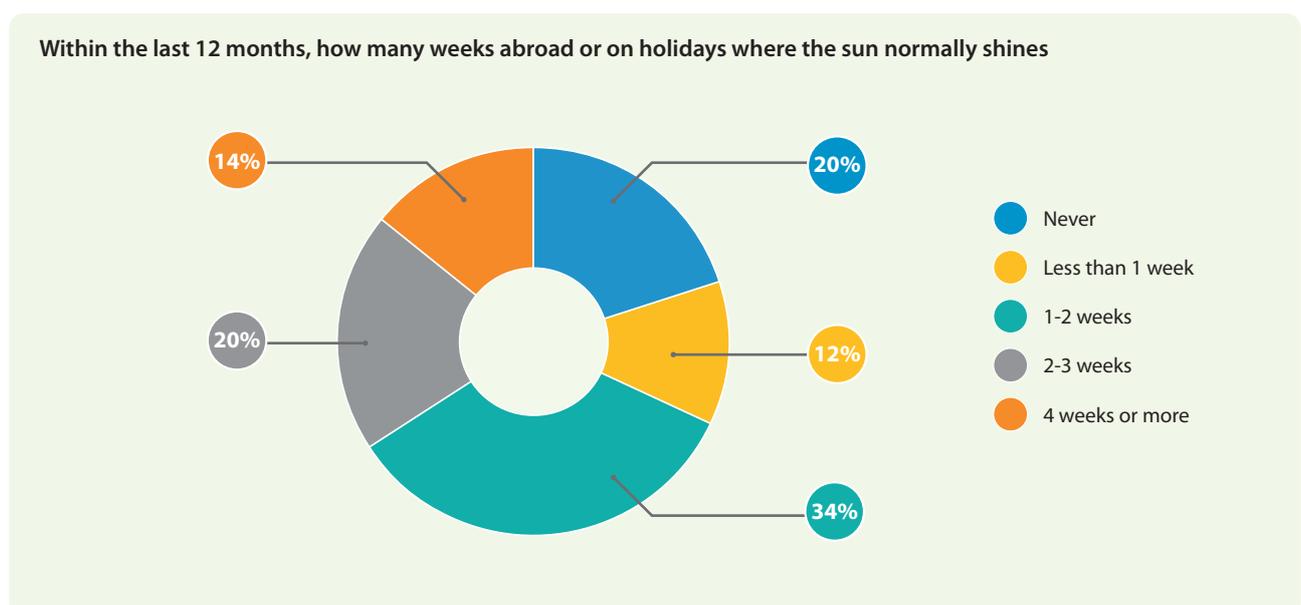


Figure 5: Within the last 12 months, how many weeks abroad where the sun normally shines

3.5 Sun Protection Behaviours

The most common sun protection measures taken by respondents were sunscreen use (73%), followed by wearing sunglasses (63%), wearing a hat (43%), staying in the shade (36%), avoiding midday sun (27%), wearing long sleeves (14%) and long leg cover (13%). Interestingly, 5% of respondents reported never going out in the sun (Figure 6).

More females than males reported using sunscreen as a sun protection measure (81% vs. 62%). In addition, females were more likely than males to use other sun-protection measures like wearing sunglasses, and staying in the shade. Males however were more likely than females to wear hats (Appendix 2, table 1).

Almost a tenth of males (9%) and of females (8%) took no protective measures to protect their skin from the sun.

Among those who care for children under 12 years, sunscreen was the most commonly used sun protection measure with 86% reporting that they use sunscreen on the children they care for. Almost half (45%) reported that they avoid children being exposed to the midday sun, with over two thirds (73%) ensuring that children in their care wear a hat while in the sun. Just over 50% reported that they make sure children stay in the shade (Appendix 2, table 2).



Almost a tenth of males (9%) and of females (8%) took no protective measures to protect their skin from the sun.

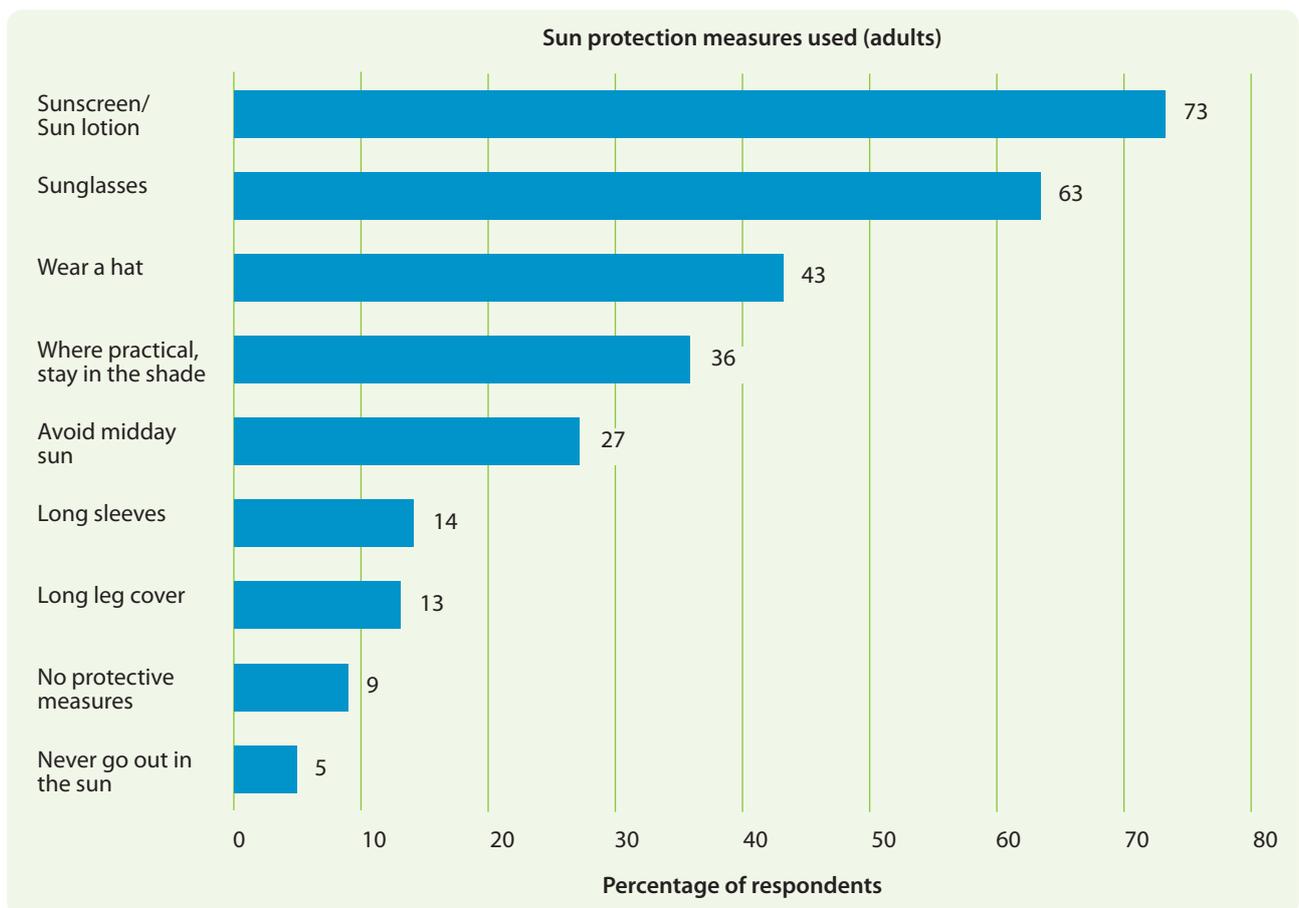


Figure 6: Sun protection measures used

Most respondents (68%) decide to take sun protective measures in the summer months, while over half (58%) take sun protective measures because of the temperature. Almost a quarter (23%) reported that the UV index helps them decide on when to take sun protective measures. Almost a tenth (9%) stated that they wear sunscreen all year round (Appendix 2, table 3).

3.6 Use of Sunscreen

Those who stated that they used sunscreen for protection either for themselves or any children they were caring for were asked further questions about when they would use sunscreen and the sunscreen protection factor (SPF) they use.

Almost two thirds (65%) stated they would use sunscreen while sunbathing abroad in a warm country, while just under a half (48%) use sunscreen while sunbathing in Ireland. Furthermore, over half (52%) stated they use sunscreen outdoors when abroad, but not sunbathing, while (44%) reported that they use sunscreen when outdoors in this country but not sunbathing (Appendix 2, table 4).

Interestingly, 10% of all respondents stated that they use sunscreen all year round (higher among females). When further examined by gender, females were more likely to use sunscreen in almost all settings (both abroad and in Ireland) (Figure 7).

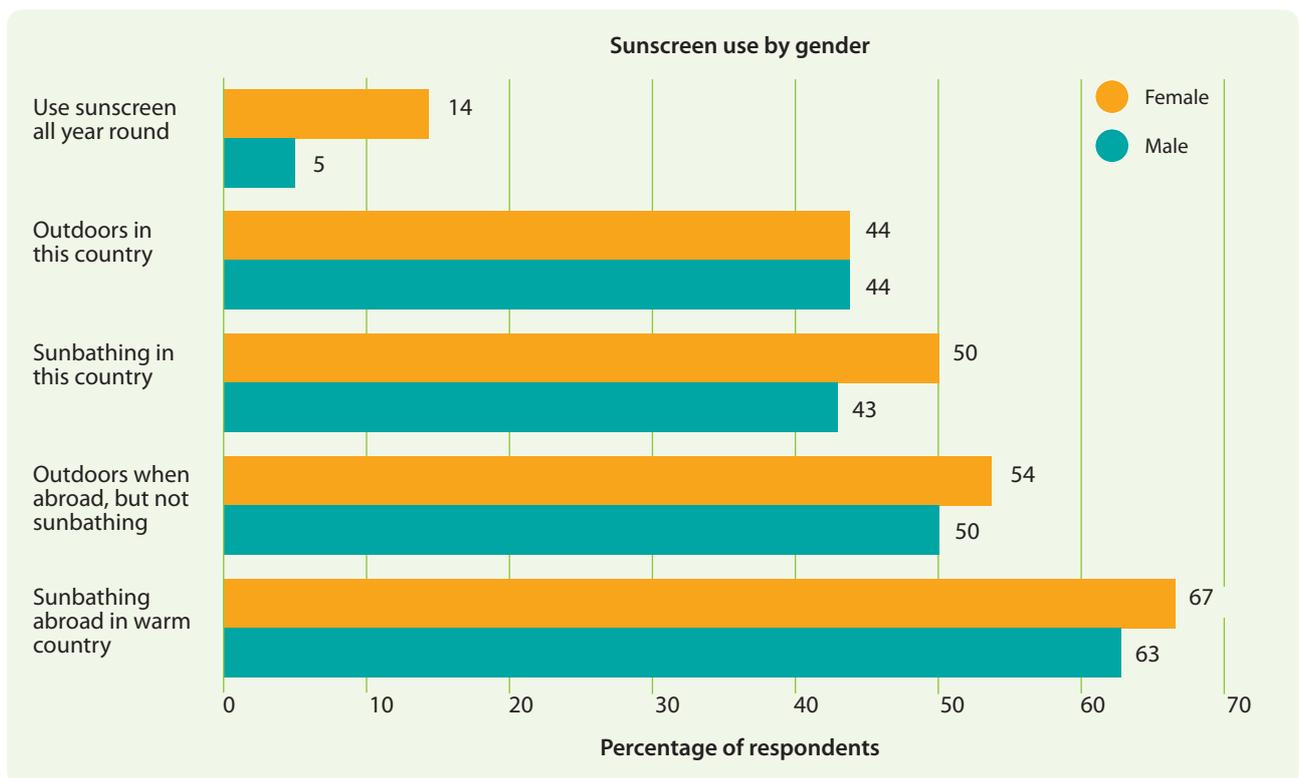


Figure 7: Sunscreen use by gender

When asked about sun protection factor (SPF) use in Ireland, most respondents (28%) stated using SPF 30, almost a quarter (23%) use SPF 20 and a third use SPF 15 or less. Only 16% use SPF (50 and higher) when in Ireland (Appendix 2, table 5).

When abroad in a warm country, SPF (50 or higher) is the most commonly used sunscreen factor in 47% of respondents, followed by SPF 30 in a third of respondents, SPF 20 in 13% and SPF 15 or less in only 7% of respondents.

Half of adults with children (50%) reported using SPF (50 or higher) when in Ireland, just over a quarter (27%) use SPF 30, 11% use SPF 20 while 12% use SPF 15 or less for children (Appendix 2, table 5).

When abroad in a warm country, adults with children use SPF (50 or higher) most commonly (77% of respondents), followed by SPF 30 in 16%, SPF 20 in 3% and SPF 15 or less in only 4% of respondents.

80% of those who use sunscreen use sun protection factor use SPF (30 or higher) when abroad.



44% of those who use sunscreen use sun protection factor (30 or higher) when in Ireland compared to 80% who use sun protection factor (30 or higher) when abroad

3.7 UV Index

68% of respondents had previously heard of the UV index. Of these, just under a half (49%) had accessed or used it previously. Most accessed the UV index online (Figure 8)

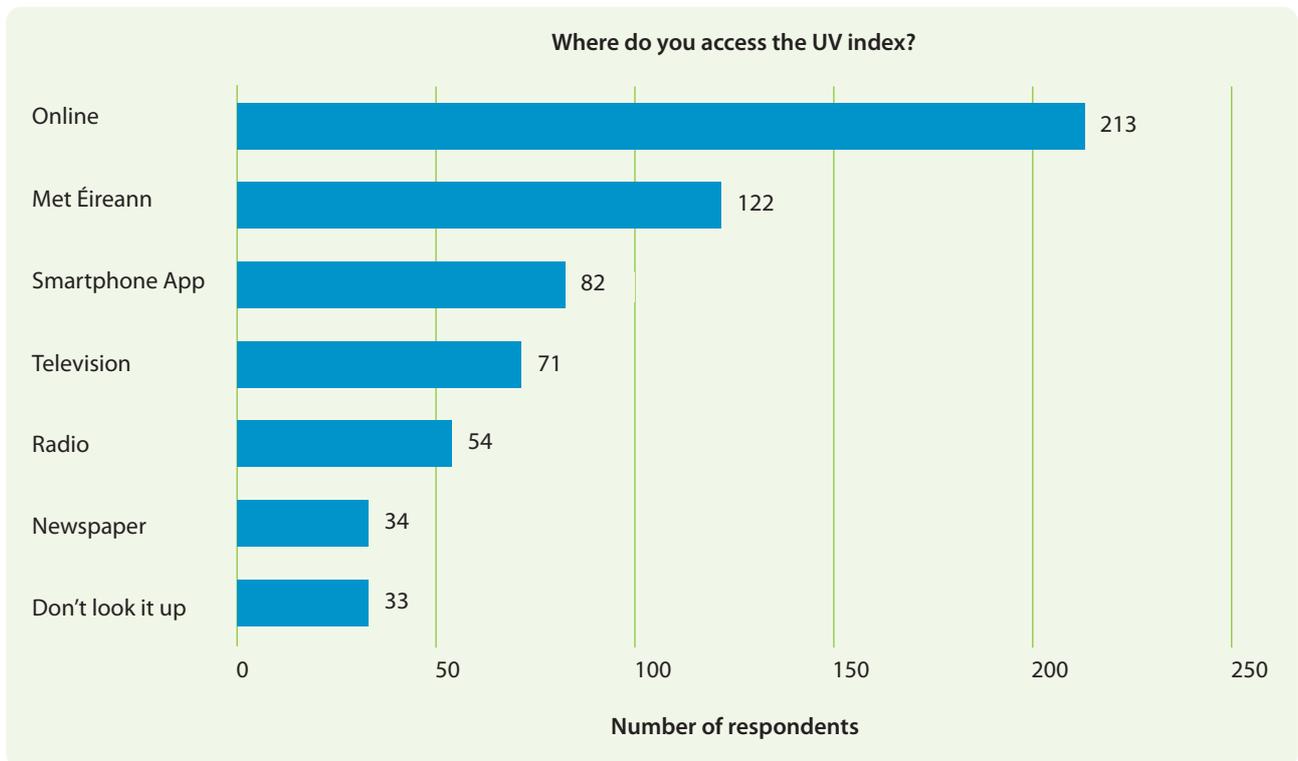


Figure 8: Where do you access the UV index?

3.8 Sunburn Incidence

Half of all adults experienced sunburn in the year prior to completing the questionnaire. Younger respondents (25-34 age-group) were more likely to have experienced sunburn at least once in the previous 12 months compared to those in the 65-74 age-group (60% vs. 31%) (Figure 9).

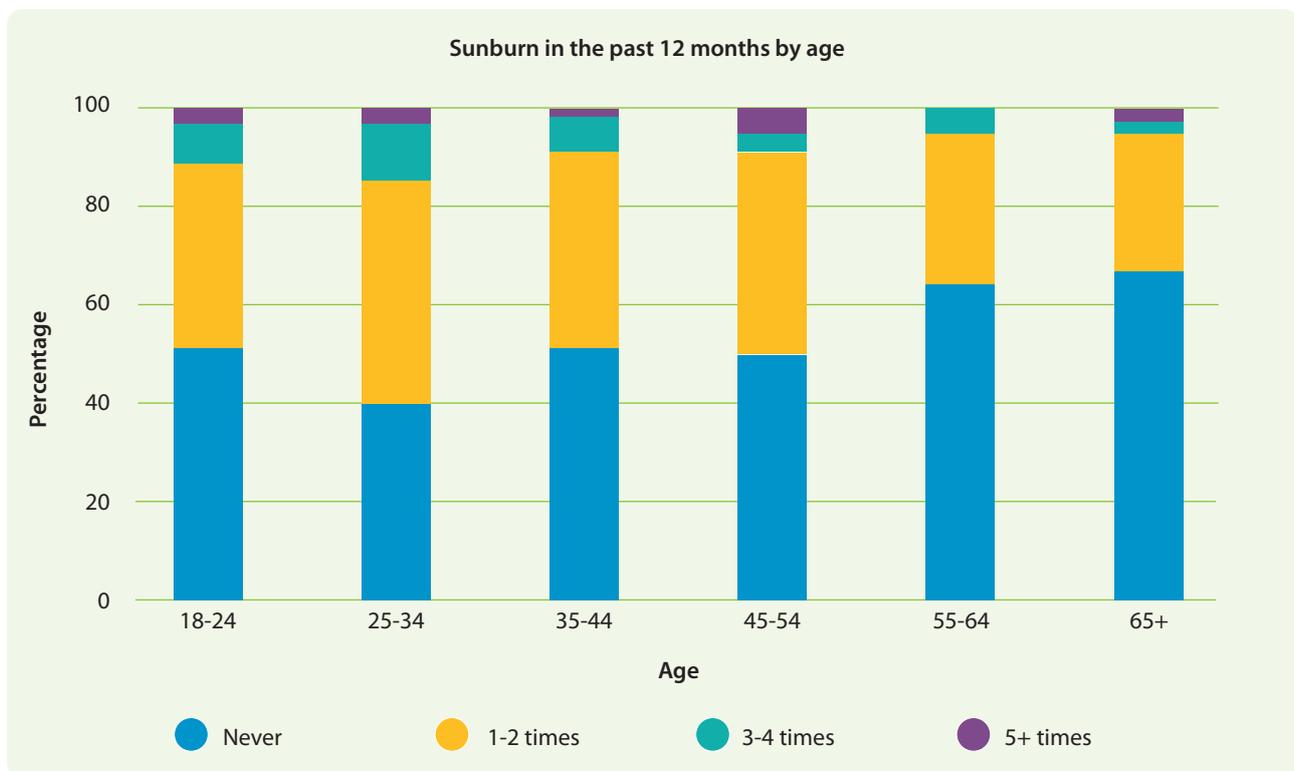


Figure 9: How many times have you experienced sunburn (red skin for hours after being in the sun) in the last year by age

When asked about sunburn during their lifetime, almost half of respondents (49%) reported experiencing sunburn five or more times in their lifetime (Appendix 2, table 6).

The majority of both males and females have experienced at least one sunburn in their lifetime (90% vs. 93%) (Appendix 2, table 7).

Almost half of respondents reported experiencing sunburn when travelling abroad (47%), while sunbathing (43%) and while out and about (41%). One in every three (31%) respondents stated that they experienced sunburn while pursuing outdoor sport/recreation and over a quarter (27%) while working outdoors. More females than males experience sunburn while travelling abroad (50% vs. 43%), when sunbathing (46% vs. 39%) and when out and about (44% vs. 37%). More males than females experience sunburn while pursuing outdoor sport/recreation (36% vs. 28%) and undertaking outdoor work (34% vs. 21%) (Appendix 2, table 9).

The most commonly reported areas of sunburn include the neck (46%), face and shoulders (44%), arms (37%), nose (30%), back (29%) and legs (28%) in males and the shoulders (60%), face (44%), arms (34%), back and nose (29%) in females (Appendix 2, table 10).

The area of the body which experienced the worst sunburn was reported as the shoulders in both males (30%) and females (42%) (Appendix 2, table 11).



60% of the younger age-group (25-34 years) were sunburnt at least once in the last year.

3.9 Attitudes on Tanning

93% of respondents believed that protecting their skin from the sun would reduce their risk of skin cancer. This was higher in females (95%) compared to males (90%) (Appendix 2, table 12).

Almost two-thirds (64%) of respondents felt that a suntan made them feel healthier. This was higher in females (65%) compared to males (63%) (Appendix 2, table 13).

Over a third (34%) of respondents agreed that it was worth getting a little sunburnt to get a tan. This was higher among males (37%) than females (31%) (Appendix 2, table 14).

Just over three-fifths (61%) of respondents felt that a suntan made them feel more attractive. This was higher in females (65%) compared to males (55%) (Appendix 2, table 15).

Just over a half (56%) of respondents felt that a suntan made them feel more confident. This was higher in females (60%) compared to males (51%) (Appendix 2, table 16).

Just over half (52%) of respondents agreed that tanned skin was damaged skin. This was higher among females (55%) than males (50%) (Appendix 2, table 17).

Almost three in four (73%) of respondents were happy with their natural skin colour. This is higher among males (75%) than females (71%) (Appendix 2, table 18).



64% of respondents felt that a suntan made them feel healthier and 61% felt a suntan made them feel more attractive.

3.10 UV Risk Awareness

When asked about the three things that people were most aware about in terms of the potential dangers of UV rays, over four in five people (85%) were aware of the risk of skin cancer from UV rays. This was higher among females (87%) compared to males (83%) (Appendix 2, table 19).

Over three quarters (76%) of respondents were aware of the risk of sunburn from UV rays. Again this was higher among females (80%) compared to males (72%).

Over three fifths (64%) of respondents were aware that ageing of the skin was associated with UV rays. This was significantly higher among females (70%) compared to males (55%).

3.11 Risk Awareness of Sunbeds

Just over three quarters (76%) of respondents were aware of the risk of skin cancer associated with sunbed use. This was higher for females (80%) compared to males (71%) (Appendix 2, table 20).

Over half (51%) of respondents were aware of the risk of sunburn from sunbeds. This was higher for females (56%) compared to males (45%).

Over half (55%) of respondents were aware of the risk of skin ageing from sunbeds. This is higher in females (63%) than males (46%).

Overall females were more aware of the risks associated with sunbeds compared to males.

3.12 Sunbed Use

Overall, 40% of respondents have used a sunbed at some point in their lifetime with 16% stating that they currently use sunbeds or have used a sunbed within the last year (Figure 10). 5% of males and 6% of females currently use sunbeds (Figure 11). When examined by gender, females have a higher lifetime use of sunbeds compared to males (49% vs. 29%).



16% stating that they currently use sunbeds or have used a sunbed within the last year



females have a higher lifetime use of sunbeds compared to males (49% vs. 29%)

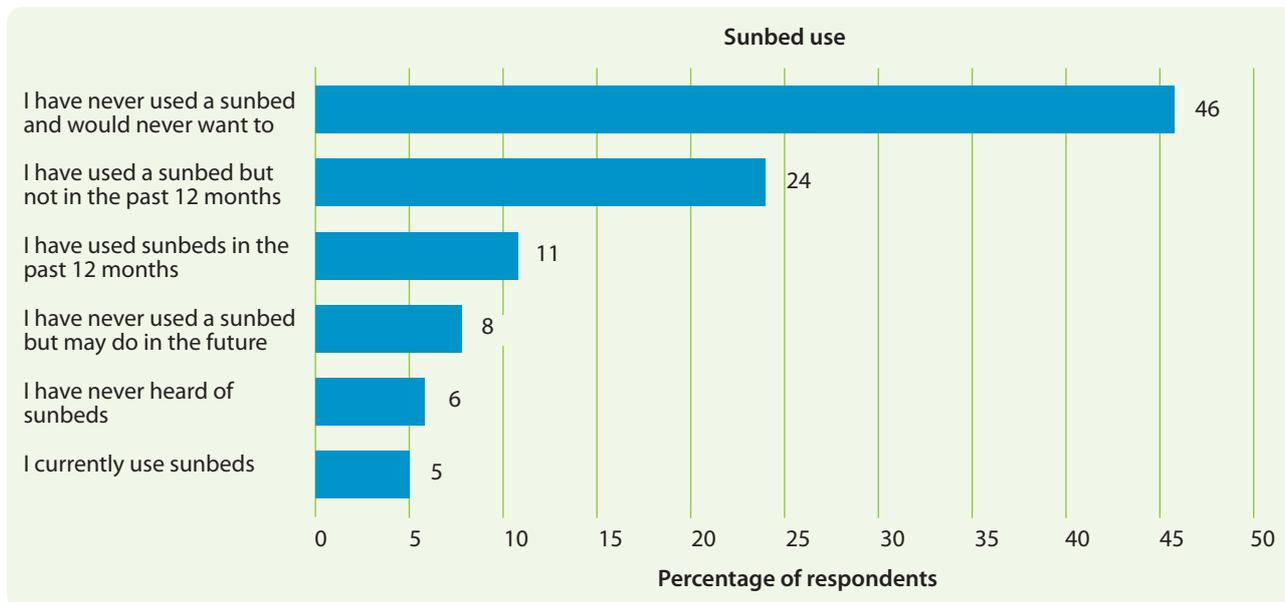


Figure 10: Sunbed use

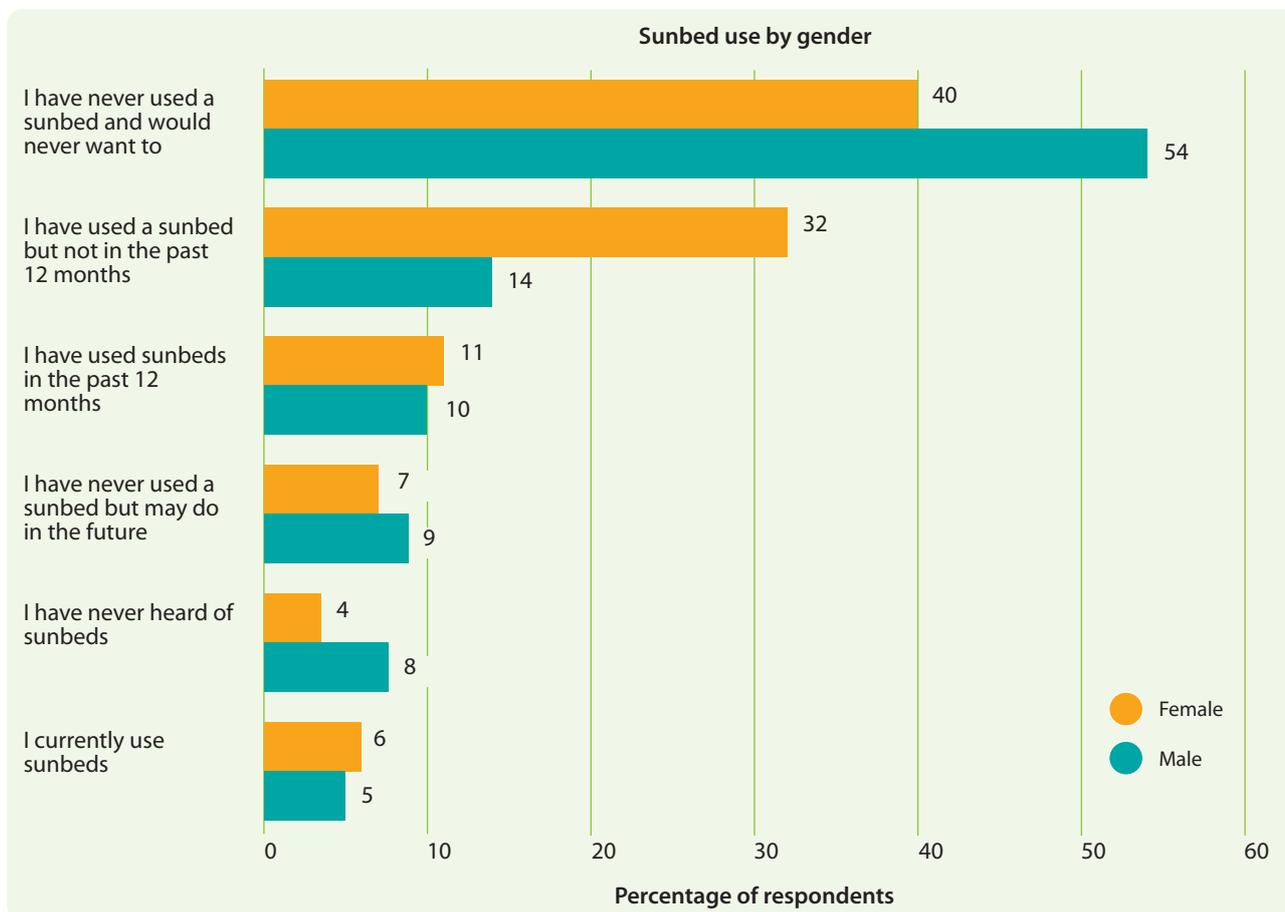


Figure 11: Sunbed use by gender

3.13 Information Source

The most common ways to find information about skin cancer prevention was by television (49%), online sources (32%) and from health professionals (25%) (Appendix 2, table 21).

Only 5% of respondents stated that they recalled getting information on skin cancer prevention from a poster or leaflet in a public place.

Over half of adults (51%) would like to receive skin cancer prevention information on television followed by online sources (41%), from health professionals (40%) and in the pharmacy (40%). Other sources include radio (30%), social media (30%), schools (29%), poster/leaflet in a public place (29%), newspapers (27%), magazines (22%), family and friends (18%) (Appendix 2, table 22).

4. Conclusion and Recommendations

The results of this survey give a valuable insight into the current beliefs and practices surrounding sun protection, sunbeds and skin cancer awareness in an Irish population.

Of those surveyed, sunscreen was the most commonly used sun-protective behaviour. This was higher in females than males. Use of other sun protective behaviours like seeking shade and covering up and wearing a hat is low. These findings are similar to results of the Healthy Ireland Survey 2019¹⁰ which found sunscreen the most common form of skin protection used, and low use of other skin protective behaviours, like keeping skin covered when outdoors. Yet covering skin with clothing and seeking shade are the most important factors to protect skin, sunscreen should be used in conjunction with these. Of concern and similar to the Health Ireland survey around one in ten respondents report no skin protection measures.

Children and young people are particularly vulnerable to UV radiation. We know that severe sunburn during childhood (3 or more instances before the age of 20) is associated with a 2-4 times higher risk of developing melanoma in later life¹¹. Findings from this survey report among those who care for children under 12 years, sunscreen was the most commonly used sun protection measure, followed by wearing a hat. Protecting skin from the sun through shade, avoiding the midday sun and clothing that covers skin is utilised by less than half of respondents. The Health Behaviours in School Children report¹² surveyed children aged 10-17 years. Similarly sunscreen is the most common form of sun protection reported by children surveyed, with lower use of avoiding the midday sun and wearing clothing that covers skin. There is a need to promote the use of shade and clothing together with sunscreen as a means of protecting the skin in both the adult population and in those who care for children under 12.

There were different behaviours reported in terms to sunscreen use at home and abroad. More people use sunscreen while sunbathing abroad in a warm country compared to when sunbathing in Ireland. In addition, more people use a higher SPF (30 or higher) when abroad compared to those who use a lower SPF (30 or less) when in Ireland. This highlights that people perceive a greater risk to their skin when abroad in a warm country compared to when in Ireland. This perception needs to be challenged particularly from April to September in Ireland, when UV is strongest and can damage skin.

It is of concern that half of all adults experienced sunburn in the year prior to completing the questionnaire. This is significantly higher than a survey carried out in Northern Ireland (Health Survey Northern Ireland 2012/13⁵) where 80% of respondents did not experience any sunburn over the year prior to the survey. Furthermore, almost half of respondents were sunburned five or more times in their lifetime. This increases the lifetime risk of developing skin cancer. Younger respondents (25-34 age-group) were more likely to have experienced sunburn at least once in the previous 12 months compared to those in the older age group (65-74 years). These rates are higher than the Northern Ireland survey (2012-2013) where 43% of the younger respondents (16-24 years) were sunburnt at least once in the past year compared to 2% in the 75+ age-group. It is of note that a higher proportion of males have experienced sunburn while working outdoors compared to females. Outdoor workers have been identified as a priority group in the skin cancer prevention plan⁴ and this highlights the need for increased awareness of the

risks of UV exposure and sunburn among those who work outdoors. Almost half of respondents have experienced sunburn while travelling abroad and a third of respondents experienced sunburn following outdoor sport or recreational activities. Those who pursue outdoor recreational activities and the outdoor leisure settings are other key priority areas identified in the skin cancer prevention plan⁴.

This study examined attitudes to tanning among the population. Overall, a suntan made people feel more healthy, more attractive and more confident. This was higher in females than males. This is higher than the survey carried out in Northern Ireland (2012-2013) where 45% of respondents felt that a suntan made them feel more healthy. In our survey, just over a third agreed that it was worth getting a little sunburnt to get a tan, a worrying finding. This was higher in males than females indicating more risk-taking behaviours in males compared to females. These findings show that there is a need to explore perceived attitudes towards suntanning behaviours.

Most UV exposure was from being 'out and about' while a quarter was from 'travel abroad'. It will be important to raise awareness among the general population about incidental exposure to UV while going about their daily activities and the risks of UV exposure when abroad in a warm country.

Sunbeds are the most common artificial source of UV. IARC has classified UV radiation and sunbeds as carcinogenic to humans (Class 1)⁷. In addition, it concluded that the risk of malignant melanoma is increased by 75% when using sunbeds starts before the age of 35 years. This survey found use of sunbeds was higher in females than males. Age is a factor for current sunbed use with 11% of those aged under 35 currently using sunbeds compared to 2% of those aged 35 years and older. This highlights the need for targeted information to increase awareness about the dangers of sunbed use particularly in the under 35 age group. A higher use of sunbeds has been found in this survey compared to the Healthy Ireland Survey 2019¹⁰, but similar, in usage is higher among women and younger age groups.

Risk awareness of skin cancer from UV rays and sunbeds amongst the population surveyed was high, this is higher among females than males. Also a higher proportion of females are aware of the risk of skin ageing from sunbeds compared to males. This finding shows that despite high levels of awareness, behaviours do not reflect this knowledge, further work in shaping the environment and social norms to protect skin from UV is required.

This study has revealed insights into the current knowledge, attitude and behaviours in relation to sun protection and sunbed use in a cohort of people living in Ireland. The findings of this study in combination with implementation of the national skin cancer prevention plan will help inform future work in this area of cancer prevention and serve as a baseline for future research.

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Appendix 1

Skin Cancer Prevention Survey 2019

Skin Cancer Prevention Survey

We are undertaking some research to explore people's knowledge, attitudes and behaviour in relation to sun protection. The research is being carried out by the National Cancer Control Programme (NCCP).

Participation in this survey is voluntary and all responses are anonymous.

The survey will take 4-5 minutes to complete.

You will be asked a number of questions on sun protection measures, sunburn, and opinion on having a suntan and risk awareness.

Your anonymous feedback will be used to help us to get a better understanding of the sun behaviours and skin cancer prevention in the Irish population.

I have read the information provided relating to this study. I have had enough time to consider the information. I understand that my participation is voluntary and that I am free to withdraw at any time.

Do you wish to proceed?

Yes

No

Skin Cancer Prevention Survey

Gender

- Male
- Female
- Prefer not to say

Age

<18 *(to be excluded from analysis)*

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

County of residence: _____ *(list of counties to be provided)*

Would you say you live in an urban/rural area?

- Urban
- Rural
- Prefer not to say

When do you get most of your exposure to the sun/UV rays?

- Working outdoors (> 3hours daily)
- Outdoor sport/recreation
- Travel abroad
- Sunbed/Solarium use
- Other (please specify)

Within the last 12 months, how many weeks were you abroad/on holidays in a place where the sun usually shines most of the time?

- Never
- Less than 1 week
- 1 week
- 2-3 weeks
- 4 weeks or more

Which of the following best describes how you use sunbeds?

- Currently use sunbeds
- Have used sunbeds in the past
- Never used a sunbed but may do in future
- Never used a sunbed and would never want to
- Never heard of sunbeds

Which of these statements best describes what happens to your skin when you go out in the sun without protection?

- Always burns, never tan
- Always burn, sometimes tan
- Sometimes burn, always tan
- Never burn, always tan
- Moderately pigmented (e.g. Asiatic/Indian)
- Heavily pigmented (e.g. African)

What is your natural (non-sun exposed) skin colour?

- Very fair
- Fair
- Medium
- Olive
- Dark
- Black

Sun Protection

Which, if any, of the following methods of sun protection do you use? (tick all that apply)

- | | | | |
|------------------------------------|--------------------------|-----------------|--------------------------|
| Never go out in the sun | <input type="checkbox"/> | Long sleeves | <input type="checkbox"/> |
| Avoid the mid-day sun (11-3pm) | <input type="checkbox"/> | Long leg cover | <input type="checkbox"/> |
| Where practical, stay in the shade | <input type="checkbox"/> | Wear sunglasses | <input type="checkbox"/> |
| Sunscreen/Sun lotion | <input type="checkbox"/> | Wear a hat | <input type="checkbox"/> |
| No protective measures taken | <input type="checkbox"/> | | |

Other (please specify)

If wears sunscreen ask next 2 questions

When do you wear sunscreen? (tick all that apply)

- | | |
|--|--------------------------|
| Sunbathing abroad in a warm country | <input type="checkbox"/> |
| Outdoors when abroad, but not sunbathing | <input type="checkbox"/> |
| Sunbathing in this country | <input type="checkbox"/> |
| Outdoors in this country | <input type="checkbox"/> |

Other (please specify)

Which sunscreen SPF do you use most often?

- | | When in Ireland | When abroad in a warm country |
|------------------|--------------------------|-------------------------------|
| SPF less than 15 | <input type="checkbox"/> | <input type="checkbox"/> |
| SPF 15-30 | <input type="checkbox"/> | <input type="checkbox"/> |
| SPF 31-50 | <input type="checkbox"/> | <input type="checkbox"/> |
| 50+ | <input type="checkbox"/> | <input type="checkbox"/> |
| Unsure | <input type="checkbox"/> | <input type="checkbox"/> |

Ask all

How do you decide when to take sun protection measures? (tick all that apply)

- | | | | |
|------------------------|--------------------------|-------------------------|--------------------------|
| Summer months | <input type="checkbox"/> | Wind conditions | <input type="checkbox"/> |
| Temperature | <input type="checkbox"/> | Humidity | <input type="checkbox"/> |
| Cloud cover | <input type="checkbox"/> | Wear sunscreen all year | <input type="checkbox"/> |
| UV index | <input type="checkbox"/> | | |
| Other (please specify) | | | |

Are you aware of the UV index?

- Yes
- No
- Don't know

If yes

Where do you access/look up the UV index

- | | | | |
|------------------------|--------------------------|----------------|--------------------------|
| I don't look it up | <input type="checkbox"/> | Newspaper | <input type="checkbox"/> |
| Radio | <input type="checkbox"/> | Television | <input type="checkbox"/> |
| Met Éireann | <input type="checkbox"/> | Smartphone App | <input type="checkbox"/> |
| Online | <input type="checkbox"/> | | |
| Other (please specify) | | | |

Do you have one or more children under 12 years?

- Yes
- No
- Prefer not to say

If yes ask next 2 questions

Thinking about your child/children specifically, which, if any, of the following methods of sun protection do you use? (tick all that apply)

- | | | | |
|------------------------------------|--------------------------|-----------------|--------------------------|
| Never go out in the sun | <input type="checkbox"/> | Long sleeves | <input type="checkbox"/> |
| Avoid the mid-day sun (11-3pm) | <input type="checkbox"/> | Long leg cover | <input type="checkbox"/> |
| Where practical, stay in the shade | <input type="checkbox"/> | Wear sunglasses | <input type="checkbox"/> |
| Sunscreen/Sun lotion | <input type="checkbox"/> | Wear a hat | <input type="checkbox"/> |
| No protective measures taken | <input type="checkbox"/> | | |
| Other (please specify) | | | |

If wears sunscreen ask

If you use sunscreen as a sun protection for your child/children, which sunscreen SPF do you use most often?

- | | When in Ireland | When abroad in a warm country |
|------------------|--------------------------|-------------------------------|
| SPF less than 15 | <input type="checkbox"/> | <input type="checkbox"/> |
| SPF 15-30 | <input type="checkbox"/> | <input type="checkbox"/> |
| SPF 31-50 | <input type="checkbox"/> | <input type="checkbox"/> |
| 50+ | <input type="checkbox"/> | <input type="checkbox"/> |
| Unsure | <input type="checkbox"/> | <input type="checkbox"/> |

Sunburn

How many times have you experienced sunburn?(red skin for hours after being in the sun)

	Never	1-2 times	3-4 times	5+ times
Last year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifetime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If yes ask next 3 questions

After which of the following did you experience sunburn? (tick all that apply)

- Outdoor work (>3 hours daily)
- Outdoor sport/recreation
- Sunbathing
- Travel abroad
- Sunbed/Solarium use
- None of the above
- Other (please specify)

Where on your body have you experienced sunburn most often? (tick all that apply)

- | | | |
|----------------------------------|--|--------------------------------|
| Face <input type="checkbox"/> | Neck <input type="checkbox"/> | Ears <input type="checkbox"/> |
| Nose <input type="checkbox"/> | Shoulders <input type="checkbox"/> | Hands <input type="checkbox"/> |
| Head <input type="checkbox"/> | Arms <input type="checkbox"/> | Feet <input type="checkbox"/> |
| Chest <input type="checkbox"/> | Legs <input type="checkbox"/> | Back <input type="checkbox"/> |
| Stomach <input type="checkbox"/> | Back of knees <input type="checkbox"/> | |

Where on your body have you experienced the worst sunburn?(tick all that apply)

- | | | |
|----------------------------------|--|--------------------------------|
| Face <input type="checkbox"/> | Neck <input type="checkbox"/> | Ears <input type="checkbox"/> |
| Nose <input type="checkbox"/> | Shoulders <input type="checkbox"/> | Hands <input type="checkbox"/> |
| Head <input type="checkbox"/> | Arms <input type="checkbox"/> | Feet <input type="checkbox"/> |
| Chest <input type="checkbox"/> | Legs <input type="checkbox"/> | Back <input type="checkbox"/> |
| Stomach <input type="checkbox"/> | Back of knees <input type="checkbox"/> | |

Ask all

Do you agree/disagree with the following statements?

	Strongly agree	Mildly agree	Neither agree or disagree	Mildly disagree	Strongly disagree
Protecting my skin from the sun will reduce my risk of skin cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A suntan makes me feel more healthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is worth getting a little bit sunburnt to get a tan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A suntan makes me feel more attractive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tanned skin is damaged skin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am happy with my natural skin colour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A suntan makes me feel more confident	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Risk awareness

Select any potential dangers of UV rays? (tick all that apply)

Eye damage	<input type="checkbox"/>	Dehydration	<input type="checkbox"/>
Skin cancer	<input type="checkbox"/>	Other cancers/growths	<input type="checkbox"/>
Skin soreness/Pain	<input type="checkbox"/>	Bad for you (general)	<input type="checkbox"/>
Rash/skin irritation	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Skin ageing	<input type="checkbox"/>	Skin damage	<input type="checkbox"/>
Other (please specify)			

Select any potential dangers of sunbeds? (tick all that apply)

Eye damage	<input type="checkbox"/>	Dehydration	<input type="checkbox"/>
Skin cancer	<input type="checkbox"/>	Sunburn	<input type="checkbox"/>
Skin soreness/Pain	<input type="checkbox"/>	Other cancers/growths	<input type="checkbox"/>
Rash/skin irritation	<input type="checkbox"/>	Bad for you (general)	<input type="checkbox"/>
Skin ageing	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Skin damage	<input type="checkbox"/>		
Other (please specify)			

Select the most common ways you have heard or read information about skin cancer prevention? (tick up to three)

- | | | | |
|-----------------------------------|--------------------------|-------------------------------------|--------------------------|
| Television | <input type="checkbox"/> | Magazines | <input type="checkbox"/> |
| Newspaper | <input type="checkbox"/> | Health professionals (GP/nurse etc) | <input type="checkbox"/> |
| Posters/leaflets in public places | <input type="checkbox"/> | Pharmacy | <input type="checkbox"/> |
| Workplace | <input type="checkbox"/> | School | <input type="checkbox"/> |
| Online | <input type="checkbox"/> | Family/friends | <input type="checkbox"/> |
| Social media | <input type="checkbox"/> | Radio | <input type="checkbox"/> |
| Other (please specify) | | | |

Where would you like to hear/receive information about skin cancer prevention? (tick all that apply)

- | | | | |
|-----------------------------------|--------------------------|-------------------------------------|--------------------------|
| Television | <input type="checkbox"/> | Magazines | <input type="checkbox"/> |
| Newspaper | <input type="checkbox"/> | Health professionals (GP/nurse etc) | <input type="checkbox"/> |
| Posters/leaflets in public places | <input type="checkbox"/> | Pharmacy | <input type="checkbox"/> |
| Workplace | <input type="checkbox"/> | School | <input type="checkbox"/> |
| Online | <input type="checkbox"/> | Radio | <input type="checkbox"/> |
| Social media | <input type="checkbox"/> | | |
| Other (please specify) | | | |

Any other comments:

Thank you for your time in completing this survey

Protect your skin



Know the UV index: When the UV index is 3 or above you need to protect your skin. In Ireland, the UV index is usually 3 or above from April to September, even when it is cloudy. Stay safe by limiting time in the sun when UV is strongest, typically between the hours of 11:00am-3:00pm



Slip on clothing: Cover skin as much as possible, wear long sleeves, collared t-shirts, clothes made from close-woven material that does not allow sunlight through.



Slop on broad-spectrum (UVA/UVB) sunscreen. Apply sunscreen with a sun protection factor (SPF) of at least 30+ for adults and 50+ for children, with high UVA protection, and water resistant. Reapply regularly. No sunscreen can provide 100% protection, it should be used alongside other protective measures such as clothing and shade.



Slap on a wide brimmed hat: Protect your face, ears and neck.



Seek shade: Sit in cover of trees to avoid direct sunlight. Use a sunshade on your buggy or pram. **Keep babies and children out of direct sunlight.**



Slide on sunglasses: Guard your eyes from harm by wearing sunglasses with UV protection.



**Do not deliberately try to get a suntan.
Avoid getting a sunburn. Never use a sunbed.**



Appendix 2

Supplementary Tables

Sun Protection Behaviours¹

Table 1: Sun Protection Behaviours in adults

	Overall (%)	Males (%)	Females (%)
Sunscreen	73	62	81
Avoid midday sun	27	24	29
Where practical, stay in the shade	36	32	39
Long sleeves	14	15	13
Long leg cover	13	15	12
Wearing sun glasses	63	59	67
Wear a hat	43	49	38
Never go out in the sun	5	6	5
No protective measures taken	9	9	8

Table 2: Sun protection measures for children

	Sun protection measures for children (%)
Sunscreen	86
Avoid midday sun	45
Where practical, stay in the shade	51
Long sleeves	26
Long leg cover	24
Wearing sun glasses	41
Wear a hat	73
Never go out in the sun	4
No protective measures taken	2

1. Results may add to more than 100% as more than one response could be chosen

Table 3: How do you decide to take sun protection measures

	Adults (%)
Summer months	68
Temperature	58
UV index	23
Cloud cover	10
Wear sunscreen all year	9
Wind conditions	7
Humidity	6

Use of Sunscreen

Table 4: Use of sunscreen at home and abroad

	Adults (%)	Males (%)	Females (%)
Sunbathing abroad in warm country	65	63	67
Outdoors when abroad, but not sunbathing	52	50	54
Sunbathing in this country	48	43	50
Outdoors in this country but not sunbathing	44	44	44
Wear sunscreen all year round	10	5	14

Table 5: Use of sunscreen at home and abroad for adults and adults with children

Sunscreen	Adults (%)		Adults with children (%)	
	When in Ireland	When abroad in a warm country	When in Ireland	When abroad in a warm country
SPF 15 or less	33	7	12	4
SPF 20	23	13	11	3
SPF 30	28	33	27	16
SPF 50+	16	47	50	77

Sunburn Incidence

Table 6: Sunburn incidence in the last 12 months and in a lifetime for adults

	Adults (%)	
	Last year	Lifetime
Never	50	8
1-2 times	40	18
3-4 times	8	25
5+ times	2	49

Table 7: Sunburn incidence in the last 12 months and in a lifetime for both males and females

	Males (%)		Females (%)	
	Last year	Lifetime	Last year	Lifetime
Never	51	10	50	7
1-2 times	37	18	41	19
3-4 times	9	24	7	24
5+ times	3	48	2	50

Table 8: Sunburn incidence by age group

	Never	1-2 times	3-4 times	5+ times	Total
18-24	79 (53%)	54 (36%)	13 (9%)	4 (2%)	150
25-34	109(40%)	127(46%)	30(11%)	9(3%)	275
35-44	154(53%)	112(38%)	22(8%)	3(1%)	291
45-54	115(51%)	90(40%)	12(5%)	7(3%)	224
55-64	48(65%)	22(30%)	4(5%)	0(0%)	74
65-74	22(69%)	9(28%)	1(3%)	0	32
75+	3(60%)	1(20%)	0	1(20%)	5

Table 9: Sunburn incidence after different activities in adults, males and females

	Adults (%)	Males (%)	Females (%)
Outdoor work (>3 hours daily)	27	34	21
Outdoor sport/recreation	31	36	28
Sunbathing	43	39	46
Sunbed/Solarium use	6	6	6
Travel abroad	47	43	50
Out and about	41	37	44

Table 10: Where on the body have you experienced sunburn most often?

	Adults (%)	
	Males	Females
Face	44	44
Nose	30	29
Head	17	7
Chest	13	25
Stomach	6	6
Neck	46	31
Shoulders	44	60
Arms	37	34
Legs	28	26
Back of knees	6	7
Ears	19	9
Hands	6	4
Feet	10	12
Back	29	29

Table 11: Where on body have you experienced the worst sunburn?

	Adults (%)	
	Males	Females
Face	18	16
Nose	9	8
Head	7	3
Chest	5	10
Stomach	2	2
Neck	26	12
Shoulders	30	42
Arms	13	13
Legs	15	15
Back of knees	4	4
Ears	7	4
Hands	2	1
Feet	5	3
Back	22	21

Attitudes on tanning

Table 12: Protecting my skin from the sun will reduce my risk of skin cancer

	Total %	Male	Female
Strongly agree	61.6	252 (56.4%)	389 (65.4%)
Agree	23.6	113 (25.3%)	133 (22.4%)
Somewhat agree	7.4	38 (8.5%)	40 (6.7%)
Neither agree nor disagree	4.7	31 (6.9%)	17 (2.9%)
Somewhat disagree	1.0	8 (1.8%)	3 (0.5%)
Disagree	.8	3 (0.7%)	5 (0.8%)
Strongly disagree	1	2 (0.5%)	8 (1.3%)
Total	100%	447	595

Table 13: A suntan makes me feel more healthy

	Total %	Male	Female
Strongly agree	14	60 (13.4%)	85 (14.3%)
Agree	25	111 (24.8%)	152 (25.5%)
Somewhat agree	25	109 (24.4%)	149 (25%)
Neither agree nor disagree	19	91 (20.4%)	100 (16.8%)
Somewhat disagree	7	33 (7.4%)	41 (6.9%)
Disagree	6	26 (5.8%)	39 (6.6%)
Strongly disagree	5	17 (3.8%)	29 (4.9%)
Total	100%	447	595

Table 14: It's worth getting a little sunburnt to get a tan

	Total %	Male	Female
Strongly agree	4.7	22 (4.9%)	27 (4.5%)
Agree	11.0	54 (12.1%)	62 (10.4%)
Somewhat agree	17.8	91 (20.4%)	94 (15.8%)
Neither agree nor disagree	16.3	87 (19.5%)	82 (13.8%)
Somewhat disagree	15.9	72 (16.1%)	95 (16%)
Disagree	17.9	68 (15.2%)	118 (19.8%)
Strongly disagree	16.5	53 (11.9%)	117 (19.7%)
Total	100%	447	595

Table 15: A suntan makes me feel more attractive

	Total %	Male	Female
Strongly agree	15.8	53 (11.9%)	111 (18.7%)
Agree	24.2	102 (22.8%)	150 (25.2%)
Somewhat agree	20.9	92 (20.6%)	127 (21.3%)
Neither agree nor disagree	20.4	113 (25.3%)	100 (16.8%)
Somewhat disagree	5.2	22 (4.9%)	32 (5.4%)
Disagree	7.0	29 (6.5%)	44 (7.4%)
Strongly disagree	6.5	36 (8.1%)	31 (5.2%)
Total	100%	447	595

Table 16: A suntan makes me feel more confident

	Total %	Male	Female
Strongly agree	15.4	46 (10.3%)	116 (19.5%)
Agree	20.9	91 (20.4%)	129 (21.7%)
Somewhat agree	19.3	91 (20.4%)	110 (18.5%)
Neither agree nor disagree	23.9	127 (28.4%)	121 (20.3%)
Somewhat disagree	6.5	31 (6.9%)	37 (6.2%)
Disagree	7.7	35 (7.8%)	45 (7.6%)
Strongly disagree	6.3	26 (5.8%)	37 (6.2%)
Total	100%	447	595

Table 17: Tanned skin is damaged skin

	Total %	Male	Female
Strongly agree	14.2	47 (10.5%)	101 (17%)
Agree	17.9	78 (17.5%)	110 (18.5%)
Somewhat agree	20.3	100 (22.4%)	113 (19%)
Neither agree nor disagree	24.4	114 (25.5%)	139 (23.4%)
Somewhat disagree	11.3	49 (11%)	69 (11.6%)
Disagree	7.7	35 (7.8%)	43 (7.2%)
Strongly disagree	4.3	24 (5.4%)	20 (3.4%)
Total	100%	447	595

Table 18: I am happy with my natural skin colour

	Total %	Male	Female
Strongly agree	23.7	106 (23.7%)	140 (23.5%)
Agree	27.1	132 (29.5%)	151 (25.4%)
Somewhat agree	22.0	95 (21.3%)	134 (22.5%)
Neither agree nor disagree	12.7	62 (13.9%)	71 (11.9%)
Somewhat disagree	8.6	29 (6.5%)	61 (10.3%)
Disagree	4.2	13 (2.9%)	31 (5.2%)
Strongly disagree	1.7	10 (2.2%)	7 (1.2%)
Total	100%	447	595

Risk Awareness

Table 19: Risk Awareness of UV rays

	Total %	Male	Female
Sunburn	76	72	80
Eye damage	62	57	65
Skin cancer	85	83	87
Skin soreness / Pain	53	49	56
Rash / Skin irritation	48	42	53
Skin ageing	64	55	70
Skin damage	66	60	71
Other cancers / Growths	45	38	50
Bad for you (in general)	34	31	36
Don't know	3	4	2

Table 20: Risk Awareness of Sunbeds

	Total %	Male	Female
Sunburn	51	45	56
Eye damage	45	41	48
Skin cancer	76	71	80
Skin soreness / Pain	47	40	53
Rash / Skin irritation	48	41	54
Skin ageing	55	46	63
Skin damage	60	50	67
Other cancers / Growths	46	38	52
Bad for you (in general)	54	46	60
Don't know	8	10	7

Information Source

Table 21: Where did you hear about skin cancer prevention

	Adults (%)
Television	49
Online	32
Health Professional (e.g. GP/Nurse)	25
Pharmacy	23
Family or Friends	20
Newspaper	16
Magazines	16
Radio	15
Social Media	15
School	7
Poster/leaflet in public place	5

Table 22: Where would you like to hear about skin cancer prevention

	Adults (%)
Television	51
Online	41
Health Professional (e.g. GP/Nurse)	42
Pharmacy	40
Family or Friends	18
Newspaper	27
Magazines	22
Radio	30
Social Media	30
School	29
Poster/leaflet in public place	29

National Cancer Control Programme,
An Clár Náisiúnta Rialaithe Ailse,
King's Inns House,
200 Parnell Street, Dublin 1
Website: www.hse.ie/cancer
T: 01 8287100

NCCP-COM-0081