

Oral health promotion in the community pharmacy: an evaluation of a pilot oral health promotion intervention

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In brief

Many patients are poor dental attenders yet frequently visit their community pharmacy and are open to a pharmacy based oral health intervention.

Patients reported improved knowledge and intention to change oral healthcare routines following receipt of the intervention.

Further research to explore potential pharmacy based oral health services and interprofessional collaboration with the dental profession should be sought.

Introduction Poor oral health is a significant public health concern, costing the NHS in England £3.4 billion annually. Community pharmacies are easily accessible, frequently visited by patients and the community pharmacy contractual framework requires pharmacies to provide healthy living advice to patients - therefore offering a little explored avenue for the delivery of oral health interventions. **Methodology** A pilot oral health promotion intervention was introduced in five pharmacies in deprived areas of County Durham between September and December 2016. A mixed methods approach to the evaluation was performed, utilising a patient evaluation questionnaire and semi-structured qualitative interviews with pharmacy staff. **Results** One thousand and eighty-nine participants received the intervention. Following the intervention 72% of participants perceived their knowledge of oral health as much better, 66% definitely intended to change their oral health habits and 64% definitely thought a pharmacy was the right place to receive advice about oral health. Three themes emerged from the qualitative data: (1) intervention feedback, (2) knowledge gap and (3) service development. **Discussion** The data demonstrated the acceptability of patients to a community pharmacy based oral health intervention, with most patients reporting intentions to change their oral healthcare habits after receiving the intervention. Previous literature has identified a willingness of pharmacy staff to become involved with oral health; this study provides evidence that patients are also receptive to such services being delivered in the community pharmacy setting. Further work is required to assess the benefits of a community pharmacy based oral health intervention and the potential for further growth of this role. **Conclusion** A community pharmacy is perceived by patients as an acceptable provider of oral health interventions and has the potential to provide positive changes to the oral health of the population.

Introduction

Poor oral health conditions are thought to affect a significant proportion of the world's population, approximately 3.9 billion people worldwide¹ and costs the NHS in England £3.4 billion per year.² The most recent Adult Dental Health Survey (2009) stated that 39% of the population do not attend a dentist.³ Oral health is important for general health and wellbeing and there is an increasing amount

of evidence that has linked poor oral health to a number of long term conditions, such as cardiovascular disease and diabetes.

NICE guidelines⁴ detail key recommendations for local authorities on oral health promotion: recommendation 7, ensure frontline health and social care staff can give advice on the importance of oral health and recommendation 11, commission oral health promotion services for adults at high risk of poor oral health.

For many patients, the pharmacy is their first or only port of call and pharmacists have frequent contact with patients who have chronic conditions, such as diabetes or cardiovascular disease. Pharmacies are easily accessible to patients, with 95% of the UK population within 20 minutes of the local pharmacy.⁵

Wilson and Soni, the former presidents of the Royal Pharmaceutical Society and British

Dental Association respectively, recently published an opinion piece in the *British Dental Journal* emphasising the opportunities for pharmacy and dentistry to spearhead a new era of interprofessional healthcare. They highlighted the potential for a collaborative approach to managing chronic diseases, such as diabetes and the ability of pharmacy to encourage hard-to-reach individuals to become dental attenders.⁶

Antibiotic resistance is a key threat to global public health and the World Health Organisation has stressed the seriousness of this problem; their Global Report of Surveillance in 2014 concluded that 'A post-antibiotic-era in which common infections and minor injuries can kill - is a very real possibility for the twenty-first century.'⁷

In 2014, the majority of dental prescriptions were used to treat infections (66.6%). Although

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dental prescribing accounts for only a small proportion (0.5%) of all items prescribed in England⁸ dentists are responsible for 5% of all antibacterial drug prescriptions. Although the evidence base is lacking, Wilson and Soni (2016) also suggested that pharmacy and dentistry collaboration could make inroads into addressing oral health inequalities and contribute to reducing the inappropriate prescribing of antibiotics.⁶

Previous research has identified that pharmacists commonly deal with oral health issues, such as mouth ulcers, toothache and teething and are confident at giving oral healthcare advice.⁹ A questionnaire of 354 London pharmacies found that 99.4% of participants recognised oral health promotion as part of their role and 72.5% of participants were willing to incorporate this into their NHS contract.¹⁰

As part of the Community Pharmacy Contractual Framework, all community pharmacies provide healthy living advice to patients. The Healthy Living Pharmacy (HLP) Framework provides a positive approach to the delivery of the public health elements of the pharmacy contact and aims to achieve consistent and high quality services to meet the needs of the local population. As of January 2016 over 2,100 pharmacies in England were designated HLPs. However, HLP level 1 status is now a component of the community pharmacy Quality Payment Scheme 2017/18.¹¹

Approximately half of the adults in the UK are affected by some level of periodontitis, a chronic inflammatory disease caused by bacterial infection of the supporting tissues surrounding the teeth.³ This condition is usually painless and often goes unnoticed and untreated until it reaches an advanced stage.¹²

The Cochrane Collaboration published a review in 2010 highlighting that randomised controlled trials have demonstrated that periodontal therapy is associated with approximately a 0.29% reduction in HbA1c levels after three months,¹³ equivalent to adding a second drug to a pharmacological regimen.¹⁴ There is significant evidence that a reduction in HbA1c is associated with improving diabetic outcomes: a 1% reduction in HbA1c has been associated with a 21% reduction in diabetes related death, 14% reduction in myocardial infarctions and 37% reduction in microvascular complications.¹⁵ However, evidence of a long term reduction in these key end points following periodontal therapy is limited and there is insufficient evidence to demonstrate that improvement is maintained after four

months.¹³ There is also evidence of an association between atherosclerotic cardiovascular disease and oral health.¹⁶

According to the World Health Organisation dental caries affects almost all adults¹⁷ and negatively influences speech, nutrition, growth and function, and social interactions.¹⁸ Carious lesions can result in pain and emotional distress for patients and despite a reduction in dental caries social inequalities exist in dental health and have a significant clinical burden.¹⁹ Fluoride toothpaste is the most effective evidence based oral health preventative measure, for which pharmacists are potentially in a position to promote.²⁰

To investigate oral health promotion opportunities in community pharmacy, a pilot oral health promotion intervention was introduced in five HLPs. Pharmacies were located in deprived areas of County Durham, between September and December 2016. The Index of Multiple Deprivation ranks each area of England, with 1 being the most deprived and 32,844 the least. The IMD rank ranged from 4,471-11,406 for the five pharmacies participating in the pilot. The pilot was discussed with the Local Dental Network who were aware of the project and the potential for patients to throughput into local services.

The objectives of the pilot were as follows:

- To explore whether community pharmacies are a suitable venue for a brief oral health intervention
- To explore any barriers or facilitators for this brief intervention
- To explore the training needs required for the brief intervention.

Methodology

The pilot was made possible through a unique collaboration between Durham County Council Public Health Team, County Durham and Darlington Local Pharmaceutical Committee, County Durham and Darlington Foundation Trust and the University of Sunderland.

Enablers for the scheme included that:

- The initiative formed part of the overall County Durham Oral Health strategy
- The public health team worked with the local oral health promotion team to deliver the training to the pharmacy staff
- The public health pharmacist role was central to making the necessary key stakeholder links and to driving this scheme forward.

The County Durham and Darlington Foundation Trust (CDDFT) oral health promotion team provided training for pharmacy staff before delivering the intervention. This included pharmacists, pharmacy technicians and pharmacy assistants, with multiple members of staff in each pharmacy receiving training. The training session was designed to enable pharmacy staff to provide the recommended advice specified by Public Health England, in the *Delivering better oral health* toolkit.²¹ This training session lasted for one hour and 45 minutes and was delivered by the CDDFT oral health promotion advisor; content included a detailed presentation on oral advice on caries prevention, the fluoride content of toothpaste, appropriate dietary advice and a practical demonstration on how to look after dentures or clean teeth correctly with a phantom demonstrator head (mouth model).

Following the training session, each pharmacy was asked to provide the intervention to 200 patients during a three month period. Trained pharmacy staff approached patients aged 18 years of age or over and those in receipt of free prescriptions to ensure deprived communities were targeted, demonstrating how teeth should be cleaned through the use of a phantom demonstrator head and large toothbrush. Supporting information and advice to back up the intervention from the Oral Health Foundation and details of local dental providers were offered to each patient. A bag containing 1,500 ppm fluoride toothpaste, a soft to medium texture small head toothbrush and an information leaflet supporting the advice given during the intervention were given to each patient. Interventions lasted approximately 5-10 minutes with a format which could be transferable to any community pharmacy.

Patients were asked to complete an evaluation questionnaire following the delivery of the intervention. The questionnaire was kept brief to encourage completion and consisted of non-identifiable demographic information, details of the patient's last dental appointment and three questions regarding the intervention. The use of Likert scales in the questionnaires formed a multiple indicator, measuring feelings about the subject in question. Data was uploaded by service providers to PharmOutcomes and analysed descriptively.

Qualitative methodologies were employed to evaluate the service from the perspectives of the pharmacy staff. Semi-structured interviews

were undertaken with the pharmacy staff member leading on the intervention; interviews consisted of open ended questions allowing participants to share their views on the service and for emerging concepts to be explored further during the interview process.

Ethical approval was granted by the University of Sunderland Research Ethics Committee to evaluate the pilot.

Results

Patient evaluation

The intervention was delivered to 1,069 patients during the course of the pilot. All patients completed evaluation questionnaires on their perceptions of the intervention, with a 100% response rate to each question.

The modal age group was >65 years, dominating the population with 32.18% (n = 344) of participants. The mean age of the population was 51.97 years, with a standard deviation of 18.59 years, indicating an older sample population. More female patients 64.70% (n = 692) participated than males 35.3% (n = 377).

Participants were asked if they would like to be given details of their local dental practices; 72.59% of patients (n = 776) agreed to be given this information.

The majority of patients had visited the dentist within the past year, 63.42% (n = 678), with 16.37% (n = 175) visiting the dentist '1-2 years ago' and 20.21% (n = 216) 'more than two years ago'; the response rate for visiting the dentist 'more than two years ago' was highest in the >65 years group at 29.07% (n = 100).

Figure 1 illustrates the responses of patients on their perceived knowledge regarding oral

health after receiving the intervention. A total of 766 participants responded 'much better' (71.65%); only 1 (0.09%) patient commented negatively towards the question.

When asked about changing the way patients intended to look after their teeth following the intervention, a total of 701 (65.58%) responders commented 'definitely' (Fig. 2).

Patients were asked if the pharmacy is the right place to receive advice about their teeth (Fig. 3); 686 (64.20%) of patients responded with 'definitely'. A total of 35 (3.27%) participants commented negatively to the question posed, with 'probably not' or 'definitely not'.

Qualitative evaluation

A total of five pharmacy staff from four of the pharmacies participated in face to face semi-structured interviews; one pharmacy was unable to participate at the time the interviews were conducted. One participant was a pharmacist and four were pharmacy assistants.

Interviews were recorded, transcribed verbatim and analysed thematically. A number of smaller sub-themes emerged from the data which were grouped together to produce three overarching themes; the three key themes were (1) intervention feedback, (2) knowledge gap and (3) service development.

Theme 1: Intervention feedback

Positive pharmacy response:

The interviews indicated that the intervention received a positive response from the pharmacy teams participating in the pilot.

P1: 'For this pharmacy, it was the best thing that we have ever taken part in, by some margin.'

Positive patient response:

It was reported by participants that patients receiving the intervention responded positively to the pilot.

P1: 'We were getting people coming back saying 'Oh absolutely amazing.'

Acceptability of service:

It was perceived that patients were accepting towards the intervention and advice given to them by pharmacy staff.

CA3: 'talking to people as well, people found it interesting.'

Recruitment:

It was described by pharmacy staff that recruitment of patients for the intervention was relatively easy.

CA2: 'There were a lot of people who were really interested and who actually didn't know how to look after their teeth.'

Appropriate training:

The participants reported that the training they received was sufficient for the intervention and they were able to deliver an appropriate amount of information to patients.

P1: 'The level of the training and the answers that we were able to give them seemed to be sufficient.'

Theme 2: Knowledge gap

Improved provider knowledge:

The interviews identified that there was an improvement in the knowledge of pharmacy staff after receiving the training for the service.

CA3: 'One of things I didn't realise until I came back was the amount of toothpastes on the market that don't actually have any fluoride in that people use.'

Dental/oral association:

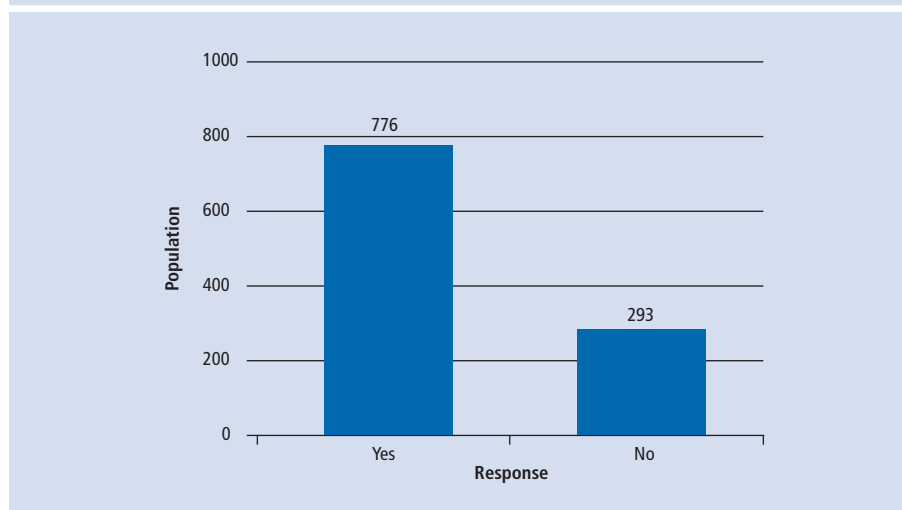
Participants reported that many individuals receiving the intervention did not realise that oral health concerns more than teeth alone.

CA4: 'What I found was one of the important things, that people who thought because they had no teeth anymore, they didn't have to go back to the dentist.'

Recommended care:

The participants described that customers needed to be recommended appropriate care and counselling on the fluoride content in toothpaste, correct techniques for brushing teeth, mouthwash usage and denture care.

Fig. 1 Participant responses - Would you like to be given details of local dentists?



CA2: 'A lot of people couldn't understand why you wouldn't want to wash your mouth out after you cleaned your teeth.'

Theme 3: Service development

Signposting:

It was highlighted that pharmacy staff were signposting patients and wanted to know the protocol with signposting; indicating it would be advantageous to integrate dental services into the intervention.

CA1: 'We gave the options of the nearest dental practices to us.'

Widening participation:

It was discussed by participants that widening the age range for the scheme would improve knowledge and outcomes for a greater population and they could potentially target the service to patients unable to physically attend the pharmacy, through regular contact during deliveries or house calls.

CA4: 'Visual things with children bring them so much ... I would definitely want to aim it at children.'

CA1: 'It would have been quite nice for me to offer that service to my housebound patients.'

Interprofessional communication:

Participants spoke about how communication between professions was paramount to ensure the success of the service and to check patients were followed up and taking advice from the intervention.

P1: 'The dentist was more than happy, he was really happy with the feedback.'

Discussion

Quantitative and qualitative data from both patients and pharmacy staff has demonstrated the acceptability of the community pharmacy pilot oral health intervention.

Positive feedback towards the service from patients was evident; patients self-reported improved knowledge and an intention to change their oral health routines following the intervention. A significant majority (71.65%) of patients described their knowledge as 'much better' following the intervention.

The intervention was able to identify a pool of patients who do not attend for routine dental appointments: 16.37% (n = 175) of patients had not been to see a dentist in the past two years; patients over the age of 65 years were most likely to fall into this category. This

Fig. 2 Participant responses - After today, do you intend to change the way that you look after your teeth?

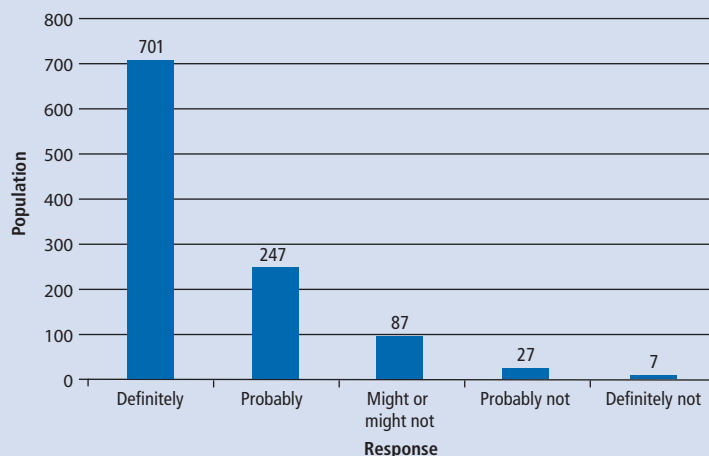
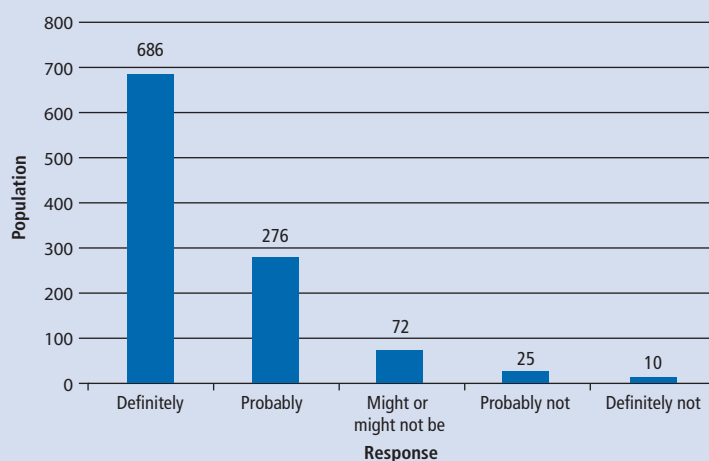


Fig. 3 Participant responses - Is the pharmacy the right place to receive advice about your teeth?



provides evidence that pharmacies are able to identify and connect with patients who are not currently dental attenders.

Qualitative data from pharmacy staff produced a number of key findings. Concepts were grouped into three key themes: intervention feedback, knowledge gap and service development.

The feedback on the intervention from pharmacy staff supports the positive findings reported in the patient evaluation. Pharmacy staff reported that patients were accepting of the service and that there were no major issues in recruiting patients. The training which staff received was felt to be appropriate for the service requirements and staff had been able to provide consultations and respond to patients questions.

The evaluation has identified that the training received improved the knowledge of pharmacy staff in relation to oral health, in

particular around which products that they should recommend for patients. Most participants reported that patients would often only associate oral health with their teeth, especially those patients with dentures.

Participants identified a number of key issues for the future development of this service. Integration of the service with the dental team, improving interprofessional communication and widening participation to include children or housebound patients were identified as facilitators for service improvement. Participants were conscious that these developments may result in a requirement for further training of pharmacy staff.

The qualitative results from this study reflect the findings in the existing literature, supporting the acceptability of oral health promotion as part of the role of the community pharmacist. The literature to date

has identified a willingness among the various types of pharmacy staff to engage in oral health promotion⁹⁻¹⁰ but has not really explored what sort of role this should take. Pharmacists, pharmacy technicians and counter assistants all provided the same intervention during this pilot, although further research could explore who is best placed in the pharmacy to provide such services and what format these could take.

This pilot has trialled a simple oral health promotion intervention and demonstrated the potential of community pharmacy in this field.

Over 1,000 patients received the pilot intervention, which has produced sufficient data to draw conclusions on the scheme. Qualitative data from service providers has correlated with the positive patient findings and the acceptability of the service. It has also provided insight into potential facilitators for service improvement.

There was no method of assessing the long-term impact on the oral health of the population receiving the intervention. The only feedback given was self-reported, and therefore there is a lack of evidence to confirm behavioural changes in participants or to demonstrate any improvements in oral health outcomes.

The pilot was delivered in only five pharmacies and as HLPs they are, by their nature, engaged with public health promotion. The findings are likely transferable to similar settings; however, it is not possible to generalise findings as non-HLPs may not provide the same outcomes. Although HLP status now forms part of the national pharmacy contract and is part of the community pharmacy Quality Payments scheme.

The intervention provided remuneration for participating pharmacies and as such providers are likely to be supportive of the service, especially under the current climate of cuts to pharmacy services.

This pilot has provided the basis for future research into this area and opportunities to introduce such services, delivered in community

pharmacies, should be explored by commissioners. The association of poor oral health with long term conditions such as diabetes, a reduction in dental antibiotic usage and screening programmes for oral cancers could all potentially be facilitated through community pharmacy based interventions. Further research and exploration of the potential role of community pharmacy in the delivery of oral healthcare may lead to the development of high quality evidence based services making positive changes to the health of the population.

Conclusion

Our findings demonstrate that the delivery of an oral health promotion intervention in the community pharmacy fits with the role of the HLP. Such services are accepted by patients and pharmacy staff and have the potential to provide positive changes to the oral health of the population.

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Contributors

AS, CJ and CW designed the intervention; AS designed the evaluation; AS and HC analysed the patient evaluation data, performed the interviews and analysed the qualitative data; HC transcribed the qualitative data; AS prepared the manuscript which was reviewed by CJ, CW, HC and LB.

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