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Why might patients in the UK consult a general medical practitioner when experiencing dental problems? A literature review of patients' perspectives

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Objective: to systematically appraise and synthesise the existing evidence regarding the reasons why patients in the UK may consult a general medical practitioner (GMP) when experiencing a dental problem. ***Basic research design***: a systematic review of the scientific and grey literature published between 1996 and 2017. ***Participants:*** dental service users (adults or children) from the UK and/or their carers who were seeking, or had sought, care for a dental problem from a GMP. ***Main outcomes:*** patients' perspectives on reasons for consulting a GMP were qualitatively synthesised according to Levesque *et al.*'s conceptual framework of access to health care. ***Results:*** Out of 1,232 references screened, 2 studies met the inclusion criteria for the review. They identified the following factors that can influence care-seeking for dental problems: patients' interpretation of their symptoms; their understanding of practitioners' scope of practice; the availability of timely dental care; and the affordability of care. Both studies had weaknesses with regard to either their conduct and/or reporting. ***Conclusions:*** Choice of practitioner for dental problems is likely to be influenced by both the beliefs and attitudes of the individual patient and the organisation and attributes of the providers of dental and medical care. However, in light of the quality of the existing evidence base, there is a need for high-quality studies exploring the reasons why patients in the UK may seek care from a GMP when experiencing dental problems.

Keywords: health services, dental care, health behaviour, health services accessibility, review

Introduction

It is thought that dental consultations account for approximately 0.3% of all patient contacts in UK general medical practice (Anderson *et al.,* 1999), and that this may amount to around 380,000 dental consultations with UK general medical practitioners (GMPs) every year (Cope *et al.,* 2016). GMPs are unlikely to have either the skills or facilities to diagnose and manage dental problems (Ahluwalia *et al.,* 2016), which may partly explain the high rates of antibiotic prescribing in these consultations (Anderson *et al.,* 2000; Cope *et al.,* 2016). Since antibiotics alone are unlikely to result in definitive resolution of most acute dental conditions (Scottish Dental Clinical Effectiveness Programme 2016), their inappropriate use in these consultations gives cause for concern. There are also direct, indirect and opportunity costs associated with such consultations, which place an economic burden on general medical practices.

In order to reduce consultation rates for dental problems in general medical practice, action is required to support patients so that they may access the most appropriate care when experiencing a dental problem. However, in order to design effective interventions to promote this, it is first necessary to understand why patients may visit a GMP when experiencing a dental problem.

Aim

The aim of the literature review was to systematically appraise and synthesise existing evidence regarding the reasons why patients in the UK may consult a GMP when experiencing a dental problem.

Methods

Criteria for considering evidence for inclusion

Type of evidence

All types of evidence, including that from the grey literature, were eligible for inclusion, with the exception of expert opinion pieces and literature reviews. However, reviews were read to identify potential studies not identified by the main search strategy.

Type of participant

Studies of dental service users (adults or children) and/or their carers who were seeking, or had sought, care for a dental problem from a GMP were eligible for inclusion. Studies that related only to care-seeking behaviour for potentially malignant lesions were not included.

Type of setting

Studies conducted in UK primary, secondary, or tertiary care were eligible for inclusion.

Type of outcome

Eligible studies described one or more reasons why a patient may consult a GMP when experiencing a dental problem.

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Date of studies

Studies published on or after 1st January 1996 were eligible for inclusion. Articles published before this point were considered unlikely to reflect the current health care environment.

Language

Since only studies conducted in the UK were suitable for inclusion, it was considered appropriate to limit the search to English language articles.

Search methods for identification of studies

A detailed search strategy was developed for each database searched (Appendix 1). The searches were conducted in Embase (1996 to 3rd January 2018), MEDLINE without Revisions (1996 to December Week 4 2017), and PsycINFO (1806 to December Week 4 2017) via the OVID platform. The grey literature was searched using OpenGrey (to 3rd January 2018). The reference lists of included studies and any reviews were checked to identify any further resources. No additional hand searching was conducted.

Data collection and analysis

One author assessed the titles and abstracts (where available) of the articles identified by the search. Full-text versions of all articles being considered for inclusion were then obtained, as were those with insufficient information in either the title or abstract to make a clear decision. Two authors assessed the full-text versions against the predetermined inclusion criteria and made decisions regarding eligibility. Both then independently extracted data from the included studies using a standard data extraction form and compared results.

One author then assessed the included studies for methodological quality and risk of bias. Cross-sectional studies were appraised using the Appraisal Tool for Cross-Sectional Studies (AXIS) (Downes *et al.,* 2016) and qualitative studies were appraised according to criteria proposed by Walsh and Downe (2006). Assessment of quality was made based on published content. Study authors were not contacted to provide clarification.

The findings of papers were qualitatively synthesised using Levesque and colleagues' conceptual model for access to health care (2013) (Figure 1). This model provides a way of understanding how care seeking behaviours may be influenced by both the characteristics of patients, their carers and communities and also the characteristics of health care services and the individuals providing care (Levesque *et al.,* 2013). Its strength in the context of care seeking behaviour for dental problems is that it describes access as a dynamic interaction between health systems and the populations they serve.

In this model there are five dimensions of accessibility relating to the characteristics of health care services (approachability; acceptability; availability and accommodation; affordability; appropriateness), and these correspond to five dimensions of accessibility relating to the characteristics of individuals (ability to perceive; ability to seek; ability to reach; ability to pay; ability to engage).

Results

After de-duplication, electronic searches yielded 1,205 unique references. Twenty-seven references were identified from additional sources. After examination of the titles, and abstracts (where available), 1,185 references were excluded. Full text copies of the remaining 47 studies were obtained. At this stage a further 45 studies were excluded. Two studies satisfied the inclusion criteria and were included in the qualitative synthesis (Figure 2).

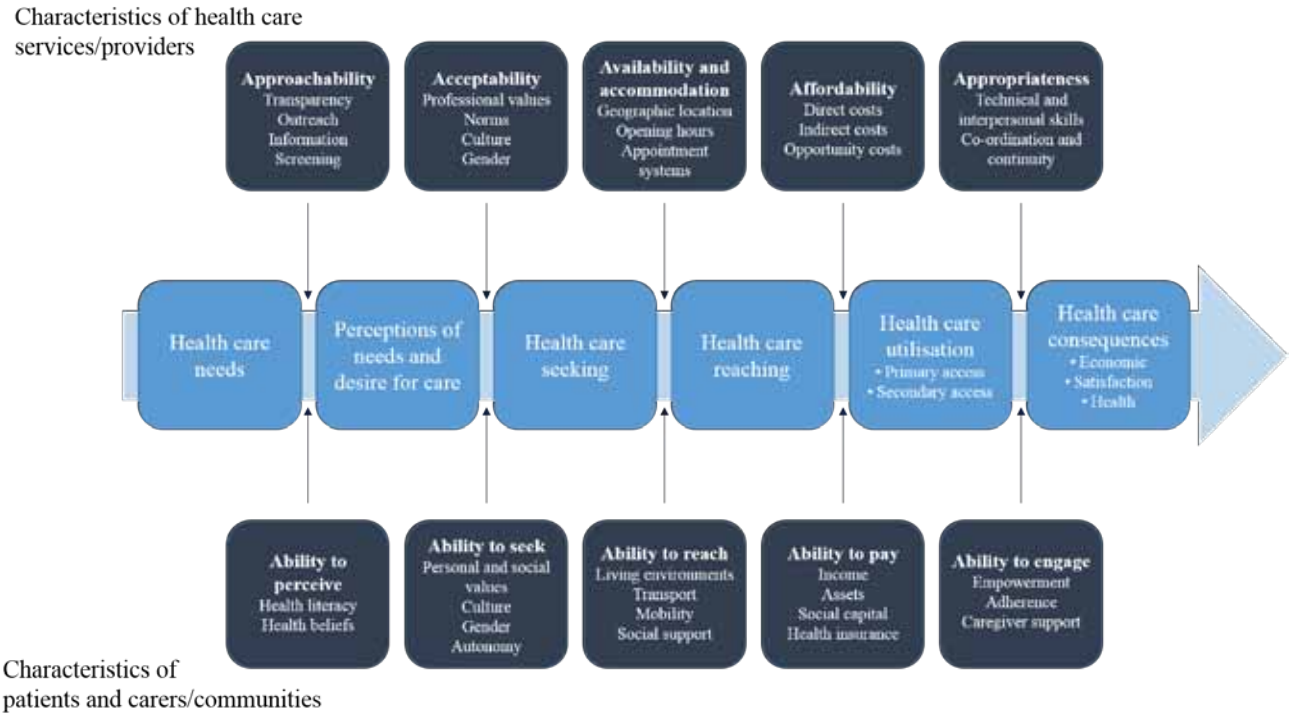

Figure 1. Levesque et al.'s (2013) conceptual framework of access to health care

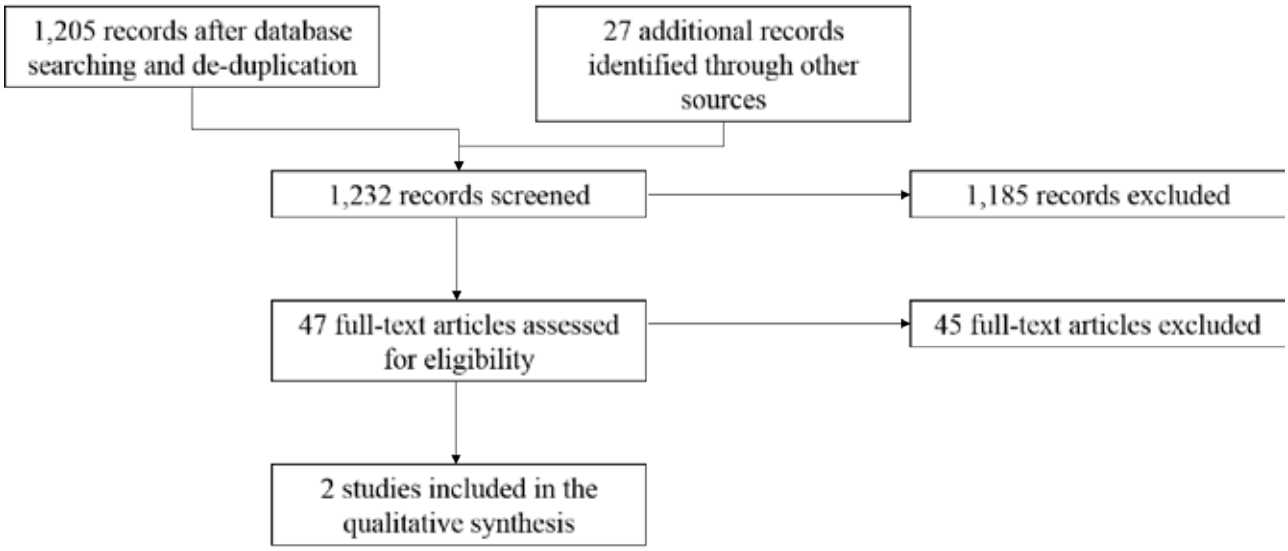

Figure 2. PRISMA flow diagram (Moher ***et al.,*** *2009)*

Study design

One qualitative study (Pau *et al.,* 2000) and one cross-sectional study (Bell *et al.,* 2008) were included in the review. In the study by Pau and colleagues (2000) data were collected via unstructured in-depth interviews. In the cross-sectional study by Bell and colleagues (2008) data were gathered via a questionnaire.

Participants and settings

The study by Pau and colleagues (2000) included 35 adults (aged 18 years or older) presenting with toothache at a dental teaching hospital emergency clinic in London. The study by Bell and colleagues (2008) included 220 patients referred to an Oral and Maxillofacial Surgery (OMFS) department in southern Scotland.

Reported outcomes

The study by Bell and colleagues (2008) described participants' perceptions of the training, experience, and skills of medical and dental practitioners in treating orofacial symptoms and determined patients' preference of medical or dental practitioner for a variety of dental and non-dental orofacial symptoms. It reported outcomes related to the following domains of Levesque *et al.*'s model: ability to perceive; availability and accommodation; and affordability.

In contrast, the study by Pau and colleagues (2000) did not explicitly set out to investigate factors that might influence patients' choice of practitioner for a dental problem. Instead the study explored patients' experience of toothache. However, the study was included in the review as it met the inclusion criteria and reported a factor that may influence a patient's decision to seek care from a GMP when experiencing a dental problem as a secondary outcome. The reported outcomes related to the ability to perceive domain of Levesque *et al.*'s model.

Study quality

The authors' judgments about the quality of design, execution, and reporting of each included study are presented in Figures 3 and 4.

The qualitative study conducted by Pau and colleagues (2000) (Figure 3) met most of the criteria proposed by Walsh and Downe (2006); investigators selected qualitative methods appropriate to addressing the research question and the methods were generally well described, however the authors did not discuss the epistemological or ontological grounding of the investigation. Whilst the context in which the data were collected was briefly considered as part of the interpretation of findings, the authors did not sufficiently demonstrate reflexivity in considering how the researchers' own identity, assumptions, and behaviour may have impacted on the qualitative inquiry. Considering that the interviewer was a dentist and participants' responses may have been influenced by social desirability bias, it is a weakness of the study that the potential effect of this was not discussed.

The study by Bell and colleagues (2008) met some of the AXIS criteria (Downes *et al.,* 2016) (Figure 4). The study sought to investigate participants' perception of scope of practice and preference for medical or dental conditions for oro-dental conditions, but only included individuals referred to a secondary care OMFS department in the sampling frame. The sample was therefore unlikely to be representative of the wider population of individuals experiencing dental problems who consult a GMP, only a small proportion of whom would be referred for specialist care. Furthermore, although the recruitment methods were generally well described, no sample size calculation was presented, potentially leaving the study underpowered. In the results of the study, investigators did not present a summary of participant characteristics, making it impossible to determine the degree to which these patients may be representative of a wider population. In addition, whilst outcome data were generally well presented, authors did not report confidence intervals when making comparisons between groups, making it difficult to determine whether any differences were clinically meaningful. Finally, the article did not discuss the limitations of the study, whether ethical approval had been sought and how the study was funded.

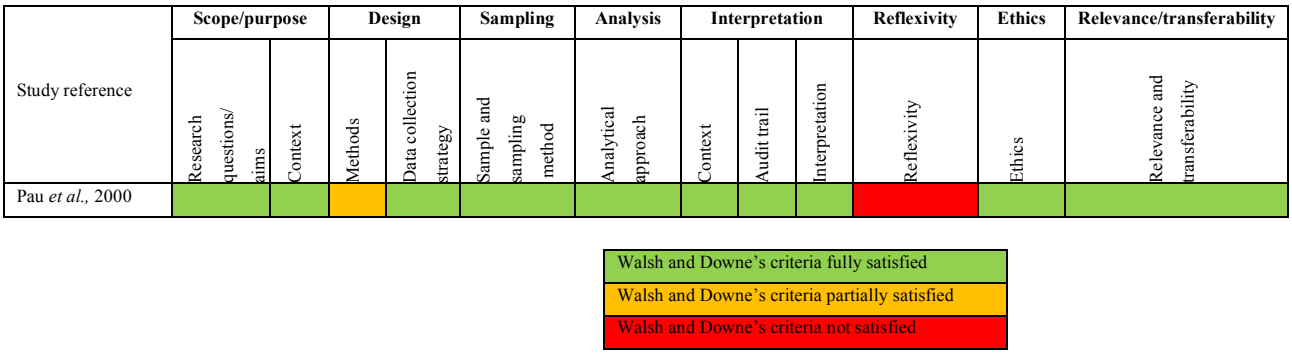

Figure 3. Summary of quality assessment of qualitative studies using Walsh and Downe's criteria (2006)

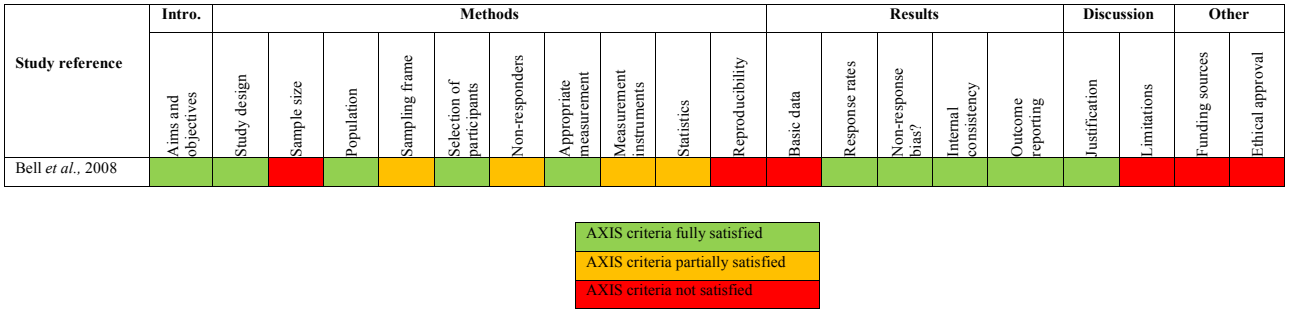

*Figure 4. Summary of quality assessment of cross-sectional studies using AXIS (Downes **et al.** 2016)*

Findings of studies

Ability to perceive

Every care-seeking journey starts with the identification of a need for care. This is typically described as a felt need (Bradshaw, 1972), since it is subjective and is determined by the patient's experience of their condition, cognitive schema regarding dental health and disease, and their health literacy. In the study by Pau and colleagues (2000) there was evidence that patients' interpretation of their dental symptoms may influence their choice of health care provider. The authors describe an example of a female participant who initially thought the pain she was experiencing was due to an ear infection, rather than a dental problem, so consulted her GMP before presenting for dental care.

'I went to the doctor to check if it was an ear infection but he said it was definitely my tooth.' Pau *et al.* (2000), p.504

Once a patient has a felt need for health care, they then need to identify a practitioner with the necessary skills to address it. There is evidence that an individual's health beliefs, such as those around scope of practice of health care providers, can influence their care-seeking behaviours for their dental problems. In the cross-sectional study of individuals referred to an OMFS department in Scotland conducted by Bell *et al.* (2008), just over half of the 220 participants (51%) had been referred by a dentist, whilst the remainder had been referred by a GMP. Amongst participants referred by a GMP, 77% reported that they considered doctors to be more able to treat problems of the mouth or jaws than dentists, compared to 43% in the group referred by dentists, a difference that was statistically significant ($p<0.001$). Similarly, 73% of participants referred by GMPs considered doctors to have more training than dentists in diseases of the mouth, face, or jaws, compared to 47% amongst the dentally-referred sub-group ($p<0.001$) (Bell *et al.,* 2008). When asked whether they would choose to consult a doctor or dentist for a range of orofacial problems, 65% of all participants reported that they would prefer to consult a doctor if suffering from mouth ulcers and 24% would consult a doctor if suffering from bleeding gums. However, only 3% of respondents reported that they would prefer to consult a GMP rather than a dentist when experiencing toothache, indicating that perceptions of scope of practice may only play a minor role in determining choice of health care practitioner during episodes of dental pain.

Availability and accommodation

Having identified a suitable dental care provider, patients must then be able to obtain an appointment in what they consider to be an acceptable timeframe (Levesque et al. 2013). If waiting times for care differ between medical and dental services, this may affect patients' decision regarding which health care professional to consult. In the study by Bell and colleagues (2008), 80% of respondents identified that it was easier to obtain an appointment with a GMP than a dentist, and this was significantly higher amongst patients referred by GMPs ($p=0.001$). This indicates that ease of getting an appointment may lead patients to consult a GMP in preference to a dentist.

Affordability of dental care

Perceptions of the affordability of care relate to an individual's economic capacity, as well as the direct, indirect, and opportunity costs associated with care (Levesque *et al.,* 2013). There was evidence that direct costs associated with dental care may influence patients' decision to contact a GMP when experiencing a dental problem. Amongst respondents referred to the OMFS department by their GMP in the study by Bell *et al.* (2008), a quarter (26%) reported that having to pay to see a dentist but not a doctor would influence who they would consult for a problem of the mouth or jaw.

Discussion

The aim of this review was to summarise the current evidence regarding the reasons why patients may consult a GMP in the UK when experiencing a dental problem. The current synthesis includes two studies published in 2000 and 2008, which together highlight a number of factors that may influence patients' choice of health care provider when experiencing a dental problem. These include: patients' interpretation of their symptoms; their understanding of practitioners' scope of practice; the availability of timely dental care; and the affordability of care available (Pau *et al.,* 2000; Bell *et al.,* 2008). The findings of this review indicate that care-seeking for dental problems is influenced by both the beliefs and attitudes of the individual, and the organisation and attributes of those providing care. Secondly, findings suggest there are likely to be multiple critical points along the patient care-seeking journey where individuals may either be unable to access dental care, or may be influenced to consult a GMP in preference to a dentist. However, there were limitations associated with both the conduct and reporting of the two studies included in the review. One study included a sample that was unlikely to be representative of the wider population of patients who consult their GMP with a dental problem, whilst the other failed to demonstrate adequate reflexivity. As a result, caution should be exercised when considering the findings of these studies. There is therefore a paucity of high quality studies regarding patients' motivations for consulting a GMP rather than a dentist due to dental problems.

This literature review employed a comprehensive search strategy across multiple electronic databases. This would have ensured that the majority of eligible studies in both the scientific and grey literature were identified. However, despite the use of pre-determined inclusion criteria, the use of a single author to screen search results and select eligible papers may have introduced a selection bias. Furthermore, no unpublished evidence (either unpublished studies or unpublished data from the included studies) was sought.

All studies included in the review were conducted in the UK. This decision was made on the basis that studies from outside the UK would be unlikely to sufficiently reflect the features of the UK health service in order to contribute useful findings to the review. For example, the distribution and accessibility of dental and medical services differs between countries, as do patient charges or the co-payments associated with medical and dental care. Nevertheless, there may have been some international studies which may have specifically examined factors that may influence patients to consult a medical practitioner during episodes of dental problems. The review also excluded evidence which related to the views of health care professionals as to why patients may consult a GMP when experiencing a dental problem. This decision was made on the basis that health care practitioners may not be fully aware of patients' true motivations for consultation. However, the inclusion of these studies could have provided further evidence regarding the motivations underlying dental consultations.

Dental conditions can occasionally present with unusual features such as cutaneous sinuses (Att, 2012), acute sinusitis-like pain (Liebgott, 1988), or orbital or auricular symptoms (Embong *et al.,* 2007; Dalla-Bona *et al.,* 2015). Referred or poorly differentiated pain has previously been identified in a study of GMPs as a reason why patients may present to general medical practice rather than a dentist during an episode of dental problems (Cope *et al.,* 2015). However, it is not currently possible to estimate the proportion of patients who present to GMPs under the mistaken impression this is a medical, rather than a dental problem, compared to the proportion who attend and aware they have a problem with their teeth or gums.

There was evidence from the current review that some patients consider doctors to have more training in the management of orofacial problems than dentists, and that this view may be particularly prevalent among individuals presenting to a GMP with an oro-dental problem. This corroborates the findings of a study conducted in the USA in which 21% of participants who had contacted a physician due to toothache did so because they thought that the physician could treat their condition (Cohen *et al.,* 2008). However, the diagnosis and management of dental conditions (other than the identification of oral malignancies) is not included in the Royal College of General Practitioners (2016) curriculum and there is evidence that the quality of oral health training received by GMPs is poor (Cope et al. 2015; Ahluwalia et al. 2016). This discrepancy between perceived and actual scope of practice of GMPs suggests a need for accessible patient-facing information regarding which health care professional to consult when experiencing oral problems. This should particularly highlight the role dental practitioners can play in the management of soft tissue conditions such as potentially malignant lesions, where dentists may be better placed to identify pathology than doctors (Carter and Ogden, 2007).

Difficulty 'registering' with an NHS dentist has frequently been described as a barrier to accessing dental care in the UK (Borreani *et al.,* 2010; Goodwin and Pretty, 2011; Marshman *et al.,* 2012). However, neither of the studies included in the current review identified this as a reason why patients may consult a GMP when experiencing a dental problem (Pau *et al.,* 2000; Bell *et al.,* 2008). This may be due to the populations included in the respective studies. However, one study did identify that most participants considered doctors to be more accessible than dentists when booking an appointment (Bell *et al.,* 2008). This suggests that factors such as opening hours, appointment systems, and waiting time may influence patients' consultation behaviour for dental problems. However, more research is needed to explore these factors.

One study included in the review identified that the direct costs associated with dental treatment can affect choice of health care professional (Bell *et al.,* 2008). The cost of dental treatment is a barrier to accessing dental care (Goodwin and Pretty, 2011; Hill *et al.,* 2013; Worsley *et al.,* 2017), and deferring dental treatment due to cost is associated with presentation within unscheduled care (Nayee *et al.,* 2015). However, since unwillingness to pay for dental care has also been identified as a barrier (Falcon and Hurst, 1998; Calnan *et al.,* 1999), future studies should quantify the extent to which dental consultations in general medical practice are driven by financial motivation and whether these primarily relate to an inability, or an unwillingness, to pay for care.

None of the studies included in the current review considered factors that could influence the care seeking behaviours of parents/carers of children with dental problems. Since the study by Muirhead and colleagues (2018) suggests that parents and carers may consult a GMP when unsure about what health care services to use, future studies should specifically seek to explore factors influencing care seeking for dental problems amongst this group.

Better understanding of the reasons why patients may seek care from a GMP rather than a dentist when experiencing problems of the teeth or gums is clearly needed. This in turn should facilitate the design of interventions to reduce consultation rates for dental problems in general medical practice in the UK. This could be approached using qualitative methods, in order to capture the richness and complexity of influences on patients' care seeking behaviour. Alternatively a cross-sectional design could be employed, in which dominant influences on consultation behaviour are quantified amongst a representative sample of the UK population who have sought care from a GMP for a dental problem.

Conclusion

Dental consultations in UK general medical practice are neither an effective nor efficient use of NHS resources. Patients are unlikely to receive the most appropriate care for their dental condition, contributing to concerns regarding patient morbidity from untreated dental disease and inappropriate antibiotic use. This review has identified a number of factors that may influence patients' decisions regarding choice of health care professional during episodes for dental problems. Care-seeking for dental problems is likely to be influenced by both the beliefs and attitudes of the individual (or their carer), and the organisation and attributes of dental and medical care providers. However, there is currently no evidence as to the effect that other contextual factors, such as dental anxiety or travelling time, can have on care-seeking behaviour for dental problems. Furthermore, some of the existing evidence is of poor quality and vulnerable to bias. There is therefore a need for further high-quality studies exploring the reasons why patients in the UK may seek care from a GMP when experiencing dental problems.

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Appendix 1 – Search strategies

Search strategy for OVID platform

1. Health Services Accessibility/
2. Patient Acceptance of Health Care/
3. barrier$.tw.
4. difficult$.tw.
5. 1 or 2 or 3 or 4
6. (dental or dentistry or oral care or mouth care).tw.
7. exp dental care/
8. 6 or 7
9. 5 and 8
10. (practitioner choice or physician choice or professional choice).tw.
11. (practitioner preference or physician preference or professional preference).tw.
12. (practitioner selection or physician selection or professional selection).tw.
13. (care seeking or care-seeking or treatment seeking or help seeking or health care seeking).tw.
14. (care-seeking or treatment-seeking or help-seeking or healthcare-seeking or health care-seeking).tw.
15. (reason$ or motivation$ or decision$ or choice$).tw.
16. consultation behaviour.tw.
17. 10 or 11 or 12 or 13 or 14 or 15 or 16
18. health knowledge, attitudes, practice/
19. (general practitioner or medical practitioner or GP or doctor).tw.
20. (general practice or family practice or doctors).tw.
21. 18 or 19 or 20
22. 9 or 17 or 21
23. exp Mouth diseases/
24. (oral pain or mouth pain or dental pain or tooth pain).tw.
25. (oral symptoms or mouth symptoms or dental symptoms or tooth symptoms).tw.
26. (oral condition or mouth condition or dental condition or tooth condition).tw.
27. (oral problem or mouth problem or dental problem or tooth problem).tw.
28. (dentoalveolar pain or orodental pain or orofacial pain).tw.
29. (dentoalveolar symptoms or orodental symptoms or orofacial symptoms).tw.
30. (dentoalveolar condition or orodental condition or orofacial symptoms).tw.
31. (dentoalveolar problem or orodental problem or orofacial problem).tw.
32. 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31
33. exp Great Britain/
34. exp United Kingdom/
35. (United Kingdom or UK).tw.
36. (England or Scotland or Wales or Northern Ireland).tw.
37. 33 or 34 or 35 or 36
38. 22 and 32 and 37

Search strategy for OpenGrey

Dental* AND barrier*
Dental* AND general practice*
Dental* AND GP*
Dental* AND access*
Tooth* AND barrier*
Tooth* AND general practice*
Tooth* AND GP*
Tooth* AND access*