Title:

Perceptions of undertaking a higher degree alongside dental specialty training: a cross sectional survey of UK dental specialty trainees

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Abstract

Introduction

The curricula for UK dental specialty training have recently been under review and until 2024, completion of a research component during training in Dental Public Health, Oral Microbiology and Orthodontics has been mandatory (with an alternative route for Orthodontics involving the submission of two scientific papers for those trainees not wishing to undertake a higher degree). Anecdotally, some trainees in other dental specialties choose to undertake higher degrees alongside specialty training.

Aims

The aims were to investigate how many dental specialty registrars study for higher degrees alongside specialty training, and whether undertaking a higher degree alongside specialty training has an impact on completion of training, research skills, research experience, patient care and career opportunities.

Materials and Methods

This was a cross-sectional study design, involving the distribution of an online, anonymous questionnaire-based survey to UK dental specialty registrars in November and December 2022.

Results

In total 38 questionnaires were completed, representing a 7.7% response rate of the entire dental specialty registrar cohort in the UK and 42% of those who received it. Most respondents (76.3%) were either studying for or had completed a clinically relevant higher degree prior to

specialty training. Most respondents (76.3%) reported that the higher degree increased career opportunities and gave them additional skills.

Conclusions

Dental specialty trainees who responded to this survey perceived the higher degree to be beneficial in terms of preparing for exams, gaining skills in critical appraisal and for increasing future career opportunities.

Key words

Higher degree

Dental Specialty training

Postgraduate

Main text

Introduction

In the United Kingdom (UK), dentists who wish to become dental specialists undergo postgraduate dental training. Recruitment to specialty training occurs through a national recruitment process, although in some areas, for some specialties, local recruitment also occurs. Successful applicants are given a national training number (NTN) and receive a salary from Health Education England (HEE), or the equivalent body in Wales (Health Education and Improvement Wales), Scotland (NHS Education for Scotland) and Northern Ireland (Northern Ireland Medical and Dental Training Agency), funded by the National Health Service (NHS). NHS deaneries (sometimes referred to as Local Education Training Boards) are responsible for coordinating education and postgraduate training at a regional level and, for England, are overseen by HEE.

The General Dental Council (GDC) recognises 13 dental specialties, including three restorative mono-specialties, and maintains specialist lists for each. Each dental specialty has its own defined specialty curriculum, which is approved by the GDC.[1] The curricula define the objectives, knowledge, attitudes and behaviours required of specialty registrars wishing to gain entrance onto the GDC specialist lists. In addition, the curricula outline the methods of delivery and assessment of specialty training.

The curricula for UK dental specialty training have recently been under review.[1] Previously there has been a mandatory requirement that specialty registrars in Dental Public Health (DPH), Oral Microbiology and Orthodontics complete a research component during their training, most frequently through a higher degree (with an alternative route for Orthodontics involving the submission of two scientific papers for those trainees not wishing to undertake a higher degree). It is still a requirement that all specialty registrars gain skills and experiences in research and critical appraisal during training. Although not mandatory, it would appear that some specialty registrars in other dental specialties choose to undertake higher degrees alongside their specialty training, in order to supplement their training within the NHS and/or gain experience in research.

The benefits of undertaking a higher degree during orthodontic specialty training have previously been investigated by Jopson et al.[2] They reported that, for 65% of respondents, the benefits of undertaking a higher degree during orthodontic training outweighed the associated costs, and overall, 69% felt that the higher degree was a worthwhile part of training.[2] Completing a higher

degree during orthodontic specialty training was found to be not only beneficial for gaining critical appraisal and research skills, but was also found to help prepare candidates for orthodontic examinations and for meeting defined learning objectives.[2] There is anecdotal evidence that trainees in Oral Surgery and Paediatric Dentistry, specialties in which completing a higher degree is not currently mandatory, often choose to enroll for postgraduate certificates or degrees. It is likely that this will be at significant personal financial cost, since nearly half of Oral Surgery trainees do not receive any bursary or grant funding to help with the associated costs.[3]

A recent UK survey of final year dental students and recent dental graduates reported that the mean debt of this cohort was just under £53000, with three in five experiencing financial difficulties during their studies.[4] Postgraduate tuition fees can vary considerably between higher education institutions, with fees for orthodontic higher degrees reportedly varying between £2000 and £23000 per year.[2] This is a trend that is often repeated internationally. One American study reported that debts incurred during training cause orthodontic residents significant stress. However, excellent patient care, good work-life balance and sufficient income were drivers for their career choices in the longer term.[5]

At present very little is known regarding the number of UK dental specialty registrars undertaking higher degrees alongside specialty training and the impact this has on their training, or future career prospects.

The aims of this study were to investigate how many dental specialty registrars study for higher degrees alongside specialty training, and to assess the perceptions of trainees on whether undertaking a higher degree affects completion of training, research skills, research experience, patient care and career opportunities.

Materials and Methods

This was a cross-sectional study design, involving the distribution of an online, anonymous questionnaire-based survey to UK dental specialty registrars.

Participants

The authors designed the questionnaire. Specialists representing all 13 dental specialties were approached to review the survey. Suggestions for improvement were received from specialists in Dental Radiology, DPH, Oral Medicine, Oral Microbiology, Oral Surgery and Orthodontics and were incorporated into the survey design. The survey was designed to capture the impact of undertaking a higher degree on completion of specialty training, research skills and experience,

patient care, financial circumstances and career opportunities. Both pre- and post-CCST (Certificate of Completion of Specialty Training) specialty registrars were included.

Intervention

The Faculty of Health Science Research Ethics Committee at the University of Bristol (Reference 11586), granted ethical approval. The questionnaire was piloted by four dental specialty registrars in the South West of England from orthodontics and dental radiology, in order to assess readability and to assess the length of time taken to read and complete the survey. Some questions were reworded following feedback from this pilot, to avoid answers contradicting the question stem, as well as clarification of the type of degree costs to be recorded. Options were also included within the questionnaire to apply skip logic. A copy of the survey is available at Higher degree survey.

The UK Committee of Postgraduate Dental Deans and Directors (COPDEND) was not accepting requests for surveys of all UK specialty trainees at the time of the study design, so distribution was via contacts in individual deaneries within HEE. Nine regions in the UK were contacted to ask if they would like to take part. Six out of the nine regions took part in the study. The following regions of the UK participated: Wales, Midlands and East, North West, Yorkshire and Humber, Wessex and Thames Valley, and South West. The questionnaire was distributed by e-mail to approximately 90 dental specialty registrars. There was a total of 494 dental specialty trainees across the UK at the time of the study, therefore this represented in the region of 18% of the trainees. The invitation email contained a brief description of the study, an attached participant information sheet and a link to the online questionnaire, which was accessed through “Online Surveys” (www.onlinesurveys.ac.uk). There was a mandatory requirement to read the consenting statement at the start of the survey. Participant consent was implied by completing the questionnaire. The survey link was active between the 2nd November and to the 14th December 2022. A reminder e-mail was sent to the potential participants three weeks after the initial invitation. Microsoft Excel was used to collate the data and descriptive statistics were used. Responses to open questions were reviewed by all of the authors and three authors jointly decided on representative and balanced comments to include in this article.

Results

Thirty-eight respondents of the 90 invited completed the survey, representing a 7.7% response rate of the total dental specialty registrars in the UK and 42% of those invited. Most of the participants were women (n=28, 73.7%). The demographic characteristics of the participants are shown in Table 1. The most common dental specialty was Orthodontics (n=13; 34.2%). There

were no respondents specialising in Periodontology, Oral and maxillofacial pathology or Oral microbiology (Table 2). Participants responded from all stages of training from ST1 – ST5 (Table 2) and all respondents held an NTN. Academic training posts were held by eight respondents (21.1%), with five being in Academic Clinical Fellow positions and three in Academic Clinical Lecturer positions.

Higher degrees

Twenty-nine respondents (76.3%) were either studying for (n=15; 39.5%) or had completed a clinically relevant higher degree prior to specialty training (n=14; 36.8%). Most were either studying for, or had completed, Masters level degrees (n=21; 72.4%), with eight respondents (27.6%) completing/had completed doctoral degrees.

Subjects of degrees.

Participants who had already completed or were in the process of completing higher degrees, were studying for degrees in clinically-relevant subjects. One respondent reported they had completed two higher degrees, both a Masters and a PhD.

Of the nine trainees who were not currently studying or had not completed a higher degree, three respondents (33.3%) reported that they were considering undertaking a higher degree in health-related science in the future, either alongside specialty training or at some point in their career.

Benefits of undertaking a higher degree

Approximately half of the respondents agreed that the benefits of undertaking a higher degree included having a protected teaching component (n=19; 50%) and the opportunity to meet with peers on study days (n=20; 52.6%). Twenty-nine respondents (76.3%) believed that the higher degree increased career opportunities and gave them additional skills, such as the ability to write papers or critical appraisal skills. A positive impact on the ability to pass specialty exams was noted by 19 respondents (50%) and personal enjoyment/satisfaction of the higher degree was reported by 22 respondents (57.9%). It was notable that only two respondents (5.3%) felt that the higher degree would be beneficial financially in the longer term and only 14 (36.8%) felt the degree would provide benefits for patient care (Fig. 1).

Barriers to undertaking a higher degree

The fees associated with completing a higher degree were perceived as a barrier by the majority of respondents (n=32; 84.2%). Lack of financial support (n=29; 76.3%) and the impact of the fees on their personal life (n=27; 71.1%) were also notable barriers. Twenty-five (65.8%) respondents

recorded that the time required to undertake a higher degree was a barrier, but it was interesting that only six respondents (15.8%) felt that the higher degree increased the length of time to reach Specialty/Consultant level. It was perceived that undertaking a higher degree had a negative impact on work-life balance by 29 respondents (76.3%) (Fig. 2).

Financial implications

Nine (24%) participants reported that they had received funding for undertaking a higher degree, from sources including the Medical Research Council, the Wellcome Trust, the National Institute for Health and Care Research and from Universities. Eighteen (48%) participants had self-funded their degree.

For those who had not completed a higher degree, financial constraints were a common reason for not wanting to embark on a higher degree. One participant stated:

> "*If it was funded by the Deanery I would do [a higher degree], however, with the cost of living/childcare it is not affordable*"

Respondents who were completing, or who had already completed, higher degrees were invited to use a free text box to describe what the total direct costs were associated with their degree. Eight (29.6%) reported costs less than £5,000, 14 participants (51.9%) reported total direct costs of between £5,000 and £30,000 and three (11.1%) reported costs of more than £30,000.

Participants were asked, hypothetically, what the maximum direct costs (e.g. tuition/bench fees) they would be prepared to pay each year to complete a higher degree alongside specialty training, taking into account the long-term benefits that such a degree might provide. Thirty-five participants (92.1%) responded with direct annual costs of less than £10,000. Two participants (5.3%) were willing to pay between £10,000-£14,999 and one participant (2.6%) was willing to pay over £20,000 per year.

Several of the respondents gave free-text comments about the financial implications of completing a higher degree:

- "*On reflection it was a lot of work alongside training but [there were] benefits to understand research and reading papers. Biggest hurdle is financial costs- would not be able to have done it without family help.*"
- "*Financially it is prohibitive and it is a barrier to those that circumstances mean they find themselves ineligible to apply for specialty training. Expecting a trainee to pay £10,000 for a masters degree annually is in my mind ludicrous considering a trainee salary*."

- "*I think it is extremely worthwhile to do a higher degree alongside specialty training (having done one) but the financial impact is significant and there is too much geographic discrepancy between different universities and programmes. I feel completing a higher degree alongside specialty training does improve the quality of trainee- due to the experience this brings in terms of more academic/research experience.*"
- "*I think undertaking a higher degree should be encouraged and I feel strongly that HEE should contribute funding to those who are undertaking this.*"

Effect of higher degree on completion of specialist training

Respondents were asked whether undertaking a higher degree alongside specialty training complements NHS training, aids preparation for specialty and fellowship exams and enables trainees to meet learning objectives defined in the specialty curricula.

More than half (n=21; 55.3%) of respondents agreed or strongly agreed that undertaking a higher degree helps to prepare for specialty and fellowship exams. Half of respondents (n=19; 50.0%) agreed or strongly agreed that undertaking a higher degree complemented NHS training (Fig.3).

Several respondents reported on the time constraints of completing a higher degree alongside specialty training and that skills in time management are essential:

- "*I think it is difficult to undertake a higher degree with minimal allocated study time as part of [specialist] training. I only had 1 session per week allocated. It is unrealistic to expect me to be able to complete an MSc on top of everything else whilst having a young family as well*."
- "*I feel time extension to training would be necessary as it is vital for a trainee to have gained enough clinical experience prior to completing training and becoming a specialist*"
- "*Completing a higher degree is manageable during clinical training but does require good time management*"

Several registrars reported that undertaking a research degree improved access to teaching relevant for improving clinical skills and patient care.

- "*It was really useful for giving me reading lists for revising for my specialty exams*"
- "*I would not have received the same level of training without my academic component*"

Academic and research skills

Participants were invited to state to what extent they agreed with statements relating to the benefits of higher degrees towards gaining critical appraisal skills and how best to provide evidence-based clinical care, confidence in participating in research projects, scientific writing and presentation skills and additional career opportunities (e.g. teaching, guest lecturing, submitting papers for peer review).

Most respondents (n=27; 71%) agreed or strongly agreed that undertaking a higher degree alongside specialty training provided skills in critical appraisal and, importantly, how best to provide evidence-based clinical care. More than three quarters (n=31; 81.6%) agreed or strongly agreed that the higher degree enabled them to feel more confident to participate in research projects. Nearly three quarters (n=27; 71.1%) agreed or strongly agreed that a higher degree helped improve scientific writing and presentation skills (e.g. presenting at journal clubs, study days or conferences). Twenty-seven respondents (71.1%) agreed or strongly agreed that undertaking a higher degree would provide additional career opportunities (e.g. submitting papers for peer review, teaching and guest lecturing) (Fig. 4).

One respondent stated:

"*I think [that completing a higher degree] would improve employability and contribute to academic scholarship – which I think my specialty should be striving towards" and "to enhance my likelihood of [gaining] a university hospital consultant post*".

Another respondent stated that the higher degree helped "*support academic side of training*" and it "*increases chances of future employment*".

Discussion

In this survey it was notable how many of the respondents had either already completed research degrees (36.8%) or were currently studying for a higher degree (39.5%). Difficulties in gaining approval for widespread dissemination of this survey to the entire cohort of dental specialty registrars in the UK meant that the sample size for this study was small and the findings should therefore be interpreted with caution. Orthodontic and DPH trainees accounted for only 34% and 5% of the sample, respectively, so it can be assumed that 61% of trainees had chosen to study for a higher degree for reasons other than mandatory completion for their training. Interestingly, this survey indicates that some dental specialty registrars still want to undertake higher degrees, with three respondents reporting that they were intending on completing a higher degree at some point in the future.

Comparison with other work

Very little is known regarding the number of dental specialty registrars who complete higher degrees in the UK and this survey provides data in this field. A study of Oral surgery trainees found that 68% had enrolled on a postgraduate degree, or other higher qualification (e.g. PGCert, PGDip), during their training.[3] Previously, a cross-sectional study of the financial cost of training for general surgical trainees in the UK and Ireland found that 68% of ST7-8 and post-CCT (Certificate of Completion of Training) fellows had undertaken a postgraduate degree.[6] Elsewhere in general medicine and surgery, a study examining higher surgical trainees in a single UK deanery, published in 2018, found that more than 60% of higher surgical trainees had studied for a higher degree in order to obtain academic credentials in addition to their primary medical degree and surgical diploma, and that this provided "added value" in terms of their academic profile.[7]

The current survey indicates that higher degrees are beneficial in terms of gaining critical appraisal skills, gaining confidence in performing research projects, for scientific writing and for additional career opportunities, with over 70% of respondents reporting benefits in these domains.

These findings are similar to previous research examining perceived advantages of undertaking a higher degree in orthodontic training.[2] Achieving an higher degree in Orthodontics is the international standard in many countries.[8] In the UK, academic profiles of those in general surgery who had completed higher degrees were significantly stronger than those who had not undertaken higher degrees.[7] A study of American surgical trainees, published in 2009, reported that over one third of surgical residents interrupt their clinical training to pursue research fellowships, and that the advantages of such out-of-programme research experience include an appreciation of surgical literature and an increased likelihood of obtaining competitive or faculty positions.[9] Another American study, in 2020, explored motivation of surgical trainees choosing to take time out of their programme to undertake research and reported that strategic career planning and the want for personal "rejuvenation" were factors in deciding to do research.[10]

Implications for training

Of particular note in the present study were the perceived benefits of the higher degree in supporting not only NHS training, but also the provision of evidence-based patient care. This is perhaps surprising, as sometimes the subject of the higher degree is not directly related to the clinical aspects of the specialty. This finding probably also reflects the myriad of "softer" skills that can be gained through completing a higher degree, and should be of particular interest to those currently considering changes to dental specialty training.

Varying fees for higher degrees remain problematic, similar to those reported by a previous orthodontic study.[2] This is part of a wider picture of concerns about the costs of training across medicine and dentistry[11] and is likely to be felt particularly acutely in the current cost of living crisis and era of rising inflation. Oral surgery trainees reported spending a mean of £9240 on postgraduate degrees or other higher qualifications during training.[3] Oral and Maxillofacial surgeons have been reported to be faced with personal financial costs associated with training and that these costs are significant and rising.[12] The recently published "Advancing Dental Care Review: Final Report" highlighted the need for more flexible entry routes into training and widening access and participation.[13] Dental graduates often leave university with considerable debt and the costs associated with specialty training may be regarded as a barrier to specialty training, particularly when so many efforts have been made to widen participation at undergraduate level.[14]

Respondents were positive about the opportunities that arise from completing a higher degree in terms of career opportunities, such as publishing articles, teaching and guest lecturing. There is still a shortage of dental clinical academics in the UK, with 40 vacant full time equivalent academic posts reported in a survey of dental clinical academic staffing levels published in 2018.[15]

Encouraging clinicians in training to carry out research degrees must help to ensure there is a supply of future clinical academics. This is important both for the future of dental research and translation of primary research into the clinical setting, but also for the future of dental schools and training in all aspects of dentistry in the UK. The Advancing Dental Care Review: Final Report has recently highlighted this by recommending:

"Embed academic training opportunities in every level of postgraduate dental training to ensure the system has sufficient academics to deliver cutting edge research with impact, support advances in dentistry and teach the pre-registration dental workforce."[13]

Ensuring that undergraduates have early experience of research, as a means of encouraging medically qualified researchers, was noted to be important as long ago as the 1980s.[16] The current schemes of INSPIRE for undergraduates, which may encourage dentists to then apply for integrated academic training posts in the future, such as academic clinical fellowships or academic clinical lectureships, should continue to be supported.[17]

Limitations

There were several limitations of this survey including the small sample. It was not possible to invite all of those eligible to complete the survey because COPDEND was not accepting requests for surveys at the time. The response rate was 7.7% of the entire dental specialty trainee cohort in the UK, which represents a lower response compared with other similar online survey-based studies.[2,18] There is also potential for an element of bias in the results, with only those specialty registrars who feel strongly about research degrees perhaps choosing to complete the survey. Not all geographical areas of the UK were represented by the respondents and not all dental specialties were represented. This is perhaps unsurprising considering that some of the dental specialties have a small number of trainees. However, efforts were made to invite those in all specialties to review the project design. This survey also failed to obtain the experiences of those who do not have a NTN training number, meaning that the opinions of those who are self-funding specialty training programmes may differ.

Conclusions

This cross-sectional survey investigated perceptions of dental specialty registrars of undertaking a higher degree alongside dental specialty training in the UK. The findings should be interpreted with caution due to the low overall response rate.

Over three quarters of respondents (76.3%) had either completed a higher degree or were currently studying for a higher degree. Overall, respondents perceived the higher degree to be beneficial in terms of preparing for specialty/fellowship exams, gaining skills in critical appraisal, scientific writing and presentation skills and also for increasing future career opportunities.

The financial burden of undertaking a higher degree was reported as a barrier to undertaking a higher degree and it is possible that a lack of financial support may be a barrier to those considering training in some specialties.

This research may help to inform those who have roles and responsibilities for organising and delivering postgraduate dental education, regarding the impact of undertaking a higher degree alongside specialty training.

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Tables

Demographic	Number	Percentage
Gender		
Female	28	73.7
Male	9	23.7
Undisclosed	1	2.6
Age (years)		
<30	9	23.7
30-39	24	63.2
40-49	4	10.5
50-59	0	0
>60	0	0
undisclosed	1	2.6

Table 1 Demographic characteristics of the sample (n=38)

	Number	Percentage
Dental specialty		
Prosthodontics	1	2.6
Endodontics	1	2.6
Periodontics	0	0
Restorative Dentistry	4	10.5
Orthodontics	13	34.2
Oral Surgery	4	10.5
Oral Medicine	1	2.6
Oral and Maxillofacial Pathology	0	0
Oral and Maxillofacial Radiology	1	2.6
Oral Microbiology	0	0
Dental Public Health	2	5.3
Special Care Dentistry	3	7.9
Paediatric Dentistry	8	21.1
Current stage of training		
ST1	8	21.1
ST2	10	26.3
ST3	8	21.1
ST4	6	15.8
ST5	6	15.8

Table 2 Current dental specialty and stage of training

Figure Legends

Figure 1 Perceived benefits of undertaking a higher degree alongside specialty training

Figure 2 Perceived barriers to undertaking a higher degree alongside specialty training

Figure 3 Respondents' level of agreement of impact on undertaking a higher degree on feeling more prepared for specialty/fellowship exams, complementing NHS training, and meeting learning objectives defined in specialty curricula

Figure 4 Respondents' level of agreement of the impact on undertaking a higher degree on critical appraisal skills, confidence in participating in research projects, scientific writing and presentation skills, and additional career opportunities (e.g. submitting papers for peer review, teaching, guest lecturing)