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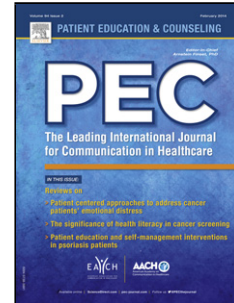
The importance of acknowledgement of emotions in routine patient psychological assessment: the example of the dental setting

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Abstract Objective: To investigate, by means of a conceptual model, the effect of dental staff engaging with their patients who share their level of dental anxiety in a short screening questionnaire.

Methods: Three consecutive studies based in the UK primary dental care services were conducted. Each study adopted a randomised group design to focus on the possible influence on patient state anxiety of the dentist becoming aware of their patients' dental anxiety from the self-reports of the Modified Dental Anxiety Scale (MDAS).

Results: A consistent finding in the first two studies was that the presentation of MDAS score sheet to the dentist was effective in reducing patient state anxiety when leaving the surgery. The third study provided supportive evidence that a more permanent anxiolytic effect of the presentation of the MDAS to the dentist was associated with the dentist responding openly to their patient about the fears expressed.

Conclusion: The active engagement of dental staff in the formal presentation of dental anxiety screening confers a reliable benefit to dentally anxious patients.

Clinical implications: Anxiety assessments in clinical service may give patients significant relief when staff acknowledge and engage patients when presented with their self-reported ratings.

 (194 words)

1   Background

Communication within dentistry has always been considered essential.[1, 2] The majority of dental schools internationally require students to be trained and assessed in their interaction with their patients. The intention is to provide patients with dental treatment and care with comparative ease. This extends, to the provision of health education, advice on oral hygiene, diet and use of fluoride. [3] An area that is very demanding, as it requires frequent use of extensive communication techniques, is the dentally anxious patient.[4, 5] Just over 10 per cent of the population are extremely dentally anxious and of these will consist of a large proportion of patients who are dentally phobic.[6, 7] Communication strategies in dentistry are important as they have a complex association with patients' anxieties, trust and their beliefs about control in the dental chair.[2, 8]

The assessment of dental anxiety is well-established utilising developed self-report inventories.[9] A widely used screening questionnaire with UK norms and good psychometric properties is the Modified Dental Anxiety Scale (MDAS) consisting of 5 items about various key procedural elements when visiting the dentist.[10] The scale is a modification of the original 4 item dental anxiety scale

[11], and included an additional question about local anaesthetic injection. Each question is rated in 5 categories from 1 (not anxious) to 5 (extremely anxious). A copy of the scale can be downloaded, and further information about psychometrics is available (www.st-andrews.ac.uk/dentalanxiety). The measure has been reported as a research instrument, but also can be used as clinical device for the patient to complete and give to the receptionist or to the dentist directly. The completion of the MDAS has been shown not increase dental anxiety.[12] The method of 'delivery' of this information from the patient to the dental practitioner provides an opportunity to unravel the possible mechanisms that may alter the patients' dental anxiety state. There are at least three separate scenarios that can be easily identified. First, is the case where the patient completes the MDAS and simply hands it to the receptionist. The patient may have expectations about the dentist being told by the receptionist their MDAS score. The second scenario is when the patient completes the MDAS and hands it to the receptionist. The patient is informed by the receptionist that the dentist will see their MDAS score before the appointment starts. The third scenario, the patient is instructed to hand the completed MDAS to the dentist on meeting with her in the surgery. Figure 1 presents a conceptual model to indicate the hypothesised psychological processes that might be in operation. Both the patient and the dentist will meet in the dental surgery and engage briefly prior to the patient taking their place in the dental chair. The MDAS completed prior to meeting their dentist is physically handed to them by the patient. This 'act' is hypothesised to add an extra positive element to the communication and engagement process.

The description of these scenarios illustrates that there are some unique features in the dental surgery appointment which are suitable for detailed study. Of special relevance is the manner in which the dentally apprehensive patient negotiates their dental visit.[13] The patient will be vigilant about the dentist's communication and concerned that the dentist is aware of their dental anxiety status. [14] It is likely that at the introductory phase of the dental treatment appointment the communication between the patient and dentist is crucial. The MDAS rating profile may assist in this

communication to increase awareness for the dentist of the patient's anxiety status and possible reasons of anxiety (e.g. extreme score for local anaesthetic needle injection). Without this aide the dentist may attempt to conduct the procedure in a routine manner to prevent undue attention on a particular element in the hope that this will minimise any distress. Such avoidance however can be interpreted negatively, by the patient as it could be perceived as uncaring.

2   Aim

The overall aim of this brief paper is to show that through a careful design of discrete interventions the researcher can investigate some of the multiple factors that construct the smooth performance in the communication process of the dental staff with their patients. The structure of the paper is to present summaries of three studies conducted by the authors, two of which are already published. [15, 16] The final study is reported in an unpublished doctoral thesis.[17] They comprise a series of integrated findings that show the importance of using routine psychological assessments in a considered but creative manner. In addition they introduce a straightforward framework that clinicians can enhance their practice of communication and patient engagement.

3   Methods and Results

Study 1 tested the hypothesis that informing dentists about patients' dental anxiety prior to commencement of treatment reduces patients' state anxiety. [15] A randomized controlled trial was conducted. Eight General Dental Practitioners in North Wales participated. Patients attending their first session of dental treatment, and accumulating a score of 19 or above, or scoring 5 on the MDAS on any one item were recruited. Patients were instructed to complete the Spielberger state anxiety inventory-short form (STAIS-S) pre- and post-treatment.[18] The reliability of this measure has been reported to be high–Cronbach's alpha equals 0.95. There are six questions with scores of 1 to 4 per question on a rating scale. Patients (n=119) were randomly allocated to intervention (dentist given MDAS score sheet) and control (dentist not given MDAS sheet) groups. Intervention patients

demonstrated lower mean change STAIS-S scores (see Table 1) compared to controls. The finding from this study was consistent with patients receiving a benefit from their dentist being informed of the patient's dental anxiety before treatment and the patient instigating this exchange.

Study 2 tested the hypothesis that different components of the process of informing the dentist about high patient dental anxiety were associated with differing levels of anxiety reduction. [16] Patients attending two Dental Access Centres were recruited (two dentists at each Centre), who typically were not regular attenders and where the dentist did or did not receive the patients' assessment of dental anxiety. Patients completed the Modified Dental Anxiety Scale (MDAS). Those that scored high (same criteria as Study 1) completed the same state anxiety questionnaire (STAIS-S) and were randomized into three groups (n=182). Group 1 were controls (n=60), Group 2 gave their MDAS to the receptionist who passed it onto the dentist unknown to the patient (n=62) and Group 3 handed their MDAS to the dentist (n=60).   Immediately after their appointment the patient repeated the STAIS-S. Overall there was a significant group effect ($Wald\ \chi^2$ (2) = 6.84, p = 0.033). Patients in Group 3 were less state anxious (by more than STAIS-S 3 scale units) on leaving the surgery than those from the other groups. This was highlighted if the patient entered into a discussion with the dentist about their concerns (difference of 5.8 scale units). Hence the dental anxiety screen shared between patient and dentist reduced anxiety at appointment completion.

Study 3 tested the hypothesis that it is the handover process of the MDAS by the patient to the dentist that is crucial in reducing patient anxiety. Patients were observed directly with video and physiological measures (heart rate) being recorded. Patients were recruited from six salaried dental practices in NHS Highlands. Selection criteria were identical to previous studies. Over 1000 patients recruited. The number that met the inclusion criteria for randomisation was 53. The eligible patients were divided into experimental or control arms (using randomised cross-over trial methodology). The experimental arm consisted of the patient completing the MDAS and handing the questionnaire sheet directly to the dentist. Control arm patients completed the MDAS but gave it to

the receptionist who placed the sheet in the patient file blind to the dentist for that appointment.

All dental sessions were recorded on videotape and coded (by JH, trained and supervised by GH) using VR-CoDES on Observer XT. [19, 20] In addition, a follow up phone call to assess dental anxiety (MDAS) was conducted 3 months following the session. The previous two studies had not included a follow-up. Hence, the follow up of 3 months was the first attempt to identify any longer term benefits of the intervention, and also provide a clinical meaningful opportunity for dental practitioners to consider. The adjusted STAIS-S levels (controlling for age and gender) immediately following the dental visit were not significantly different between the arms of the study. Analysis, however, of the first 2 minutes' interaction between the patient and dentist in the session when the patient entered the dental surgery was revealing. Where emotional talk (about dental anxiety) was responded to by the dentist with 'providing space' in comparison with 'reducing space' there was a significant relative improvement (p = .009) of four units in dental anxiety (MDAS, SD= 4.5, effect size ~ 0.9) controlling for gender, age and the number of treatment appointments in the three-month follow-up period (see Table3).

4   Discussion

The series of three studies provides a programme of research evidence that indicates the importance of the dentist focussing on the patient's expressions of anxiety as recorded on paper in a routine screening assessment. Study 1 provided the first evidence that providing the dentist physically with the screening assessment of dental anxiety (MDAS) prior to the provision of dental treatment (including some form of invasive intervention i.e. prophylaxis, local anaesthetic injection, filling or extraction etc.) was of benefit in reducing state anxiety immediately following the treatment. What was responsible for the effect? On examination of the conceptual diagram (Figure 1) it can be seen that the patient may gain from the physical transfer of their self-reported anxiety by at least two possible processes. First, the patient may believe more strongly that the dentist will treat them with care knowing that they have conveyed their high anxiety level to the clinician.

Second, the transfer of this information may alert the dentist to their patient's anxiety level and encourage them to communicate from a more patient-centred perspective. Checks were made to determine if the treatment conducted was less invasive in the experimental compared with the control group (e.g. fewer procedures provided). No differences were found to support this possible explanation.

The Study 2 replication expanded the design by including a third arm, namely the MDAS score was transferred to the dentist (without knowledge of the patient) so that the behaviour of the dentist might be changed but not the expectation of the patient, who simply gave their MDAS sheet to the receptionist. The effect was replicated in the arm with the MDAS handover to the dentist. Therefore the dentist got to know the patients' score, and the patient was aware of this. However the effect was strongly demonstrated (effect size = 1.22) when patient's reported that there had been a discussion with the dentist about their anxiety (Table 2). This would appear to be crucial and led the research team to investigate more closely the process of the discussion. It does support the identification and acknowledgement of patient distress increases patient alliance. [21]

Study 3 was more ambitious even with a simpler two-arm experimental design. The complexity was raised by the inclusion of video and patient physiological recordings. A three-month follow up MDAS questionnaire was added in addition. The state anxiety results from the self-report and physiological measures were somewhat disappointing as they did not reflect the difference shown in the previous two studies. Possible explanation was a low sample size reducing power to detect a difference, and the inclusion of physiological measures that unwittingly engaged or distracted the patient. However of interest was the finding that, regardless of the group assignment, patients who were provided with 'space' to discuss their anxiety benefited longer term with a significant lowering of dental anxiety 3 months after their appointment. Other factors such as patient demographics or further appointments in between the observed session and follow up did not detract from this association.

The crucial moderating element appears to be that the dentist needs to respond to the patient and acknowledge their exhibition of distress, rather than passively noting the dental anxiety rating. A recent cross-sectional study of a large representative survey in the UK has modelled some of the variables that have been operationalised in these experimental studies. [22] It concluded that the dentist: patient relationship was a complex one as a combination of trust, shame about dental condition, communication and dental anxiety were all implicated in predicting dental anxiety.

5   Clinical Implications

This series of 3 inter-related studies, within a dental clinical setting, has demonstrated the importance of assessing procedural anxiety immediately prior to treatment intervention. A fascinating feature highlighted by this programme of research has been the importance of the clinician in engaging with the patient to discuss the specific features of the patient experience.   We therefore propose the introduction of this screening device in routine practice, as it may benefit the psychological response in patients attending their dentist.

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Fig 1 Conceptual diagram showing the influence of the patient on the dentist by the presentation of the MDAS screen questionnaire and the respective flows of NonVerbal Behaviour (NVB) and Verbal Behaviour (VB) on communication and patient engagement, treatment and eventual post-treatment dental anxiety
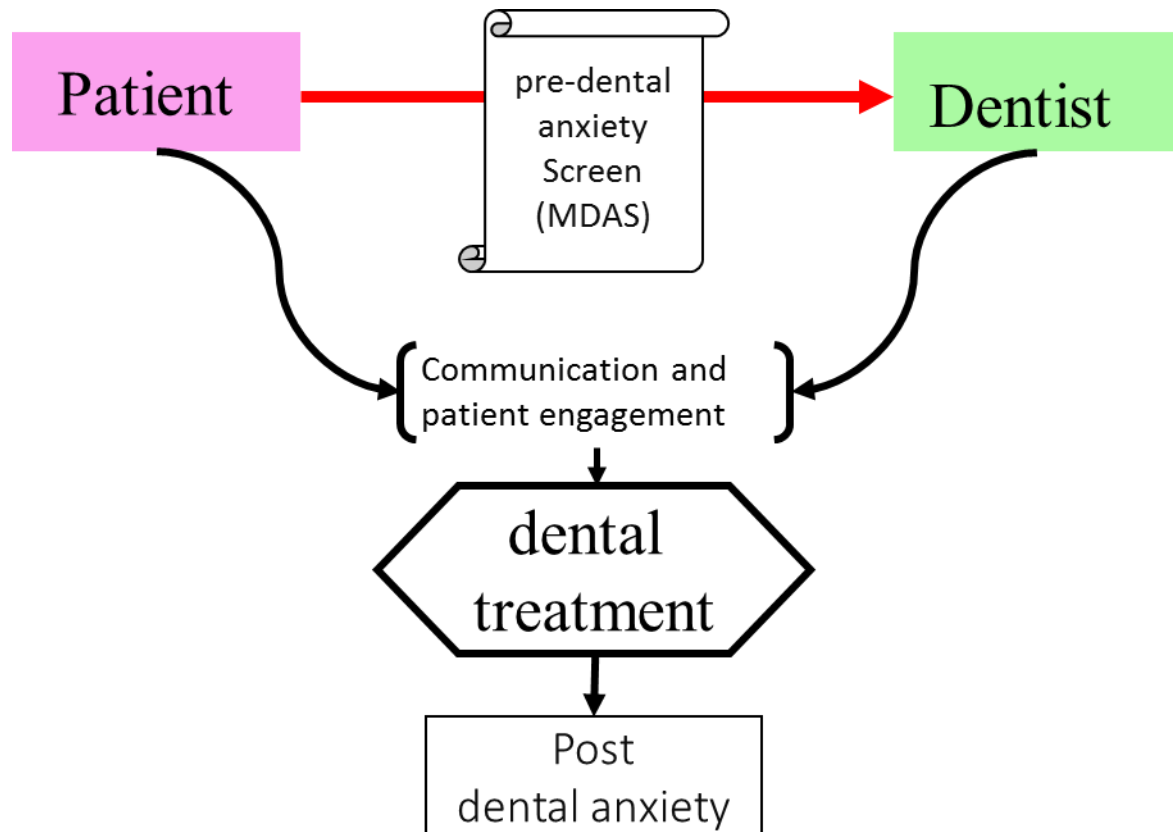
Table 1 Mean change in adjusted state anxiety (STAIS-S scores) of patient from baseline to immediate follow-up by Group (Experimental Group patients handed dentist copy of completed MDAS, Control Group patients gave Completed MDAS to receptionist).

	Mean*	SE	CI 95%	N
Group				
Experimental	4.1	0.54	3.1-5.1	60
Control	1.9	0.49	0.8-3.00	59

* Higher score denotes improvement in state anxiety (i.e. reduced STAIS-S score at follow-up)

Table 2 Mean change in adjusted state anxiety (STAIS-S scores) of patient from baseline to immediate follow-up by Group (Behavioural + Expectation Group patients handed dentist copy of completed MDAS, Behaviour Group patients handed receptionist completed MDAS and dentist informed of MDAS score without patient knowledge, and Control Group patients gave completed MDAS to receptionist only).

Group	Discuss†	Mean*	SE	CI 95%	N
Control	Yes	4.02[a]	1.37	1.35, 6.70	19
	No	4.01[a]	0.82	2.41, 5.61	14
Behaviour	Yes	5.30[a]	1.29	2.76, 7.84	18
	No	4.71[a]	0.81	3.12, 6.30	44
Behaviour + Expectation	Yes	10.05[b]	1.61	6.89, 13.21	22
	No	4.25[a]	0.85	2.56, 5.89	38

* Higher score denotes improvement in state anxiety (i.e. reduced STAIS-S score at follow-up)

† Dentist discusses dental anxiety with patient or not (i.e. Yes / No)

§ Different superscript denotes significant contrast ($p<.05$)

Table 3 Mean change in adjusted trait dental anxiety (MDAS scores) from baseline to 3 months follow-up by dentists' response to patient's expression of being dentally anxious in the first minutes of the dental appointment.

	Mean*	SE	CI 95%	N
Dentist Response				
Reduce Space	3.3	0.89	1.5-5.1	32
Provide Space	7.3	1.17	4.9-9.7	21

* Higher score denotes improvement in trait dental anxiety (i.e. reduced MDAS score at follow-up)