Understanding emotionally relevant situations in primary care dental practice: 1. Clinical situations and emotional responses

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VERIFIABLE CPD PAPER

IN BRIEF

- Describes the range of stressful, negative emotions experienced by primary care dentists at work.
- Describes the positive emotions experienced by primary care dentists at work.
- Explores the nature of the situations which evoke these emotions.
- Discusses the implications for dentists' well-being and patient safety.

RESEARCH

Background and aims The stressful nature of dental practice is well established. Much less information is available on the coping strategies used by dentists and the emotions which underlie the stressful experience. Previous research has been almost exclusively questionnaire-based, limiting the range of emotions explored. This study used qualitative methods to explore the full extent of emotions and coping strategies associated with stressful events in primary dental practice. **Method** Semi-structured interviews were conducted with 20 dentists in Lincoln and the surrounding area. Verbatim transcriptions were analysed using thematic analysis. **Results** Participants reported a wide variety of stressful situations, consistent with the existing literature, which were associated with a diverse range of negative emotional responses including anxiety, anger and sadness. Dentists tended to have more difficulty identifying positive events and emotions. The designation of a situation as stressful or otherwise was dependent on the dentist's personal interpretation of the event. Data relating to the effects of stressors and the coping strategies used by dentists will be presented in subsequent papers. **Conclusion** The situations which dentists find difficult are accompanied by a diverse set of emotions, rather than omnipresent 'stress.' This has implications for stress management programmes for those in dental practice.

INTRODUCTION

Being 'stressed' or in a state of distress, is widely described[1] as the state that occurs when one encounters events which are perceived as endangering one's physical or psychological well-being and that threatens to overwhelm one's ability to deal with the situation. In other words, the experience of stress is a result of being unable to cope with the levels of negative emotions (for example, fear, anger, guilt, helplessness and sadness) which have been generated by the stressful event.[2] These emotions arise in potentially threatening situations and are evolutionarily adapted to support survival. They can give rise to problems such as phobias, anxiety disorders, depression and stress reactions if emotions become extreme, prolonged or contextually inappropriate.[3]

It is well established that general dental practitioners (GDPs) find a wide variety of aspects of their work stressful. The nature of the stressors is remarkably consistent across time and country, and includes work pressure and contents, patient contact, team and financial aspects of practice, career perspectives and the impact on professional and private lives.[4] A recent national survey of community dental service (CDS) dentists[5] found that stress was related to factors identified by GDPs. It also identified issues relating to poor quality management, administrative duties and staffing levels.

The coping strategies used by dentists have also been assessed, though less widely[6] and are discussed more fully in a subsequent paper.[7]

While stress in dental students[8] has been recognised, the authors are unaware of any research exploring any unique stressors of being a foundation dentist (FD1). (Foundation dentists are newly qualified dentists working in approved primary care general dental practices with a dentist mentor/clinical trainer.)

'Stress' is viewed as a 'global' factor relating to dental practice.[6,9] It is often associated with anxiety and the presence of any other underlying negative emotions are largely ignored. Examples might be: embarrassment when one cannot recall a patient's name; sadness when a patient has lost a relative; and anger or anxiety when one receives a letter of complaint. Frustration with patients (for example, when they do not comply with instructions or challenge the dentist's expertise) has been found to be associated with levels of patient complaints and dissatisfaction with dental practice,[10] although any potential association with dentists' stress was not explored. The authors are unaware of any other research relating other emotions to stressful situations or the experience of '(dis)stress'. The ability to identify the specific emotion which underlies the perception of stress is important, as the strategies necessary to deal with the stress caused by frustration with a difficult patient, or the guilt and anxiety associated with having made a clinical error, are likely to be different.[1]

Stress and emotional arousal has been found to have a negative impact on physicians' clinical decision-making with implications for patient safety.[11] An unofficial, online survey of dentists in the UK[12] found that 60% of participants stated that their clinical decision-making was affected daily by fear.

Conversely, positive aspects of dental practice are rarely researched, but 'job satisfaction'[13] and 'work engagement' have been investigated more generally. Work engagement is a 'persistent and pervasive positive affective-cognitive work-related state,' and is 'characterised by vigor, dedication, and absorption,' all of which are associated with positive emotions such as being proud, feeling happy, enthusiastic and inspired.[14]

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Positive emotions such as eagerness and excitement are often associated with situations categorised as 'challenges'; situations in which an individual feels they have the ability to cope with the demands placed upon them. These situations can, therefore, facilitate personal growth;[1] they help individuals to build psychological resilience (the ability to bounce back from negative events by using positive emotions to cope).[3,15]

Whether a particular situation is viewed as a challenge or as stressful is determined by the individual's appraisal or mental evaluation of the situation and whether s/he has the resources to cope with the situation.[1]

The nature of dentists' stressors and coping strategies has mainly been assessed with closed-item questionnaires and can thereby fail to take individual differences into account.[16] Also, an item which is non-stressful to the majority of dentists may be extremely stressful to others; this detail would be lost in the aggregation of data in quantitative research. Qualitative methods allow a more detailed exploration of the types and nature of the emotions experienced by dentists and can, therefore, offer a greater understanding of the effects of emotional states on clinical decision-making.[17]

Semi-structured interviews allow interviewees to talk freely, notwithstanding the perceived demand characteristics of the interview situation, about the topics under investigation. The interviewer can use probes to guide the discussion and elicit further details.[17] Thematic analysis is not tied to any particular philosophy; it identifies, analyses and reports patterns or themes within the data.[18] For the purpose of this study, a theme 'represents some level of patterned response or meaning within the data set.'[18]

The aims of this initial exploratory study were to identify:

1. The negative emotions (including, but not limited to, fear/anxiety) and the positive emotions experienced by PCDPs in the course of their clinical work. PCDPs were defined as dentists in general dental practice (NHS or private practice), including FD1s; members of the CDS and dentists working within the armed services.
2. The nature of situations which elicited these emotions.
3. The strategies dentists used to cope with the described situations.
4. The effect that dentists believed these emotions had on their clinical decision-making.

The results of this study were used to inform (a) a further qualitative study;[19] (b) a quantitative study[20] investigating the relationship between anxiety-provoking situations in primary care dental practice and decision-making; and (c) the development and evaluation of a coping skills package for PCDPs.[21]

This paper presents the data on the emotions reported by dentists and the clinical situations which gave rise to them (aims 1 & 2). These are intimately associated and are thus presented as a matrix. A further paper[7] will present the data on the effects of these situations on the dentists (aim 4) and the strategies they adopted in response to them (aim 3).

- What emotions do you experience during your clinical work?
- In relation to _____
  - one particular example when you felt like this?
    - Describe situation
      - making decision?
      - particular technique?
    - Why did you feel like this?
    - How intensely? (0 – 10, most intense)
      - Was this feeling a problem?
        - Affect dental work / decisions / attitudes / other?
    - How did you cope with this emotion?
      - Hide emotion
        - How did it affect you?
      - Try to change emotion?
        - How
        - How did it affect you?
      - Discuss with anyone?
        - How did it affect you?
    - *When did this occur?*
      - *If happened now / previously*
        - *Cope differently?*
        - *Feel differently?*
    - *Advice to colleague in a similar situation?*

Fear, guilt, anxiety, sadness, shame, disgust, excitement.

Why?
Can you expand?
Could you go into more detail?

What support or education could help you to cope with emotions?

Prompts in italics added after review to try and illicit greater detail of coping strategies from participants.

Figure 1 Final interview schedule

METHOD

Participants

Following ethical approval from the University of Lincoln, School of Psychology Ethics Committee, approximately 360 PCDPs (GDPs and members of the CDS) were approached by e-mail via BDA section secretaries and also by editorial features in the dental press. Participating dentists also spontaneously recruited further participants; a process referred to as 'snowballing'.[22] An information sheet and a questionnaire collecting demographic data[13] were distributed. Twenty five eligible dentists volunteered. Twenty were chosen so as to ensure a purposive sample with regard to type of practice (general dental practice [NHS, mixed or private]; CDS; and DF1); and date of qualification and location (urban, suburban and rural). Twenty participants were deemed to be sufficient to provide the quality of data necessary for analysis.[23] The literature on sample size in qualitative research emphasises quality of data over quantity and there are no fixed guidelines regarding sample size such as power calculations which can be applied. Sampling is often purposive, to be representative and represents a balance between being too small to achieve maximum variation and too large for analysis.[23]

The chosen dentists were contacted by telephone and hour-long interviews arranged at their practice. An honorarium equivalent to one hour's NHS loss of practice allowance was paid to participants. They were given the opportunity to ask questions of the interviewer before signing the consent documentation and were notified of their right to withdraw at any time without giving a reason. All audio recordings and transcripts were identified by numerical code only. Care was taken

to remove any potentially identifying features from the quotations used.

A later quantitative study was conducted which developed the findings of this study, investigating them in a wider sample.[20]

Procedure

Semi-structured interviews were conducted to allow for in-depth consideration of the emotions occurring in dentists in their primary dental practice and the events leading to these emotions.

A set of opening questions was developed based on the aims of the study. A variety of phrases were used to ask about the impact of the experienced emotion on the clinical situation. (Did it impact/affect/make a difference to/change anything about the situation/the way you worked/your decisions?)

In order to minimise the possibility of bias during the interviewing process, interviews were conducted by one researcher (SC), who, as a psychologist, was less likely to bias the responses of the dentists or ask leading questions. The interviews were digitally recorded and transcribed verbatim by a professional transcription service.

One researcher (HC) immersed herself in the data by reading and rereading the transcriptions. Text was manually coded in Excel spreadsheets by keywords, without the use of commercially available software packages and was reviewed for accuracy by SC and RB after the first four transcripts became available. The questions were also reviewed and additional probes were added. The final interview schedule is presented in Figure 1.

The remaining interviews were then similarly analysed. The coding for the thematic data developed during the iterative process of analysis. Saturation (defined as a point where no new themes or concepts emerged)[24] was reached. The complete analysis of the full data set by HC was reviewed by SC and RB. Representative quotations, which are identified below as [participant: interview paragraph], were chosen by the three researchers in committee.

Reflexivity

The research team consisted of a PCDP (HC) with a postgraduate training in cognitive behaviour therapy (CBT), an academic psychologist (SC) with a special interest in emotion regulation and experience in quantitative and qualitative research methodology and a chartered clinical psychologist (RB). The researchers hypothesised that self-reported fear and other negative emotions would be associated with stressful situations and would have an impact on clinical decision-making.

Table 1 Demographics of study sample

Gender	Female n = 11 (55%)	Male n = 9 (45%)e
Year of qualification	Mean 1993 (range 1966–2011)	
Years in primary dental practice	Mean 17.25 years (SD 13.23; range 1–46)	
Hours of work	Mean 30.8 hours a week (SD 8.04; range 14–40)	
Place of qualification	UK n = 20 (100%)	
Additional qualification	Yes n = 4 (24%)	
Additional role	1 part time Maxillo-facial attachment	
Type of practice	General dental practice n = 17 (85%)	Community dental services n = 3 (15%)
	Principal n = 6 (35%)	(one additional management role)
	Associate n = 5 (29%) (one worked for corporate)	
	FD1 n = 6 (35%) (one worked for a corporate)	
Nature of practice	Mostly private <25%NHS n = 5 (29%)	
	Mixed 25-75% NHS n = 4 (24%)	
	Mostly NHS >75% NHS n = 8 (47%)	
Dentists in practice	Single handed n = 2 (12%)	
	At least one other dentist n = 15 (88%)	

RESULTS

Demographics

The demographics of the twenty dentists interviewed, are summarised in Table 1.

Thematic analysis

A total of 36 codes, organised into six themes were identified. A summary of the thematic analysis is presented in Table 2. Data relating to the emotions which dentists reported experiencing in the course of their clinical work (theme 1; aim 1) and examples of the range of loss/harm/threat stressful situations and challenging situations which evoked them (themes 2 and 3) will be presented as a matrix in this article. In the text, the anonymised quotes are identified [participant: interview paragraph].

A second paper[7] presents the data on the self-reported effects of the emotions (theme 4; aim 4) and the methods used by dentists to address the causative situations (theme 5; aim 3). Theme 6 contained data not pertinent to the current analysis.

Defining the themes

Emotions expressed by dentists (theme 1)

The emotions expressed were categorised according to Linehan's system.[25] Negative emotions (ie anxiety, anger, guilt, and sadness) were grouped into codes 1-4. Positive emotions (code 5) included relaxed, enjoyment, fascination, gladness and validation. Emotional vicious circles and additional influences were grouped into codes 6 and 7 respectively.

When initially asked about which emotions they experienced at work, some dentists would mention one emotion in particular, while others reported complex emotional responses. Emotions in dental practice were often described as 'a rollercoaster.'

'*Different emotions such as of anxiety. ... feelings of satisfaction... pleasure ... happiness ... frustration ... annoyance, dissatisfaction*' [3:2].

The negative emotions were almost always related to threatened or actual harm/loss events, or injury to dentists' self-esteem or social standing, and the loss of core commitments rather than the threat of physical harm (theme 2: codes 8-20).

'He ... told me that I was actually wrong in not giving him antibiotics ...[implying] that you don't know what you're doing.' [12:36] [Code 13]

Positive emotions were linked with situations (theme 3: codes 21-27) that were viewed as growth or gain experiences; as 'challenges'.

'[I]f something goes well ... then you get a feeling of satisfaction.' [4:4] [Code 21]

These difficult and positive situations are considered together as one dentist's negative event could be another dentist's challenge, such as when '*you manage to get the [difficult] tooth out, it's quite exciting and ... rewarding*' [15:64] [Code 21] or '*... a difficult extraction [makes me anxious]*' [20:3] [Code 8]

Table 2 Summary thematic analysis

	Themes	Code Number	Code	Descriptor	Examples
1*	Emotions expressed by dentists	1	anxiety group	descriptors of emotions expressed on the fear/ anxiety continuum	anticipatory anxiety, fear of failure, pressurised, stress
		2	anger group	descriptors of emotions expressed on the anger continuum	annoyed, unfairness, anger
		3	guilt/shame group	descriptors of emotions expressed on the disgust/shame/guilt continuum	anticipatory disgust, humiliated, pride (big headed)
		4	sadness group	descriptors of emotions expressed on the sadness continuum	bored, discouraged, pity, depressed, loneliness
		5	positive emotions group	descriptors of emotions expressed on the positive emotions continuum	calm, confident, pleasure
		6	emotional (vicious) circles	descriptors by dentists of emotional interactions with emotions of patient	an anxious dentist making the patient anxious
		7	miscellaneous descriptors		emotions change with experience, rollercoaster, empathy, gender differences
2*	Negative situations described by dentists	8	treatments - technical dentistry	descriptors of treatments which were associated with distress	endodontics, giving local anaesthetic, advanced conservation, medical emergencies,
		9	treatments - patients with special needs	descriptors of additional stressors associated with this patient group	communication, the role of third parties, need to compromise
		10	impact of others	the impact of others in the wider environment on the patient and on the quality of the clinical environment	child neglect, dealing with carers, poorly controlled siblings in the surgery
		11	workload	factors relating to the volume and ability to control workload	out of depth, running late, NHS treadmill
		12	communication	factors relating to communication content and style by dentist and patient	questioning clinical judgement, role as a psychotherapist, acting to hide feelings
		13	competence	factors relating to perceived competence by self and patients	having no-where to refer patient onwards, lack of self-confidence, threat to self-esteem,
		14	patient characteristics	factors relating to patient medical history, social history, behaviour (including non-compliance), and emotional state	rude, don't attend, poor oral self-care, angry, nervous
		15	moral standards	professional conflicts of standards, fear of complaints and litigation,	differences in clinical opinion, having made a patient suffer
		16	business/legislation	problems with practice management and viability	job security, CQC, NHS patient fees
		17	working relationships	personnel management and relationships between staff	behaviour of nurse, being taken advantage of by a colleague
		18	education and support	problems relating to training	inadequate undergraduate training, poor trainer/ colleague support
		19	health/physiology	factors relating to the dentists' own health and physiology	tired, bad back
		20	cognitive	cognitive factors functioning as stressors	distracted, cognitive errors (mind reading, catastrophising)
3*	Positive/ challenging situations described by dentists	21	treatment group	factors relating to treatment which were associated with positive events	not hurting patient, stopping vicarious learning, 'challenging' treatments
		22	patient characteristics	patient characteristics which were associated with positive events	appreciative, satisfied, happy
		23	communication	factors relating to communication	building rapport, treating patient as a person
		24	morals		building a good reputation, working ethically within the funding structure
		25	business		building a practice
		26	working relationships	working relationships	with nurse, partners
		27	education and support		a teaching role

*Data in Themes 1-3 are described in this paper. **Data in Themes 4 & 5 are described fully in a separate paper[7]. ***Data in Theme 6 was considered to fall outside the aims of this study

Table 2 Summary thematic analysis

4**	Effects internal to the dentist	28	physiological responses	physiological responses to events	on edge, exhaustion, relaxed
		29	mental responses	mental responses to events	catastrophising, mind reading
5**	Resultant coping strategies	30	Behaviours to manage the situation		Modifying treatment (type or speed;) referral (find another dentist, reactive, proactive) seeking social support peer review/audit; CPD
		31	behaviours to manage the emotion		Reduce communication, escape from surgery, vent to others
		32	mental processes to manage the situation		Know limitations, problem solving
		33	mental processes to manage the emotion		Stop thinking about it, compartmentalise the problem, remain positive
		34	miscellaneous	various	Dentists' self-reported attributes, denial of use of strategies to manage situation or effect of emotion on self.
6***	Not pertinent	35	things not relevant to analysis		Explanations for the benefit of non-dental interviewer of dental procedure; descriptions of work in secondary care

*Data in Themes 1-3 are described in this paper. **Data in Themes 4 & 5 are described fully in a separate paper[7]. ***Data in Theme 6 was considered to fall outside the aims of this study

Situations associated with negative emotions (theme 2) and positive emotions (theme 3)

In the following analysis of theme 1 (emotions), the codes relating to themes 2 (negative situations) and 3 (positive situations) are integrated as a matrix to allow the pairing of emotional experiences with representative provoking events, thus illustrating the dynamic and idiosyncratic nature of their interactions. For example, one dentist might respond to a solicitor's letter with anxiety, and another with anger. Commonly expressed associations are described below and further, sometimes more idiosyncratic, examples are provided in Table 3.

a. Anxiety/fear group emotions (code 1)

There were two overarching patterns to the anxiety related situations; fear of the unknown: '*you're not sure what treatment's going to be expected. ... So it's a bit of the unknown,*' [16:1] [Code 8] and a sense of not being in control in clinical situations, '*you're used to being in control, ... when you lose that control ... that's when you get into ... a difficult area.*' [17:69] [Code 20]

These feelings were precipitated by carrying out a treatment procedure for the first time, by clinically unexpected events such as a crown fracturing on placing a rubber dam clamp. They were also associated with patient characteristics such as being demanding or aggressive. Some patients provoked a sense of unease: '*you wouldn't wanna be on your own with [them].*' [5:20] [Code 14]

Anxious patients were a significant source of anxiety for all the dentists: '*You're doing something that's a challenge and the patient's a challenge [anxious], then that could be a really highly stressful situation.*' [4:35] [Code 14]

Striving to maintain high standards and managing workload were frequently cited as causes of anxiety. Fear of complaints and litigation was universal: '*the [always present] underlying fear of litigation.*' [14:37] [Code 1]

Dentists working within the CDS faced an additional set of anxiety provoking difficulties associated with the problems the patients have (for example medical problems and phobia) and dealing with carers. This was compounded by '*not being able to refer them anywhere other than potentially general anaesthetic.*' [18:47] [Code 13]

b. Anger group emotions (code 2)

Emotions on the anger spectrum were universally experienced, though most dentists described lower level emotions such as frustration or irritation. They were triggered by a variety of situations including issues of perceived competence, with judgement by self or others. Anger was provoked by a sense of injustice about patient complaints, the NHS fee structure and, the state condition of 'looked after' patients: '*often you can't do the job that you know you would like to do because of the financial restraint.*' [22:91] [Code 16]

A failure to achieve self-imposed standards (perfection) could result in frustration with the self: '*if I can't do a job perfectly that irritates me.*' [17:69] [Code 13]

These emotions were also triggered by patient behaviours which could be summarised as lack of cooperation such as failing to keep appointments, children's lack of cooperation, failure to maintain parental control of siblings in the surgery, or of patients to take responsibility for their own oral health: '*after [you keep] giving them oral hygiene advice ... and they just don't really care*' [19:53] [Code 14]

c. Disgust/guilt/shame group emotions (code 3)

In reporting disgust, many viewed it simply as a response to physical conditions while others differentiated between the mouth and the person – that is, the person was not necessarily judged: '*someone's ... got an absolutely disgusting mouth. ... I'm not disgusted with them.*' [1:79-80] [Code 14]

'Disgust was also associated with a sense of moral outrage: '*You can get disgust at other people's work.*' [12:33] [Code 10]

While many of our participants could not recall feeling guilty, others reported embarrassment, guilt and shame emotions. Guilt was associated with a failure to meet high clinical standards, if not perfection: '*I've made one particular clinical error I can think of that I felt ever so guilty over.*' [2:28-29] [Code 15]

Furthermore, some dentists viewed being proud of their work as hubristic: '*blow[ing] your own trumpet.*' [18:23] [Code 13]

d. Sadness/depression group emotions (code 4)

Some dentists denied feeling sad or 'down' at work, others reported feeling sad for a variety of reasons. Some reported deep sympathy for their patients, often leading to compassionate action: '*I do feel sad ... if I have a patient whose husband has died ... I always make a point of writing to them.*' [17:80] [Code 22/23]

Others felt disheartened by the negative role image of dentists, bored by the repetitive

Table 3 Matrix of relationships between experienced negative emotions & sample stressors and positive emotions & challenging situations

Theme 1 (codes 1–6)	Code 1	Code 2	Code 3	Code 4	Code 5
Emotion	Anxiety, fear, worry, panic	Anger, frustration, irritation	Guilt, shame, disgust	Sadness group	Positive emotions
Theme 2 (codes 8–20; stressors)					
Theme 3 (codes 21–27; challenges)					
	Stressors				Challenges
Code 8/Code 21 Technical dentistry	'*the first time you're doing a [particular treatment].*' [12:6]	'*if I can't do a job perfectly that irritates me.*' [17:67]	'*[moral outrage] with a patient … doing something just to cause trouble or just because they want financial [gain].*' [5:45]	'*disappointed that some of the things that you try and do don't work quite as well as you want them to.*' [17:105]	'*do some good … technical dentistry, [I] enjoy it.*' [2:46]
Code 9 Special needs	'*patients who aren't able to control their own anxiety and some of them display their fears through aggression.*' [16:29]	'*we see maybe are neglect and it's not through the person's own fault, it's someone else.*' [18:1]	'*patient eats anything at all and … that's not pleasant.*' [16:65]	'*you get a lot of stories, so sometimes you feel sorry for a patient.*' [18:1]	'*satisfaction? Yes … absolutely, it is very rewarding.*' [16:22]
Code 10 Impact of others	'*carers are watching you the whole time.*' [18:6]	'*this child was running round the room shouting, I don't think [the sibling receiving RA] was as relaxed either, and I know I wasn't relaxed.*' [14:58]		'*why aren't you making your children brush twice a day?… it just upsets me.*' [11:30-2]	
Code 11 Workload	'*I'm most anxious about timekeeping.*' [5:24]	'*a patient just walking in without booking an appointment, then demanding a filling … on the day when we didn't have space to do it.*' [20:34]		Boredom - '*if … you're having a very straightforward day.*' [19:1]	
Code 12/Code 23 Communication	'*someone walks through the door and [says], oh I hated my last dentist.* [10:12]'	'*I can sense that people you know don't want to listen to a word you're saying, won't take your advice.*' [14:53]	'*[patients] hit you with a question that you're not prepared for so you can be a bit embarrassed about not knowing the answer.*' [19:1]		'*a really rapport with the patient and to know them a bit better … understanding what they want and how they work.*' [7:17]
Code 13 Competence	'*something's gone wrong or if you feel you haven't done things quite as well as you … could have done.*' [1:1]	'*[the parents] telling you what to do as a professional.*' [4:9]	'*I felt a bit guilty that I should have known it when I didn't.*' [3:13]		'*do some good technical dentistry, enjoy it.*' [2:46]
Code 14/Code 22 Patient characteristics	'*children can be quite unpredictable.*' [11:9]	'*people mess[ing] you about and [not coming] to their appointments.*' [9:40]	'*there's embarrassment because you don't want to talk about [the physical abuse the patient has suffered].*' [10:49]	Helplessness from '*almost becom[ing] counsellors.*' [16:53]	'*some patients … seem to be very happy and seem to bring it in with them. … nice to see them again.*' [23:32]
Code 15/Code 24 Moral standards	'*UDAs, … put numbers, money, production, before what's good for the patient.*'[1:83]	'*I got a letter from solicitors … and I felt really angry.*' [2:51]			
Code 16/Code 25 Business/ legislation	'*there's lots of changes with regulation … the GDC, … the CQC … there's a lot of worry about the viability of a lot of businesses.*' [7:20]	'*often you can't do the job that you know you would like to do because of the financial restraint [of NHS fee structure].*' [22:91]			
Code 17/Code 26 Working relationships	'*telling nurses to change the way that they do things.*' [7:21]	'*nurses can't be bothered to just mix certain things up for you or give you something that you want when you ask for it or is very lazy at doing that.*' [3:78]			'*good a relationship with the nurse … we're quite close.*' [11:81]
Code 18/Code 27 Education/support	'*DF1's 'are not ready to treat real world patients.*' [7:37]			Lonely in '*these four walls and not having [a] conversation with … your work colleagues.*' [7:1]	
Code 19 Health/physiology	'*the more physically tired I was getting … the more anxious I felt.*' [23:19]	'*frustration … when you're tired and things won't go right.*' [8:5]			
Code 20 Cognitive	'*it's not going to work; it's not going to do what it's meant to.*' [4:25]			'*patients see us as the wicked witch of the west … who is there to inflict pain … is really disheartening.*' [7:1]	

nature of the work, demoralised and demotivated: '*crap ..., defeated.*' [10:45] [Code 8]: '*less interested in coming to work.*' [3:80] [Code 8]

Isolation was a problem for dentists, but particularly troubling for members of the CDS: '*you're in a clinic ... where there are no other clinicians ... [my] colleagues ... are at the end of a phone but it's not quite the same as popping your head round the corner.*' [16:11] [Code 18]

Situations associated with positive emotions (theme 3) (code 5)

Dentists tended not to mention positive emotions until prompted. The examples given tended to be generic with dentists apparently finding it more difficult to remember specific examples of positive events: '*you probably report happy things less than you do your frustrations.*' [2:15]

Positive emotions were associated with a wide range of treatment factors, such as fostering patient coping, building good rapport and, above all, achieving a high standard of clinical work. These events were recognised as important for building self-esteem and confidence: '*Happiness. It's nice to see patients again sometimes. Some of them you build a relationship with ... or if they follow your advice and their mouth's looking better.*' [2:1] [Codes 22/23]

Positive emotions that reflected personal liking as well as professional support were also associated with good relationships with nurses and colleagues: '*if you can sort of line up how you work with how ... your nurses work, then everything works really nicely.*' [7:19] [Code 26]

e. Emotional vicious circles (code 6)

PCDPs could talk about the vicious circle often experienced with negative emotion: dentist affecting patient; '*nervousness is communicable and if you've got a nervous dentist you inevitably have a nervous patient,*' [17:5] [Code 14] and patient affecting dentist; 'because he was a good patient, that probably helped me to feel more at ease.' [4:29] [Code 22]

Occasionally, they recognised that this could spill over and affect the atmosphere in the surgery, both positively and negatively: '*if you have a really nice patient in and the next patient's okay you get kind of into a flow and everything's really nice, you have a really happy day.*' [7:7] [Code 21]

f. Additional influences (code 7)

Various general statements were also made which often applied across several emotions. Some noted that their emotional reactions had changed considerably with time, usually becoming less of an issue which was ascribed to experience: '*you've got to know your limitations,*' [4:19] and '*you learn to recognise and be a little bit more relaxed about these [difficult] situations.*' [16:9]

Some considered there to be a gender difference in emotional expression; that men were given less permission to be emotional and that women were in some ways more emotionally vulnerable: '*I don't know if it's worse for women or men ... my husband who's a dentist ... was never as anxious or concerned about things in the same way that I was.*' [9:41]

Empathy was often referred to as an emotion in its own right. It was frequently experienced in relation to sad emotions: '*we've got children ourselves and you can put yourself in their situation [death of daughter] and what they're going through.*' [17:84]

DISCUSSION

This study investigated the interaction of specific, identified emotions with the events which elicited them. It also explored dentists' responses to those stressors, the results of which are presented in a second paper.[7]

The difficult situations described by this group of PCDPs are consistent with those noted in previous studies.[4,6,9] Many of these are more akin to Lazarus & Folkman's 'daily hassles' (low grade, daily irritants)[1,26] than major life events.[27] Hassles are more closely linked to poor psychological and physical well-being than major stressors[28,29] and are balanced by 'uplifts'; everyday positive experiences.[26]

In difficult situations, many PCDPs experienced a wide variety of negative emotions, not just anxiety. However, possibly as a result of the interview situation, some reported quite narrow emotional experiences, limiting their descriptors to 'stress' and denying other emotions, even when prompted. The ability to differentiate emotions is associated with psychological resilience.[30] They also experienced a variety of positive emotions, not merely 'job satisfaction.' Some found positive emotions and situations harder to identify which has significant implications for the ability of dentists to build the psychological resilience.[3,15] The gender differences in emotional response suggested by some dentists require further exploration.

The processes identified in these transcripts closely correspond to the model of emotions, stressors and coping proposed by Lazarus and Folkman.[1] A state of (dis)stress, or a state where one is coping poorly, occurs at both low (for example, boredom) and high (for example, the clinically unexpected) levels of stress. Challenges, or a state where one is coping effectively, occur in a state of eustress or moderate stress. These situations showed a good deal of overlap; the dentist's appraisal of the situation and their ability to cope with it influencing the valence of emotional experience. Appraisal will be influenced by *ia* the dentist's absolute level of clinical skill, their perceived level of skill and their perception of the patient's ability to cope with the situation. This is reflected by the current concept of the 'individual zone of optimal functioning,' which is emerging from the current sports science literature[31] which suggests that some individuals function better at higher levels of stress than others. The importance of appraisal in determining whether clinical situations were stressors or challenges suggests that cognitive reappraisal would be a valuable skill with regards to reducing stress and building resilience.[32]

The recognition of emotional vicious circles, both positive and negative, implicitly recognises that the stress response is not a linear, stress → appraisal → coping process, but can be transactional in nature[2,33] and are described in more detail in a further paper.[34]

The dentists all endorsed feeling at least some degree of anxiety or fear on occasions. Recent laboratory studies have demonstrated:

1. That anxiety selectively disrupts the evaluative component of performance monitoring.[35]
2. That induced fear reduces digit sensory perception though induced anger had no effect.[36]

The possible implications of this for dentists' practical abilities under stress have yet to be evaluated. It is well established that high levels of stress are associated with poor clinical decision-making[11,37] with implications for patient outcomes.

PCDPs' fear of the unknown and need for control, which emerged as overarching themes throughout the situations described, appear to validate the hypothesis propounded previously by Chambers.[38] Participants also described emotions on the anxiety/panic spectrum when faced with clinically unexpected situations. These situations are arguably accompanied by momentary, or longer, loss of control of the situation.

The factors identified by Chambers[38] may also imply a link to frustration and irritation-type emotions. The questioning of expertise by patients,[39] problems of non-compliant patients,[40] missed or late appointments, and persistently poor oral hygiene have been recognised as stressors or a source of 'annoyance'.[41] Anger-group emotions in the dental surgery have been tacitly recognised in research validating the 'Frustrating Patient Visit Questionnaire,'[10] suggesting that frustration with patients is a significant source of stress in dental practice. However, the coping skills necessary to deal with this will be different to those appropriate for anxiety-based stressors.

The descriptors of the various situations which elicited disgust in dentists, match the current interpretation of the scope of this emotion;[42] poor oral hygiene elicited 'core disgust' which is provoked ia by the drive to avoid pathogens,[43] while moral disgust was evoked by the breaking of professional standards or rules by dentists who provided substandard levels of care/treatment.[43] The association of anger with moral disgust[44] was apparent in dentists' response to carers who violated accepted standards of care.[42]

The interviewees' sympathetic responses to illness and death in patients' families are very much in line with those found among dentists in the USA.[45]

The concept of the need for perfectionism in clinical work has been acknowledged as a stressor.[9,40] Socially prescribed perfectionism (ie that others expect perfection of the individual) is linked to role stress.[46] This study revealed two sides of perfectionism; as a powerful intrinsic motivator for high clinical standards and a significant stressor when personal and professional standards of performance are not met. This dichotomy is related to coping style.[47]

The descriptions of varying interpersonal relationships with nurses and other staff reflect previous findings,[48] and also capture the positive aspects of social support which have been found elsewhere to have a moderating effect between stressors and psychological dysfunctioning[49] and the negative association of long term social animosities and conflicts at work with depression which are mediated by feelings of irritation.[50] It may have been the interview situation, but no participant mentioned the development of 'loving' relationships between members of staff or between staff and patients as is very occasionally mentioned in the medical literature.[51]

This study did identify that CDS dentists had many stressors in common with general dental practitioners. However, some are more severe for those in the CDS; the nature of the problems which the 'challenging' patients have; the level of input and interaction with carers; and the sense that the buck stops with them as they have limited options for onwards referral. They were also significantly more isolated than most dentists in general dental practice, often working on their own with the consequent reduction in social and clinical support.

The sample of interviewees exhibits some limitations. Participants were self-selected and may have chosen to volunteer because they perceived this subject to be personally relevant to them; they might have been undergoing current stressors or viewed themselves as more anxious than their colleagues. These factors might have influenced the emotions and events that participants recalled, although this was controlled for by asking about a specific list of emotions and the linked examples of provoking situations.

DF1s are overrepresented, perhaps as a result of the acknowledged challenges of adapting as a DF1.[52] Previous research[53] has shown that older dentists tend to be less stressed and this is borne out by almost all of the established dentists stating that their emotional responses to stressful experiences had reduced over time and with experience. It was, therefore, felt that these newly qualified dentists were in a particularly strong position to report on the negative situations experienced. The study highlights the need for further research specifically exploring the stresses of transition from dental student to novice general dental practitioner.

Tertiary care dentists experience occupational stress.[54] The nature of the underlying stressors and emotional experiences for this population have yet to be explored in depth, but they are likely to experience both overlapping and unique emotional experiences when compared to PCDPs.

The effects of these emotions on PCDPs and their practice will be further elaborated in subsequent articles.[7,34]

CONCLUSION

Far from simply experiencing 'stress' in any difficult situation, PCDPs experience a wide variety of positive and negative emotions in the dental surgery, though they have a tendency to selectively attend to the negatives. Emotional arousal in clinicians is known to have an adverse impact on clinical decision-making with profound implications for patient care. This highlights the importance of building psychological resilience and well-being in practitioners who rely on accurate identification of emotions and attending to positive experiences, and by fostering the appropriate coping strategies, such as reappraisal.

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COMMENTARY

It is well-known, and clearly evidenced, that dental practice is stressful. What is less well-known are the emotions that underpin this stress, and the clinical situations that prompt these. Helen Chapman and colleagues have conducted in-depth interviews with 20 dentists (of varying experience and type of practice/location), in order to explore this in detail.

The authors found that dentists experience a wide variety of positive and negative emotions in the dental surgery, though probably unsurprisingly they focus mostly on the negatives. What comes out clearly is that there are patterns of associations with situations and emotions, but there is also a role for individual differences in how dentists respond to the same situation. Thus, the situation may commonly provoke a negative emotion but the type of negative emotion may differ (eg, a solicitor's letter may give rise to anxiety for some, but anger for others). The authors rightly emphasise that it is important to consider responses as a 'transaction' that can vary both between and within individuals.

It is interesting to note that all of the dentists recognised feeling anxiety/fear as reactions to events, such as carrying out certain treatments, or patient characteristics. For example, anxious patients were a significant source of dentists' anxiety. This may illustrate a cyclical relationship – the patient is anxious of the dentist, and the dentist is anxious about treating the dentally anxious patient. The authors highlight that dentists' anxiety and fear may have adverse clinical implications. Thus, as levels of dental anxiety continue to remain at high levels, there is a clear need to address both patient and dentist's anxiety for the sake of both parties.

We should consider the findings in light of the self-selecting nature of the sample. The authors acknowledge that participants may have taken part as they were undergoing stress themselves, therefore, this was a personally relevant topic. Perhaps because of this, Foundation Dentists were over-represented in the sample – possibly because of the well-known challenges of adapting as a newly qualified dentist. They call for research specifically focused on exploring the stresses of the transition from student to newly qualified GDP.

We may see 'stress' as a necessary part of everyday dental practice; this paper demonstrates that it is important to consider this complex topic more closely. The authors' follow-up paper[1] explores the effects of these situations on the dentists and the strategies they adopted in response to them. It should provide a further integral part of this jigsaw.

1. Chapman H R, Chipchase S Y, Bretherton R. Understanding emotionally relevant situations in primary dental care: 2. Reported effects of emotionally charged situations. *Br Dent J* 2015; **219:** in press.

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