



Trends in dermoscopy use in the UK: results from surveys in 2003 and 2012

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ABSTRACT **Background:** Dermoscopy is a useful tool to aid diagnosis of pigmented and non-pigmented skin lesions, as well as many other dermatological conditions. Use of dermoscopy is increasing worldwide, but to date, there are no reported data on attitudes of dermatologists in the United Kingdom (UK) towards dermoscopy.

Objective: To determine current attitudes of UK dermatologists towards dermoscopy and assess how these attitudes have changed over the last decade.

Methods: In October 2012, an online survey was sent to members of British Association of Dermatologists over a 12-week period. Data were subsequently compared with data from a similar UK nationwide paper questionnaire distributed to members in 2003.

Results: The 2003 survey collected 292 responses (uptake 42%), and in 2012 there were 209 responses (22%), predominantly from consultants and registrars. In 2012, 86% respondents reported increased use of dermoscopy over the previous decade with 98.5% of respondents reporting regular clinical use of dermoscopy, compared with 54% in 2003. Overall, 81% respondents in 2012 had received dermoscopy training, mainly from UK-based courses (62% of respondents) but increasingly via Internet-based resources (30% vs. 7% in 2003). However, 39% respondents lacked confidence when making a diagnosis based on their interpretation of dermoscopy findings.

Conclusions: Over the last decade, use of dermoscopy has increased amongst UK dermatologists and the majority of respondents now employ dermoscopy in daily clinical practice. However, the use of dermoscopy in the dermatology community overall is not known and for those individuals there is a continued need for education.

Introduction

Dermoscopy, also known as epiluminescence microscopy, dermatoscopy and incident light microscopy, is a well-recognized technique for interpreting skin lesions and rashes with more detail than the naked eye [1]. It is quick, cheap, non-invasive and *in vivo*. It provides further visual information that requires training and expertise to interpret [2].

Attempts have been made to improve diagnostic accuracy of pigmented skin lesions through the use of objective diagnostic criteria including the ABCDE rule [3] but in practice these are not regularly used; 98% of respondents in a French survey did not formally use algorithms but rather used pattern recognition [4]. Dermoscopy can increase the diagnostic accuracy for melanoma when used by experienced clinicians but its benefits are less conclusive in the hands of untrained practitioners [5].

The role of dermoscopy has been extended to include diagnosis of a variety of dermatological conditions including infections e.g., scabies [6], inflammatory lesions, hair and nail-fold changes [7,8]. In addition, dermoscopy can be used to help monitor lesions over time or response to topical treatments such as 5-fluorouracil or imiquimod [9].

Increasingly, dermoscopy is becoming accepted as standard practice worldwide with reported regular clinical use

amongst dermatologists reported as 95% in France [4], 98% in Australia [10,11] and 48% in America [12]. To date, no study has formally reported use and attitudes of UK dermatologists. A nationwide UK survey of attitudes towards dermoscopy was undertaken in 2003. We aimed to determine extent of change of prevalence and uptake of dermoscopy amongst UK dermatologists over the last decade. Here we present the combined results of this survey and a follow-up survey, performed ten years apart, collecting UK dermatologists' opinions of dermoscopy.

Methods

The first questionnaire was distributed in paper form to UK dermatologists via the British Association of Dermatologists (BAD) during 2003 (Appendix 1). In total, 700 questionnaires were sent and 292 responses were received (survey uptake 42%) (Table 1). The second questionnaire was created using Survey Monkey (www.surveymonkey.com), a professional online survey tool (Appendix 2). Access to the questionnaire was distributed as a link via email to all members of the British Association of Dermatologists (which includes all doctors in the UK who spend a significant amount of their time working in dermatology). The questionnaire was live

TABLE 1. Demographics of respondents to surveys in 2003 and 2012
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	2003 Survey (n=292) Number (percentage)	2012 Survey (n=209) Number (percentage)
Gender		
Male	N/A	97 (46%)
Female	N/A	106 (51%)
Unknown	292	6 (3%)
Age		
< 40-years-old	N/A	101 (48%)
40-50-years-old	N/A	59 (28%)
> 50-years-old	N/A	43 (21%)
Unknown	292	6 (3%)
Job role		
Consultant (Specialist)	207 (74%)	113 (54%)
Registrar (Resident)	59 (21%)	72 (34%)
SAS/Career grade (Non-training grade)	10 (4%)	12 (6%)
General Practitioner	5 (2%)	5 (2%)
Junior medical trainee	0 (0%)	1 (1%)
Unknown	0 (0%)	6 (3%)

N/A—data not collected

for 12 weeks from October 2012 and sent to 728 consultant (specialist) members and 230 trainee (resident) members. The questionnaire was also sent as a reminder email to all BAD Registrar Trainees (residents). In total, 209 members accessed the link, of which 203 (Table 1) completed the survey (survey uptake 22%). Respondents were not able to access the link more than once ensuring that there were no duplicates. All responses (including partially completed forms) from both surveys were entered into Microsoft Excel® and analyzed.

Results

Demographics of respondents are detailed in Table 1. 50% of respondents were aged less than 40 years old and 52% were female (1:1.1 ratio) in the 2012 survey. Consultants (specialists) were the highest responders in both surveys, with 74% in 2003 and 56% of responses in 2012. In 2012, the number of registrar (resident) responses increased from 21% to 35% and general practitioner (primary care physicians with a special interest in dermatology who are members of the BAD) responses also increased.

Comparing regular use of dermoscopy in clinical practice, 98.5% respondents reported regular use in 2012, a 45% increase from 2003 (Figure 1). Furthermore in 2012, 72% of respondents reported “always” using dermoscopy, 24% reported “sometimes” using dermoscopy, but 4% reported using dermoscopy only if there was clinical uncertainty. Of those who did not use a dermatoscope regularly in 2012, one person did not find dermoscopy useful, two people reported limited access to a dermatoscope and one person had not received any training.

More people have their own personal dermatoscope and twice as many respondents reported receiving training in dermoscopy in 2012 compared with 2003 (Figure 1).

When asked about a change in dermoscopy use over the previous decade, 86% of respondents in 2012 reported

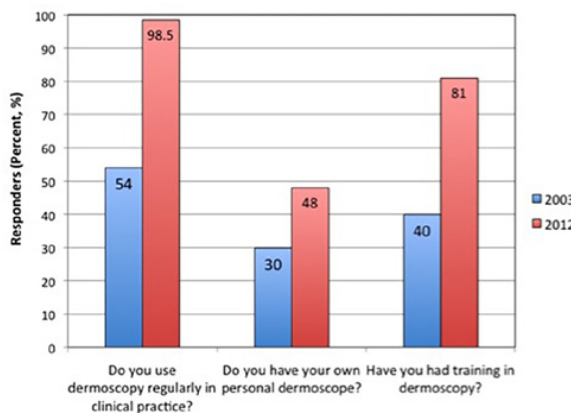


Figure 1. Responses from 2003 and 2012 questionnaires. [Copyright: ©2015 Butler et al.]

TABLE 2. Data from 2003 and 2012 surveys: Which sources of dermoscopy training are used? [Copyright: ©2015 Butler et al.]

Source of training	2003 (%)	2012 (%)
UK Dermoscopy course	21	62
Handbook	64	49
Tuition by expert		33
Internet training	7	30
AAD session	46*	22
Other (please specify)§		14
EADV session	46*	13
Dermoscopy World Congress		4
Dermoscopy Diploma		3

*AAD/EADV sessions were combined on 2003 questionnaire.
§ Other sources of training included Graz MSc in Dermoscopy, Euroderm Excellence session, on the job training and lectures

increased use of dermoscopy over the previous ten years and no respondents reported decrease use.

In 2012, 81% respondents reported receiving dermoscopy training, which is an increase from 40% in 2003. The main source of training in 2012 was a UK-based dermoscopy course (62%) (Table 2). Use of textbooks and handbooks were also used frequently (49%); however, there was a relative decrease compared with 2003 (64% of respondents).

The use of Internet training has increased from 7% in 2003 to 30% in 2012. Overall, 61% of respondents in 2012 were “confident” or “very confident” when using dermoscopy to make a diagnosis (Figure 2).

However, 5% of respondents rated “little confidence” in their dermoscopic diagnostic skills. Increased confidence in diagnostic skills increased with seniority of training grade

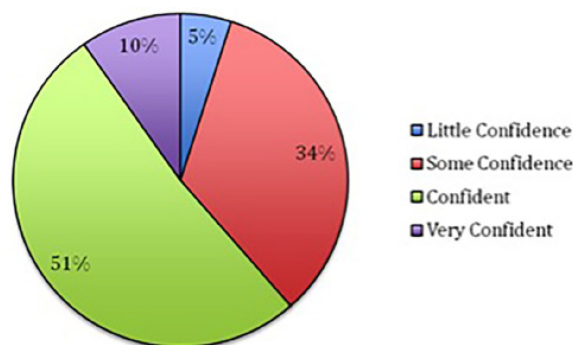


Figure 2. Degree of confidence reported by dermatologists (percentage responders) when using dermoscopy to make a diagnosis [2012 Survey]. [Copyright: ©2015 Butler et al.]

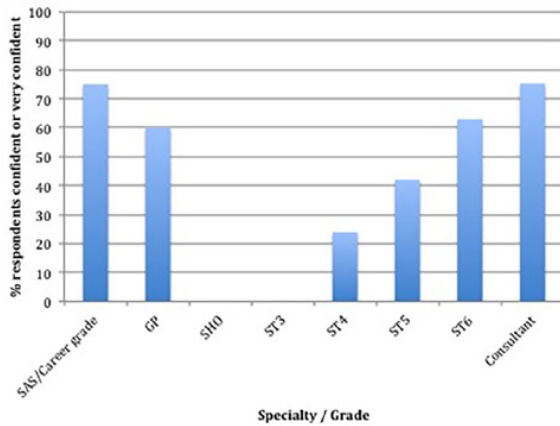


Figure 3. Degree of confidence in dermoscopy skills when making diagnoses [2012 survey]. [Copyright: ©2015 Butler et al.]

(Figure 3). A subset of 19% of respondents used a dermatoscope regularly without reporting having received training; 70% of these had only little or some confidence in their diagnostic skills.

Figure 4 demonstrates that overall personal reported confidence in dermoscopy is a reflection of both greater confidence in assessment of structures and greater confidence in making a diagnosis.

Eighty-three percent of respondents felt there was an adequate evidence base to support the role of dermoscopy in clinical practice; however, a significant 17% of responders were less convinced, reporting that they thought evidence was equivocal (12%) or lacking (5%).

In 2012, dermatoscopes were not solely used for diagnosis of pigmented and non-pigmented skin lesions, although these appear to be the most common indications for use (98.5% and 88% respectively). Other clinical scenarios where dermoscopy was used include scabies (66% of respondents), hair and nail disorders (57% and 53% respectively) and inflammatory lesions (27%).

Dermoscopy changed patient management for one-fifth (21%) of respondents. The majority (67%) felt dermoscopy

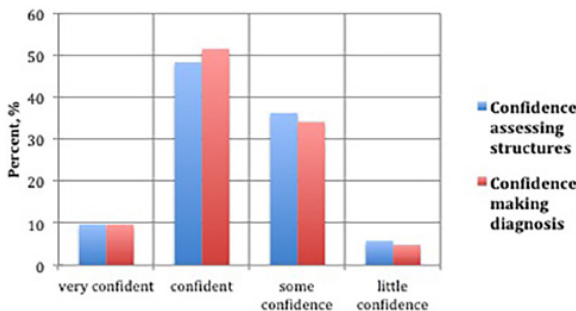


Figure 4. Comparison of confidence in dermoscopy when assessing structures or when making a diagnosis [2012 survey]. [Copyright: ©2015 Butler et al.]

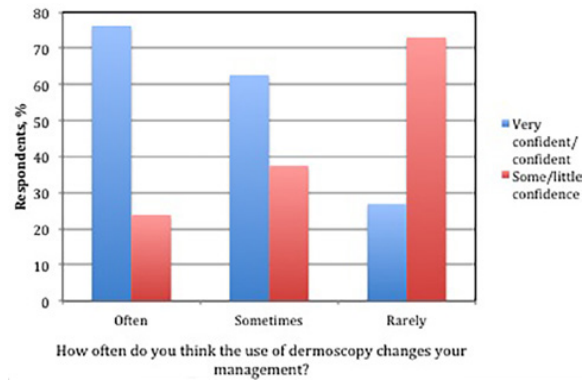


Figure 5. Degree of confidence in using dermoscopy to make a diagnosis related to how often clinician's management is changed [2012 survey]. [Copyright: ©2015 Butler et al.]

“sometimes” changed their management. Degree of confidence in using dermoscopy positively correlates with frequency that respondents changed their management (Figure 5).

Figure 6 demonstrates the breakdown of frequency of dermoscopy use, which changes clinician management according to lesion type. Dermoscopy frequently changed management across all lesions but in particular for inflammatory lesions, hair disorders and scabies identification. In addition, 46% of respondents have used dermoscopy photographs to aid in follow-up appointments.

Discussion

This is the first study detailing attitudes toward the use of dermoscopy in the UK. It is clear that dermoscopy is now a standard tool used in the assessment of skin disease for pigmented and non-pigmented lesions on all body sites, but it is increasingly being used for other applications including inflammatory/infectious skin disease. The majority of respondents in the most recent survey reported using dermoscopy “always.” We would extrapolate from this that UK dermatologists employ dermoscopy for the extra diagnostic information it provides, not just when making difficult clinical decisions.

Although dermoscopy is frequently used in clinical practice, a significant proportion of respondents lack confidence in diagnosing lesions. As the majority of respondents were consultants and specialist trainees in dermatology, this lack of confidence is an important issue to address. In addition, those lacking confidence had often received no training. Although training in dermoscopy is now an integral part of the UK dermatology specialty training for registrars, in practice this may not be happening across all regions in the UK. A recent survey reported only 36% UK trainees receive dermoscopy training for pigmented lesions “on-the-job” in a dermatology clinic [13]. Curriculum UK-based training courses were

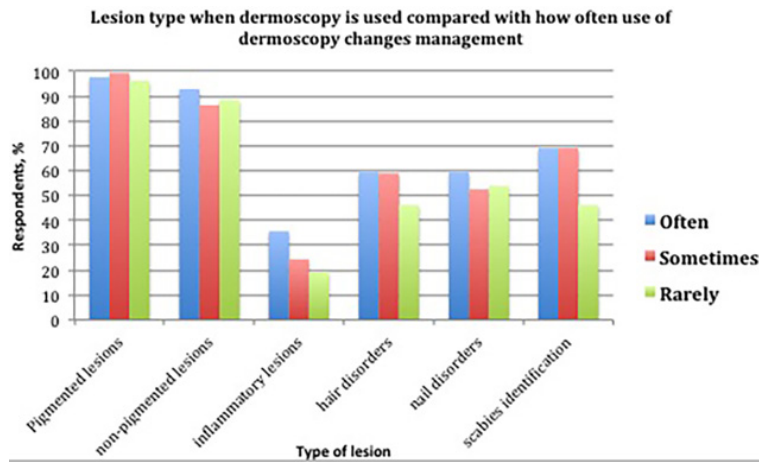


Figure 6. Frequency of use of dermoscopy, which changes management according to skin lesion type [2012 survey]. [Copyright: ©2015 Butler et al.]

popular with respondents (62% had attended these in 2012). Training does not need to be complex or arduous in order to improve diagnostic accuracy [14]. One study demonstrated 25% improvement in the sensitivity of primary care referrals of pigmented lesions following a one-day training course in dermoscopy, without a reduction in specificity, meaning the overall workload and referral rate was not increased [15].

Unsurprisingly, the use of the Internet as a training tool for UK dermatologists has significantly increased over the last ten years. Delivery of training in dermoscopy should probably exploit the Internet as an adjunctive tool to face-to-face training.

The best way to improve survival from melanoma is early detection and dermoscopy is an invaluable aid; the evidence supporting this has been summarized [14]. The chance of diagnosing melanoma with dermoscopy is 9-16 times greater than with naked eye examination alone [16]. In the UK guidelines for the management of cutaneous melanoma, it is recommended that dermoscopy should be employed by experienced clinicians to screen and monitor pigmented lesions [17]. Dermoscopy can improve the melanoma excision rate, i.e., ratio of benign to malignant lesions excised. In one retrospective study, the ratio improved from 18:1 to 4:1 over a period of four years in users of dermoscopy, compared with no improvement in those who did not use dermoscopy [18]. A recent study also reported training in dermoscopy as one of the factors that significantly improved the efficiency of a UK dermatology skin cancer service by increasing accuracy of clinical diagnosis [19].

Nevertheless, use and adoption of dermoscopy is not universal. There are still respondents in our survey who do not believe dermoscopy is a useful technique and feel that the evidence is lacking. This is not unique to the UK; in the most recent American survey published in 2010, 52% of respondents did not regularly use dermoscopy, with 32% of

those reporting a lack of interest in the technique [12]. It is the responsibility of the international dermatology community to address these negative attitudes.

Our study has a number of limitations. Similar questions were not identically phrased in both 2003 and 2012 surveys, leading to possible misinterpretation. The surveys were subject to selection bias towards dermatologists who use dermoscopy regularly, and advocates of the technique may be more likely to complete the survey. This is likely to be further compounded by low response rates to our surveys. Nevertheless, a comparison between the two time-points demonstrated there was a significant difference in responses over the 10-year decade.

In conclusion, dermoscopy is now widely used in the UK, and the consensus would appear to be that this is a useful clinical tool. There are gaps in training and teaching which need to be bridged to ensure full potential is made of this technique. This study adds to the mounting body of evidence in support of dermoscopy practice worldwide. In a resource-poor UK National Health Service, the use of dermoscopy has the potential to increase clinical effectiveness through improving the confidence of dermatologists in making optimal management decisions.

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Dermoscopy Survey 2003 (Paper survey)

1. Department details?
2. Job title?
 - a. Consultant
 - b. Registrar
 - c. Career grade
3. Are you aware of the concept of dermoscopy?
 - a. Yes
 - b. No
4. Do you have access to a dermatoscope?
 - a. Yes
 - b. No
5. If yes, what sort of dermatoscope?
 - a. Dermatoscope
 - b. Dermlite
 - c. Computer-aided
6. Is the dermatoscope:
 - a. Departmental
 - b. Personal
7. Do you use a dermatoscope regularly in daily practice?
 - a. Yes
 - b. No
8. Have you had any training in dermoscopy?
 - a. Yes
 - b. No
9. If yes, what sort of training?
 - a. AAD/EADV session
 - b. Dermoscopy meeting
 - c. Internet training
 - d. Handbook
 - e. Other (please specify)
10. And for how long?
 - a. ½ day
 - b. 1 day
 - c. 2 days
 - d. longer
11. If no, would you be interested in a one-day course in dermoscopy?
 - a. Yes
 - b. No
12. Other comments

Appendix 1. Dermoscopy Survey 2003 (paper survey). [Copyright: ©2015 Butler et al.]

Dermoscopy Survey 2012 (online SurveyMonkey.com)

1. What do you think is the evidence base for dermoscopy?
 - a. There is evidence supporting the use of dermoscopy in clinical practice
 - b. The evidence supporting the use of dermoscopy in clinical practice is equivocal
 - c. The evidence supporting the use of dermoscopy in clinical practice is lacking

2. Do you have access to a dermatoscope?
 - a. Yes
 - b. No

3. What sort of dermatoscope? (please tick all that apply)
 - a. Contact (e.g. Heine)
 - b. Non-contact (e.g. DermLite)
 - c. Hybrid
 - d. Other (please specify)

4. Who does the dermatoscope belong to? (please tick all that apply)
 - a. Personal
 - b. Departmental

5. How do you feel your use of dermoscopy has changed over time? Compared to 10 years ago, has your use:
 - a. Increased
 - b. Decreased
 - c. Remained the same

6. Do you use a dermatoscope regularly in clinical practice?
 - a. Yes
 - b. No

7. What are your reasons for NOT using a dermatoscope regularly? (Please tick all that apply)
 - a. Not interested in dermoscopy
 - b. No/limited access to a dermatoscope
 - c. I do not find dermoscopy helpful
 - d. I have not received any training
 - e. Too time-consuming
 - f. Other (please specify)

8. What degree of confidence do you have in your dermoscopy skills, when assessing dermoscopy structures?

- a. Little confidence
 - b. Some confidence
 - c. Confident
 - d. Very confident
9. What degree of confidence do you have in your dermoscopy skills, when making diagnoses?
- a. Little confidence
 - b. Some confidence
 - c. Confident
 - d. Very confident
10. Have you had any training in dermoscopy?
- a. Yes
 - b. No
11. What sort of training have you had? (Please tick all that apply)
- a. AAD session
 - b. EADV session
 - c. Dermoscopy World Congress
 - d. Dermoscopy course
 - e. Internet training
 - f. Handbook
 - g. Tuition by expert
 - h. Dermoscopy Diploma
 - i. Other (please specify)
12. In which of the following situations do you use your dermatoscope? (Please tick all that apply)
- a. Pigmented lesions
 - b. Non-pigmented lesions
 - c. Inflammatory lesions
 - d. Hair disorders
 - e. Nail disorders
 - f. Scabies identification
 - g. Other (please specify)
13. Do you use dermoscopy in your clinical practice...
- a. Always
 - b. Sometimes
 - c. Only if there is clinical uncertainty
14. How often do you think the use of dermoscopy changes your management?
- a. Often
 - b. Sometimes
 - c. Rarely

Appendix 2, page 2. Dermoscopy Survey 2012 (online survey, SurveyMonkey.com). [Copyright: ©2015 Butler et al.]

15. Do you use dermoscopy photographs in follow-up visits?

- a. Yes
- b. No

16. What is your grade?

- a. Consultant
- b. Registrar ST6
- c. Registrar ST5
- d. Registrar ST4
- e. Registrar ST3
- f. Staff and associate specialists (SAS)/Career grade
- g. General Practitioner (GP)
- h. GP with specialist interest (GPwSI)
- i. Senior House Officer (SHO)/junior grade

17. Which category below includes your age?

- a. <40 years old
- b. 40-50 years old
- c. >50 years old

18. What is your gender?

- a. Female
- b. Male

19. What region do you work in?

Appendix 2, page 3. Dermoscopy Survey 2012 (online survey, SurveyMonkey.com). [Copyright: ©2015 Butler et al.]