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It's not just about the money: recruitment and retention of clinical staff in general dental practice- part 1: dentists

J.A.Holloway

MChD/BChD, MPH, PhD, FHEA

Specialty Registrar in Dental Public Health, Public Health Wales

Jessica.Holloway@wales.nhs.uk

I.G.Chestnutt

BDS, MPH, PhD, FDS(DPH)RCSEd, FDS RCSEng, FDS RCPSGlas, FFPH, DDPH RCS ENG, FHEA

Professor and Honorary Consultant in Dental Public Health, Cardiff University

ChestnutIG@cardiff.ac.uk

Abstract

Increasing difficulties in recruitment and retention of dentists and dental care professionals in general dental practice in the United Kingdom is affecting delivery of National Health Service dental services. Reports of dissatisfaction among the general dental practice workforce indicate there is a significant risk to the future dental workforce supply which will affect access to dental care and worsen oral health inequalities. Understanding the factors related to job satisfaction and dissatisfaction of dental professionals would be useful in managing recruitment and retention issues and ensure a dental workforce exists which is able to meet the needs of the population. The aim of this literature review was to identify factors which contribute to job satisfaction and dissatisfaction of clinical staff in general dental practice. Database searching was conducted systematically through PubMed/MEDLINE, Scopus, Ovid, and the National Grey Literature Collection. Part 1 of this two-part series will discuss the factors relating to dentists. Twenty-two relevant articles were identified, which were qualitatively analysed using Herzberg's Motivation-Hygiene theory as an analysis tool. Target-driven and restrictive contractual arrangements are a major factor contributing to dissatisfaction of dentists, as well as time pressures, poor quality equipment, and unfair remuneration. Dental contract reform should aim to minimise factors contributing to dissatisfaction and increase factors which increase satisfaction, if sufficient numbers of dentists are to be persuaded to continue to provide state funded dentistry.

Keywords

Recruitment, retention, satisfaction, dentists

Learning Objectives

- To understand the concepts and principles of Herzberg's Motivation-Hygiene Theory and its application in the context of job satisfaction of dentists
- Identify existing factors that contribute to dentists' job satisfaction according to the Motivation-Hygiene Theory
- Synthesise the existing literature to provide a summary of factors for stakeholders to consider in contract reform

Introduction

There are widespread reports of issues in recruitment and retention of dentists and dental care professionals (DCPs) in general dental practice in the United Kingdom (UK), particularly affecting delivery of National Health Service (NHS) dentistry.^{1,2,3,4} These issues have been exacerbated by the Covid-19 pandemic, which has caused a backlog of missed dental appointments, and Brexit, which has increased barriers to overseas dental professionals practicing within the UK.^{2,5}

Access to dental care is a determinant of oral health which enables delivery of preventative care and early intervention on dental disease, with the aim of improving health and reducing social care and wider economic costs.⁶ The ageing UK population are retaining their teeth for longer, requiring more complex dental care and placing greater demands on the dental workforce and provision of care.^{7,8} Access to dental care has become an increasingly significant issue in the UK, due to the number of dental practices closing or becoming fully private, which is a barrier to people who are unable to afford private dental care and has a greater effect on people from lower socioeconomic backgrounds.^{9,10} If dental practices are unable to fill vacancies or retain dentists and DCPs in NHS practices, people will not be able to access affordable dental care.¹¹



The increase in unfilled vacancies in general dental practices, especially NHS practices in remote and deprived areas, and reports of dissatisfaction among dental professionals indicates there is a significant risk to the future dental workforce supply.^{1,12} If dentists continue to leave NHS dentistry, this will worsen the existing access to dental care and increase oral health inequalities, exacerbating what is already a significant public health problem. Understanding factors which predict job satisfaction within general dental practice would be useful in managing recruitment and retention issues and in designing acceptable dental contracts, thereby ensuring a dental workforce able to meet the needs of the population.

Theoretical Framework

Recruitment and retention of individuals within a workforce are associated with job satisfaction.^{13, 14, 15, 16} There are many different definitions of job satisfaction; the most accepted being positive or negative feelings an individual has toward their work.¹⁷ Job satisfaction is a significant factor in a person's intention to leave their job, which is highly predictive of this behaviour.^{18, 19, 20} In addition, high intention to leave also has negative effects on an individual's engagement with their work.²¹

The Herzberg motivation-hygiene model (Table 1) suggests that job satisfaction and dissatisfaction exist on separate continuums affected by different factors.^{22, 23} Two independent processes occur, one where people feel good or satisfied about their work and another where they feel bad or dissatisfied. The presence of motivators increases job satisfaction, but their absence does not increase dissatisfaction.^{23, 24} Improving hygiene factors (the term used by Herzberg to describe factors that prevent job dissatisfaction) can prevent job dissatisfaction but does not contribute to job satisfaction.²³

Table 1 – Herzberg motivation-hygiene theory factors²²

 Motivators (increase job satisfaction)	Hygiene factors (prevent job dissatisfaction) 
<ul style="list-style-type: none">• Achievement• Recognition• Responsibility• Work itself• Advancement• Personal growth	<ul style="list-style-type: none">• Working conditions• Co-worker relationships• Policies and rules• Supervisor quality/supervision• Salary

Herzberg's motivation-hygiene model theory is a useful tool in predicting job satisfaction and has previously been applied in other healthcare sectors to understand recruitment and retention of healthcare workers.^{14, 16, 25}

The aim of this literature review is to identify specific factors which currently contribute to job satisfaction and job dissatisfaction of dentists in general dental practice.

Methods

This literature review was conducted in a narrative literature review format²⁶. Multiple sources of literature were searched to better understand the issue through a broad range of experiences, values, and perceptions. Electronic searches of databases (PubMed, Scopus, Ovid & National Grey

Literature Collection) and website searches (Table 2) were conducted to identify relevant literature. Inclusion criteria included any published or grey literature discussing job satisfaction, dissatisfaction, retention, or recruitment of dentists in general dental practice/primary dental care after 1st April 2006. Systematic searches were carried out in June 2022 and updated in May 2023. The full search strategy can be found in the supplementary files (Appendix 1).

Table 2 – Websites searched

General Dental Council	British Dental Association
NHS England	BDJ in Practice
Health Education England	HealthWatch
Health and Social Care Committee	College of General Dentistry

Eligibility

To determine eligibility of records, inclusion and exclusion criteria were developed using the SPIDER tool (Appendix 2).²⁷

Study selection and data extraction

Studies identified through the search strategy were screened by the lead author and assessed against the eligibility criteria. Selected reports were retrieved and reviewed independently by both authors. A data extraction template was designed based on the Herzberg Motivation-Hygiene theory as a framework to ensure a consistent approach to data extraction, ensure transparency and enable ease of synthesis of findings. The following data were extracted from each article: author, year, type of article/study, short description of study, dental professional group, motivation factors mentioned, hygiene factors mentioned, and any other factors discussed.

Risk of Bias Assessment

This review included a diverse range of study methodologies, opinion and grey literature, therefore distinct appraisal instruments were used to critically appraise each record.²⁶

For cross-sectional studies, the Joanna Briggs Institute (JBI) checklist was used.²⁸ Cohort studies were appraised using the Critical Appraisal Skills Programme (CASP) checklist for cohort studies.²⁹ For qualitative reports, the NICE quality appraisal checklist for qualitative studies was used.³⁰ Grey literature and opinion articles were appraised using AACODS (Accuracy, Authority, Coverage, Objectivity, Date, Significance) checklist.³¹

These tools were used to produce summary evidence quality judgements of low, moderate, or high risk of bias for each included article.

Results

Included records

Database searching carried out in June 2022 and repeated in May 2023 identified 548 records. Following removal of duplicates and screening of titles and abstracts to identify relevant records, a total of 46 reports were retrieved for full text screening. The full text of one record was unavailable, and therefore excluded from the review. Following review of full texts, 26 reports did not meet eligibility criteria and were excluded.

Searching via other methods (reference lists of included records and website searching) identified 16 reports, 14 of which were eligible for inclusion. Therefore, a total of 33 reports were included (Figure 1). 22 reports were relevant to dentists (Table 2) and are discussed in this article. The 11 reports relevant to DCPs are discussed in part 2 of this series.

Included reports had high methodological heterogeneity therefore it was not appropriate to attempt any quantitative synthesis or meta-analysis. The papers are presented through a narrative synthesis.

A summary of the included studies is provided in Table 3. The agreed “motivator” and “hygiene” factors influencing job satisfaction identified in reviewed literature are presented in Table 4.

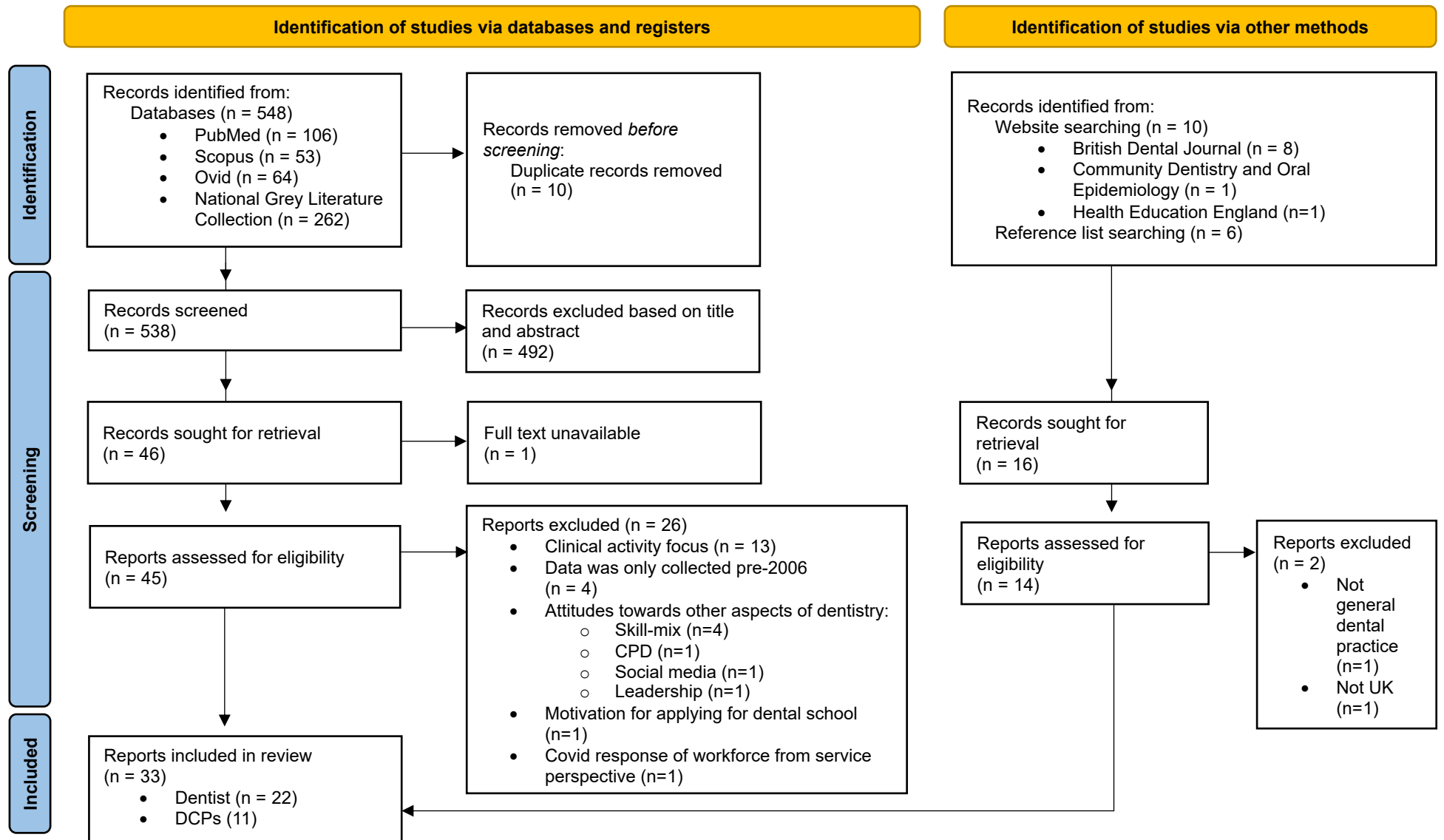


Figure 1 – Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram

Table 3 – Descriptive summary of included studies relating to dentists

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
Stewart et al (2007) ³²	Cross-sectional study, self-reported questionnaire of 141 senior year dental students at Manchester and Dundee University		<ul style="list-style-type: none"> • Working conditions – time pressures and managing time effectively • Policies and rules – fear of litigation 	More female dentists than males expressed a wish to work part-time following qualification, however 23% of the sample felt that males had an advantage over females since they did not take maternity breaks or have the same family responsibilities
Davies et al (2008) ³³	Cross-sectional study, self-reported questionnaire of 53 vocational dental practitioners in Wales	<ul style="list-style-type: none"> • Work itself – wide ranging varied clinical work most desirable in future job • Personal growth – access to CPD 	<ul style="list-style-type: none"> • Working conditions – access to high quality premises, working for a corporate body was least desirable • Coworker relationships – negative opinions towards working in a single dentist practice • Policies and rules – concerns about non-availability of NHS contracts in the area which the respondent preferred to work in, concern about the future of NHS dentistry, private dentistry seen as an attractive alternative to NHS dentistry • Salary – employment benefits such as paid annual leave, sick pay or maternity pay influence career choice 	Long term professional expectations were closely linked with personal lives and support a vision of a favourable work-life balance

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
Denton, Newton and Bower (2008) ³⁴	Cross-sectional study, self-reported survey of 326 dentists in the UK	<ul style="list-style-type: none"> • Personal growth – higher burnout scores and lower engagement amongst dentists without post graduate qualifications 	<ul style="list-style-type: none"> • Working conditions – dentists who work longer hours are more engaged with work • Coworker relationships – lower number of dentists in a team correlated with higher levels of work engagement • Policies and rules – higher amount of time spent on NHS work associated with negative work experiences 	Age – dentists under 30 feel less accomplished
Harris et al (2008) ³⁵	Cross-sectional study, self-reported questionnaire of 440 dental practitioners working in primary care in three trusts in England	<ul style="list-style-type: none"> • Recognition – respect from being a dentist • Responsibility – having control of own work • Work itself – being able to provide quality comprehensive care, helping people • Personal growth – development of skills 	<ul style="list-style-type: none"> • Working conditions – having adequate time to spend with patients • Policies and rules – working within NHS system more restrictive on being able to provide quality care • Salary – level of income is not the reason many dentists cite when deciding to leave the NHS 	<p>Higher job satisfaction in dentists working wholly privately, compared to those working wholly NHS or mixed NHS/private</p> <p>Those working completely on NHS basis felt more restricted in being able to provide quality care in their work</p> <p>Dentists working in high needs areas felt more restricted in being able to deliver quality care</p> <p>Younger dentists identify more strongly with restriction on being able to provide quality care</p>

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
Holt and Ladwa (2008) ³⁶	Opinion article on the need for mentoring in dental practice in the UK	<ul style="list-style-type: none"> • Advancement – career perspective and taking on additional roles • Personal growth – available program of professional development 	<ul style="list-style-type: none"> • Working conditions – time pressures • Coworker relationships – support from experienced colleagues, peer review/study groups • Supervisor quality – high pressure poor practice management 	
Chestnutt, Davies and Thomas (2009) ³⁷	Cross-sectional study, self-reported questionnaire of 496 dentists in Wales		<ul style="list-style-type: none"> • Working conditions – dissatisfaction with information technology (IT) facilities • Coworker relationships – non-clinical staff support • Policies and rules – less administration and contracting directly with the local health board 	<p>Reduction in the number of dentists agreeing that they “are their own boss”</p> <p>Females were significantly more likely to work 3 days a week or less</p>
Harris et al (2009) ³⁸	Cohort/Longitudinal study which investigated job satisfaction of dentists pre- and post-introduction of the new dental contract in England in 2006	<ul style="list-style-type: none"> • Recognition – respect from being a dentist • Responsibility – control of work, running a dental practice • Work itself – being able to provide quality care and help people • Advancement - opportunity to develop a specialist interest • Personal growth – having time to improve clinical skills 	<ul style="list-style-type: none"> • Working conditions – time to devote to patients needs • Policies and rules – feel as though on a treadmill in NHS, erosion of autonomy due to change in the system 	<p>Significant decrease in job satisfaction post-introduction of the 2006 contract</p> <p>Female dentists and those who had been qualified for more than 20 years were less satisfied following introduction of the new contract</p>
Willett and Palmer (2009) ³⁹	Cross-sectional study, self-reported questionnaire of 428 vocational training		<ul style="list-style-type: none"> • Working conditions - anxiety around getting a job in a preferred location and the need to relocate • Policies and rules – NHS UDA targets 	

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
	dentists in England and Wales		<ul style="list-style-type: none"> • Salary – NHS capped income 	
Brown et al (2010) ⁴⁰	Cross-sectional study, self-reported questionnaire of 189 early retired due to ill health dentists from the UK	<ul style="list-style-type: none"> • Recognition – patient perceptions 	<ul style="list-style-type: none"> • Working conditions – most common cause of early retirement due to ill health was musculoskeletal conditions due to working practices • Policies and rules – NHS work, pressure of system cause of stress 	<p>48% report their early retirement due to ill health was entirely work related and 42% reported it was partly work related</p> <p>Re-employment of early retired dentists due to ill health was significantly associated with age, dependents, cause of early retirement, and whether their health had improved</p> <p>28% retired due to mental and behavioural disorders such as anxiety and depression, which could have been managed with more support from services such as occupational health</p>
Hill et al (2010) ⁴¹	Qualitative study, semi-structured interviews of 23 dentists from the UK who had retired early due to ill-health	<ul style="list-style-type: none"> • Recognition – professional standing/status 	<ul style="list-style-type: none"> • Working conditions – staffing issues, lack of time, anxious or uncooperative patients • Coworker relationships - Professional support networks 	Most common factor in ill-health retirement was anxiety, depression or stress, followed by musculoskeletal disease

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
				Business of dentistry stressful – business management training would have been useful
Holt and Ladwa (2010) ⁴²	Opinion article discussing mentoring in general dental practice in the UK	<ul style="list-style-type: none"> • Work itself – a sense of purpose and contributing to the greater good • Personal growth – programmes to support professional development • 	<ul style="list-style-type: none"> • Coworker relationships – having a supportive mentor 	
Harris, Dancer and Montasem (2011) ⁴³	Qualitative study, semi-structured interviews of a purposive sample of 20 dentists in England on their motivation following a change in contractual arrangements	<ul style="list-style-type: none"> • Achievement – achieving a good clinical result, having an ‘end-point’ in a treatment plan • Responsibility – control over decision making and clinical freedom • Work itself – being able to do the job well is easier in the private sector 	<ul style="list-style-type: none"> • Working conditions – having enough time with patients • Policies and rules – pressures imposed by healthcare system (NHS), difficult to provide good quality of care within the “framework” of the NHS • Salary – having to work harder to maintain income 	<p>Running a business within a healthcare system is a negative aspect of the job</p> <p>Conflicts between asking patients for money and providing health care</p>
Newton et al (2011) ⁴⁴	Qualitative study, structured interviews of 14 final year dental students in the UK on their career expectations and influences on their career plans	<ul style="list-style-type: none"> • Responsibility – obligation and responsibility to provide oral healthcare for all [via NHS] and having freedom over clinical work • Work itself – giving back to the community • Advancement – opportunities for career progression 	<ul style="list-style-type: none"> • Policies and rules – NHS system restrictive range of treatments available and limited development of skills • Salary – remuneration under NHS system, financial security 	Family life, work-life balance also influences career plans

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
O'Selmo, Collin and Whitehead (2018) ⁴⁵	Cross-sectional study, self-reported questionnaire of BDA members working in general practice in England	<ul style="list-style-type: none"> • Work itself – patient-related factors such as helping people was the most cited factor for motivation 	<ul style="list-style-type: none"> • Working conditions – corporate practices less likely to have sufficient staff, corporate environment negatives • Coworker relationships – corporate dentists less likely to receive support from colleague than non-corporate • Salary – majority of corporate and non-corporate dentist disagreed they were fairly remunerated 	<p>Majority of respondents dissatisfied with their job</p> <p>Corporate dentists less satisfied with their job than non-corporate</p>
Collin et al (2019) ⁴⁶	Cross-sectional study, self-reported questionnaire of 2053 dentists in the UK	<ul style="list-style-type: none"> • Recognition – negative public perception of dentists • Responsibility – clinical freedom 	<ul style="list-style-type: none"> • Coworker relationships – associate dentists feeling unsupported by practice management, politics within dental team, corporate environment • Policies and rules – GDC regulation a significant source of stress, NHS bureaucracy and UDA targets, fear of litigation and complaints • Salary – financial factors a significant cause of stress 	<p>General practice dentists reported highest levels of stress compared to other types of dentists</p> <p>Concerns about moving towards a corporate mentality that places profits above care of patients</p>
O'Selmo et al (2019) ⁴⁷	Qualitative study, semi-structured interviews with a purposive sample of 11 dentists in the UK	<ul style="list-style-type: none"> • Recognition – positive perception from the public • Responsibility – autonomy over own work, loss of autonomy more greatly felt in corporate sector • Work itself – helping people • Advancement – structured career progression 	<ul style="list-style-type: none"> • Working environment – maintenance of equipment, investment into practice, corporate practice • Coworker relationships – experienced nurses • Policies and rules – persecution from regulator (GDC), NHS contract impediment to good practice, associates want changes made to UDA system 	<p>Job security</p> <p>In corporate jobs, profit is seen as the priority</p> <p>Brexit may lead to a drop in supply of associates which may improve working environments</p>

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
			<ul style="list-style-type: none"> • Supervisor quality – relationship with principal dentist • Salary – decline in remuneration 	
BDA (2020) ⁴⁸	Written evidence to the Health and Social Care Committee from the British Dental Association on burnout and resilience in the NHS workforce in England	<ul style="list-style-type: none"> • Work itself – being able to manage patients’ health appropriately 	<ul style="list-style-type: none"> • Policies and rules – fear of litigation, contractual targets, red tape, bureaucracy, over-regulation by the GDC • Salary – financial viability of practices (NHS and private) causing stress among dentists 	<p>Burnout significant issue for dentists – occupational stress significant factor</p> <p>Covid-19 pandemic caused uncertainty</p>
NHS Digital (2020) ⁴⁹	Cross-sectional study of primary care dentists (principals and associates) in the UK, responses from 5383 dentists in 2018-19 and 5281 in 2019-20	<ul style="list-style-type: none"> • Recognition – receiving recognition from others • Work itself – feeling good about the job, having the chance to do challenging and interesting work • Advancement – career progression 	<ul style="list-style-type: none"> • Working conditions – recruitment and retention of dental team members, having the equipment and resources to do the job properly • Policies and rules – NHS regulations, GDC regulations, practice inspections (e.g CQC), decontamination policies, risk of litigation and cost of indemnity • Salary – increasing expenses and declining income, disparity between treatment complexity and financial return (unfair pay), inadequate levels of remuneration for preventative care 	<p>Principal dentists have higher levels of motivation and morale compared to associate dentists</p> <p>Principle dentists in Scotland have highest motivation on average, and in Wales lowest motivation</p> <p>Associate dentists in Scotland have the highest average motivation, and those in Northern Ireland the lowest overall average motivation</p> <p>Strong correlation between the amount of NHS work and negative motivation of dentists</p>

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
				Longer hours and less annual leave taken by dentists who spend more time on NHS work
Gallagher and Scambler (2021)⁵⁰	Opinion article on the transition to a female majority of the workforce in dentistry in the UK	<ul style="list-style-type: none"> • Advancement – women are underrepresented at high levels in practice (practice ownership), need career path and development into leadership roles and as mentors • Personal growth – training in additional skills 	<ul style="list-style-type: none"> • Working conditions – flexible working patterns • Policies and rules – inflexibility in facilitating parental leave for men and women, system redesign for English contractual arrangements to avoid financial penalties 	More women dentists work part-time and women dentists have better morale than men
Gallagher et al (2021)⁵¹	Qualitative study, purposive sample of 20 dentists working in England completed a semi-structured interview	<ul style="list-style-type: none"> • Achievement – finding things that create a sense of self-worth • Recognition – recognising and enjoying successes • Responsibility – leadership from early career dentists in reforming the profession as part of professional responsibility • Work itself – variety of work • Advancement – dentists who have been able to mix clinical work with upskilling or teaching are more fulfilled, “portfolio careers” attractive but limited within general practice setting • Personal growth – developed coping mechanisms 	<ul style="list-style-type: none"> • Working conditions – being able to work at an optimal pace, practice ethos and culture • Coworker relationships – a happy team, good relationship with dental nurse and the practice team, availability of professional support networks • Policies and rules – many plan to leave NHS dentistry without reform of the system, many would consider working for the NHS under a different contractual arrangement (Scotland fee per item seen as better), disconnect with regulatory body (GDC) around complaints and more transparency and fairness needed 	

Author(s) (Year)	Study Design and participants	Motivator factors (achievement, recognition, responsibility, work itself, advancement, personal growth)	Hygiene factors (working conditions, coworker relationships, policies and rules, supervisor quality, salary)	Other comments/factors
			<ul style="list-style-type: none"> • Supervisor quality – a clinical lead was preferable to a practice manager • Salary – parental leave 	
Davda et al (2022)⁵²	Qualitative study, semi-structured interviews of internationally qualified dentists working in the UK	<ul style="list-style-type: none"> • Work itself – respondents liked that there is no need to “sell” treatments to patients when working within the NHS 	<ul style="list-style-type: none"> • Coworker relationships – some IQDs felt valued by their colleagues but others reported variation in team dynamics, access to social media professional support groups • Policies and rules – those who have worked less than 5 years less likely to feel empowered to raise concerns, integration into the workforce affected by the structural processes of registering in the UK 	Lack of support from professional organisations
Pal et al (2022)⁵³	Opinion article on career pathways for general dental practice	<ul style="list-style-type: none"> • Advancement – structured career advancement/paths 		

Table 4 - Summary of factors relating to job satisfaction and dissatisfaction of dentists

	Motivators (increase job satisfaction)	Hygiene factors (prevent job dissatisfaction)
Dentist	<ul style="list-style-type: none"> • Autonomy/control over own work • Able to provide high quality care • Helping people • Development of skills • Variety of work • Opportunity to take on additional roles • Structured career path 	<ul style="list-style-type: none"> • Non-target driven and unrestrictive contractual arrangements • Adequate time to spend with patients • Access to quality equipment • Fair remuneration • Non-corporate environment • Reduced risk of litigation • Flexibility of work inc. part-time options • Preferred location which is not a high needs or rural area • Employment status • Supportive peers/mentoring • Availability of professional networks

Risk of bias

All the reports included in this review were individually assessed for risk of bias using the appropriate quality assessment tool described in the methods, and a summary judgement made of low, moderate or high risk of bias (Appendix 3). Factors which only appeared in articles determined to be at a high risk of bias were excluded. from the summary table (Table 3).

Discussion

The purpose of this literature review was to identify specific factors that contribute to job satisfaction and prevent job dissatisfaction of dentists in general dental practice. This review found that there may be factors specific to certain groups, for example females and those at different ages and career stages.

The most prominent overall factor associated with job dissatisfaction found in this literature review was working under target-driven, inflexible and restrictive contractual arrangements, which was mentioned in over half of included reports. The majority of these were in relation to NHS arrangements in England and Wales. The risk of dentists leaving the NHS to go private due to the focus on targets over quality was an issue raised in an independent review of NHS dentistry in England and Wales in 2009, and there have been minimal changes in contractual arrangements since then⁵⁴. A previous report on the motivation level of dentists by NHS Digital found that motivation level is inversely correlated with the amount of NHS work carried out.⁴⁹ However, dentists in Scotland have higher morale and provide more NHS dentistry compared to dentists in other countries of the UK⁴⁹. There is evidence suggesting that fee-per-item payment models, such as those in Scotland, are associated with more clinical activity and less preventative advice.^{55,56}

The present study identified that providing quality care and helping people increase job satisfaction of dentists^{45,47}, however it is reportedly difficult to provide good quality of care within the “framework” of the NHS.^{44,43} Some dissatisfaction (hygiene) factors which featured in the present review, such as unfair remuneration for work done under the NHS^{44,49}, inadequate time to spend with patients^{35,42,43} and lack of access to/no investment in quality equipment^{37,47,49} may be consequential of NHS contractual arrangements.

In July 2022, NHS England announced marginal changes to the English dental contract for 2022/2023, including introduction of a minimum UDA value and increasing the number of UDAs claimable where the course of treatment requires treatment to 3 or more teeth, or for complex treatment such as root canal treatment⁵⁷. These changes may reduce dissatisfaction of dentists regarding remuneration under the NHS contract but do not increase access to dentistry.^{44,49}

Time pressures are cited as a source of stress for dentists and can impact a dentist's ability to provide quality care to patients, which can lead to poorer care outcomes.^{58,59} In the present study time was a factor mentioned frequently in relation to working in NHS dentistry.^{35,36,43} Earning potential is linked directly to the amount of time taken to complete a course of treatment⁶⁰. Autonomy/control over work was a commonly mentioned satisfaction (motivator) factor in the literature examined in this review.^{35,38,44,46,47}

Associate dentists have little influence over the equipment they are provided with by the owner of the practice.⁴⁷ There are many stresses faced by practice owners associated with running a dental business and the business aspect of dentistry has previously been described as a source of moral tension due to the conflict between asking patients for money and providing health care.^{41,42,43,61} Increasing bureaucracy and regulation has been previously cited as a barrier to investment by practice owners⁶². Dental practices with poor quality equipment are not attractive workplaces.^{37,47,49}

Younger dentists are less satisfied and feel more restricted by contractual arrangements to be able to provide quality care.^{35,38} Career plans, particularly of newly qualified dentists, may be influenced by employment benefits such as annual leave, parental leave and sick pay.^{33,50,51} Self-employment is the traditional status for dentists working in general practice, but the Covid-19 pandemic highlighted that associates have little protection or rights, as there were many instances of practice owners who did not pass on payments given to NHS practice owners which were intended for associates.⁶³ There are benefits and drawbacks of employed and self-employed status and potential impacts on productivity and income, which should be considered if an employed model was adopted, or offered as an option, within general dental practice. The BDA conducted focus groups of associate dentists in 2021 which revealed that dentists do not believe NHS working conditions and constraints would change if associates were employed.⁶³ This highlights that the situation around NHS contractual arrangements is more complex than simply changing the model of remuneration, it definitely is about more than just the money.

The present review found that flexible and part-time work is desired, especially among newly qualified and female dentists.^{32,50} This agrees with a recent report on dentist working patterns which reported an increase in part-time working for dentists.⁶⁴ The proportion of female dentists has been rising in the UK, and in 2021 the GDC register for dentists was 51.5% female and 48.5% male.⁶⁵ There has also been an increase in the number of dentists who want a "portfolio" career, where they work part-time in general practice and have one or more additional roles elsewhere, such as teaching or even a role outside of dentistry.⁶⁶ The findings of this review are reflective of this, as dentists desire variety of work^{33,51}, opportunities for additional roles^{36,51} and opportunities to gain further

qualifications and develop skills^{34,36,38,42,50}. These opportunities are unlikely to be found within general dental practice where the work is regarded as repetitive.^{40,67} In addition, this review found dentists have concerns around litigation and complaints^{32,46,48,49}, which has been reported on previously as the biggest concern of dentists up to five years post-qualification⁶⁹.

There has been an increasing rise in the number of corporate dental bodies in the UK (multiple dental practices owned by one dentist or company), due to their ability to employ economics of scale and manage the increasing burden of bureaucracy and regulation.⁶⁹ Findings from this review suggest that there is a perception amongst dentists that corporate environments focus on profit over quality care.^{45,46,47} Dentists who work in corporate environments are less satisfied than non-corporate dentists.⁴⁹

The present study suggests availability of professional support networks could increase the retention of dentists.^{40,41,51,52} Dentists are at high risk of burnout, anxiety and depression from the stressful demands of the job.^{49,51,70} A 2017 report by the BDA highlighted that dentists face barriers to accessing support, such as being unable to take time away from work, feelings of embarrassment and stigma, and concerns around legalities.⁷⁰ Dentists who work under NHS contractual arrangements, in environments which are more restrictive than the private sector, may be more at risk of stress and burnout.⁷⁰

This review identified factors relating to job location. Newly qualified dentists have anxiety over securing a job in a preferred location³⁹ and there have been few incentives to work in rural or high needs locations³⁸, although a recently launched scheme in Wales is offering preferential terms to attract graduates to work in rural and remote localities. It has been previously reported that recruiting dentists is more difficult in rural and more deprived locations⁴⁸, so without initiatives that remove the potential for this to be a factor contributing to dissatisfaction, it is unlikely to make these locations more attractive to dentists. This has the potential to further exacerbate oral health inequalities and lead to poorer outcomes for patients in rural and more deprived areas, as patients in these areas will find it more difficult to access timely dental care and resort to seeking care in inappropriate places, such as A&E, putting more pressure on other areas of the healthcare system.

From the literature available, there is insufficient evidence to make any definitive conclusions about the impact of Covid-19 or Brexit on the dental workforce, but this is a topic which warrants future investigation due to the prediction that it will lead to a reduced supply of dentists and dental care professionals. A reduction in the supply of dentists and dental professionals may improve working conditions as demand increases, however there is likely to be increased competition from private practices and they may be able to offer more attractive positions compared to NHS practices.

Conclusion

In summary, current contractual arrangements are contributing to the dissatisfaction of dental professionals, and any changes should consider minimising or removing factors identified in this review which lead to dissatisfaction, and introduction of factors which increase satisfaction, to firstly retain the existing workforce and to attract dental professionals to NHS dentistry. This is crucial in order to ensure there is a dental health workforce that are able to meet the needs and demands of the population.

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Appendices

Appendix 1 – Search strategy

Database	#	Search terms
PubMed/Medline	1	(Employment) OR (Unemployment) OR (Job satisfaction) OR (Job application) OR (Job) OR (Employ) OR (Occupation) OR (Profession) OR (Vocation) or (Employee Retention) OR (Leave) OR (Unsatisfied) OR (Dissatis*) OR (recruit*)
	2	(Dental professional) OR (Dentist) OR (Dental care professional) OR (dental hygienist) OR (dental therapist) OR (dental workforce) OR (dental nurse) OR (clinical dental technician) OR (clinical dental professional)
	3	(General dental practice) OR (GDP) OR (Primary care) OR (Primary dental care)
	4	#1 AND #2 AND #3
	5	Limit applied 2006 onwards
SCOPUS	1	Recruit* OR retention OR employment OR job application OR unemployment OR job satisfaction OR dissatis* OR unsatisfied OR leave
	2	Dental professional OR dental care professional OR dentist OR dental hygienist OR dental therapist OR dental nurse OR dental technician OR clinical dental technician OR dental workforce
	3	General dental practice OR GDP OR primary dental care
	4	United Kingdom
	5	#1 AND #2 AND #3 AND #4
	6	PUBYEAR>2006
Ovid	1	recruitment or retention or employment or job application or job or employ or hire or occupation or profession or vocation or recruit* or unemployment or job satisfaction or employee retention or leave or unsatisfied or dissatis*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
	2	dental professional or dental workforce or dentist or dental care professional or dental hygienist or dental therapist or dental technician or dental nurse or clinical dental technician.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary

		concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
	3	general dental practice or gdp or primary dental care.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
	4	#1 AND #2 AND #3
	5	Limit #4 to yr="2006-current"
National Grey Literature Collection	1	(((((Employment) OR (Unemployment) OR (Job satisfaction) OR (Job application) OR (Job) OR (Employ) OR (Occupation) OR (Profession) OR (Vocation) or (Employee Retention) OR (Leave) OR (Unsatisfied) OR (Dissatisfied) OR (dissatisfaction)) AND ((Dental professional) OR (Dentist) OR (Dental care professional) OR (dental hygienist) OR (dental therapist) OR (dental workforce) OR (dental nurse) OR (clinical dental technician) OR (clinical dental professional)))) AND ((NHS) OR (National health service))) AND ((General dental practice) OR (GDP) OR (Primary care) OR (Primary dental care)) after:2006-04-01

Appendix 2 – Inclusion and exclusion criteria using SPIDER tool

	Inclusion	Exclusion
Sample	<p>Population involving employed or self-employed dental professionals who work in general dental practice or primary dental care in the UK</p> <p>Undergraduate dentists or DCP students</p> <p>NHS, private or mixed practice</p> <p>Overseas qualified dentists and DCPs practicing in the UK</p>	<p>Specialist dental practice or dentists with special interest (DwSI) roles</p> <p>Community dental practice</p> <p>Secondary dental care/hospital dental services</p> <p>Non-UK general dental practice</p>
Phenomenon of Interest	<p>Presentation of a factor influencing job satisfaction, dissatisfaction, retention, or recruitment of dentists and DCPs in general dental practice/primary dental care</p>	<p>Focused on clinical activity or skill-mix of the workforce</p> <p>Views or attitudes towards specialist dental practice or secondary care</p> <p>No attitude, views or opinions on job satisfaction, dissatisfaction, recruitment, or retention of dental professionals in primary dental care</p>
Design	<p>Any report or study (qualitative, quantitative, grey literature and any expert opinion)</p>	<p>Literature or systematic reviews</p> <p>Empirical evidence published in a non-peer reviewed journal</p>
Evaluation	<p>Any quantitative or qualitative or mixed methods</p>	
Research type	<p>Written in English</p> <p>Full text available</p>	<p>Data included is only from before April 2006</p> <p>Report published before 1st April 2006</p> <p>Written in a language other than English</p> <p>Full text unavailable</p>

Appendix 3 – Quality Assessment of included records

Summary judgement table of included articles

Author(s) (Year)	Risk of bias
Stewart et al (2007)	High
Davies et al (2008)	High
Denton, Newton and Bower (2008)	Low
Harris et al (2008)	Low
Holt and Ladwa (2008)	Low
Chestnutt, Davies and Thomas (2009)	Moderate
Harris et al (2009)	Low
Willett and Palmer (2009)	Moderate
Brown et al (2010)	Low
Hill et al (2010)	Moderate
Holt and Ladwa (2010)	Low
Harris, Dancer and Montasem (2011)	High
Newton et al (2011)	Moderate
O'Selmo, Collin and Whitehead (2018)	Low
Colin et al (2019)	Low
O'Selmo et al (2019)	Moderate
BDA (2020c)	Moderate
NHS Digital (2020)	Low
Gallagher et al (2021)	Low
Gallagher and Scambler (2021)	Low
Davda et al (2022)	Low
Pal et al (2022)	High