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Characteristics of patients attending for cognitive behavioural therapy at one UK specialist unit for dental phobia and outcomes of treatment

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IN BRIEF

- Describes the kind of patients who can benefit from adopting cognitive behavioural therapy to manage their dental anxiety.
- Highlights that cognitive behavioural therapy offers an effective technique for helping dentally anxious patients receive treatment without sedation.

Aim To describe the characteristics of patients attending a psychologist-led cognitive behavioural therapy (CBT) service for individuals with dental phobia and the outcomes of treatment. **Method** Analysis of routinely collected assessment and outcome data from 130 patients attending a single secondary service providing CBT for dental phobia. **Findings** The patients comprised 99 women and 31 men, with an average age of 39.9 years (SD 14.8). Approximately 77% of the patients scored at levels suggestive of dental phobia on the Modified Dental Anxiety Scale (MDAS). Fear of dental injections and the dental drill were the most common high scoring items on the MDAS. Ninety four percent of patients reported one or more impacts of their mouth, teeth and gums on their life using the OHIP-14. A minority of patients had co-morbid psychological conditions – 36.9% had high levels of general anxiety and 12.3% had clinically significant levels of depression. Suicidal ideation was reported by 12% of patients and four (3%) reported recent intent to commit suicide. Of all patients referred 79% went on to have dental treatment without sedation and 6% had their dental treatment under sedation. The average number of CBT appointments required before a patient received dental treatment without sedation was five. **Conclusions** CBT offers an effective technique for helping dentally anxious patients receive treatment without sedation. Those interested in running such services should be cognizant of the moderately high level of co-morbid psychological conditions in this group.

INTRODUCTION

Anxiety about dental treatment is common and becomes a phobia when it has a marked impact on the individual's well-being, either in terms of poorer health or detriments in social and psychological well-being.¹ Dental phobia has a high prevalence – estimates from the most recent Adult Dental Health Survey in the United Kingdom suggest a prevalence of 11%.² Individuals with dental phobia typically avoid dental treatment with the result that they experience more dental pain and have poorer dental health, they also report a broader range of social and psychological impacts such as self-imposed limitations on social activities, irritability and impact on relationships.^{3,4} Cognitive behavioural therapy (CBT) is an example of a brief psychological therapy with proven

effectiveness for the management of specific phobia, including dental phobia. It is a synthesis of behaviour therapy and cognitive therapy; it uses both behaviour modification techniques and cognitive restructuring procedures to change maladaptive beliefs and behaviours (Fig. 1).⁵ Behavioural aspects of CBT include physiological intervention, such as learning relaxation skills, conducting mini-experiments

(to challenge erroneous beliefs) and systematic desensitisation (constructing a hierarchy of situations that elicit varying and increasing degrees of anxiety or fear and then progressing through the hierarchy in a relaxed, non-anxious state). Cognitive therapy⁶ on the other hand, is based primarily in the analysis of people's cognitions (for example, thoughts, beliefs and interpretations). The central concept is that

Administrative elements

Rapport building
Assessment
Formulation (identifying the thoughts, behaviours and physiological responses that are maintaining the phobia)
Goal setting
Setting agenda for each session
Providing homework for the patient to do between sessions

Behavioural elements

Training in relaxation

- Controlled breathing exercises
- Progressive muscular relaxation

Applied tension (for individuals with blood injury and injection phobia)
Graded exposure to the feared stimulus
Behavioural experiments to test the validity of strongly held beliefs

Cognitive elements

Identifying fear related cognitions (thoughts)
Cognitive restructuring (replacing unhelpful thoughts with more helpful thoughts)
Socratic questioning
Psycho-education (providing information to challenge unhelpful thoughts)
Stress inoculation (identifying techniques to cope with the anxiety likely to arise in the setting)

For further detail on the elements of cognitive behavioural therapy see: Öst L-G, Skarlat E (Eds.) Cognitive behaviour therapy for dental phobia and anxiety. Chichester: John Wiley & Sons Ltd, 2013. Westbrook D, Kennerley H, Kirk J. An introduction to cognitive behavioural therapy skills and applications. London: Sage, 2011.

Fig. 1 Common elements of cognitive behavioural therapy (CBT)

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the way people think about events plays a central role in their emotions (for example, anxiety) and physiological responses (for example, excessive perspiration), and paves the way to establishing and maintaining unhelpful behaviours such as avoidance.⁷ Cognitive therapy, therefore, aims to facilitate a new understanding (cognitive restructuring) that the feared stimuli are unlikely to be dangerous and in turn that avoidance or other safety behaviours are not required.⁸

An important principle underlying CBT is its focus on the 'here and now' as what started a problem is often not the same as what is maintaining it.⁹ In contrast to other psychotherapies, CBT is a short-term therapy, with treatment typically lasting 6 to 10 sessions. Other characteristics of CBT which set it apart from other therapies include the collaborative nature and structured approach of therapeutic sessions; asking clients to complete homework to generalise the learnt skills of CBT. Sessions involve assessment, collaborative goal setting, presenting and reviewing formulations (that is, working hypotheses about the clients problems), systematic desensitisation, guided discovery (that is, adopting the 'Socratic' questioning method to identify thoughts and beliefs and through considered questioning, help patients identify alternative ways of thinking) as well as receiving feedback on each session.¹⁰ Homework is a key aspect of CBT as performing tasks in between sessions enables the client to apply CBT techniques in a more natural environment and put what has been learnt in sessions into practice.

The efficacy of CBT for a range of psychological problems is now well established, most notably for depression and anxiety-related disorders (including phobias¹¹) but also for a diverse range of psychological disturbances. CBT has been reported to be 'the psychological therapy with the most solid and wide evidence base for efficacy and effectiveness'.¹⁰ Similarly the research evidence in support of the use of CBT for dental phobia is compelling.¹² Both cognitive and behavioural interventions have been shown to be successful in reducing dental anxiety and increase dental attendance.¹²⁻¹⁷ These positive effects have been shown to be maintained over time.¹⁸

A meta-analysis indicated that psychological interventions for dental phobia significantly reduced self-reported dental anxiety and increased dental attendance, with medium to large effect sizes.¹⁹ Approximately 77% of participants were seeing the dentist regularly after four years or more. Boman *et al.*²⁰ conducted a further systematic review and meta-analysis of trials directly comparing the outcome of CBT to the use of sedation in dental phobia. CBT

led to greater improvements in self-reported dental anxiety at follow-up (1 year). There is also evidence that the use of CBT is acceptable to individuals with dental phobia.²¹

However, the availability of CBT for dental phobia remains a significant barrier to its use and uptake in the United Kingdom. We have argued in previous publications^{22,23} that the management of dental phobia requires close collaboration between trained CBT practitioners and the dental team, since the behavioural tasks and homework tasks are likely to involve working around fears of dental equipment, the dental setting, dental chair etc. There are few descriptions of the characteristics, service use and outcomes of CBT within the UK healthcare system. Davies *et al.*^{24,25} describe both the conduct of CBT in a single case study²⁴ and the long-term outcomes of CBT conducted in a community dental service setting – confirming the success of this approach. Of 21 patients who attended the service, 20 were able to receive dental treatment without sedation and maintained this benefit at 10 year follow-up.

In September 2008 the King's College London Dental Institute Health Psychology Service (KCLDIHPS) was launched providing CBT for individuals with dental phobia at Guy's & St Thomas' NHS Foundation Trust. The KCLDIHPS have developed a highly structured treatment programme based on cognitive behavioural techniques for individuals with high levels of dental fear and anxiety. The primary treatment goal is for the service to enable patients to receive dental treatment without the requirement for sedation, though for each individual patient goals are set personally according to their priorities. The aim of the current manuscript is to describe the characteristics of patients attending a psychologist-led CBT service for individuals with dental phobia, as well as the outcomes of their treatment. Such information will be of value to those planning the development of similar services, as well as general dental practitioners considering making specialist referral for their patients with phobic levels of dental fear. In addition the data provides an insight into the demographic and psychological characteristics of individuals with dental phobia.

METHODS

The data presented in the present study are taken from assessments routinely collected as part of the service. All data have been anonymised and cannot be traced to individual patients. Completion of the Health Research Authority decision tool determined that ethical approval for the study was not required (<http://www.hra-decisiontools.org.uk/research/>).

Patients

One hundred and thirty consecutive referrals to the KCLDIHPS were included in the service evaluation, this being all patients seen by the service in the timeframe. The patients were assessed between 1 January 2009 to 30 May 2013. The patients were referred from three main sources: a secondary care service delivering sedation for individuals with dental phobia, general dental practitioners (GDP) and general medical practitioners (GMP). The largest number of referrals comprised patients who had usually completed their dental treatment under conscious sedation. All patients were assessed and received their treatment by a single psychologist. Dental treatments as appropriate were delivered by the dental team including dental practitioners, dental hygienists, dental therapists and dental nurses, who also assisted with graded exposure.

Measures

Patients referred for treatment of their extreme dental fear are assessed in terms of their suitability for CBT and those appropriate are treated following written protocols over ten sessions (each of one hour). All patients are assessed on a battery of psychological tests to determine the nature of their dental fear, general psychological wellbeing and oral health status in order to target and prioritise treatment need. Previous research by the authors had suggested that there was a sub-group of those patients presenting with dental phobia who had additional co-morbid psychological difficulties, including general anxiety, depression and suicidal thoughts.²⁶ Measures taken at initial assessment comprise:

- Level of dental anxiety (Modified Dental Anxiety Scale²⁷)
- Oral health related quality of life (Oral Health Impact Profile-14²⁸)
- Depression (Hospital Anxiety & Depression Scale²⁹)
- Anxiety (Hospital Anxiety & Depression Scale²⁹)
- Suicidal ideation and intent³⁰
- Alcohol use (AUDIT-C).

The Modified Dental Anxiety Scale (MDAS²⁷) is a five item scale with identified cut-offs for extreme levels of dental fear.³² It was used in the most recent Adult Dental Health Survey.³³ A score of 19 or higher indicates phobic levels of dental anxiety.

The Oral Health Impact Profile-14 is a brief version of the original 49 item scale which has been extensively validated and was adopted in the most recent Adult Dental Health Survey³³ – it assesses the extent to which problems with the teeth, mouth and gums have an impact on the activities of

daily living (OHIP-14²⁸). It can be scored either as an additive scale – summing the responses for each item, or as an impact, indicating the number of items scoring above a critical threshold level of occurrence.

The Hospital Anxiety & Depression Scale (HADS²⁹) is a fourteen item scale with two sub-scales assessing general anxiety and general depression. It has cut-offs to identify clinically significant levels of anxiety and depression – a score greater than 10 on either scale.

Marks & Matthews³⁰ devised a three item scale to screen for suicidal ideation and intent among individuals with psychological difficulties. For any suicide risk identified, standard practices of psychologists are followed, which include immediate referral to psychiatric care teams.

The AUDIT-C³¹ is an alcohol screening tool designed to identify patients who are hazardous drinkers or have active alcohol use disorders. The AUDIT-C is scored on a scale of 0–12 (score of 0 reflect no alcohol use). In men, a score of 4 or more is considered indicative of hazardous alcohol use; in women, a score of 3 or more is considered hazardous. A score of 8 or more indicates probable alcohol abuse or dependence.

Service use data were collected as the number of appointments attended.

In addition outcome data are routinely available for all patients on whether they complete their dental treatment and whether this was conducted at any point with the aid of sedation or general anaesthesia. Thus it was possible to classify patient outcomes as follows:

- Judged unsuitable to commence CBT
- Withdrew from CBT
- Received dental treatment without sedation or GA following CBT
- Received dental treatment with sedation or GA following CBT.

FINDINGS

One hundred and thirty patients were referred to the service over a 17-month period. Of these 99 (76%) were female and 31 (24%) were male. The mean age of the patients was 39.9 years (SD 14.8, range 16 to 91 years). There was no significant difference in the mean age of male and female patients ($t = 0.15$, $p = 0.88$).

The responses to the MDAS are summarised in Table 1. As expected, a large proportion of the patients (77%) scored above the cut-off for dental phobia. The remaining 30 patients all scored high on one or more items of the MDAS, suggesting a specific fear of certain aspects of dentistry as follows: item 1 (anticipatory anxiety) 8 individuals; item 2 (waiting room) 0 individuals; item 3 (drill) 14 individuals; item 4 (scale and polish) 1 individual; item 5 (injections) 11 individuals.

Examination of responses to individual items on the MDAS reveals that some aspects of dentistry were more feared in this sample than others (Table 1). In particular the use of the drill and receiving injections.

Tables 2 and 3 report the responses to the OHIP-14 among the patients, and compares those responses to data from the Adult Dental Health Survey. Both for individual items (Table 2) and the impact domains (Table 3) patients with dental phobia reported greater impact than found in the Adult Dental Health Survey. Of particular note are the high levels of physical pain, psychological discomfort and psychological disability reported.

Just under 37% of patients reported levels of general anxiety that were above cut-offs suggesting the necessity for clinical intervention and 12.3% were above cut-offs for depression (Table 4). There was a small but significant group of individuals with suicidal ideation (15 individuals) and suicidal intent (4 individuals) as shown in Table 5. In such instances, individuals were referred to appropriate services via the care of their GMP. For suicide risk, immediate action was taken based on local service guidelines.

Only five individuals (3.8%) scored above the cut-off of 8 on the AUDIT-C questionnaire (four men and one woman). For these individuals a letter was written to their GMP with the patient's permission noting the high reported alcohol use and they were deemed unsuitable for CBT.

The outcomes of patient attendance at the service are summarised in Table 6. Of those patients who completed CBT (111 patients) 103 (93%) received treatment without sedation.

The median number of CBT appointments attended per patient was five. There were 19 patients who failed to complete their course of CBT (15%), 12 of whom were judged unsuitable for CBT and 7 who dropped out. The criteria for individuals being deemed unsuitable for CBT were: the presence of co-morbid psychological difficulties such as suicidal ideation or intent and/or excess alcohol use or depression, which were judged to take precedence for treatment over their dental fear.

DISCUSSION

This manuscript describes a service evaluation of a single centre psychologist-led service for individuals with dental phobia, delivering CBT for their dental fear.²³ The majority of the sample was female and aged around 40 years. There is considerable previous research to suggest that dental fear is most prevalent in women.³⁴ As expected there was a high level of subjectively reported dental anxiety among the patients, with approximately three quarters indicating phobic levels of anxiety. A small proportion showed specific fears of key aspects of dental treatment – notably dental injections and the use of the dental drill. Sitting in the waiting area was the item with the lowest level of associated fear – this may reflect the source of referrals – most of the patients had been referred from dental settings (either a sedation service or their GDP) which suggests that they may have lower levels of fear for this aspect.

Levels of reported impact of their oral health on daily living were high among this group compared to a general population sample.³⁵ This is surprising since patients suitable

Table 1 Responses to the Modified Dental Anxiety Scale by patients attending a CBT service for dental phobia

| Items | Mean | SD | Number (proportion) of patients reporting being extremely anxious about the item that is, scoring 5 | Proportion of respondents reporting being extremely anxious in Adult Dental Health Survey 2009 |
|--|-------|------|---|--|
| 1. If you went to your dentist for treatment tomorrow, how would you feel? | 4.17 | 1.08 | 65 (50%) | 13% |
| 2. If you were sitting in the waiting room (waiting for treatment), how would you feel? | 3.9 | 1.1 | 48 (37%) | 15% |
| 3. If you were about to have a tooth drilled, how would you feel? | 4.63 | 0.8 | 97 (75%) | 30% |
| 4. If you were about to have your teeth scaled and polished, how would you feel? | 3.87 | 1.28 | 55 (42%) | 8% |
| 5. If you were about to have a local anaesthetic injection in your gum, above an upper back tooth, how would you feel? | 4.4 | 1.13 | 94 (72%) | 28% |
| Total scale | 20.98 | 3.83 | Number (%) scoring above cut-offs defining dental phobia (19+): 100 (79%) | |

Table 2 Responses to Oral Health Impact Profile by patients attending a CBT service for dental phobia – item analysis

| Item | Mean | SD | Range | N (%) of individuals reporting the item as provoking an 'occasionally, fairly often, or very often' response |
|--|------|------|-------|--|
| 1. Have you had trouble pronouncing any words because of problems with your teeth, mouth or denture? | 1.61 | 1.13 | 1-5 | 29 (22%) |
| 2. Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures? | 1.70 | 1.11 | 1-5 | 13 (10%) |
| 3. Have you had painful aching in your mouth? | 3.05 | 1.18 | 1-5 | 30 (23%) |
| 4. Have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures? | 3.40 | 1.31 | 1-5 | 81 (62%) |
| 5. Have you been self-conscious because of problems with your teeth, mouth or dentures? | 3.16 | 1.52 | 1-5 | 29 (22%) |
| 6. Have you felt tense because of problems with your teeth, mouth or dentures? | 3.29 | 1.50 | 1-5 | 69 (53%) |
| 7. Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures? | 2.17 | 1.40 | 1-5 | 25 (19%) |
| 8. Have you had to interrupt meals because of problems with your teeth, mouth or dentures? | 2.34 | 1.39 | 1-5 | 37 (24%) |
| 9. Have you found it difficult to relax because of problems with your teeth, mouth or dentures? | 2.79 | 1.45 | 1-5 | 36 (28%) |
| 10. Have you been a bit embarrassed because of problems with your teeth, mouth or dentures? | 3.03 | 1.48 | 1-5 | 59 (45%) |
| 11. Have you been irritable with other people because of problems with your teeth, mouth or dentures? | 2.44 | 1.38 | 1-5 | 35 (27%) |
| 12. Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures? | 2.00 | 1.26 | 1-5 | 29 (22%) |
| 13. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures? | 2.61 | 1.48 | 1-5 | 37 (29%) |
| 14. Have you felt totally unable to function because of problems with your teeth, mouth or dentures? | 1.97 | 1.34 | 1-5 | 30 (23%) |
| Total (additive scoring) | 35.4 | 13.9 | | |

for the CBT service should have no active disease. However, previous research, both qualitative and quantitative, has suggested that the impact of dental anxiety is marked and greater than simply the result of increased risk of disease.^{34,35} This may in part relate to the cognitions held by individuals with dental anxiety – including a sense of shame and embarrassment about their condition.³⁶

In 2009 the Department of Health (England) recommended CBT working in conjunction with sedation services as a model of excellence in the management of dental fear;³⁷ however, the development of such services is challenging. The findings of the present study have implications for the development of services delivering CBT for individuals with high levels of dental anxiety. As with the published systematic reviews, there is clear evidence of the effectiveness of CBT in this group. These summary findings also highlight that a proportion of patients referred for such treatment may also be experiencing additional psychological difficulties, for which appropriate referral and management should be sought; this has implications for the development of local care pathways for these patients. By inference, patients attending the CBT service are likely to share psychological characteristics with patients attending dental sedation services; highlighting a need and consideration for routine screening of psychological

Table 3 Oral Health Impact Profile – proportion of respondents attending a CBT service for dental phobia recording impact in domains

| | Proportion of individuals reporting the item as provoking an 'occasionally, fairly to very often' response. | |
|--------------------------|---|---------------------------------|
| Types of impact | Dentally phobic patient (this study) | Adult Dental Health Survey 2009 |
| Functional limitation | 33% | 6% |
| Physical pain | 86% | 30% |
| Psychological discomfort | 79% | 20% |
| Physical disability | 45% | 8% |
| Psychological disability | 73% | 14% |
| Social disability | 51% | 6% |
| Handicap | 53% | 5% |
| At least one problem | 94% | 39% |

Table 4 Hospital Anxiety & Depression Scale scores for patients attending a CBT service for dental phobia

| Items | Mean | SD | No of patients (%) above cut off = <10 |
|----------------|------|------|--|
| HAD Anxiety | 9.40 | 5.01 | 48 (36.9%) |
| HAD Depression | 5.24 | 4.39 | 16 (12.3%) |

co-morbidities in such services. The benefits of psychologists working in close synergy are numerous, not only do psychologists provide a rehabilitative approach to the management

of dental anxiety (once the patient is dentally fit), they are able to identify co-morbid psychological problems that require appropriate referral, thus potentially allowing for

Table 5 Responses to items assessing suicidal ideation and intent by patients attending a CBT service for dental phobia

| | Not at all | Some of the time | Most of the time | All the time |
|---|------------------------|------------------|------------------|--------------|
| 1. Have you been feeling life isn't worth living? | 57 (44%) | 59 (46%) | 10 (8%) | 4 (3%) |
| 2. Have you been feeling like wanting to kill yourself? | 70 (54%) | 50 (38%) | 7 (5%) | 3 (2%) |
| 3. Have you been thinking about how to kill yourself? | 87 (67%) | 39 (30%) | 2 (1%) | 2 (1%) |
| | | | | |
| Suicidal ideation present | 15 individuals (11.5%) | | | |
| Suicidal intent present | 4 individuals (3.1%) | | | |
| Suicidal ideation is scored as present if an individual scores either or both items 1 and 2 at the level of 'Most of the time' or 'All of the time'. Suicidal intent is scored as present if an individual scores item 3 at the level of 'Most of the time' or 'All of the time'. | | | | |

Table 6 Patient outcomes from attending a CBT service for dental phobia

| Outcome | N (%) |
|--|-----------|
| Judged unsuitable to commence CBT | 12 (10%) |
| Withdrew from CBT | 7 (5%) |
| Received dental treatment without sedation following CBT | 103 (79%) |
| Received dental treatment with sedation following CBT | 8 (6%) |

alleviation of psychological distress and suffering. The service should be viewed as complementary to sedation services rather than as an alternative, the two together providing a comprehensive care pathway. Sedation services and CBT have different goals – the former primarily seeks to enable the phobic individual to receive essential dental treatment, whereas CBT seeks to enable the individual to enjoy the use of primary dental care services. There will always be a need for management of individuals under sedation, particularly those with high treatment need and/or specific medical issues.^{22,38} CBT provides a mechanism for reducing repeated use of sedation among individuals with simple dental phobia. The KCLDIHPS service receives a tariff (2015 tariffs) of £90 for initial assessments and £180 for treatment sessions – which would work out at an average cost of £810 per patient. While initially expensive the evidence suggests that patients can then receive dental treatment without sedation thus potentially reducing long-term costs.

Data are not available on the long-term impact of the service on self-reported levels of dental anxiety and the impact of dental anxiety on the individual's well-being and quality of life. Previous studies suggest that reductions in self-rated dental fear are maintained following CBT,²⁰ but the present study is limited to exploring the outcome of receiving care without sedation.

In conclusion, individuals with high levels of dental fear referred for CBT have good outcomes in terms of receiving dental care without

the need for sedation. A minority have coexisting psychological problems which should be considered when managing this patient group.

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COMMENTARY

The work of Kani *et al.* (2015) is about patients who present with dental phobia and the outcomes of cognitive behavioural therapy (CBT) for the treatment of their dental fears. Specifically, it examines the type of patient referred, reports on the assessment for CBT and the outcome of CBT with regard to the use of conscious sedation for dental treatment. Their patient assessment used a battery of psychological tests, which included measures of dental anxiety (MDAS), oral health-related quality of life (OHIP-14), anxiety and depression (HAD), suicidal ideation and intent and alcohol use (AUDIT-C13). It is this part of the paper which is of central importance regarding [1] the characteristics of the patient with dental phobia and [2] the presentation of such patients, in the dental surgery, who may have additional mental health difficulties.

The dentally phobic patients, who are reported upon here, also experienced generalised anxiety, mood disorder (depression) and suicidal ideation. Pohjola *et al.* and Locker *et al.*, reported similar findings, ie that extreme dental anxiety was associated with a higher incidence of generalised anxiety and depressive states.^{1,2} Therefore, the hypothesis that postulates that dental phobia is a symptom of a wider psychological disorder, rather than a disease entity in its own right, is supported by the findings here and elsewhere.³

Moreover, since dentally phobic patients suffer other mental health symptoms, it may be the dentist who is the first to identify the patient in difficulty. Kani *et al.*'s findings would appear to support this supposition, since 15% of the dentally phobic patients had suicidal ideation with four having 'recent intent'. Thus they are correct in their insistence that we must be aware of this eventuality and the need for emergency referral pathways to general medical practitioners for immediate care.

The paper ends with describing the patient-centred and cost benefits of adopting a psychological approach to the treatment of dental phobia with

regard to the reduced need for conscious sedation. Their work is supported by a recent pragmatic randomised trial which evaluated the effect of psychological therapies. Like Kani *et al.* in this paper, Fonagy *et al.*⁴ demonstrated a reduced need for psychiatric treatment and the potential longevity of psychological interventions upon improved mental health status.

Kani *et al.*'s paper is, thus, essential reading for all of those interested in the care and management of people with dental anxiety. This work aids our understanding of people who present with dental phobia, provides a means by which we may differentiate dental phobia from dental anxiety and indicates a longevity of the effect of CBT for those who are dentally phobic.

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AUTHOR QUESTIONS AND ANSWERS

1. Why did you undertake this research?

We have known for a long time that psychological management of dental fear based on the principles of cognitive behavioural therapy has the potential to benefit patients as a complement to existing sedation services. We set up our own service in 2009 and since that time we have sought to provide training and guidance to other services interested in using these techniques. However, we soon realised that when planning services locally, dental care providers wanted information which more formal research such as systematic reviews was unable to provide – namely that the service would work for the type of patients that they routinely saw in practice. We realised that while the effectiveness of CBT was established there was less information on its implementation in the UK setting. This manuscript sought to provide information on the characteristics of individuals who use our service and the issues that arise in terms of the concomitant psychological conditions to be found amongst individuals with dental phobia. We hope it will encourage the development of more CBT services.

2. What would you like to do next in this area to follow on from this work?

Some barriers to the broader dissemination of CBT for people with dental phobia seem to remain, eg there is a lack of training and a skilled workforce to deliver the techniques, so we have devised and run training course for interested people. We would like to look at evaluating how well those courses work in developing skills and increasing confidence. It would also be good to see if we can explore the economics of combining CBT with sedation in the management of phobic patients to determine the benefits for the health service.

At Guy's we have been able to increase access to sedation for phobic individuals with acute dental problems by moving patients from sedation services to primary care – we would like to know what the cost of this is in monetary terms. Finally, we feel there is a need for collaboration across all the centres delivering CBT for dental phobia across the country, sharing information and assessing the same outcomes.