

Oral cancer awareness and education within the pharmacy profession

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Abstract

The incidence of oral cancers are rising in the UK, with early detection a significant positive prognostic factor. The Covid-19 pandemic has negatively impacted patients access to dental services, reducing a potential avenue to diagnosis. Community pharmacists are well positioned to play an expanded role in supporting earlier detection. This study seeks to identify levels of awareness and knowledge of oral cancer amongst community pharmacists, to inform development of educational resources.

A cross-sectional digital survey was distributed via social media between August and September 2021. Data were collected on participant's demographics, oral cancer awareness and educational resources relevant to oral cancer. The results obtained were analysed using descriptive statistics in IBM SPSS software.

61 pharmacists completed the survey. The majority were female (n = 40; 65.6%) aged 18–30 (n = 33; 54.1%). Less than half of respondents reported feeling confident in recognising risk factors (37.7%; n = 23). A substantial minority (n = 8; 13.1%) incorrectly selected fluoride toothpaste use as a risk factor for oral cancer. Most respondents correctly suggested signposting patients with signs or symptoms of oral cancer to a General Medical or General Dental Practitioner (GDP) (n = 35; 57.3%, n = 46; 75.4%). 91.8% of respondents (n = 56) would welcome an educational resource to support professional development.

This study demonstrates a need for further educational resources regarding oral cancer, specifically aimed at community pharmacists. Community Pharmacists have a crucial role in efforts to improve rates of early detection of oral cancers. Work should be completed to explore the establishment of direct referral pathways from community pharmacy to secondary care.

Keywords

Oral cancer, early detection, community pharmacy, oral cancer education, signposting

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Introduction

The incidence of oral cancers has increased by 58% in the past 10 years in the UK, with over 1500 deaths per year¹. There is a need for greater awareness of oral cancers by healthcare professionals and the general public to enable early detection, which is the key factor in improving survival. There are over 11,600 community pharmacies in England alone, and 89% of people live within a 20-min walk of a pharmacy². This, along with the walk-in nature of the sector, means community pharmacists and their teams are ideally positioned to aid efforts in prevention of oral cancer and appropriately signpost patients presenting with red flag signs or symptoms of the disease. However, it is unclear whether community pharmacists are appropriately trained to identify red flag signs and symptoms of oral cancer and whether they can correctly signpost patients who present with suspicious oral lesions.

This study aimed to investigate UK community pharmacists' current level of awareness of oral cancer using a cross-sectional digital questionnaire. The questionnaire was designed to test the knowledge of the participants on oral cancer and gain insight into their attitudes towards further training and educational resources. There is currently a paucity of literature around awareness of oral cancer within the pharmacy sector. One previous educational intervention has been shown to have a positive effect on the practice of pharmacists in the Mersey region but the study, published in 2010, concluded that there is still a need to improve: i) the awareness of community pharmacists on the symptoms of oral cancer and ii) appropriate signposting³. Therefore, the data gathered in the present study should provide updated baseline information to aid the development of educational resources for community pharmacy teams.

Method

Ethical approval was obtained via the University of Liverpool ethics committee (Reference: 10024). A cross-sectional digital questionnaire targeted at community pharmacists, pre-registration pharmacists and pharmacy undergraduate students was developed (Appendix 1). The questionnaire was created and hosted using Qualtrics XM software™ (Utah, US). A Participant Information Leaflet (PIL) accompanied the questionnaire and consent was obtained prior to completion. The survey was distributed via professional pharmacy social media accounts on Instagram™ and Twitter™ and prior to a Royal Pharmaceutical Society webinar on oral cancer awareness delivered by the authors. The questionnaire was open for a total of eight weeks (August and September 2021).

Anonymous data was collected via the questionnaire, which was divided into four sections and comprised of a total of 23 questions. Data on the participants' demographics and on oral cancer awareness (knowledge of signs and symptoms, risk factors and referral pathways) was

collected. This was presented as a combination of multiple-choice questions and Likert scales. Participants were also asked to provide their preferred format and content for an educational intervention on oral cancer. The results obtained were analysed using descriptive statistics in IBM SPSS software (Version 28.0.0.0 190).

Results

The survey was completed by 61 participants over the eight-week period. Table 1 shows the demographic details of the study participants. The majority were female (n = 40; 65.6%) and those aged 18–30 years (n = 33; 54.1%). Most participants practiced in England (n = 57; 93.4%). Level of experience was measured by the number of

Table 1. Demographics of survey participants.

Characteristic	Number (n)	%
Gender		
Male	21	30.4
Female	46	66.7
Prefer not to say	1	1.4
Missing	1	1.4
Age (years)		
18–30	38	55.1
31–40	18	26.1
41–50	6	8.7
51–60	4	5.8
60+	2	2.9
Missing	1	1.4
Country of Practice		
England	63	91.3
Northern Ireland	1	4.3
Other (not UK)	3	1.4
Missing	2	2.9
Years of Experience in Pharmacy Practice		
Undergraduate	12	17.4
Pre-Registration Pharmacist	5	7.2
Less than 2 years	6	8.7
2–5 years	14	20.3
5–10 years	13	18.8
10+ years	18	26.1
Missing	1	1.4
Role		
Undergraduate	12	17.4
Pre-Registration Pharmacist	4	5.8
Employed	20	29.0
Manager/Supervisor	11	15.9
Locum	21	30.4
Missing	1	1.4

years in practice; with the majority having more than two years' experience as a pharmacist (n=43; 70.6%). This was also reflected in the roles undertaken by the participants, with the majority being fully qualified pharmacists working in the community sector (n=49; 80.3%).

Knowledge and awareness of oral cancer

More than three quarters of participants (n=47; 77%) agreed that a general knowledge of oral cancer is necessary for their routine pharmacy practice. Less than half of respondents reported feeling confident in recognising risk factors of oral cancer (37.7%; n=23); however, the majority (n=52; 85.2%) correctly identified alcohol as a major risk factor. A substantial minority (n=8; 13.1%) incorrectly selected fluoride toothpaste use as a risk factor for oral cancer. There were mixed levels of confidence in counselling patients on risk factors: 44.2% (n=27) strongly or somewhat agreed they were confident to counsel patients on risk reduction, whereas 36.1% (n=22) strongly or somewhat disagreed with this statement.

The most common oral sites for the development of cancers (tongue and floor of mouth) were correctly selected by half of respondents (n=31; 52.5%). Over a third (n=22; 36.1%) correctly identified an ulcer as suspicious if it had been present for at least 3 weeks (see Figure 1) However, 29% (n=18) felt that the ulcer would only be suspicious if it had been present for 4 or more weeks.

Signposting

Participants reported low levels of confidence in signposting potential cases to other healthcare professionals for further investigation; 39.3% (n=24) stated they did not feel confident to appropriately signpost patients presenting with red flag symptoms of oral cancer. However, most respondents correctly suggested signposting to a General Medical Practitioner

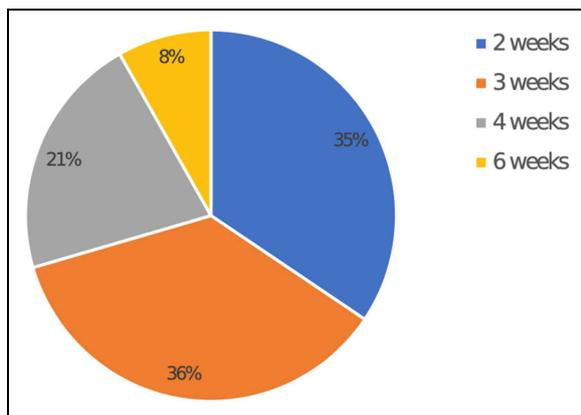


Figure 1. How many weeks must an unexplained mouth ulcer be present in order to arouse suspicion and warrant signposting?

(GMP) (n=35; 57.3%) or General Dental Practitioner (GDP), (n=46;75.4%). One fifth (n=12; 19.7%) felt that signposting to Accident and Emergency Department would be appropriate, although this was selected in combination with other responses in the majority of cases (n=8). See Table 2. The majority correctly recognised that patients referred on an urgent cancer pathway should be seen in secondary care within 2 weeks of referral (70.4%; n=43).

Education

An educational resource to improve awareness and knowledge of oral cancer was welcomed by 91.8% of respondents (n=56). Risk factors, symptoms and management options were identified as priority areas for education, as recorded by over 80% of the participants. Participants lacked confidence in their knowledge of the pathway for diagnosis and management of oral cancer in 81.9% (n=50) of cases. The preferred formats for such an educational intervention were videos, webinars and posters (see Table 3).

Discussion

The incidence of oral cancer is increasing in all age groups and all regions of the UK⁴. Despite advances in therapeutic interventions, early detection of disease remains the most significant determinant of outcome^{5,6}. The NHS long-term plan recognises early detection of cancers within its top 10 clinical priorities and is committed to increasing the proportion of cancers diagnosed at stages 1 and 2 to 75% of all new diagnoses by 2028⁷. Health Education England has laid out a comprehensive plan for the cancer workforce and amongst the recommendations, the role of pharmacy staff has been recognised as a key factor in delivering on this target^{7,8}. At present, the majority of head and neck cancers (HNC) are diagnosed at stages III and IV (61%)⁹, however HNC presents a unique opportunity for early diagnosis, given the specific signs and symptoms and easily accessible nature of the oral cavity and neck for examination. This contrasts with other cancer types (e.g. pancreatic cancer) that may naturally present at an advanced stage with

Table 2. A patient presenting to the pharmacy with a suspicious oral lesion should be signposted to whom in the first instance?.

Healthcare Professional	No. of Responses	Percentage of Responses
General Dental Practitioner	46	75.4
Accident & Emergency Department	12	19.7
General Medical Practitioner	35	57.3
Dental Nurse	8	13.1

Table 3. What form of further education would be of most benefit in increasing your knowledge of oral cancer?.

Educational Intervention	No. of Responses	Percentage of Responses
Webinar	31	50.8
Poster	30	49.2
Podcast	9	14.8
Journal/Paper	12	19.7
Videos	40	65.6
Courses	22	36.0
Other	1 (Mobile App)	1.6

non-specific symptoms e.g. unintentional weight loss, fatigue, nausea.

Community pharmacies are a central part of the National Health Service in the UK, offering easily accessible healthcare to the whole population. In contrast, only 50% of people in the UK are registered with a GDP and there has been an estimated 30 million missed appointments since the start of the SARS-COV-2 pandemic, due to restrictions on practice¹⁰. Over half of patients diagnosed with oral cancers have not utilised primary dental care in the 2 years prior to diagnosis, which further demonstrates the need for involvement of a wider group of health professionals¹¹. Community Pharmacists are likely to see an increased number of patients presenting for oral health-related advice as they struggle to access primary dental care. These patient encounters provide an opportunity for early detection of oral cancer, through recognition of red flag signs and symptoms and appropriate signposting for further healthcare assessment¹².

This study has assessed knowledge and awareness of oral cancer amongst community pharmacists, in order to identify areas for further training and development. The results have demonstrated a reasonable awareness of oral cancer amongst those surveyed but with scope for training in areas including risk factors, signs and symptoms of disease and the referral and management pathway for oral cancer.

Risk factors

Tobacco and alcohol consumption, particularly in combination, remain the most significant risk factors for oral cancer, with around 75% of HNC known to be related to smoking and/or alcohol¹³; this was well-recognised by the pharmacists surveyed. Opportunities for pharmacists to attend courses to become smoking cessation advisers are available and should be encouraged as an important risk reduction strategy¹⁴.

A small minority of pharmacists selected fluoride toothpaste as a risk factor for oral cancer. There is no evidence for the carcinogenicity of fluoride in water or toothpastes and it is important that pharmacists are aware of this, demonstrating the need for an educational intervention¹⁵.

Pharmacists should be recommending the routine use of fluoride toothpaste as detailed in the Department of Health's 'Delivering better oral health toolkit' to minimise risk of dental caries¹⁶.

Red flag signs for oral cancer

The majority of pharmacists surveyed identified that a non-healing ulcer, present for at least 3 weeks, is a red-flag for oral cancer; however, almost a third felt that the ulcer would need to be present for 4 or more weeks to be classed a suspicious. A patient presenting with a non-healing ulcer (present 3 weeks) should be referred on an urgent suspected cancer referral pathway, to be seen by a specialist within 2 weeks, as per NICE and CRUK Guidelines¹⁷. Referral pathways are not open to community pharmacists, therefore, signposting the patient to their GDP or GMP for assessment is appropriate and this was identified by three-quarters of the sample. These results represent a significant improvement in practice upon a previous study in Merseyside which suggested that less than 10% of pharmacists would correctly refer¹⁸. The absence of formal referral pathways may present a barrier to effective utilisation of community pharmacies in supporting earlier detection of cancers. Development of such pathways are likely to be complex with input from multiple stakeholders but may provide an opportunity to utilise an established network of highly accessible healthcare venues to help the NHS meet its targets around early detection of cancers. Pilot studies involving direct referral of patients with symptoms of possible lung cancer from community pharmacies have demonstrated high levels of fidelity with national referral criteria, and high levels of patient satisfaction^{19–21}; further research in this area involving other malignancies, including oral cancers is needed. Online risk calculators are tools that can be used to guide clinicians in decision-making around the need for (priority) referral²². One such tool exists for HNC, which allows healthcare professionals to enter basic clinical details resulting in clear and specific guidance regarding the need for urgent referral^{23,24}. This tool could be tested in the context of community pharmacies to determine its effectiveness in supporting pharmacists in making appropriate referrals.

Education and development

This survey has demonstrated the need and desire for an educational package on oral cancer for community pharmacists. There was strong agreement that an educational resource would be welcome and suggestions for videos, posters and webinars were recorded. The results demonstrate that pharmacists lack confidence in counselling patients on risk factors for oral cancer and in signposting patients appropriately, which helps to explain the desire for additional education. The British Oncology Pharmacy Association (BOPA) have

developed the 'Let's Communicate Cancer' programme - an introductory training module for community pharmacy staff. The module is delivered via online videos, which was identified the preferred medium for educational resources of the majority of respondents within the present study²⁵. This programme could be expanded upon to include a dedicated module on oral cancers to address the needs identified in the present and in previous studies³. The Royal Pharmaceutical Society hosted a webinar developed by the authors on Oral Cancer Awareness in September 2021, attended by over 100 of their members, which further demonstrates an appetite for education in this area. This programme could be rolled out more formally to become an embedded part of continuing professional development for community pharmacists.

Accepting the limitations of this study, with small sample size and unbalanced demographics of respondents (majority female and aged 18–30y), the results point towards the need to improve the knowledge and awareness of oral cancer amongst the pharmacy profession. Community Pharmacists have the potential to be a powerful tool in the early detection of oral cancers and there is an urgent need to develop successful educational resources. The larger issue of developing formal referral pathways directly from pharmacy to secondary care should be carefully considered, with the aim of developing a more inclusive healthcare system and reducing barriers to early diagnosis of HNC.

Data

Data is available on request from the authors.

Declaration of Conflicting Interests

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Appendix I: Oral cancer awareness questionnaire

Questionnaire Hyperlink: https://livpsych.eu.qualtrics.com/jfe/form/SV_6QpNuekia39gyhM.

Section 1: Demographic Data.

Participant will selection one option in each category..

Characteristic

Gender

Male

Female

Non-binary/third gender

Prefer not to say

Age

18–30

31–40

41–50

51–60

60 +

Country of practice

England

Wales

Scotland

Northern Ireland

Other

Years of experience

Undergraduate

Pre-registration

Less than 2 years

2–5 years

5–10 years

10 years +

Role

Employed

Manager/Supervisor

Locum

Other

Section 2: Pharmacists' knowledge of oral cancer

Participant will select one option to answer each question.

'Oral cancer prevention' is a postgraduate module provided by CPPE to raise awareness of the disease within the pharmacy profession. True or False?

True

False

Which one of the following is a common recognised risk factor for oral cancer?

Fluoride toothpaste

Higher socio-economic status

Alcohol misuse

A diet high in fruit & vegetables

In which site within the oral cavity is oral cancer most likely to occur?

Gums

Palate

Floor of mouth

Tongue

An unexplained ulcer within the oral cavity is deemed suspicious and requires signposting once it has been present for how many weeks?

2 weeks

3 weeks

4 weeks

6 weeks

A patient presenting to the pharmacy with a suspicious oral lesion should be signposted to whom in the first instance?

General Dental Practitioner

Accident & Emergency

Dental nurse

General Medical Practitioner

A patient referred by a general medical or dental practitioner under the 'urgent cancer pathway', is expected to be seen by a specialist in secondary care within how many weeks?

1 week

2 weeks

4 weeks

6 weeks

If diagnosed early (Stage 1), what percentage of patients survive for 2 years?

30%

50%

70%

90%

Section 3. Pharmacists' current confidence and attitude towards oral cancer

Participant will select one option from the Likert scale for each statement.

Statement	Strongly disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
A general knowledge of oral cancer is necessary for my routine daily practice					
I can confidently recognise the risk factors associated with oral cancer					
I can confidently counsel patients on how to reduce their risk of oral cancer					
I am confident in my ability to recognise alarm symptoms associated with oral cancer					
I can confidently signpost patients with alarming symptoms of oral cancer to an appropriate healthcare professional					
I am confident in my knowledge of the NHS pathway undertaken for patients suspected of having oral cancer once they have been signposted					
I feel confident in my ability to support patients undergoing oral cancer treatment within my capacity as a community pharmacist					

Section 4: Pharmacists' opinion towards the provision of further training to improve their knowledge and awareness of oral cancer

Participant will select one option from the Likert scale for each for the first three statements.

Statement	Strongly disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I would welcome the provision of an educational tool which will improve my awareness of oral cancer					
I am more likely to participate in an educational intervention if it is accredited with CPD					
The creation of a 'Oral Cancer toolkit' tailored to community pharmacy will be of benefit to the pharmacy and wider community					
What form of further education would be of most benefit in increasing your knowledge of oral cancer? Webinar, Poster, Podcast, Journal/Paper, Videos, Courses, Other (please type)					
What areas pertaining to oral cancer would you like to see covered by such an educational resource? Risk factors, Symptoms, Managements Options, Prognosis, Support groups, Referral pathways, Other (please type)					