Educational interventions and retention of the primary care workforce: what has been done before? A scoping review

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Key points

- Educational interventions can have a positive impact on retention of the primary care workforce.
- Those implementing interventions must engage with stakeholders when developing the programmes.
- Evaluation of the schemes should be planned from the outset and findings shared to enable others to learn when designing future programmes.

Abstract

Introduction and aim NHS primary care dentistry is facing a workforce crisis. Education and training opportunities have been suggested as an approach to improve retention. This review aims to summarise the literature available on educational interventions and their impact on primary healthcare workforce retention.

Methods A recommended scoping review methodology was employed. Electronic databases (n = 6), grey literature and organisational websites were searched. Stakeholders were consulted to support interpretation of the findings and development of recommendations.

Results A total of 21 items were included (peer-reviewed: *n* = 20; grey literature: n = 1). Publication dates ranged from 1976–2022 and originated from seven countries. The majority were case studies and none focused on dentistry. Interventions varied from small group learning to formal training programmes, with most aimed at either specified career timepoints or clinicians working in specific primary care settings. Methods of evaluation typically involved questionnaires following programme completion.

Conclusion Workforce retention is complex, with educational interventions having a potential role to play in improving retention. Areas of future research include: 1) improvement in the co-design of these interventions, particularly exploring when such programmes could be most beneficial during career pathways; and 2) improved evaluations including investigation of longer-term employment patterns.

Introduction

In the United Kingdom (UK), free or subsided dental care is provided through the National Health Service (NHS). There are numerous factors that influence dental practitioners' choices to provide dental care that is publicly and/or privately funded.[1] Currently, there is a workforce crisis within NHS primary care dentistry,[2] with widespread reports of people unable to access care.[3] This crisis is not isolated to dentistry and shortages in multiple healthcare professions have been reported.[4]

The *Long-Term Workforce Plan*,[5] published in response to the workforce crisis, sets out actions to train, retain and reform the NHS workforce. The specific actions laid out for the dental workforce include increasing training places for undergraduate dentistry; however, this has been challenged by the British Dental Association as failing to address workforce retention.[6]

While the contractual arrangement for providing publicly funded care is undoubtedly a key factor in retention, other factors, including opportunities for skills development, have also been found to be influential.[1] A recent literature review investigating factors contributing to job satisfaction of UK NHS dentists discussed how educational opportunities to gain further qualifications and develop skills are also linked to retention.[7]

Given the policy emphasis on the workforce crisis and lack of attention specifically to retention, further research is needed to develop, evaluate and implement interventions to promote retention in NHS dentistry, including, potentially, education interventions. However, before such research commences, a summary of the current literature on education interventions promoting retention is needed.

Aim

This scoping review aimed to identify and present the available information regarding existing educational interventions, how they have been evaluated and any effects on retention of the primary healthcare workforce.

Although the differences across primary healthcare professions are acknowledged in terms of working patterns and payment structure, this review was kept broad to capture learning which could be applied to primary dental care.

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Table 1 Inclusion and exclusion criteria

Heading	Inclusion	Exclusion
Participants	Registrable healthcare professions	Undergraduate students
Interventions	Education interventions: • Continuing professional development • Support networks • Coaching • Mentoring	• Other retention schemes not including education • Creation of new posts • Interventions focused on recruitment
Content	Primary healthcare	• Secondary healthcare • Tertiary healthcare • Care homes
Other		• Articles unavailable in English • Articles with full texts unavailable • Opinion pieces • Conference proceeding

Table 2 Data extraction headings

Article information	Citation, journal, year, country, profession(s), sample size
Education intervention described	Intervention name, aim, year, commissioner, how participants were recruited, activities involved, who delivered the education, intervention theory, mode and frequency of delivery, any refinements described
Evaluation	Effect on retention described source of funding of the evaluation
Limitations of the study	
Recommendations	

Methods

A scoping review is well-placed to discover the breadth of literature available and identify existing gaps. This scoping review was conducted using the Arksey and O'Malley five-stage framework,[8] with Levac[9] enhancements. A protocol was developed based on the Joanna Briggs Institute resources.[10] This is available on request from the authors.

Stage 1: Identifying the research questions

The review question was developed using the PCC (population, concept, context) framework:[11] what is the nature of the educational interventions that have been described in relation to helping aid the retention of primary health workforce? This was further developed to: 1) clarify the registrable healthcare professions to be included, namely general medical practitioners (GMPs), nurses, pharmacists, dentists and optometrists; and 2) describe the details of how the effect on retention of the educational interventions was evaluated

Stage 2: Identifying relevant studies

The peer-reviewed and grey literature searches were conducted separately.

Peer-reviewed literature

A pilot search was undertaken on Medline (via OVID) and used to develop a full search strategy. An information specialist reviewed the strategy (see online Supplementary Information File 2) and this was adapted for other databases, including Embase, ERIC, CINAHL, Web of Science and the Cochrane database. All searches were conducted (JR) in September 2024. Findings were exported to Endnote and duplicates removed. Reference lists were searched for systematic reviews. Forward and backward citation searching of included studies was also undertaken.

Grey literature

The grey literature search was conducted after the peer-reviewed literature search and included Overton and key organisations' websites. This search was limited to England because this was most likely transferrable to NHS dentistry (see online Supplementary Information File 1).

Stage 3: Study and information selection

Peer-reviewed

Two reviewers (JR and SE) screened the title and abstract of all retrieved citations against the inclusion/exclusion criteria (Table 1).

Potentially relevant articles were retrieved for full-text review and read independently by two reviewers (JR and SE). The reviewers met several times during the search process to discuss disagreements. A third reviewer (ZM) was consulted when needed.

Grey literature

The same inclusion and exclusion criteria were applied to the results of the grey literature search.

Stage 4: Data charting

Peer-reviewed literature

Data from included articles were extracted and summarised using a bespoke data extraction spreadsheet. The extraction sheet was independently piloted, with two papers, by three reviewers (JR, SE and ZM) and refined.

The information extracted is summarised in Table 2. The details of interventions were based on the Template for Intervention Description and Replication checklist.[12]

Stage 5: Collating, summarising and reporting results

Peer-reviewed literature and grey literature

The results were summarised and described according to study characteristics, target population, description of the intervention, evaluation method and reported gaps in the literature.

Stage 6: Consultation

Stakeholder consultation was undertaken to gain additional perspectives on the findings, how they could be translated into dentistry and to identify any other sources of information for the grey literature search. Discussions took place with representatives from commissioning (two local dental network chairs, a regional chief dentist, workforce commissioning managers), postgraduate training (an associate dean and a training lead) and NHS dentistry (early career NHS general dental practitioner [GDP] and a foundation dentist).

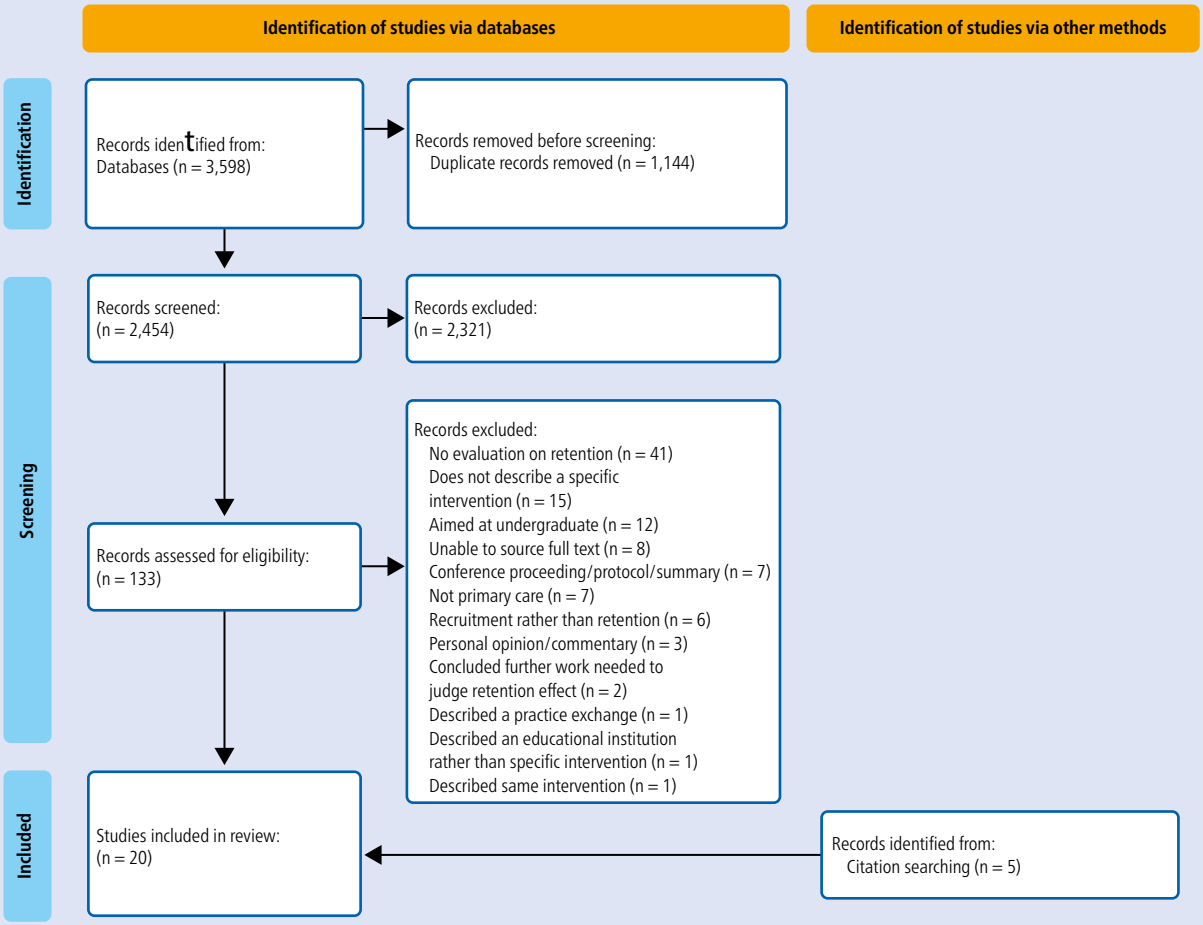
Results

A total of 21 papers were included in this review (peer-reviewed: n = 20; grey literature: n = 1).

Peer-reviewed literature

Electronic database searches identified 3,598 articles. After removal of duplicates, 2,545

Fig. 1 PRISMA 2020 flow diagram



underwent title and abstract screening, then 133 progressed to full-text review. After applying inclusion/exclusion criteria, 15 papers were included, and forward and backward citation searching identified five additional papers (Fig. 1).

Study characteristics

Study designs included 19 case studies and one randomised control trial.[13] Articles were from seven different countries: England ($n=7$), the United States of America (USA) (n = 7), Scotland (n = 2), Ireland (n = 1), Canada (n = 1), Norway (n = 1) and Switzerland (n = 1). Evaluations started in 1976,[14] with the most recent in 2022.[15]

What kinds of interventions?

The interventions included educational programmes, which varied from small study groups to longer multi-year programmes involving placements or employment in specific practices (see online Supplementary Information File 2).

Who was the intervention aimed at?

All but one of the papers were aimed at GMPs/family physicians or nurses working in primary care. The remaining paper[16] discussed the creation of different clinical directors networks in community health centres, with a small reference to a dental network. No other primary care professions were described.

Most papers were aimed at the transition into independent practice.[15,17,18,19,20,21,22,23,24,25,26,27,28] For example, Davidson and colleagues developed their intervention as they found GMPs training focused more on developing clinical confidence and less on non-clinical skills, like decision-making and coping with stress to aid the transition to independent practice.[19] Similarly in nursing, authors discussed that pre-registration training, or previous hospital experience, did not equip staff for work in primary care, so further education was needed to prevent them feeling overwhelmed and leaving their posts.[23,26] Some papers focused on certain communities, e.g., rural or inner city, or specific patient groups.[14,22,23,24,25,26,27,29] Two studies involved sessional GMPs (salaried GMPs or locums)[30] or those returning to practice or new to UK practice.[31] While most interventions were aimed at newly qualified professionals, some were available to staff at any point in their careers,[13,16,32] or had elements of supporting both newly qualified and experienced staff.[15,21]

Description of the educational programmes

The most common approach was the inclusion of modular learning or didactic teaching sessions,[14,16,18,20,21,22,23,24,26,28,29,30] with some having teaching on issues such as the delivery of healthcare in the social context of its recipients,[27] or delivering care to those in areas of high deprivation[15,23] or in rural areas.[14,25,28] These programmes were devised with the intention of improving distribution of care, with some citing the inverse care law.[33] Authors argued that to work in these areas, where disease levels are high, clinicians require particular skills or training not provided by other programmes.[27]

The creation of groups enabling clinicians to support each other[16,17,18,19,20,22,30,31,32] to develop experience and skills was common. Examples included: 1) GMPs nearing retirement being placed in groups and gaining peer support as well as formal teaching;[17] 2) larger mentoring networks where primary care clinicians were linked with specialists to provide support to deal with complex issues;[32] and 3) groups formed by those undertaking fellowships or formal training pathways.

Other aspects of the interventions included being assigned a clinical mentor or supervisor[14,21,23,24,25,26,28,29,32] and experiential learning.[14,25,26] Some of the programmes involved the participants completing a project relating to their practice.[15,17,21,25,28] Only one looked at coaching sessions as a standalone intervention.[13]

Most schemes involved clinicians self-selecting to participate. Two papers, both describing programmes to increase the number of nurse practitioners in rural USA, discussed the application process being key to increase likelihood of clinicians being retained in rural areas.[14,25] Andrus and Fenley[14] described how in order to retain the workforce in rural areas, recruitment to educational interventions should focus on nurses already working in the areas to upskill and with teaching 'decentralised' to create more local study groups and to cover travel costs.

Most of the interventions were based solely on the individual undertaking the training; although, some did take a more practice-based approach. For example, the Scottish Deep End Scheme aimed to create a 'change model' for practices who served deprived areas. It involved new and experienced GMPs, with new GMPs receiving training relating to issues faced by patients from these areas, and time for experienced GMPs to work on projects to improve care on relevant topics for their practice, plus 6–8 weekly meetings with other participating practices, sharing ideas and learning.[15] Participants highly rated the scheme, with many experienced GMPs citing a renewed enthusiasm for work, but funding ended, meaning this new way of working could not be continued.

It is worth noting that many of the interventions provided training as part of a fellowship or similar, so the education element was incorporated into the role without additional expenditure from the individual. Others, like the sessional GMP schemes,[30] had access to a study budget to enable course participation.

Box 1 Methods of evaluation

Methods of evaluation:

- Questionnaire at the end of a programme including future career intentions
- Focus group discussions
- Effects on vacancy rates
- Examining current employment.

Timing of the evaluation:

- Immediately after the intervention
- Six months after
- Two years after
- Five years after.

Evaluation and effects

Schemes were evaluated and effects on retention were demonstrated in different ways (Box 1). Some assessed effect on retention by enquiring about future intentions to remain in primary care in a post-intervention questionnaire[13,17,20] or focus group.[23]

Retention was also evaluated by identifying where participants were currently working;[14,15,18,22,24,25,26,29,31] the point at which employment was identified ranged from straight after completion of the educational intervention to up to five years later.[29] Another measure was the reduction in vacancy rates.[24,30] The effects on retention can be seen online Supplementary Information File 2. Many of the interventions had positive outcomes on retention, three having all participants remaining in their roles.[14,23,26] GMP fellowship programmes had positive retention data, one increasing a newly qualified GMP's intention to remain in the area from 54% to 93% by the end of the programme,[20] and another having 97% remaining in primary care.[28]

Reported gaps and limitations

Many studies recognised that reporting intention to stay upon completing the educational intervention did not necessarily translate into retention and longer-term follow-up was needed.[15,17,23,30] MacVicar *et al.* and Studerus *et al.* noted that using 'observational data'-type reports of intention to stay, or reduction in vacancies, does not prove causality between education and retention.[28,29] Davidson *et al.* tried to explore the relationship between their training and retention in the area but found it difficult to do without the questions being seen as leading.[19]

Hillman and colleagues commented on the evaluation of nurse practitioner residency programmes in the USA to be more comprehensive, with a move away from effect on retention (as is the focus of this paper), and better evaluate the programme so improvements can be made to lead to better outcomes for patients.[24]

O'Carroll and O'Reilly[27] noted that participants were self-selecting. They questioned whether this influenced their desire to work with marginalised groups, meaning they were already inclined to serve these communities. Therefore, prior career aspirations need to be considered in future evaluations.

Grey literature

Overton yielded one result – an independent evaluation report for the GMP Retention Intensive Support Sites programme.[34] Wider than just educational interventions, but with a systems approach, the report highlighted the benefit of including the wider team in initiatives. Evaluating the success of multiple sites, many of the interventions included coaching and mentoring schemes, as well as education opportunities. Evaluation was via a questionnaire and focus groups, and retention was evaluated by asking about future intentions. The report highlighted the importance of engaging GMP practices to gain their insight on how to improve retention.

Wider searching yielded documents related to the need for retention schemes, along with descriptions of initiatives, but no evaluations were found.

Consultation discussions

The findings were discussed with stakeholders. Stakeholders confirmed that there is little data available from the grey literature about the success of educational programmes in terms

of promoting retention. It was suggested that issues relating to maintaining funding meant some programmes have been suspended, which may be why they had not been evaluated. This was illustrated by the ending of funding for 'new to practice' fellowships in March 2024, meaning they were no longer universally available, but where some commissioners have seen their value and have funded them from other sources.

There were positive views of the idea of additional training at the end of dental foundation training (DFT) to support transition to associate positions. It was felt that additional training may be useful, particularly for those working in areas of high need, but also more generally to prepare those who have completed DFT for working within the NHS contract and having self-employed status. However, it was questioned whether the training would only be undertaken by those already interested in remaining working in the NHS. Other workforce issues include the changing workforce demographic and whether newer graduates want more options for part-time working, which has implications of educational programmes. Other issues raised relating to postgraduate learning included: 1) the difficulties of practices engaging with training without financial renumeration compensating for time lost fulfilling contractual requirements; 2) the lack of opportunities for career progression when additional training has been undertaken; and 3) the risk that within the current NHS contract, additional skills may not be used.

Discussion

This scoping review presents the literature available describing educational interventions and their effect on retention of the primary care workforce. None of the included papers explored dentistry initiatives specifically, with all but one focusing on practice nurses or GMPs. A total of 20 peer-reviewed papers and one paper from the grey literature search were included. Educational interventions ranged from small education groups, clinical support networks and coaching, to longer-term employed training positions. The findings highlight that there are a range of methods used to evaluate schemes' effect on retention.

The small numbers of papers found does not necessarily mean that initiatives are not taking place but could indicate that interventions are not being evaluated or reported – something echoed in the discussions with stakeholders. This lack of reporting and evaluation results in lost learning opportunities of how to design successful programmes.

The literature described training for GMPs and practice nurses as inadequate to prepare them for independent primary care practice.[19,23,26,27] Therefore, many of the included papers describe fellowships that aid this transition. Evaluations of how well DFT prepares dentists for transition to primary care have tended to focus on clinical skills.[35,36] Whereas GMP evaluations included in the scoping review suggest they felt unprepared in softer skills, such as stress management and understanding the influence of the social determinants of health.

The influence of additional training following DFT on longer-term retention could be an avenue for future research. Indeed, these programmes are already underway in the East of England,[37] North Humber[38] and Lincolnshire.[39] But, planning to evaluate effect on retention needs to be considered from the outset.[24] As recognised by O Carroll and O'Reilly, the evaluation also needs to be developed to assess whether the intervention was effective or if self-selecting participants would have been likely to work in those areas and been retained anyway.[27] This was echoed in the discussion with early-career dentists. This also raises the question whether retention interventions are needed at an undergraduate level and highlights the need for research into what informs career choices and when are they made.

Mentoring and support was a part of many interventions but to be able to provide this requires experienced clinicians retained within the NHS. The Scottish Deep End scheme[15] had elements of development and training for the practice principals as well as the new graduates, yet they acknowledged that retention of more experienced GMPs was more complex. Therefore, there seems a need to explore whether education and training can help retain clinicians further into their careers. It also seems that initiatives involving the whole team need exploration, as there seemed to be some positive benefits.[34]

It can be challenging to translate schemes from other healthcare professions into dentistry owing to remuneration and employment differences. None of the included peer-reviewed literature discussed the financial implication of training to the individual, whereas the impact on earnings, financial cost of training and ability to be remunerated for additional skills is of high concern to dentists.[40]

An NHS retention hub[41] exists but primary care evaluation data are not easily accessible, and no examples of effective evaluation are provided. Beneficial schemes need to have funding maintained. 'New to practice' fellowships have had funding stopped, despite the Royal College of General Practitioners suggesting they were more cost-effective than recruiting new doctors,[42] and others reporting that ending funding can risk clinicians 'losing faith in the system'.[15]

Development of any new educational interventions to promote retention of the NHS dental workforce needs to involve key stakeholders. This was highlighted in the Berg report[34] and stakeholder discussions. Indeed, educational opportunities that historically might have been popular may not appeal to newer generations of dentists, with many not wanting to work clinically full-time but valuing the availability of a good training programme, facilities and trainers.[43] Learning styles and preferences may need to be considered. Many schemes involved attending teaching sessions, but this can be difficult, especially in rural areas.[14,22] Remote specialist advice is starting to be used in other areas of healthcare and suggested for use in dentistry,[44] but could creation of networks and mentoring be incorporated into any future dental developments? To further embrace technological advances, the use of flipped learning or digital technology could appeal to newer generations of dentists[45] but still enable the creation of networks, which was a large feature in many of the peer-reviewed articles.[16,17,18,19,20,22,30,31,32]

Strengths and limitations

The main strength of this review is that it is the first scoping review to focus on educational interventions to improve retention.

The research team was a diverse group of dental researchers, including an NHS GDP, who also facilitates continuing professional development for NHS dentists; therefore, they recognised that they could have implicit assumptions which could have influenced the conduct and reporting of the review.[46] Therefore, the second reviewer was a research associate with vast experience of conducting scoping reviews across the dental field.

There was a lack of literature about the effect of educational interventions on retention of the NHS primary dental workforce, and generalisability from other healthcare professions to dentistry may be challenging due to different contractual arrangements. However, a recent review of influential factors in participation in publicly funded dental care suggests participation is more complex than merely contractual arrangements, with the importance of opportunities to develop skills highlighted as an area for future research.[1]

Other limitations were that the grey literature search focused only on England and that the nature of the literature meant it was difficult to be sure the search terms were appropriate, but an information specialist was consulted to help with this, which reduced the implications of this limitation. A final limitation was the age of some of the included papers, with three being over 20 years old.[14,16,18]

Conclusion

Educational interventions and their effects on the retention of the primary care workforce are complex. Many schemes and initiatives are in place across healthcare, but very little evaluation data are published or shared, meaning developing and improving schemes could be difficult.

This scoping review has shown there are several aspects that are common across schemes, like the creation of support networks, mentoring and teaching, but the evaluation of such schemes tends to be superficial and short-term. In dentistry, high-quality research is needed to explore whether educational interventions can promote retention and contribute to easing the current workforce crisis.

Ethics declaration

The authors declare no conflicts of interest. Ethical approval and consent was not required as this was a review of electronic databases. Key stakeholders consulted during the course of this review whose input is presented within the review are not considered to be participants or subjects of research, rather the informants of future research questions. All stakeholders gave consent to participate in the consultation stages.

Data availability

Full data are available on request from the lead author.

Author contributions

JR was responsible to for the write up of this paper. JR, ZM, SE and JE were involved in design of the review. SE and JR reviewed completed the data searching. ZM, SE and JE reviewed the manuscript and provided suggestions for amendment. All authors read and approved the final manuscript before submission.

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