**Can we use technology to encourage self monitoring by people treated for melanoma? A qualitative exploration of the perceptions of potential recipients.**

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**ABSTRACT**

**Purpose**

People with melanoma traditionally attend cancer centre-based follow-up. Most recurrences and new primary melanomas are, however, detected by patients between hospital visits. Despite this total self-skin examination (TSSE) practices are suboptimal. Digital technologies could be used to support TSSE. The attitudes of potential users is unknown, this study aims to explore the attitudes of people with melanoma towards using digital technologies, and the effect of personal characteristics on their attitudes.

**Methods**

Twenty-one hospital joint melanoma clinic patients aged 37 - 83 were purposively recruited. Semi-structured interviews were conducted to explore patients views on the use of digital technology during follow up and identify barriers or facilitators. Interviews were transcribed verbatim and subject to framework analysis.

**Results**

Participants had a wide range of IT skills. All used a mobile phone, most had heard of telemedicine, several had used Skype. Participants felt that with thought, tailoring, and training technology could enable self-monitoring as part of melanoma follow-up. Technological benefits included having a co-ordinating nurse specialist contactable electronically, having a personalised skin map and tailored information about melanoma. Participants cautioned that technological developments must take account of personal needs and characteristics. Few had security concerns.

**Conclusions**

People are not currently equipped to undertake self-monitoring as part of their melanoma follow-up, but many would be keen to employ technology to support this. A range of technologies could be utilised with potential benefits. Technologies should be carefully designed and individually tailored, considering age, familiarity with technology, place of residence and time since diagnosis.

Key words: Melanoma, total self-skin examination, digital technologies, follow-up.

**INTRODUCTION**

Cutaneous melanoma is increasing in incidence in Caucasian populations [1]. Every patient treated for primary cutaneous melanoma is at risk of a recurrence and a second primary, both of which are potentially curable if detected at the earliest stage [2, 3,4] Regular scheduled follow-up is therefore conducted to promote the early detection of recurrences and new primaries [2,3,5]. Most recurrences and new primaries, however, are detected by melanoma patients themselves in the intervals between scheduled follow-up appointments [6].

There is evidence that instructional videos, counselling, cues to action, aids and personal photo-maps can increase the intention of people to conduct skin self examinations [7,8,9]. Despite this, only a minority of people treated for melanoma practice regular skin self examination [10]. In a survey of 132 patients with melanoma in Northeast Scotland conducted in 2004 only 55% reported checking their skin at least monthly, and it is not clear whether they had been trained to do so [11].

It seems feasible that a digital system, underpinned by reminders to patients to conduct self examination and appropriate educational resources to support this, could increase self-monitoring amongst people treated for cutaneous melanoma. Further integration with high quality teledermatology services [12] could also afford melanoma patients, especially those in remote and rural areas, with much more rapid diagnosis and treatment planning when a suspicion of a recurrence or a new primary arises.

As a first stage in determining the feasibility of such a system and to discover their perceptions of using technology to enable their own participation in self-monitoring during melanoma follow-up, patients currently attending secondary care clinics in Aberdeen for melanoma follow-up were interviewed.

***Ethical Approval***

This project was reviewed and approved by the North of Scotland Research Ethics Committee ref 12/NS/0039

**METHODS**

***Setting***

Grampian and Moray in Northeast Scotland and the Northern Isles of Orkney and Shetland.

***Participants***

People currently receiving structured follow-up for melanoma were recruited from follow-up clinics at Aberdeen Royal Infirmary. A purposive sample was recruited representing urban, rural and remote geographical locations. Initially approached by a member of their medical team patients interested in taking part were referred to the researcher who gave them the information sheet, outlined the study and answered any questions they may have had. Men and women from Aberdeen city, the surrounding towns and villages and Orkney and Shetland ranging in age from their 30s to their 80s agreed to be interviewed.

***Patient Interviews***

Semi-structured interviews were conducted, either face to face or on the telephone, using an interview schedule designed to explore the patients’ views on the use of any aspect of technology during their follow up care and explore any barriers that they perceived in using technology in this way. Recruitment continued until data saturation was reached, the point at which no new information appeared to be arising from interviews. Interviews were digitally recorded and professionally transcribed verbatim for analysis.

***Analysis***

All interviews were transcribed verbatim and NVIVO 9 used to assist with analysis and data retrieval. In first-level analysis all the transcripts were read by the study researcher (SH) and a framework system devised and applied. A second researcher (PM) read and coded a sample of transcripts to ensure inter-rater reliability. Subsequently, the coding system was agreed and applied to all transcripts [13]. Major emergent themes were agreed. Second-level analysis compared and contrasted data from participants with different personal characteristics.

**RESULTS**

***Recruits***

In total 21 patients were recruited between May and August 2012, subsequently one patient withdrew and one, who worked away from home, could not subsequently be contacted for interview.

**Table 1 Age and Rurality**

|  |  |  |
| --- | --- | --- |
|  | Male | Female |
| <40 | 0 | 2 |
| 40-60 | 3 | 4 |
| 60-80 | 3 | 5 |
| >80 | 2 | 0 |
| Total | 8 | 11 |
| Urban  | 2 | 3 |
| Rural | 6 | 8 |

***Theme 1: How I use technology***

Unsurprisingly, interviewees varied in their predisposition to using technology. A few reported being highly IT literate and comfortable using a full range of technology usually associated with their employment. Others used smartphones and laptop computers but only two participants possessed an electronic tablet. SKYPE was familiar to many participants as a means of keeping in touch with family and friends, either using it themselves or with help from their children. Generally participants conveyed a positive orientation toward this technology with some reservations with respect to the quality of the experience.

*“Yes, I Skyped when my daughter was abroad on holiday, we used Skype then.”* 005, 48 years, urban.

*“We do have Skype. Second son is the one for Skyping”* 020, 62 years, urban.

*“I have Skype. It’s getting better, with right up-to-date systems ...Skype works ok but it’s like speaking into a tin box sometimes”* 012, 70 years, urban.

On the other hand some reported that they were only just comfortable using a basic mobile phone. Of these, some but not all could send text messages and photographs, but others conveyed a sense of being willing to engage with the technology in future.

*“No, never have sent a text message. But I’d be willing to learn!”* 006, 65 years, rural.

These participants appeared to be particularly uncertain about using the phone to take and transmit photographs. Participants did, however, reveal that they may be able to engage more fully with technology if supported by a spouse or partner.

*“I’ve never sent a picture, I’m not sure I could work out how to do that!”* 009, 61 years, rural.

*“It’s got the camera but I don’t know how to do it! My wife would need to, it’s difficult taking photos!”* 021, 81 years, rural.

*“No, I haven’t even got a camera on my phone ... ...my husband’s phone has got a*

*camera and he can work it so I’m sure I would manage”* 004, 50 years, rural.

Others conveyed a sense of being actively determined to engage with modern technologies.

*“I’ve done a few classes to get the hang of things. I go on the internet every night.”* 014, 65 years, rural.

*“I’ve just started using a mobile phone. I don't send text messages yet, but I'm going to learn.”* 011, 63 years, rural.

*“I’ve just conquered the computer. I’ve got two Scot-Vecs* [Vocational Qualifications] *with it. You need to use it regularly though, or you just forget it”* 006, 65 years, rural.

Taken together these data supported the notion, that with careful thought and tailoring, and subsequent training there could be a role for a range of technologies in enhancing melanoma follow-up for a wide range of participants.

***Theme 2: Participating in my follow-up***

Few interviewees reported being formally trained or advised to conduct total skin self examinations (TSSE) as part of their melanoma follow-up. Most recalled a vague recommendation to ‘*keep an eye on that.’*

*“Probably every month to two months. I look more when I’m coming up to a check up, in all honesty, because I want to make sure so that if I do think there’s anything untoward then at least I can get it checked when I’m in at my next appointment.”* 007, 37 years, rural.

*“This last appointment was the first time that I was asked to. Nobody had mentioned that I should be… well I look at my moles, I keep an eye out because they are monitoring two others, I think there’s nothing to do – it’s just that they are slightly different. But this was the first time somebody had said to me that I should be checking under my arm for my lymph nodes. Nobody mentioned that before.”* 017, 42 years, rural.

*“Not per se, no, it wasn’t spoken about. There is so much publicity around and has been for a long time, about self-examination that you do look and you are aware. What my perception of what I should be looking for is obviously different from what one is actually looking for, because the one on my wrist, I wouldn’t think twice about it, and yet Dr X said, ‘that one’s going to have to go.’ ”* 020, 62 years, urban.

Interviewees reported a wide variation in how assiduously they had been in checking their own skin, ranging from those that had been forgetful, only checking occasionally if ever, to the other extreme of checking their skin on at least a daily basis. There was, however, little evidence to suggest that interviewees were conducting regular methodical checks, as would be supported by current evidence.

Many interviewees lived with family members or had family nearby and had either engaged them in helping them to examine their skin or expressed an intention to call upon them if necessary:

*“Yes. If I thought there was anything I would certainly ask him* [husband] *to look at it.”* 011, 63 years, rural.

In one instance a participant indicated that he would ask his wife to take photographs of his skin lesions in order to provide a record for use by his consultant at follow-up.

*“What we need to get done is some photographs. She asked me to take some photographs, and I’ll ask my wife to take them. This means she’s got some reference points of what things were and these things can change over a period of time.”* 018, 41, urban.

Many participants, however, did not perform any structured checks in the interval between their formal follow-up appointments and viewed these as sufficient opportunity to get a skin examination and discuss any concerns they had at that time.

*“No, no, I just leave that to the experts”* 001, 45 years, rural.

*“Well I might have a quick feel of what I can see and what I can’t see, and if I feel anything I always ask at the melanoma clinic”* 009, 61 years, rural.

*“….I’m not very good at doing that, I just get on with life and I’m saying ‘I haven’t looked at my leg lately”.* 014, 65 years, rural

There is then, considerable scope, to increase the intention and practice of TSSE in this group of patients.

***Theme 3: Which technologies for my melanoma follow-up***

The interviewees were asked to reflect on which technologies could help them to participate in their own follow-up. The notion of a text or email prompt to conduct a TSSE was well received.

*“That would be really handy on the basis that some people may forget. I mean, to me, melanoma is so serious it shouldn’t be forgotten about.”* 018, 41 years, urban.

However, the means of feeding back the results of the TSSE would require careful thought, as would any response.

*“It would make me feel autonomous, but it’s a very responsible job for any practitioner, wouldn’t it be? In terms of maybe potentially being the only person to have a look at a photo and say it’s nothing to worry about.”* 003, 40 years, rural.

*“Obviously, it makes complete sense, but report and response need to be co-ordinated, doesn’t it?”* 002, 83 years, rural.

Participants were asked their views on a purely telephone-based follow-up system, as has been tried in other cancers, but this was felt to be inadequate for melanoma.

*“Well it’s difficult to explain melanoma over the telephone. All you could say is that it looks as if everything looks all right. But how can a lay person give a detailed explanation about melanoma, because I don’t know what they look for.”* 007, 37 years, rural.

*"No, I don’t think I’d like that.......on the phone you get distracted; child comes in, you are sort of watching TV, you are doing something else at the same time and I don’t think I’d like that at all."* 017, 42 years, rural.

A facility to text a report in to the hospital, perhaps including a digital photograph of any skin lesion or area that was of concern would be appreciated and used by those confident using a mobile phone for sending photographs.

*“Especially if you’ve got the photograph as a reference point from time now you’ve got something to stand against you could send both photographs in. This is how it was and this is how it is now, I think there’s a change there”* 018, 41 years, urban.

*“When I had the last one, it seemed to become more and more prominent and I was getting bothered. If I’d had a mobile phone stuck in my pocket thinking I can send a photo in and that’s the end of any worry that would have been very reassuring for me”* 010, 64 years, rural.

*“What I would have found useful and probably what I would still find useful – it’s just having someone probably between your own GP and the consultant or whoever you see at the hospital. At least you can sort of phone or e-mail them a photograph of what you think you are concerned about or whatever. I think that would just be fantastic”* 007, 37 years, rural.

*“I would also say that we get three monthly checks which is great and it gives you that reassurance, it gives you that peace of mind, but the question is what if you find something between those three months or, and the risk is that these things can happen very quickly and we’re all aware that they need to be stopped as soon as they can so maybe if you could have a facility whereby you could have a photograph or a video could be taken again just by putting a ruler beside it and sending that to somebody to have somebody cast an eye over it to see if it is or it isn’t worthy of actually coming in and having another look or review of it”* 018, 41 years, urban.

For most the ideal follow-up consisted of a face-to-face appointment with a consultant or doctor in the clinic where the scar area could be seen, lymph nodes examined, a skin examination conducted and worries discussed.

However, viable alternatives were suggested by those familiar with SKYPE and video conferencing. For example, a health professional seeing the site of the melanoma and surrounding skin, and instructing the patient how to check lymph glands could provide necessary reassurance, especially when there was a concern. This was seen as having the obvious benefit of convenience,

*“I have no objections to that and that would save you going into Aberdeen”* 022, 81 years, rural.

but would not be suitable in all circumstances.

*“But for the person, say, whose melanoma has unfortunately found its way into a lymph node, I think that would be not necessarily be the best way to do it. I think somebody would actually need to palpate it and say… if I were in that situation I would prefer to have somebody palpating rather than just pointing to something which you can’t necessarily see and say ‘I think I’ve got a lump here.’* 020, 62 years, urban.

Another possibility raised was of a three way consultation, where a remote and rural patient, together with their GP, consulted with a specialist using a video or SKYPE link from the GP surgery. This was seen by some, but not all, as a method of overcoming some of these problems.

*“A consultant needs to see the spots in real life. I think a video-link would be not very clear. I know the consultants need to be very close to the spots”.* 001, 45 years, rural.

*“I’ve heard of that. Up in the Shetlands they do it.......It’s practical and it’s instant.*

*Again, you haven’t got to wait …”.* 006, 65 years, rural.

*“Aye, that would be certainly helpful.......Yes, definitely. I’d have no problem with that at all,*”. 007, 37 years, rural.

In summary, interviews raised a number of ways in which modern technologies could be used to support patients participate in their own melanoma follow-up.

***Theme 4: Added benefits***

In discussing how the application of technology could be applied to delivering melanoma follow-up in a co-ordinated manner, it was suggested during interviews that the system could be overseen by a dedicated specialist nurse, acting as a remote point of contact for participants. This notion was very well received:

*“Somebody like that would be absolutely fantastic.* *... ... because I know I’ve got my three monthly check ups and everything and although you go in there and they are very good, you don’t have any real sort of contact after that unless you go to your own doctor and – don’t get me wrong, my own doctor is very good and more so obviously because I’ve had a few removed and he doesn’t really take any chances but even just, as you say, a specialist nurse would be absolutely fantastic. You could at least phone and go in and see them.”* 007, 37 years, rural.

*“I think that is an absolutely superb idea,* [contacting a specialist nurse by email] *particularly for people who are a long way from the specialist nurse in Aberdeen: Elgin, Inverness, Shetland, Orkney, I think that would be excellent.”* 020, 62 years, urban.

Some participants were excited about the possibility of technology being able to provide them with a personalised skin map:

*“Yes, I think it would be a great idea. Last time I was in that was the first time they’ve actually taken photographs of my back just because they were going to keep an eye on some on my back and I think that’s great. 1) it’s difficult for me to check and 2) although* [my husband] *does help I’m not 100% sure there so I think that’s absolutely fantastic, to get something like that, a total skin map, gives you a bit of reassurance”* 007, 37 years, rural.

A sense also emerged that participants would appreciate the potential of a web, phone or tablet based application to provide them with detailed and tailored information about their condition, including details about how to perform a TSSE, perhaps in the form of an embedded video.

*“A video probably because I’ve got leaflets about various things and I’m not sure - if I look at it I might say, ‘oh yes, I remember this’ so I may not read all of it. But if I’ve got a video then I tend to look through or listen through all of it anyway. Which means that something I may have forgotten about will suddenly jump out at me”.* 010, 64 years, rural.

*“That sounds like common sense and a good use of modern technology”*. 018, 41 years, urban.

*“So that the GP is aware that there is an app or a photobook available, that they can pass the information on to their patients? Or that they themselves become more aware, something that they could advise their patients to do? ... ...I think that’s an excellent idea”.* 020, 62 years, urban.

*“Because to be quite honest I have had no literature about my melanoma, I have asked for booklets but there’s never been any in the hospital and none’s been sent out to me.”* 017, 42 years, rural.

*“No, I don’t believe….not that my memory is as good as it used to be, but I don’t believe I was given any information. It was a phone-call direct from xxxx. I think a leaflet would probably do no harm on the basis that at least if you are getting the hospital’s official line ... ... you know what the norm should be.”* 018, 41 years, urban.

On the other hand, one participant stressed the need and potential to tailor information to individuals.

*“I know I could probably look at a computer but I’m a bit scared that too much information is a bad thing. If I went on there, I’d maybe get too in-depth when I would like perhaps just enough information to keep myself safe on the right track.”* 017, 42 years, rural.

In summary, participants perceived that there were several potential added benefits of using technology to support participation in their melanoma follow-up. These included having a co-ordinating nurse specialist that could be contacted electronically; having a personalised skin map for reference during TSSE, and having tailored information and instructional materials made available to them.

***Theme five: Caveats***

A sense emerged from some that older people may experience difficulties with, and be reluctant to engage with, modern technologies, despite them sometimes seeming to offer a solution to problems associated with ageing.

*“Not everybody is able to go onto a website or use a computer, especially elderly people. Also, and in spite of the fact I’m dull of hearing, I think I’d prefer to get a telephone call from the hospital and speak to someone rather than text them because your telephone is always on. We only use it* [the mobile phone] *for going into town to make contact.”* 002, 83 years, rural.

On the other hand some people who were older, or knew older people, indicated that they can be quite comfortable using both traditional and more modern methods of communication.

*“Both my parents in their seventies and eightes. Both, although they don’t always carry their mobile phones they do have mobiles and they’ll look at them at least once a day so they would pick those things up. So I think that does work”.* 018, 41 years, urban.

Related to this certain potentialities offered by technological follow-up would not be welcomed by the participants in this study. Participants were not interested in an online forum providing contact with other patients or in support groups that were perceived as being for people with ‘serious’ cancers.

*“That’s* [an online forum] *not for me, I certainly wouldn’t be using that. But that’s just purely for me, I can understand why some people perhaps would use that or find that useful.”* 007, 37 years, rural.

*“I really wouldn’t be probably interested in that, I feel I’m healthy and to be honest there’s nothing wrong with me* ...........*It’s maybe my naivety, I feel perhaps that it is for worse forms of cancer than I have.”* 017, 42 years, rural.

Security concerns did not feature large in the concerns of the interviewees stating that they were happy for their information to be exchanged or transmitted digitally, although there was some sense that people tended to take the security of their data for granted.

*“No, not a bit, I’m not worried about security. The more information and the quicker they get it, the better for everyone concerned.”* 002, 83 years, rural.

*“All this data protection is all very well, but people need to have the right information at their fingertips and everything should be done to enable that.”* 003, 40 years, rural.

*“I suppose it would be all right. They are all under the same oath, aren’t they?”* 009, 61 years, rural.

In summary, interview participants indicated the need for technological follow-up to take account of personal needs and characteristics. There were few concerns about security issues.

***The influence of personal characteristics on orientation toward technology in follow-up***

It was evident from the interviews that patients diagnosed recently (within a year) were sceptical about technology in follow-up, placing greater value on the opportunity to consult with a doctor face to face, to be examined and to obtain reassurance. However, there was recognition that they may become better disposed to using technology as they moved further on:

*“No, I’m not keen on this remote follow-up idea. But that may change. I feel – I’m not even a year into it so I’m still on the three monthly but once it gets wider apart I might feel different then”.* 005, 48 years, urban.

*“Oh no, I really like the going to them at the moment because I can show them my bits and pieces that I’m thinking about”.* 009, 61 years, rural.

This corresponded with views of patients further on from diagnosis, or with discharge approaching, for whom the possibility of using technology to reduce their attendance at the hospital was more appealing.

*“I think there’s probably some scope there in that maybe a mix of sometimes presenting it at the clinic and the phone-calls in-between, that could work. … … If I was up in Orkney or something then probably – especially, yes”.* 003, 40 years, rural.

Patients who lived close to the hospital considered themselves to be less inconvenienced by frequent clinic appointments than those travelling long distances, for whom they perceived technology in follow-up to have greater salience:

*“I think it probably would be useful in the country but I’m so near the hospital that I would still rather go and see somebody face to face”.* 005, 48 years, urban.

*“I’m quite happy to continue going to them but then of course I’m fortunate enough to live in Aberdeen so I’m quite close by and don’t really need this new set-up”.* 008, 41 years, urban.

This corresponded directly with those from remote and rural areas:

*“This would be a God send! I get up about six, I leave about half seven, I get the ten to eight ferry which gets me into the Island of Yell twenty-five minutes later. Do a seventeen mile drive across the island of Yell, take a twenty minute ferry journey to Toft on mainland Shetland and then drive down about thirty miles to Lerwick and that’s where I get the boat that goes overnight from Lerwick to Aberdeen … I got on the bus, hopped into the hospital, had the check, … … then leapt in a taxi to make sure I got back in time for the ferry because it left at five o’ clock that afternoon. And that was it – the same journey the other way round, a night on the ferry and the remaining fifty odd miles on the two ferry trips back home”.* 010, 64 years, rural.

Previous experience of and attitudes to technology were influential. All of the patients interviewed used a mobile phone either daily or occasionally and all had experience of using computers. Some concern was expressed across the age range that some older patients would not have the skills to use a mobile phone or computer and may not have access to one. However the majority of people interviewed appeared willing to embrace new technologies and learn the skills required, irrespective of age.

*“Oh yes, uh-huh. The difficulty is of course is that not everybody is able to go onto a website or use a computer, especially elderly people … … for example, my wife can’t cope with the computer. I’m trying to get her to use it, she can now go into an e-mail but it’s far more complicated than people realise. The way I would put it is; if people were offered it they can decide whether they could cope with it or not. If it was an offer – I would say, ‘yes, I’ll have it, I’ll try.’ My wife would say, ‘No! I don’t want anything to do with it.’ And lots of people would be like that. I am lucky because I was in business and was using computers … … and I’m still learning.”*  003 83 years, rural.

Based on these interviews gender did not appear to be influential. The sample was not sufficiently diverse to explore the influence of social class, ethnicity or education.

**DISCUSSION**

**Summary of main findings**

Taken together these data supported the notion, that with careful thought and tailoring, and subsequent training, there could well be a role for a range of technologies to enable self monitoring as part of ongoing structured melanoma follow-up. Participants perceived that there were several potential added benefits of using technology to support their own participation in melanoma follow-up. These included having a co-ordinating nurse specialist that could be contacted electronically, having a personalised skin map and tailored information about melanoma. Participants cautioned that technological enhancement of current follow-up needed to take account of personal needs and characteristics. There were few concerns about security.

**Strengths and limitations**

These interviews were able to explore the issue of how technology might be used to enhance melanoma follow-up in a group of patient currently receiving standard structured follow-up. Therefore these patients were able to relate their views to their actual current experience of care. Recruits were selected purposively so that the sample represented a good range of age, geographical location, and time since diagnosis. For this reason we were able to explore how these important demographic characteristics could shape views on the use of technology in follow-up. Additionally, the interviews were conducted prior to any attempt to introduce technology into melanoma follow-up. Thus, we were able to capture the views of patients on how useful technology might be in melanoma follow-up without being influenced with attempted interventions conceived by health professionals or researchers alone.

On the other hand we were asking people, many of whom had limited experience of using technology, to reflect on how technology might be brought to bear to help them participate in their own follow-up. This would limit their ability to conceive of the full range of potential applications. However, we were really seeking views about how happy people would be to use technology in their follow-up and what they did suggest is likely to be readily achievable and easily utilised by participants with limited technological expertise. In the future, as ideas develop, it may be useful to support similar interviews with demonstrations of what technology may be capable of. The interviewees were all recruited from the Northeast of Scotland, a relatively affluent area. We can, therefore, be less sure whether participants who were more economically deprived or from ethnic minorities would be similarly positive.

**Context with other literature**

There is much interest and growing literature in the use of digital technologies to monitor patients with medical conditions. A systematic review published in 2007 identified and included 24 randomised trials in conditions including asthma, hypertension, diabetes and heart disease. The review reported equivocal results, but suggested that there was evidence that digital technologies used in patients with cardiovascular disease led to superior outcomes, and that digital technology could be used to improve education and social support [14]. A reflection of the activity in the field of applying digital technology in healthcare is provided by a systematic review of systematic reviews published in 2010 synthesising evidence from 80 reviews, 21 of which concluded that telemedicine is effective, 18 that evidence is promising but incomplete and others that evidence is limited and inconsistent [15]. The reviewers also commented on a general emergent theme from their analysis that many researchers remarked on a need for a much greater focus on patient perspectives on the use of technology in healthcare. In the field of cancer follow-up there have been relatively few studies that have employed technology to deliver aspects of cancer care. A systematic review by Dickinson et al [16] identified 11 randomised trials, none in melanoma follow-up, and concluded that there is some evidence that modern technologies can be used to safely and effectively deliver aspects of structured cancer follow-up as an alternative or adjunct to existing traditional models. Set against this context the results reported by our qualitative analysis are encouraging and support the notion that a digital intervention to support self-monitoring in melanoma could be timely and worthy of further development.

**Conclusions and implications**

Together these data suggest that patients are currently not well equipped to undertake self-monitoring as part of their melanoma follow-up. There is evidence that patients would be well disposed to an intervention which employed digital technologies to prompt and support them in participating in their follow-up. Such an intervention could utilise a range of elements and technologies and has a number of potential perceived benefits. It will, however, need to be carefully designed and probably tailored to individual recipients, with respect to their age, familiarity with technology, their place of residence and their time since diagnosis.

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***Competing Interest***

All authors declare that they have no conflict of interest to declare.

***Contributors***

SH and PM designed the study, with input from members of the steering group including consultant dermatologists and plastic surgeons. SH conducted interviews. Analysis was performed by SH with support from PM. SH and PM wrote the manuscript.

***Study Approval***

The study was approved on 2nd May 2012 by the North of Scotland Research Ethics Committee (REC Reference 12/NS/0039).

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