

Pilot study to train dentists to communicate about oral cancer: the impact on dentists' self-reported behaviour, confidence and beliefs

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IN BRIEF

- Highlights that an oral cancer communication guide is an effective tool to equip dentists in communicating about oral cancer.
- Shows that training in the use of the guide increased self-efficacy in relation to having oral-cancer related discussions with patients.

Objectives To evaluate the effect of a brief, focused training session on the use of an oral cancer communication guide on dentists' intentions, self-efficacy and beliefs with regards to communicating about oral cancer with patients. **Design** Pre-post intervention study. **Setting** The training session took place in a lecture theatre at King's College London.

Subjects and methods Dentists working in various settings were trained on the use of the oral cancer communication guide via a structured session that included an update on oral cancer, modelling the use of the guide in practice, and role playing. Dentists (n = 39) completed questionnaires pre-training, immediately post-training (n = 31) and after 2 weeks (n = 23). Questionnaires assessed current practice, self-efficacy and barriers to discussing oral cancer. **Results** A significantly higher proportion of dentists reported that they informed patients that they were being screened for oral cancer post-training (44%) than pre-training (16%). Significantly fewer perceived barriers and higher self-efficacy to discuss oral cancer were also reported. **Conclusion** Training dentists in the use of the guide showed positive impact by reducing perceived barriers and increasing self-efficacy.

INTRODUCTION

Dentists have reported a reluctance to tell their patients that they are looking for signs of oral cancer when performing an oral mucosal examination and often avoid using the word 'cancer' altogether.¹⁻² This is evident in the fact that only between 7.1% and 11% of dental patients report that their dentist or GP had spoken to them about oral cancer.³⁻⁵ Failure to talk about oral cancer (especially with high risk patients), creates a missed opportunity to raise awareness of the disease and encourage early presentation. Importantly, patients do want to discuss oral cancer and they also want the support of their dentists to reduce their risk of developing the disease.⁴⁻⁵ However, dentists sometimes feel ill-equipped to have oral-cancer-related discussions. Dentists have identified barriers to discussions including lacking confidence

to answer patient questions due to insufficient knowledge, perceived lack of time during appointments and not wanting to make patients anxious.² Dentists have also identified possible facilitators to discussions about oral cancer, such as developing practice standards, presence of guidelines and improving training of dentists.²

In order to address some of these issues, there is a need for training and guidance for the dental team in how to raise the issue of oral cancer during a routine appointment and how to hold a discussion about oral cancer without raising anxiety or prolonging the consultation.

In collaboration with oral cancer specialists, local general dental practitioners and early diagnosis researchers, we have amended a face-to-face intervention that was developed and evaluated in the general medical practitioner setting (see Scott *et al.*⁶) in order to develop an 'oral cancer communication guide' for the dental setting (see Appendix 1 in online supplementary information). The guide includes key messages in an easy-to-follow format. It is not intended to be used as a script, but rather to be used as a guide for an interactive discussion about symptoms, the importance of early detection, and when and where to

seek help should symptoms occur. More than just providing information to the patient, it ensures a patient-centred discussion to allow for personally relevant information to be shared, increasing the likelihood that the patient will engage with the discussion and increase their awareness of oral cancer. For instance, the guide recommends that the dentist asks the patient what they already know (for example, if they have heard of mouth cancer before and if they have any idea about the symptoms) and then tailor their responses to the patients' starting point. The guide emphasises the 'three week rule' to help patients evaluate the need for care and encourages the dentist to negotiate a personalised action plan of where to seek help, taking into account any perceived barriers to accessing care.

In line with psychological theories of behaviour (see Bandura⁷), it is improbable that a dentist will undertake any behaviour if they do not feel confident that they can perform it. Thus, before evaluating the impact of this 'oral cancer communication guide' on patient-reported outcomes (such as patients' awareness of oral cancer, their anticipated delay in seeking help and level of anxiety), it is important to determine whether training in the use of the 'oral cancer communication

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guide' could build the self-efficacy of dentists such that they feel confident enough to have oral cancer-related discussions with their patients.

The aim of this study was to pilot the effect of a brief, focused training session on the use of an oral cancer communication guide on dentists' intentions, self-efficacy and beliefs with regards to communicating about oral cancer to high-risk patients and to gauge the uptake in the use of the 'oral cancer communication guide'.

The main research question which the study set out to answer was:

- Is there a significant change in the dentists' beliefs, confidence and intention to discuss early detection of oral cancer (including raising awareness and encouraging early presentation) following participation in a training session on oral cancer communication?

It was hypothesised that training dentists to use the oral cancer communication guide will have an impact upon three main areas leading to:

- A reduction in perceived barriers to discussing oral cancer with high-risk patients
- Increase in dentists intentions to discuss oral cancer with high-risk patients
- Improved dentist confidence to have discussions about oral cancer with high-risk patients.

MATERIALS AND METHODS

This research was based on a pre-post intervention study design. Ethical approval for the study was obtained from the Biomedical Sciences, Dentistry, Medicine and Natural & Mathematical Sciences Research Ethics Subcommittee (BDM RESC) at King's College London (reference number: BDM/12/13-98).

Sample

The study set out to recruit primarily dentists who worked within the National Health Service (NHS) and were based in primary care practices in London, although those who worked in private practices were welcome to attend if interested.

Procedure

The training course was developed in line with the General Dental Council's educational requirement for verifiable CPD for dentists. The session was free to attend and took place at King's College London. It was advertised to dentists through emails and online bulletin boards using contacts from NHS England, King's College London Alumni office and other dental mailing lists. Dentists who registered

to attend the training session were emailed inviting them to participate in the associated research study. On the day of the training, dentists who opted to take part in the research study completed the pre-training (T_0) and post-training (T_1) questionnaires to determine the immediate impact of the training. Follow-up data (T_2) was collected two weeks later via an online questionnaire to explore any ongoing effect of the training. Entry into the study was voluntary and all collected data was anonymised such that no individual dentist was identifiable from the dataset. Submission of a completed questionnaire implied consent to take part in the study. This was stated explicitly in the information sheet.

Training session

The training session was designed to help dentists learn to use the communication guide and overcome barriers to talking about oral cancer to high-risk patients. The session lasted 1.5 hours and was divided into three sections – a brief update on oral cancer, an introduction to the oral cancer communication guide, followed by the learning activities including watching a video of the guide being used in practice (modeling) and then giving participants the opportunity to practise using the guide through role play and feedback.

Measures

The questionnaires measured dentists' oral cancer screening behaviours, current practice regarding talking about oral cancer, and possible barriers to communication, as well as self-efficacy and intentions to discuss oral cancer prevention with high-risk patients (see Appendix 2 in online supplementary information). The questionnaires were specifically designed for this study and were piloted for face validity and ease of comprehension by five dentists who were either working in general practice or undertaking postgraduate training.

Oral cancer screening and communication

Dentists' approach to oral cancer screening was explored by specifically asking whether they screened their patients for oral cancer, informed patients that they were being screened and whether or not they specifically used the term 'cancer' when doing so. 'Screening' within the questionnaire referred specifically to visual and tactile examination not involving the use of adjunctive screening aids. Discussion of nine specific topic areas such as oral cancer sites, signs and symptoms and the importance of early detection were also explored (see Appendix 2 in online supplementary information).

Perceived barriers to communication

Statements highlighting some of the issues dentists perceive as barriers to communicating about oral cancer with their patients were presented. Responses were on a five-item Likert scale.

Self-efficacy to communicate about oral cancer

This measure included a list of ten statements to determine dentists' self-efficacy to discuss oral cancer with their patients. These statements were developed based on Bandura's guide for constructing self-efficacy scales⁸ and Luszczynska and Schwarzer's discussions on social cognitive theory and how its constructs can be measured.⁹ Statements were scored on a ten-point scale based on how much they agreed with it at the time of completing the questionnaire. The total self-efficacy score was computed by adding individual item scores. The maximum possible score for self-efficacy was 100 and minimum was 0. Cronbach's coefficient alpha values at T_0 , T_1 and T_2 were 0.941, 0.962 and 0.961 respectively indicating good internal consistency.

Participants' characteristics and clinical practice

At time T_0 only, demographic data was also collected about participants as well as information on their practice and behaviours.

Data analysis

Data analysis was conducted using SPSS version 19. As a result of the statistical distribution of scores, non-parametric tests were used for perceived barriers and parametric tests for self-efficacy. A one-way ANOVA with repeated measures was used to test for an overall difference in self-efficacy over time followed by paired samples t-tests to make *post hoc* comparisons between scores for each time period indicating where exactly the differences occurred. A similar process was followed for total perceived barrier scores using the Friedman test followed by Wilcoxon signed-rank tests for *post hoc* comparisons. The significance level was set at 0.05; however, when testing for changes over time, multiple comparisons were being conducted and therefore a stricter significance level of 0.01 was set to safeguard against type 1 error.

One questionnaire was excluded from analysis as the participant did not complete the T_0 questionnaire but completed T_1 and as such no baseline data comparison could be made. The effect size, Cohen's *d*, was found to be 0.545 (a medium effect size, Cohen¹⁰) for self-efficacy. Power calculations were

carried out for a repeated measures t-test using G*Power software (and cross-checked using power tables). Based on the effect size of 0.545, a probability of error of 0.05 and a sample size of 30, the sample used for this analysis had 82% power to detect differences in self-efficacy scores over time.

RESULTS

Forty-one dentists attended the session, of which 39 agreed to take part in the study and therefore completed the pre-training questionnaire (T_0) in part or in full, 33 completed post-training (T_1) and 23 at follow-up questionnaire (T_2). Figure 1 shows the processes and number of participants at each stage.

Sample characteristics

Table 1 shows the demographic details of participants. Seventy-two percent were female. The mean number of years since graduation was 17.6 years (median = 16, std dev. = 11.84, range 1 year to 38 years). Eighteen respondents (50%) had postgraduate qualifications. The majority of participants ($n = 27$, 75%) worked in general dental practices and 72% treated both NHS and private patients.

Chi-square tests showed no statistically significant difference between respondents who completed the follow-up questionnaires (T_2) and those who did not, in terms of demographic data or current practice including clinical record-keeping, prevention advice and risk assessment.

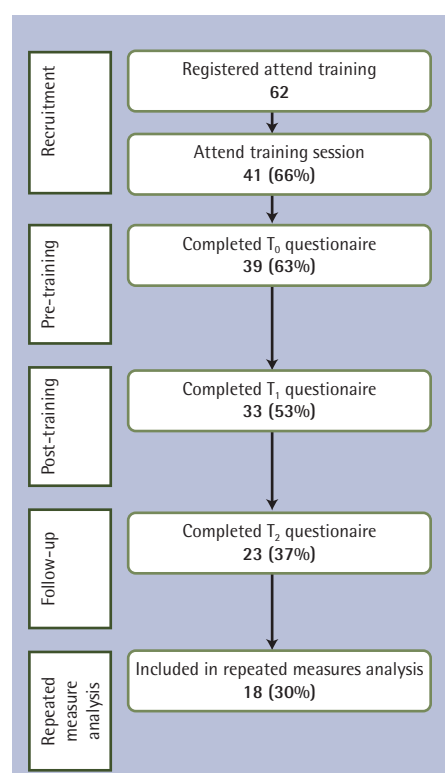


Fig. 1 Study Flowchart

Oral cancer screening and communication

Table 2 shows the distribution of responses regarding oral cancer screening and related communication before training and at follow-up.

Seventy-four percent of participants reported screening all their patients at follow-up (T_2) compared with 66% pre-training (T_0). This difference was not statistically significant (MH statistic = 21.0, $p = 0.297$).

The proportion reporting that they informed their patients they were being screened rose significantly from 16% of participants pre-training (T_0) to 44% of participants at follow-up (T_2) (MH statistic = 49.0, $p = 0.014$). The effect size, Cohen's r , was found to be 0.452, a medium to large effect size.¹⁰

Of the respondents who reported telling their patients that they are being screened, before training, three respondents (9%) reported always using the term 'cancer' when

Table 1 Pilot study participants' demographic details

		n (%)		
		T_0	T_1	T_2
Gender	Male	10 (28)	8 (28)	5 (25)
	Female	26 (72)	21 (72)	15 (75)
Postgraduate Qualification	Yes	18 (50)	13 (45)	11 (55)
	No	18 (50)	16 (55)	9 (45)
Work Setting	Hospital only	3 (8)	3 (10)	3 (15)
	Primary care only	27 (75)	21 (73)	15 (75)
	Hospital and primary care	6 (17)	5 (17)	2 (10)
Patient Type	NHS patients only	5 (14)	5 (17)	4 (20)
	Private patients only	5 (14)	5 (17)	1 (5)
	Mixed (NHS & private)	25 (72)	19 (66)	15 (75)

Variations in total numbers are due to missing values

Table 2 Oral cancer screening and communication practice of participants

	Time T ₀ n (%)	Time T ₂ n (%)	Sig.
Screening approach (T ₀ N =38; T ₂ N = 23)			
I always screen every adult patient, at each visit	25 (66)	17 (74)	0.297
I only screen if I feel there is a reason to suspect a lesion being present	4 (10)	2 (9)	
I only screen patients who are at high risk of developing oral cancer	7 (18)	3 (13)	
I only screen new patients (at their first visit)	1 (3)	1 (4)	
I only screen when time is available	0 (0)	0 (0)	
I don't screen patients for signs of oral cancer	1 (3)	0 (0)	
Informing patients (T ₀ N = 37; T ₂ N = 23)			
Yes, I always tell my patients	6 (16)	10 (44)	0.014
I only tell patients if they ask what I'm doing	17 (46)	10 (44)	
I only tell those patients for whom I'm doing it for the first time.	4 (11)	2 (8)	
I only tell patients when time is available	4 (11)	0 (0)	
No, I don't tell patients	6 (16)	1 (4)	
Using the term 'cancer' (T ₀ N = 31; T ₂ N = 21)			
Yes, I use the term 'cancer'	3 (9)	8 (35)	0.239
I sometimes use the term 'cancer'	11 (36)	5 (22)	
I rarely use the term 'cancer'	6 (19)	3 (17)	
No, I generally avoid the term 'cancer'	11 (36)	5 (26)	

doing so. Eleven respondents (36%) reported that they sometimes use the term 'cancer' and 11 (36%) reported that they generally avoid using the term 'cancer'. Although these proportions rose after training, no statistically significant difference was found in the use of the term 'cancer' from pre-training to follow-up (9% at pre-training; 35% at follow-up) (MH statistic = 28.0, $p = 0.239$).

Figure 2 shows the extent to which nine oral cancer topics were discussed with patients before training (T_0) and after training (T_2). No topic was reported as 'never discussed' at follow-up compared to pre-training. Furthermore, the proportions of respondents that reported that they discuss each of the nine topics either with every patient or with high-risk patients increased from T_0 to T_2 (oral cancer sites: $X^2 = 58.0$, $p = 0.008$; signs and symptoms: $X^2 = 47.0$, $p = 0.004$; importance of early detection: $X^2 = 56.0$, $p = 0.007$; risk

factors: $X^2 = 18.0$, $p = 0.041$; patients own risk: $X^2 = 47.0$, $p = 0.002$; how to reduce risk: $X^2 = 44.0$, $p = 0.008$; role of regular attendance: $X^2 = 4.0$, $p = 0.032$; when to seek help: $X^2 = 48.0$, $p = 0.020$; where to seek help: $X^2 = 56.0$, $p = 0.003$). The changes in distribution of responses between time T_0 and time T_2 were all statistically significant at the 0.05 significance level indicating that the training had encouraged the dentists to discuss the nine topics. However, the changes in discussion of risk factors, the role of regular attendance and when to seek help were no longer significant at the stricter significance level of 0.01.

Perceived barriers to communication

The mean number of perceived barriers pre-training (T_0) was 3.00 (median = 3, std dev. = 1.83). Immediately post-training (T_1) this was 1.63 (median = 1, std dev. = 1.45) and

at follow up (T_2) this was 1.91 (median = 2, std dev. = 1.47). Table 3 shows the proportion of respondents that either agree or strongly agree with perceived barriers. The results of the Friedman test indicated that there was a statistically significant difference in total scores for perceived barriers across the three time points (T_0 , T_1 and T_2), $X^2(2, n = 18) = 13.452$, $p = 0.001$. Wilcoxon signed-rank tests were then used to make *post hoc* comparisons between scores for each time period. There was a statistically significant difference between the perceived barrier scores at pre-training (T_0) and immediately post-training (T_1) ($z(30) = -3.27$, $p = 0.001$) and between scores at pre-training (T_0) and scores at follow-up (T_2) ($z(21) = -2.69$, $p = 0.007$). No difference was found in perceived barriers between scores at post-training (T_1) and at follow-up (T_2) ($z(18) = -1.21$, $p = 0.227$). Indicating that the

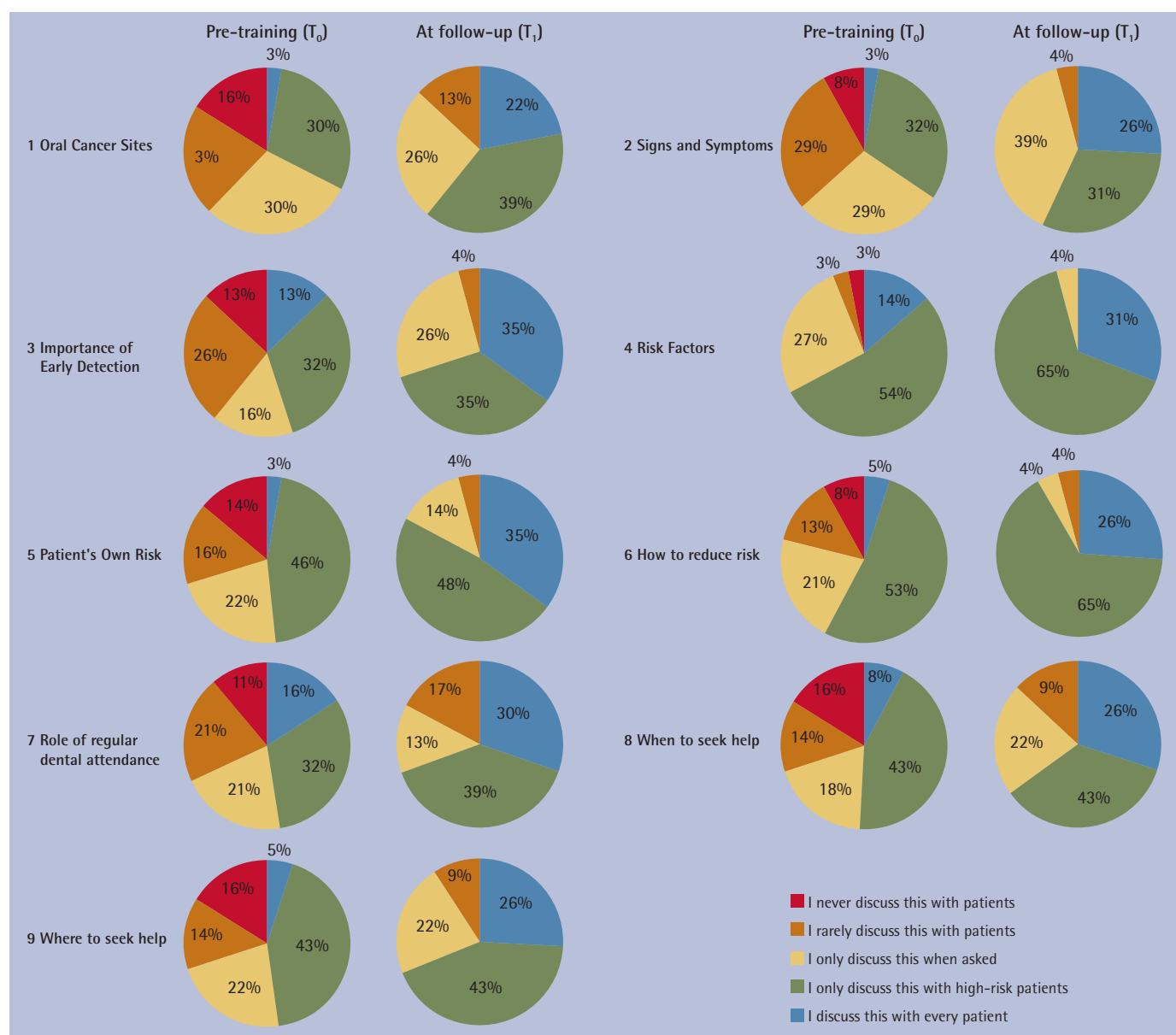


Fig. 2 Extent of discussion of oral cancer topics before and after training

training resulted in a reduction in number of perceived barriers and this was maintained at follow-up two weeks later. The significant difference between T_0 and T_1 and between T_0 and T_2 remained even with the stricter significance level of 0.01. The effect size, r , was found to be 0.573 indicating a large effect size according to Cohen's convention.

Self-efficacy to communicate about oral cancer

The mean self-efficacy score pre-training was 64.78 (median = 64, std. dev. = 16.83). As seen in Figure 3, the mean score for self-efficacy to discuss oral cancer increased to 82.53 (median = 81, std. dev. = 12.49) immediately after the training session (T_1). The mean score at follow-up (T_2) was 73.52 (median = 71, std. dev. = 15.17).

A one-way ANOVA with repeated measures showed a significant effect on self-efficacy over time, ($F(2, 16) = 12.267$, $p = 0.001$). Three paired samples t -tests were then used to make *post hoc* comparisons between scores for each time period. Self-efficacy scores immediately post-training (T_1) were significantly higher than pre-training (T_0) scores ($t(30) = -6.90$, $p < 0.001$). There was also a significantly higher self-efficacy score at follow-up (T_2) compared with pre-training (T_0) scores ($t(20) = -2.55$, $p = 0.019$). However, there was no significant difference in the self-efficacy scores between post-training, time T_1 and at follow-up, time T_2 ($t(18) = 1.493$, $p = 0.153$). This indicates the training resulted in an increase in self-efficacy and this was maintained at follow-up two weeks later. However, the difference between scores at pre-training (T_0) and follow-up (T_2) were no longer significant when the stricter significance level of 0.01 was applied. The effect size, Cohen's d , for the difference between T_0 and T_2 was found to be 0.545, which is equivalent to a medium effect size according to Cohen.¹⁰

DISCUSSION

This study sought to explore the impact of training in communication on the self-reported behaviour of dentists, as well as their confidence in their ability to have such discussions. After training, dentists reported more frequently discussing oral cancer with their patients and also that they felt more confident in having such discussions, and perceived there to be fewer barriers to doing so. Findings from this pilot study show that following training in the use of the 'oral cancer communication guide', significantly higher proportions of participants reported informing patients they were being screened, with significantly higher proportions reporting discussing all topics recommended in

Table 3 Proportion of respondents that either agree or strongly agree with perceived barriers

Individual items of perceived barriers		T_0 n (%)	T_1 n (%)	T_2 n (%)
1	Patients are not receptive to any information about oral cancer.	2 (5)	0 (0)	2 (9)
2	Oral cancer is not applicable to most of my patients	4 (11)	0 (0)	0 (0)
3	Patients do not want to know whether they are at risk of developing oral cancer	4 (11)	1 (3)	1 (5)
4	Too costly to my practice to spend time talking about oral cancer.	4 (11)	3 (10)	1 (5)
5	Talking about oral cancer is too time consuming	6 (16)	4 (13)	3 (14)
6	Patients may ask too many questions	6 (16)	1 (3)	1 (5)
7	I am not confident in talking about oral cancer with my patients.	7 (18)	5 (16)	3 (14)
8	Patients may ask difficult questions	13 (34)	6 (19)	3 (14)
9	Dentists lack training in effectively talking about oral cancer	14 (37)	6 (19)	10 (46)
10	It is easy to forget to talk about oral cancer	24 (63)	12 (39)	9 (39)
11	Talking about oral cancer may frighten my patients	27 (71)	11 (36)	11 (48)

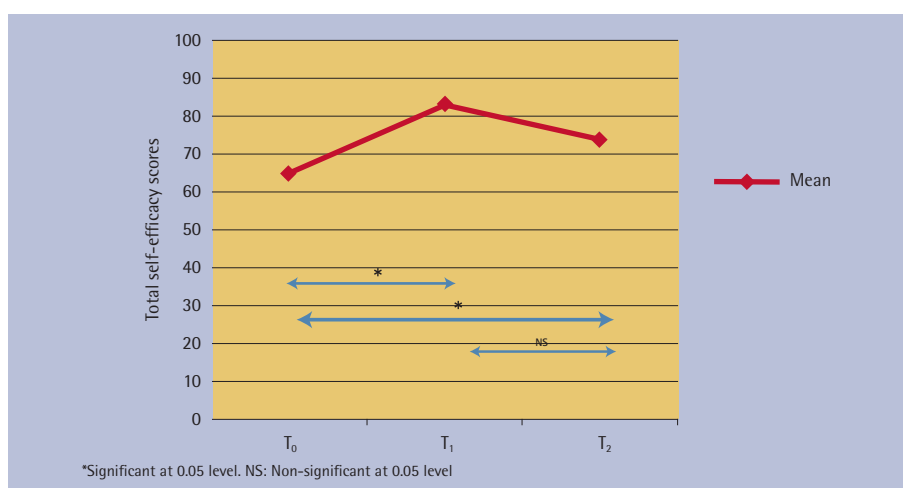


Fig. 3 Self-efficacy to discuss oral cancer over time

the guide. This shows a positive impact of undergoing training on dentists' self-reported behaviour and indicates a positive response to the 'oral cancer communication guide'.

It would appear that the training in the use of the communication guide was able to successfully address some of the barriers to cancer-related discussions that have previously been highlighted by dentists. There remain issues that are persistent and of note is the fact that dentists still feel that information about cancer could cause anxiety among patients. This concern does not appear to reflect patients' actual response to cancer-related discussions between health-care professionals and patients.^{2,11-13} For instance, in the case of hereditary breast cancer, there was no evidence that genetic counselling raises worry, general anxiety or distress in breast cancer survivors or women of low, moderate or high risk.¹⁴ Furthermore, levels of worry about developing breast cancer reduced immediately following genetic

counselling, regardless of the risk level that the women had been given.^{14,15} This indicates that the high levels of anxiety that some dentists perceive may be caused by discussions around cancer may not actually occur. Nevertheless, it may still be important to give more attention to this issue at any future training sessions in order to overcome this barrier to using the guide. It is also important to be aware of the organizational constraints which may make it difficult for dentists to change their behaviour with regards to communicating about oral cancer. In particular, the issue of time pressures during an appointment. A reorientation of health services from a purely biomedical model of mainly treatment, to a focus on prevention may enable dentists to see their role in prevention of oral cancer as vital and be empowered to spend the time required to support at risk patients. The new pilot contracts¹⁶ are an opportunity to embed this change into a new more prevention-focused system.

Study limitations

This study has limitations that should be considered when interpreting the findings. The questionnaires used were designed for this study and although they were piloted for face validity and ease of comprehension, they would benefit from being tested further for validity and reliability.

About a third of dentists that completed the first questionnaire did not complete the third questionnaire therefore data analysis for change over time did not involve the whole sample. However, an analysis of those who 'dropped out' found no significant differences between them and those who completed the T₂ questionnaire across all socio-demographic data and their current practice as reported in the T₀ questionnaire. This means that although their data was missing, this might have only a minimal impact on the overall interpretation.

There are also limitations with making generalisations about the current practice of UK dentists from this sample. Furthermore, the relatively small sample size may also have meant that there was insufficient power to detect statistically significant differences even if they did exist. Nevertheless, this pilot study has provided invaluable information on attendance rates and estimations of effect size which can now be used to plan a larger, more robust trial.

Another limitation is that dentists' behaviour is being treated as stable. The

assumption is that although many dentists have a mixed patient base, they will treat both their NHS and private patients the same way when in fact behaviour may vary.

CONCLUSION

Despite the above limitations, this pilot study indicated the training session had a positive impact by reducing perceived barriers to oral cancer-related discussions, increasing self-efficacy and increasing oral cancer discussions between dentists and patients.

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