


BMJ Open Qualitative exploration of melanoma awareness in black people in the USA

Isabella de Vere Hunt ^{1,2} Sidney Owen,¹ Adaure Amuzie,³ Vanessa Nava,¹ Anna Tomz,¹ Leandra Barnes,⁴ June K Robinson,⁵ Jenna Lester,⁶ Susan Swetter,⁴ Eleni Linos^{1,4}

To cite: de Vere Hunt I, Owen S, Amuzie A, *et al.* Qualitative exploration of melanoma awareness in black people in the USA. *BMJ Open* 2023;**13**:e066967. doi:10.1136/bmjopen-2022-066967

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-066967>).

Received 29 July 2022

Accepted 20 December 2022



© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

¹Program for Clinical Research and Technology, Stanford University School of Medicine, Stanford, California, USA

²Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

³Indiana University, Bloomington, Indiana, USA

⁴Department of Dermatology, Stanford University Department of Medicine, Stanford, California, USA

⁵Northwestern University, Evanston, Illinois, USA

⁶Department of Dermatology, University of California, San Francisco, California, USA

Correspondence to

Dr Eleni Linos;
linos@stanford.edu

ABSTRACT

Objective Although black patients are more likely to have advanced melanomas at diagnosis, with a 5-year survival rate among black patients of 70% compared with 92% for white patients, black people are generally not the focus of melanoma public health campaigns. We sought to explore awareness and perspectives of melanoma among black people to inform the development of relevant and valued public health messages to promote early detection of melanoma.

Design Inductive thematic analysis of in-depth semistructured interviews.

Setting Interviews were conducted with participants via video software or telephone in the USA.

Participants Participants were adults from the USA who self-identified as African American or black. Recruitment flyers were posted around the San Francisco Bay Area and shared on our team Facebook page, with further participants identified through snowball sampling.

Results We interviewed 26 participants from 10 different states. Overall, 12 were men and 14 were women, with a mean age of 43 years (range 18–85). We identified five key themes regarding melanoma awareness in black people: (1) lack of understanding of term ‘melanoma’ and features of skin cancer; (2) do not feel at risk of melanoma skin cancer; (3) surprise that melanoma can occur on palms, soles and nails; (4) skin cancer awareness messages do not apply to or include black people; and (5) importance of relationship with healthcare and habits of utilisation.

Conclusions Analysis of these in-depth semistructured interviews illuminate the pressing need for health information on melanoma designed specifically for black people. We highlight two key points for focused public health messaging: (1) melanoma skin cancer does occur in black people and (2) high-risk sites for melanoma in black people include the palms, soles and nail beds. Therefore, public health messages for black people and their healthcare providers may involve productively checking these body surface areas.

INTRODUCTION

Melanoma, the deadliest form of skin cancer, is most common in white people, with an age-adjusted incidence of 33.9 per 100 000, compared with 1.0 per 100 000 black people.¹ Yet, people with skin of colour are more likely to have advanced melanomas at diagnosis, with lower 5-year survival rates among black

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Our study’s qualitative methodology illuminates that health information regarding melanoma provided to black people in the USA is insufficient and highlights the misconceptions surrounding sun exposure and melanoma risk.
- ⇒ Verbatim transcription of these in-depth qualitative interviews enables direct utilisation of members of the black community’s own words to inform the development of tailored melanoma awareness messaging.
- ⇒ Our multidisciplinary team enabled a rigorous analysis incorporating a diverse range of perspectives.
- ⇒ There is a potential selection bias within our study since those who agreed to participate are more likely to be interested in skin conditions; our varied recruitment strategy outside of a clinical setting helped to mitigate this.

(70%) compared with white (92%) patients.¹ The reason for this disparity is multifactorial, with contributing factors including lower melanoma awareness²; lower index of suspicion by physicians³; and limited access to medical care.⁴ In a recent cohort study of 187 487 patients diagnosed with cutaneous melanoma in the USA between 2010 and 2018, melanoma incidence rates were found to have stabilised after nearly a century of increase.⁵ But concerning, the incidence of the thickest melanomas continued to increase, and individuals from racial and ethnic minority groups were more likely to be diagnosed with thicker tumours. Yet despite having the worst survival outcomes and the continued increase in incidence of the thickest melanomas, black people are generally excluded from melanoma public health campaigns: in a recent study of skin cancer prevention campaigns on social media, all 62 skin cancers depicted were on lighter Fitzpatrick I or II skin.⁶ Current melanoma public health messaging also frequently fails to accurately depict where melanoma is most likely to occur in black patients: although the majority

of melanoma at a population level occurs on sun-exposed sites, the most common subtype of melanoma in black people is acral lentiginous melanoma, which occurs on the palms, soles and nail units.⁷

There is limited existing qualitative work exploring skin cancer knowledge and beliefs in black people to guide the development of tailored messaging. We sought to explore awareness of melanoma among black people using in-depth qualitative interviewing, which enables the collection of rich data that cannot be captured in surveys or observational work, to inform the development of relevant and valued public health messages to promote melanoma early detection.

METHODS

Author SO, a medical student researcher who identifies as black, conducted 26 semistructured video (Zoom software) or telephone interviews during July–August 2021 with individuals self-identifying as African American or black. Individuals who did not self-identify as African American or black were excluded. Our interview guide (see online supplemental appendix 1) focused on: (1) the meaning of ‘melanoma’ to the participant; (2) any existing self-surveillance behaviours; (3) experience of navigating dermatology; (4) current exposure to public health messaging; and (5) gathering feedback on draft public health messages (see online supplemental appendix 2). Recruitment flyers were posted around the San Francisco Bay Area and shared on our team Facebook page (<https://www.facebook.com/stanfordpcrt/>), with further participants identified through snowball sampling methods (which depends on existing study subjects recruiting additional study participants from among their social networks), while striving for maximum variation in terms of geographic location across the USA, age and level of education completed (see online supplemental appendix 3 for recruitment flyer).^{8,9} Participants were reimbursed US\$75 for their time participating in an interview. Interviews were initially conducted over video, but we subsequently modified procedures to include the option of completing the interview by telephone to enable participation from those not able to use video software. Interviews were audio-recorded, transcribed verbatim using a professional transcription service and deidentified.

Authors IdVH and SO undertook an inductive thematic analysis of the full interview transcripts, using a mind-mapping and constant comparison approach, in which key themes emerged as links were made across the codes and categories subsumed or expanded using a constant comparison approach.^{10–12} Thematic analysis is a key method for identifying, analysing and reporting patterns within qualitative data.¹³ The qualitative analysis software NVIVO V.12 was used to manage and code the interview data and there was no preidentified theoretical framework; all codes were derived directly from the data. IdVH and SO first completed data immersion by reading the full

transcripts. IdVH subsequently coded the first two transcripts and developed a draft coding manual, which was then reviewed by SO and tested with coding of a further five transcripts. This coding manual was subsequently applied to the remaining transcripts by IdVH and SO. New codes were created throughout as required, which IdVH and SO discussed and iteratively refined throughout the coding process. Once coding was complete, the analysis team (all authors) reviewed and discussed the proposed themes, and triangulation within our team provided different perspectives to expand our understanding of the data, with negative cases actively sought.¹⁴ Data saturation of the themes was achieved within the first 16 interviews, which occurs when no new concepts are elicited from additional data collection, as demonstrated by increasing overlap and redundancy with issues raised by participants.^{9,15} We interviewed a total of 26 participants to confirm data saturation applied across a varied sample in terms of geographic location, age and level of education completed. The Standards for Reporting Qualitative Research guideline was followed in the write-up process.¹⁶

Patient and public involvement statement

Kathy Royal, a Community Research Liaison at Suny Upstate Medical University Hospital, New York, advised the team on recruitment strategy including implementation of accessibility considerations to facilitate participation from individuals not able to use Zoom software or sign consent forms electronically. SO tested the interview schedule with a community member not included as a study participant, who advised on edits to the questions to ensure they would be easily understood by a non-medical audience. Our dissemination plans include the development of a community-facing animated video to describe our key messages to the black community, which we plan to make freely available for use by dermatologists and primary care providers across the USA. We will also make the video publicly available on our team website (<https://pcrt.stanford.edu/>).

RESULTS

Of the 26 participants, 12 were men and 14 were women, with a mean age of 43 years (range 18–85). See [table 1](#) for further demographic information. Interviews lasted an average of 30 min (SD 8.3, range 20–60 min).

The following five key themes were extracted regarding melanoma awareness in black people: (1) lack of understanding of term ‘melanoma’ and features of skin cancer; (2) do not feel at risk of melanoma skin cancer; (3) surprise that melanoma can occur on palms, soles and nails; (4) skin cancer awareness messages do not apply to or include black people; and (5) importance of relationship with healthcare and habits of utilisation. See [table 2](#) for categorisation of themes and illustrative quotations.

Theme 1: lack of understanding of term ‘melanoma’ and features of skin cancer

The majority of participants did not know melanoma was a type of cancer, with responses including ‘that’s a

Table 1 Participant demographics

| Demographic | Frequency |
|--------------------------------------|-----------|
| Sex | |
| Male | 12 |
| Female | 14 |
| Age (years) | |
| 18–25 | 4 |
| 26–35 | 7 |
| 36–45 | 3 |
| 46–55 | 4 |
| 56–65 | 3 |
| 65–75 | 3 |
| >75 | 2 |
| Self-identified race/ethnicity | |
| African American | 5 |
| Black | 16 |
| Black/African American | 2 |
| Black/Mexican | 1 |
| Black/Southeast Asian | 1 |
| Black/Vietnamese | 1 |
| Highest level of education completed | |
| Less than high school degree | 1 |
| High school graduate | 4 |
| Some college but no degree | 1 |
| Associate degree in college | 1 |
| Bachelor's degree in college | 11 |
| Master's degree | 7 |
| Doctoral degree | 1 |
| State | |
| California | 12 |
| Connecticut | 1 |
| Indiana | 1 |
| Kansas | 1 |
| Maryland | 2 |
| North Dakota | 1 |
| New York | 3 |
| South Carolina | 1 |
| Tennessee | 1 |
| Texas | 3 |

nice science term' (Participant 1, female in her 20s) and 'melanoma does not register' (Participant 13, male in his 20s). Participants' responses to the question: 'What does the word melanoma mean to you?', which are presented in [box 1](#), exemplify the lack of understanding of the term melanoma across our study population.

When asked how one might distinguish melanoma skin cancer from a harmless mole/skin mark, participant responses included, 'I've never seen melanoma, so I couldn't tell you how that looks' (Participant 6, female in her 50s). Troublesome symptoms, such as pain or itch,

were cited as a reason to seek medical care for a lesion on the skin: 'I think the biggest factor is if I touch it, is it extremely itchy, is it painful... I think that determines my reaction' (Participant 13, male in his 20s).

Theme 2: do not feel at risk of melanoma skin cancer

Most participants did not feel at risk of developing melanoma skin cancer, with responses such 'I've always heard that black people can't get skin cancer' (Participant 3, male in his 20s) and 'I definitely did not think that black people could get skin cancer... because we don't get sunburned' (Participant 11, female in her 20s). Indeed, misconceptions around the role of sun exposure were pervasive throughout the interviews. Many explained that they did not feel at risk because they had not seen or heard of skin cancer affecting members of the black community: 'I've never known anyone black with skin cancer... I've never heard of it in our community' (Participant 9, female in her 30s). Many participants cited more specifically the fact that none of their family members had experienced skin cancer, or cancer at all, and therefore did not feel they were at risk: 'nobody in my family has ever perished from cancer...none of my siblings has it or had cancer, or no major health issues' (Participant 16, male in his 50s). Others felt reassured by their own good health: 'I've never had, you know, any issues with cancer, especially not skin cancer, or any types of cancer. I'm pretty healthy' (Participant 24, female in her 40s). Another participant explained how 'it's more so just culturally black people don't look into stuff like that, we're just like we're fine' (Participant 1, female in her 20s).

Theme 3: surprise that melanoma can occur on palms, soles and nails

Many participants were 'shocked' to learn that the palms, soles and nail beds were the most common sites for melanoma in black people, with one participant answering, 'the last place I would look is the bottom of your feet and your palms and your fingernails and toenails' (Participant 22, female in her 80s). Many participants asked what melanoma on those areas would look like or how they could identify it, and one individual explained, 'I did not know as far as the palms and nails of what it would look like, 'cause all the pictures of melanoma I've seen have generally been on the scalp, the facial area, maybe the arms, but never those locations' (Participant 14, male in his 60s). Misconceptions about the causative role of sun exposure were key to some participants' surprise: 'I would just wonder how it would happen 'cause usually those are places that are like covered up' (Participant 7, female in her 20s).

Theme 4: skin cancer awareness messages do not apply to or include black people

Many participants did not feel that skin cancer messages they had seen were relevant to them, with one participant explaining, 'I never thought that it pertained to me because it would always be like, you know, white people'

Table 2 Summary of themes with illustrative quotations

| Theme | Illustrative quotation |
|---|--|
| 1. Lack of understanding of term 'melanoma' and features of skin cancer | <ul style="list-style-type: none"> ▶ Melanoma. Oh that's a nice science term, something. I don't know. (Participant 1, female in her 20s) ▶ Melanoma does not register. (Participant 13, male in his 20s) ▶ I've never seen melanoma, so I couldn't tell you how that looks. (Participant 6, female in her 50s) ▶ I think the biggest factor is if I touch it, is it extremely itchy, is it painful, or you know, what is it, but I think that determines my reaction. (Participant 13, male in his 20s) |
| 2. Do not feel at risk of melanoma skin cancer | <ul style="list-style-type: none"> ▶ I definitely did not think that black people could get skin cancer. I was like oh, like we're... because we don't get sunburned. (Participant 11, female in her 20s) ▶ I've never known anyone black with skin cancer... I've never heard of it in our community. (Participant 9, female in her 30s) ▶ I don't think you hear too many stories of skin cancer in black people – at least I haven't. (Participant 2, female in her 30s) ▶ I've never had any issues with cancer, especially not skin cancer, or any types of cancer. I'm pretty healthy. (Participant 24, female in her 40s) ▶ It's more so just culturally black people don't look into stuff like that, we're just like we're fine. (Participant 1, female in her 20s) |
| 3. Surprise that melanoma can occur on palms, soles and nails | <ul style="list-style-type: none"> ▶ I would just wonder like how it would happen because like usually those are places that are like covered up. (Participant 7, female in her 20s) ▶ I would think you're smoking dope ... How come I haven't heard of that before? (Participant 10, male in his 60s) ▶ I did not know as far as the palms and nails of what it would look like, because all the pictures of melanoma I've seen have generally been on the scalp, the facial area, maybe the arms, but never those locations and what it would look like. (Participant 14, male in his 60s) ▶ The last place I would look is the bottom of your feet and your palms and your fingernails and toenails. (Participant 22, female in her 80s) |
| 4. Skin cancer awareness messages do not apply to or include black people | <ul style="list-style-type: none"> ▶ I never thought that it pertained to me because it would always be like, you know, white people. (Participant 3, male in his 20s) ▶ I think they would have to represent me in the messaging, like it would have to be a black person on there, otherwise I wouldn't be able to really connect because it's not something I hear a lot about in terms of...African-Americans. (Participant 6, female in her 50s) ▶ Like if you google something, if you're concerned, I usually find that all of the google images are not... they don't have any black people. (Participant 8, female in her 20s) ▶ If I can see like on black skin what melanoma looks like, I think that'd be very powerful. (Participant 3, male in his 20s) |
| 5. Importance of relationship with healthcare and habits of utilisation | <ul style="list-style-type: none"> ▶ I try not to go to the doctor too much...typically I would wait until it became more of an issue. (Participant 8, female in her 20s) ▶ If it doesn't hurt, I won't go to the doctor. I mean it would have to be really painful or like really gross for me to go. (Participant 20, male in his 60s) ▶ If it's just like oh there's a little patch on my skin, we tend to try to treat stuff at home...because we don't want that medical bill. (Participant 9, female in her 30s) ▶ I don't have a strong relationship with my primary care provider, and I don't have an established relationship with a dermatologist to be like hey, can I come in and get this checked out. (Participant 13, male in their 20s) ▶ I felt that my Caucasian dermatologists didn't understand, but my dermatologists of color, you know, seemed to understand. (Participant 19, female in her 40s) |

(Participant 3, male in his 20s). Television, internet, social media and sunscreen marketing products were cited as examples where participants had seen public health messages related to skin cancer. Several participants explained that it would be important for them to see skin cancer awareness messages that featured black communities in order for the messages to feel relevant to them: 'I think they would have to represent me in the messaging, like it would have to be a black person on there, otherwise I wouldn't be able to really connect' (Participant 6, female in her 50s). Others felt that they had not seen skin cancer awareness messaging at all:

'the closest thing I've seen is like skin care products, but messaging, no' (Participant 21, male in his late teens). Several participants discussed the issue of 'lack of representation' of skin of colour when they had searched for information online: 'like if you google something, if you're concerned, I usually find that all of the google images... they don't have any black people' (Participant 8, female in her 20s). The importance of having readily available images of melanoma depicting melanoma on black skin was expressed: 'If I can see like on black skin what melanoma looks like, I think that'd be very powerful' (Participant 3, male in his 20s).

Box 1 All participants' responses to the question: 'What does the word melanoma mean to you?'

Melanoma. Ohoh that's a nice science term, something. I don't know. (Participant 1, female in her 20s)

Pretty much some type of abnormality in the skin, you know... it can be malignant or not or, you know, just I guess that's what I think of melanoma. (Participant 2, female in her 30s)

Melanoma. Oh, I know it can be a type of skin cancer, but that's pretty much all I know. (Participant 3, male in his 20s)

Melanoma? Something related to the melanin in your skin – that's what I would... that's my first thought in what that would be. I don't think that I've actually heard that wording used often, but just based on the context of it I think it would be like some type of like skin type or skin tone or melanin in your skin. (Participant 4, female in her 20s)

Melanoma. When I hear that word I kind of think of melanin, some type of colorcolour in your skin. I don't know where the -noma comes from, but the first thing I go to is, coloringcolouring of the skin and darker hue. (Participant 5, male in his 20s)

Well melanin means... it's the ability of our skin to produce colorcolour I believe that is. -Noma... I'm not sure what -noma means. (Participant 6, female in her 50s)

I feel like it's some type of condition, but if someone were to ask me to give the definition I would not know. (Participant 7, female in her 20s)

Yeah. I'm really not sure... I would think of melanin when I hear that word... That's all I can say now. (Participant 8, female in her 20s)

When I hear melanoma I think skin cancer. (Participant 9, female in her 30s)

I think it's some kind of cancer, but that's all. I don't know if it's worse or better. It's an imprecise word to me. (Participant 10, male in his 60s)

It's a skin cancer. [Response from interviewer: 'That's absolutely right.'] 'Oh, you're kidding. (Participant 11, female in her 20s)

When I hear melanoma I think either like a... I think melanin and then the -oma, like my mom had lymphoma, so I think it has something to do with a skin cancer or... yeah. (Participant 12, female in her 30s)

Melanoma. I feel like I'm on Jeopardy! [(laughter)] Melanoma does not register. (Participant 13, male in his 20s)

Melanoma to me is a type of skin cancer that's not typically found in African-Americans, mostly the Caucasian race. (Participant 14, male in his 60s)

Melanoma means that you have skin cancer. (Participant 15, male in his 70s)

Melanoma, when I think about it, I think it's the skin pigmentation. (Participant 16, male in his 50s)

I know a person that had melanoma on his arms. It was a skin cancer is what he told me. (Participant 17, male in his 70s)

Usually, I mean you associate it with some type of cancer, you know. (Participant 18, female in her 30s)

Melanoma to me is different skin tones, pigmentation. (Participant 19, female in her 40s)

I've heard the word before, but I've never heard the definition of it. (Participant 20, male in his 60s)

I don't know. (Participant 21, male in his late teens)

Type of skin or colorcolour. (Participant 22, female in her 80s)

Melanoma is a skin condition that affects... it's like... is it... correct me if I'm wrong or I don't know, maybe like this... it's like sun... or not sun damage, but like it may be similar to sun damage and it like could appear as spots on your skin. Is that correct? I don't know. (Participant 23, male in his 20s)

I have no clue. (Participant 24, female in her 40s)

Continued

Box 1 Continued

At first I really didn't know, but it means some type of cancer. (Participant 25, female in her 30s)

Might be... I think... type of cancer. (Participant 26, male in his 50s)

Theme 5: importance of relationship with healthcare and habits of utilisation

Participants described a range of relationships with healthcare, which influenced how they might respond to a concerning skin lesion. One participant described how 'if it doesn't hurt, I won't go to the doctor... it would have to be really painful or really gross for me to go' (Participant 20, male in his 60s). Another participant described how 'Google' would be his 'immediate reaction' to anything of concern, because 'I don't have a strong relationship with my primary care provider, and I don't have an established relationship with a dermatologist to be like hey, you know, can I come in and get this checked out' (Participant 13, male in his 20s). Healthcare costs were noted as a barrier: 'if it's just like oh there's a little patch on my skin... we don't want that medical bill' (Participant 9, female in her 30s). However, others felt that they would seek care immediately for any concerning lesions: 'for 32 years I've had diabetes, so I'm very conscious of my health and I will go to the doctor if I see or feel something's not right' (Participant 17, male in his 70s). Several participants described having had better experiences with African American dermatologists or primary care physicians, for example, when explaining his experience of pseudofolliculitis, one participant explained, 'I tried to go to dermatologists that were not African American and they did not understand the issue... I got my best results when I went to an African American dermatologist that seemed to have understood this black skin' (Participant 14, male in his 60s).

DISCUSSION

Our analysis revealed strikingly low awareness of melanoma among participants, with the term 'melanoma' meaningless to many, echoing previous findings of low melanoma awareness from 2011 focus groups among Asian, African-American and Hispanic participants.¹⁷ Recent evidence suggests stabilisation of overall melanoma incidence in the USA, but an increase in thicker melanomas which are more common among black patients,⁵ highlighting the importance of exploring current understanding of melanoma among the black community to guide tailored public health messaging. Our finding of low awareness of the potential to develop melanoma is a crucial barrier to potential interventions promoting early detection of melanoma: the value-expectancy theory the health belief model¹⁷ posits that engaging in a particular public health behaviour is determined by perceived susceptibility to the health threat and perceived costs versus benefits of the recommended behaviour. Thus, awareness of risk is a key



first step in empowering individuals to seek care for potentially concerning lesions. Further, most participants interviewed in our study did not know how they would identify melanoma, which is problematic for early detection, since an estimated 40%–55% of melanomas are self-detected by patients, and the promotion of skin self-examination practices may increase detection of early-stage disease.¹⁸

Confusion over the role of sun exposure was pervasive, with many participants believing they were not at risk of getting melanoma skin cancer because of their darker skin colour. While white people predominantly develop superficial spreading melanoma on intermittently sun-exposed sites and the lentigo maligna subtype on chronically sun-exposed skin, the most common subtype of melanoma in black people is acral, occurring on the palms, soles and nail beds.⁷ The tendency for melanoma to develop in sun-protected areas in people with skin of colour supports evidence that UV radiation plays an insignificant role for these malignancies, and renders conventional public health messages on sun exposure and focus on risk of sunburn irrelevant.¹⁹ The fact melanoma could occur on non-sun-exposed sites was surprising to many participants, and this salient feature of melanoma in black people is seldom addressed in skin cancer awareness programmes; only 2 of 62 skin cancers depicted were on non-sun-exposed sites in a recent study of skin cancer prevention campaigns.⁶

The majority of participants did not feel that public health information on skin cancer applied to them, due to lack of representation of diverse skin types. Previous research suggests that melanoma educational material referencing skin of colour has a larger impact on attitudes toward melanoma risk in people of colour.²⁰ Participants asked the interviewer to see images depicting melanoma on black skin, and recalled frustrations of only finding images depicting white skin when ‘googling’ skin concerns. Despite the fact that many skin conditions appear differently in patients with darker skin, 47% of dermatologists reported insufficient exposure to patients with darker skin tones during their training, which may reduce quality of care if physicians are less able to accurately diagnose skin diseases in people of colour.²¹ Further, the majority of images of melanoma on skin of colour show late-stage melanomas, limiting their use in early detection efforts. The importance of building trust and easier access to healthcare providers to enable melanoma early detection was also highlighted.

Going forward, we call for provision of health information regarding melanoma for black people which is specifically tailored to reflect the nuance and specifics about the presentation of melanoma in black patients. This should not overestimate risk or promote fear, but should be clear, factual and informative. Specific content designed for black people should: emphasise the specific body locations that melanoma most commonly presents in black people, including the palms, soles and nails; describe how melanoma typically presents in black people, for example, a new brown streak under a nail which is not

from an accident or bruise, or a changing or growing dark spot on the palm or sole that persists; explain the need to consult with their primary care provider if a patient notices a concerning lesion; and include visual representation of diverse skin types to increase message salience for people with skin of colour.

Strengths and limitations

Our study’s qualitative methodology illuminates the extent to which black people in the USA receive insufficient health information regarding melanoma, and highlights the misconceptions surrounding sun exposure and melanoma risk. We sampled a range of individuals identifying as black or African American from across the USA of different ages and educational backgrounds to provide a broad perspective, reaching data saturation for our themes. Our multidisciplinary team, consisting of an experienced, qualitative researcher (IdVH); two medical student researchers who received training and close mentorship in qualitative methods (SO and AA); two research assistants with experience in qualitative research methods and healthcare disparities research (VN and AT); a dermatology resident (LB); founder of a university medical centre skin of colour clinic (JL); director of an academic melanoma programme (SS); and two senior academic dermatologists with extensive qualitative research expertise (EL and JKR), enabled a rigorous analysis with a diverse range of perspectives.

There is a potential selection bias within our study since those who agreed to participate are more likely to be interested in skin conditions (with our recruitment flyer entitled: ‘help us learn about skin cancer awareness in black communities’; see online supplemental appendix 3.) However, our varied recruitment strategy outside of a clinical setting helped to mitigate this. Further, our population were highly educated: 77% of our participants were educated to college degree level or higher (compared with estimated 25% in black population in the USA).²² However, we did not identify an influence of educational level on melanoma awareness, with melanoma awareness consistently low throughout our sample.

CONCLUSIONS

Analysis of these in-depth semistructured interviews illuminates the pressing need for tailored melanoma public health information designed specifically for black people. The fact the term ‘melanoma’ was unfamiliar to many participants has implications for the choice of language in patient-centred health information, and further suggests we should consider using the descriptive term ‘melanoma skin cancer’. We delineate two key points for focused public health messaging: (1) melanoma skin cancer can and does occur in black people; (2) high-risk sites for melanoma skin cancer in black people include the palms, soles and nail beds. In addition, increased representation of diverse skin types is needed in both public health materials and medical training to mitigate healthcare

disparities arising from under-representation of skin of colour. Further research is needed to evaluate the effectiveness of tailored public health messaging aiming to promote melanoma awareness among the black community, with an exploration of barriers and facilitators to improving skin cancer awareness.

Acknowledgements We would like to thank Kathy Royal, Community Research Liaison at SUNY Upstate Medical University Hospital, for her guidance and support in facilitating participation from individuals not able to use Zoom software or sign consent forms electronically.

Contributors IdVH conceptualised and designed the study under the mentorship of EL, SS, JKR and JL. SO carried out all interviews with participants under guidance of IdVH. IdVH and SO led the thematic analysis, with all coauthors part of the analysis team to refine the initial analysis (IdVH, SO, AA, VN, AT, LB, JKR, JL, SS and EL). IdVH drafted the report, with all coauthors contributing to multiple critical revisions (SO, AA, VN, AT, LB, JKR, JL, SS and EL). EL is the guarantor and corresponding author who is responsible for overall content.

Funding This publication is based on research supported by the Melanoma Research Alliance Award (<https://doi.org/10.48050/pc.gr.147041>). IdVH is supported by the National Institute of Health Research (Academic Clinical Fellowship). EL is supported by the National Institutes of Health (grant K24AR075060). This material is the result of work supported with resources and the use of facilities at the Veterans Affairs Palo Alto Health Care System, Palo Alto, California.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants. The Stanford Institutional Review Board approved this study (IRB #50032). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. An extensive set of illustrative quotations is available in tables 2 and 3, and are interview guide, recruitment flyer and sample public health materials are available in the appendices. The Program for Clinical Research and Technology, Stanford University, holds the copyright for the full anonymised interviews and may grant data sharing permission upon request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iD

Isabella de Vere Hunt <http://orcid.org/0000-0002-4238-0924>

REFERENCES

- 1 SEER. Melanoma of the Skin - Cancer Stat Facts. Available: <https://seer.cancer.gov/statfacts/html/melan.html>
- 2 Kim M, Boone SL, West DP, *et al*. Perception of skin cancer risk by those with ethnic skin. *Arch Dermatol* 2009;145:207–8.
- 3 Battie C, Gohara M, Verschoore M, *et al*. Skin cancer in skin of color: an update on current facts, trends, and misconceptions. *J Drugs Dermatol* 2013;12:194–8.
- 4 Agbai ON, Buster K, Sanchez M, *et al*. Skin cancer and photoprotection in people of color: a review and recommendations for physicians and the public. *J Am Acad Dermatol* 2014;70:748–62.
- 5 Chen ML, de Vere Hunt IJ, John EM, *et al*. Differences in Thickness-Specific incidence and factors associated with cutaneous melanoma in the US from 2010 to 2018. *JAMA Oncol* 2022;8:755–9.
- 6 Grewal SK, Reddy V, Tomz A, *et al*. Skin cancer in skin of color: a cross-sectional study investigating gaps in prevention campaigns on social media. *J Am Acad Dermatol* 2021;85:1311–3.
- 7 Mitchell TC, Karakousis G, Schuchter L. 66 - Melanoma. In: Niederhuber JE, Armitage JO, Kastan MB, *et al*, eds. *Abeloff's Clinical Oncology*. Sixth Edition. Philadelphia: Elsevier, 2020: p. 1034–1051. <http://www.sciencedirect.com/science/article/pii/B9780323476744000669>
- 8 Palinkas LA, Horwitz SM, Green CA, *et al*. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health* 2015;42:533–44.
- 9 Bazen A, Barg FK, Takeshita J. Research techniques made simple: an introduction to qualitative research. *J Invest Dermatol* 2021;141:241–7.
- 10 Ryan S, Salisbury H. 'You know what boys are like': pre-diagnosis experiences of parents of children with autism spectrum conditions. *Br J Gen Pract* 2012;62:e378–83.
- 11 Ziebland S, McPherson A. Making sense of qualitative data analysis: an introduction with illustrations from DIPEX (personal experiences of health and illness). *Med Educ* 2006;40:405–14.
- 12 Lewis-Beck MS, Bryman A, Liao TF. Constant Comparison. In: *The SAGE encyclopedia of social science research methods*. Thousand Oaks, CA, USA: Sage Publications, Inc, 2004. <https://methods.sagepub.com/reference/the-sage-encyclopedia-of-social-science-research-methods/n161.xml>
- 13 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
- 14 Carter N, Bryant-Lukosius D, DiCenso A, *et al*. The use of triangulation in qualitative research. *Oncol Nurs Forum* 2014;41:545–7.
- 15 Vasileiou K, Barnett J, Thorpe S, *et al*. Characterising and justifying sample size sufficiency in Interview-Based studies: systematic analysis of qualitative health research over a 15-year period. *BMC Med Res Methodol* 2018;18:148.
- 16 O'Brien BC, Harris IB, Beckman TJ, *et al*. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med* 2014;89:1245.
- 17 Robinson JK, Joshi KM, Ortiz S, *et al*. Melanoma knowledge, perception, and awareness in ethnic minorities in Chicago: recommendations regarding education. *Psychooncology* 2011;20:313–20.
- 18 Pollitt RA, Geller AC, Brooks DR, *et al*. Efficacy of skin self-examination practices for early melanoma detection. *Cancer Epidemiol Biomarkers Prev* 2009;18:3018–23.
- 19 Lopes FCPS, Sleiman MG, Sebastian K, *et al*. UV exposure and the risk of cutaneous melanoma in skin of color: a systematic review. *JAMA Dermatol* 2021;157:213–9.
- 20 Chao LX, Patterson SSL, Rademaker AW, *et al*. Melanoma perception in people of color: a targeted educational intervention. *Am J Clin Dermatol* 2017;18:419–27.
- 21 Lester JC, Taylor SC, Chren M-M. Under-Representation of skin of colour in dermatology images: not just an educational issue. *Br J Dermatol* 2019;180:1521–2.
- 22 Statista. U.S.: educational attainment, by ethnicity, 2018. Available: <https://www.statista.com/statistics/184264/educational-attainment-by-ethnicity/>