



University of the  
Highlands and Islands  
Oilthigh na Gàidhealtachd  
agus nan Eilean

## Sheena Dryden

# Promoting sunscreen use and skin self-examination to improve early detection and prevention of skin cancer in adolescents

**Study funder:** Melanoma Focus

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**Study co-investigators:**

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- Richard Kyle, Edinburgh Napier University
- Richard Neal, University of Leeds

**Study collaborators:**

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Jack Brodie, patient advisor

Elsbeth Banks, patient advisor

# Presentation

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- Study rationale
- Intervention description
- Study aims
- Study methods
- Headline findings
- What next?



# Study rationale

- Increasing incidence of melanoma.
- 86% of these cases attributable to excessive sunlight exposure
- Skin self-examination can help early detection



# Intervention target group

One study found that the overall lifetime risk of developing skin cancer was nearly doubled (OR= 1.80 (95% CI, 1.42–2.28) with five blistering sunburns between the ages 15 and 20 years<sup>1</sup>

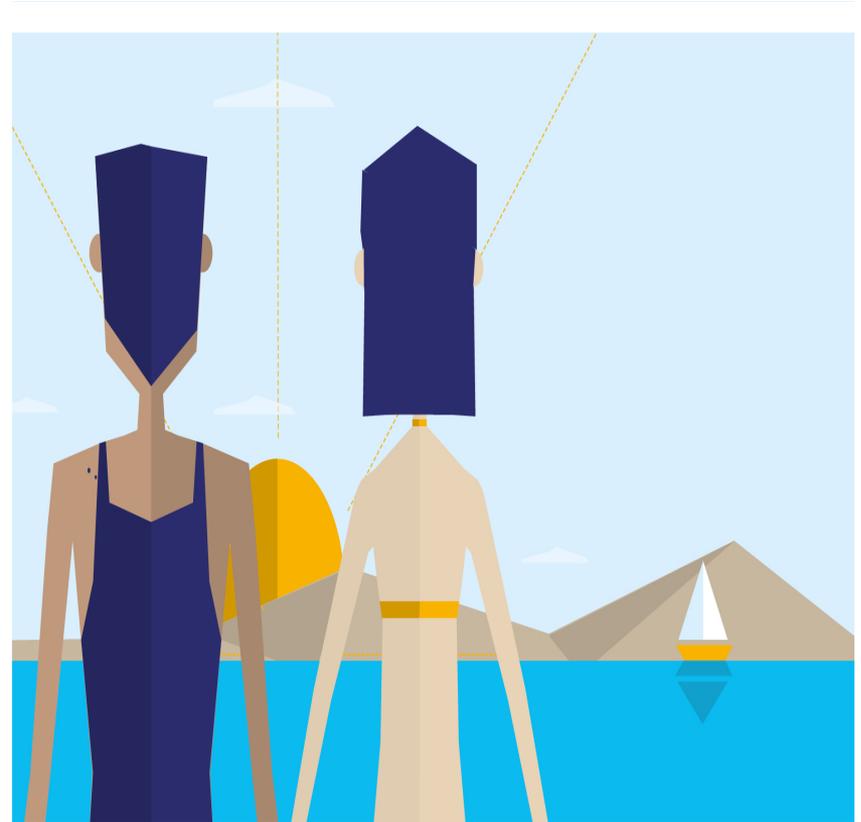


1. Wu, S., Han, J., Laden, F. & Qureshi, A.A. (2014). Long-term ultraviolet flux, other potential risk factors, and skin cancer risk: A cohort study. *Cancer Epidemiol Biomarkers Prev*, 23(6), 1-10



# Intervention delivery method

- 50 minute presentation delivered by specialist nurse in schools accompanied by a young person who was diagnosed with Melanoma
- Booklet with sun safe and skin self examination exercises to complete at home



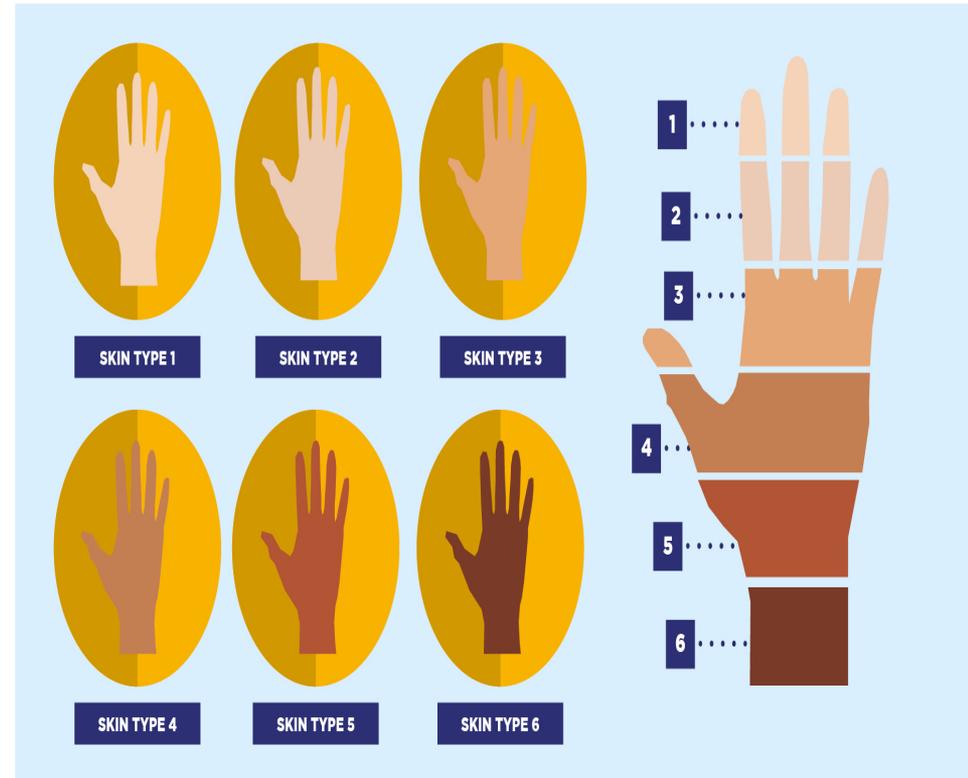
# Intervention theory

- **Social cognitions**

Risk perceptions and illness representations; beliefs about the causes of skin cancer; perceived ability, confidence and relevance to control for skin cancer risk at their age

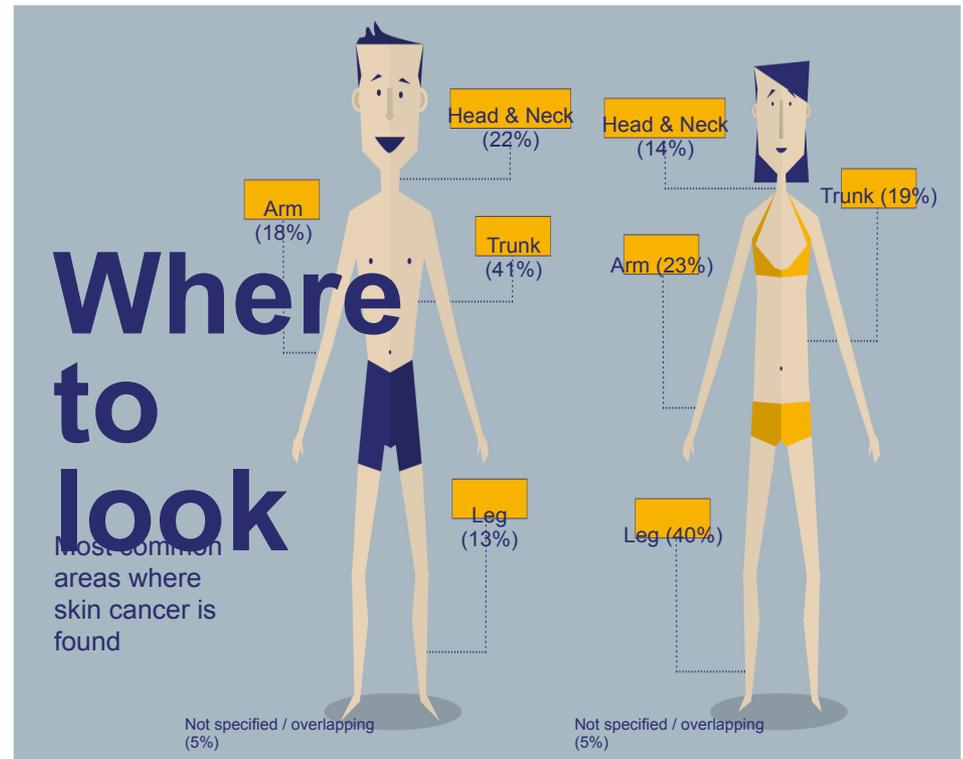
- **Intention – behaviour gap**

Behavioural intentions translated into action if plans are made



# Intervention topics

- What is melanoma?
- How do you get melanoma?
- What type of skin do you have?
- Protection from ultraviolet (UV) radiation
- How to apply sunscreen
- Doing skin self-examination



# Study aims and methods (1)

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**Is a trial of the intervention feasible?**

## **Methods**

- School recruitment rate
- Student consent rate
- Nos students receiving the intervention
- Nos students completing the homework
- Focus groups to explore opinions about the intervention



# Study aims and methods (2)

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**Does the intervention work as intended?**

## Methods

- Quasi-experimental study design
- Measures of variables pre- and post-intervention:
  - Sunscreen use intentions and planning
  - SSE behaviour, intention and planning
  - Illness perceptions
  - Talk about skin cancer



# Trial feasibility

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- 4 intervention group schools and 1 control group school
- No parent opted their child out of the study
- No child was unwilling to participate
- According to school records, there were 901 eligible students. 627 (69.6%) completed a questionnaire at baseline.
- Complete data were available for 79 (61%) and 376 (48%) adolescents in the control and intervention schools respectively (i.e., we could pair baseline and follow-up for 455 students for analysis of change in outcome measures).



# Trial feasibility

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- 639 (83%) of adolescents on the intervention group school roll received the presentation
- 148 of 435 adolescents completing the follow questionnaire (33.3%) reported doing the homework assignment to conduct SSE



# Importance of personal stories

*'I liked the, from like the younger guy who'd experienced it [skin cancer] himself, that was the best bit. I think that was the most impactful bit, because he was just like a normal guy, only a little older than us, I think that was like stuck in your memory most.'*





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# Opinions about sunscreen

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- *That stuff stinks though.*
- *I hate the texture of sun cream.*
- *And it sticks to your clothes as well.*
- *I hate how it just like lies on your skin, you just kind of feel a bit 'minging' lying there.*



# Sunscreen use intention increased

The number of adolescents intending to use sunscreen in schools that received the intervention increased significantly after the intervention (59.2% to 66.8%) but decreased in the control school (54.3% to 48.1%).



# SSE intention increased

The number of adolescents intending to examine their skin regularly in schools that received the intervention increased significantly after the intervention (16.5% to 30.1%) but did not increase in the school that did not have the intervention (8.8% to 8.6%).



# Talk about skin cancer increased

The number of adolescents talking about skin cancer in schools that received the intervention increased after the intervention (9.2% to 53.5%). Talk about skin cancer also increased in the school that did not have the intervention (8.7% to 14.6%) but not as much.



# Did it work as theorised?

**Sunscreen use** was associated with beliefs that skin cancer:

- would negatively affect their life
- would be painful

**SSE** was associated with beliefs that

- SSE was relevant to do at their age
- Skin cancer can be prevented

• Sunscreen use and SSE was associated with **planning**



# What next?

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- Increase the strength (dose) of the intervention
- (Text messaging)
- Use objective measures of sunburn



RESEARCH ARTICLE

Open Access



# Promoting sunscreen use and skin self-examination to improve early detection and prevent skin cancer: quasi-experimental trial of an adolescent psycho-educational intervention

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## Abstract

**Background:** Skin cancer rates are increasing. Interventions to increase adolescent sunscreen use and skin self-examination (SSE) are required.

**Methods:** Quasi-experimental design; 1 control and 4 intervention group schools in Scotland, UK. Participants were 15–16 year old students on the school register. The intervention was a theoretically-informed (Common-Sense Model and Health Action Process Approach) 50-min presentation, delivered by a skin cancer specialist nurse and young adult skin cancer survivor, to students in a classroom, supplemented by a home-based assignment. Outcome variables were sunscreen use intention, SSE intention/behaviour, planning, illness perceptions and skin cancer communication behaviour, measured 2 weeks pre- and 4 weeks post- intervention using self-completed pen and paper survey. School attendance records were used to record intervention up-take; students self-reported completion of the home-based assignment. Pearson's chi-square test, analysis of variance, and non-parametric Wilcoxon Signed Ranks Test were used to measure outcomes and associations between variables. Focus groups elicited students' ( $n = 29$ ) views on the intervention. Qualitative data were analysed thematically.

**Results:** Five of 37 invited schools participated. 639 (81%) students in intervention schools received the intervention; 33.8% completed the home-based assignment. 627 (69.6%) of students on the school register in intervention and control schools completed a questionnaire at baseline; data for 455 (72.6%) students were available at baseline and follow-up. Focus groups identified four themes – personal experiences of skin cancer, distaste for sunscreen, relevance of SSE in adolescence, and skin cancer conversations. Statistically significant ( $p < 0.05$ ) changes were observed for sunscreen use, SSE, planning, and talk about skin cancer in intervention schools but not the control. Significant associations were found between sunscreen use, planning and 2 illness perceptions (identity and consequence) and between SSE, planning and 3 illness perceptions (timeline, causes, control).

**Conclusions:** It is feasible to promote sunscreen use and SSE in the context of an adolescent school-based psychoeducation intervention. Further research is required to improve study uptake, intervention adherence and effectiveness.

**Trial registration:** [ISRCTN1141528](https://www.isrctn.com/1141528)

**Keywords:** Skin cancer, Skin self-examination, Adolescence

