Phobic services – who needs them?

Gerry Humphris  Ruth Freeman
Managing the dentally anxious patient: differentiating anxiety from phobia
Dental anxiety of dental phobia

‘A man who has gone to the dentist because of unbearable toothache will nevertheless try to hold the dentist back when he approaches the sick tooth with a pair of forceps.’

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMOTIONAL</td>
<td>FEAR/ANXIETY</td>
</tr>
<tr>
<td>COGNITIVE</td>
<td>PAST TREATMENT EXPERIENCES</td>
</tr>
<tr>
<td></td>
<td>DIFFICULTY IN ACCESSING CARE</td>
</tr>
<tr>
<td></td>
<td>DIFFICULTY IN SPEAKING</td>
</tr>
<tr>
<td>PHYSIOLOGICAL</td>
<td>HIGH HEART RATE</td>
</tr>
<tr>
<td></td>
<td>FEELING NAUSEATED</td>
</tr>
<tr>
<td></td>
<td>DRY MOUTH</td>
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<tr>
<td></td>
<td>SWEATING</td>
</tr>
<tr>
<td></td>
<td>SWEATING</td>
</tr>
<tr>
<td></td>
<td>HIGH RESPIRATORY RATE</td>
</tr>
</tbody>
</table>
The patient’s presenting symptoms:

- **EMOTIONAL:** FEAR/ANXIETY
- **COGNITIVE:** PAST TREATMENT EXPERIENCES, DIFFICULTY IN ACCESSING CARE, DIFFICULTY IN SPEAKING
- **PHYSIOLOGICAL:** HIGH HEART RATE, FEELING NAUSEATED, DRY MOUTH, SWEATING, HIGH RESPIRATORY RATE

Consequences for dental practice:
The patient’s presenting symptoms

EMOTIONAL: FEAR/ANXIETY

COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

Consequences for dental practice

Increases in occupational stress experienced by the dental team

Increases in occupational stress experienced by the dental team
Factors inhibiting the formation of the dentist-patient relationship

DENTIST
- occupational stress
- normative need
- costs of providing care

PATIENT
- dental anxiety/phobia
- expressed + felt need
- costs of care

UNDERSTANDING + COMMUNICATION

TREATMENT ALLIANCE

POOR
The patient’s presenting symptoms

EMOTIONAL: FEAR/ANXIETY

COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

Positive outcomes for dental practice
The patient’s presenting symptoms

EMOTIONAL: FEAR/ANXIETY

COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

Positive outcomes for dental practice

Identify the dentally anxious patient: treatable in practice
Identify the phobic patient: untreated in practice: needs specialist care
The patient’s presenting symptoms

- **EMOTIONAL:** FEAR/ANXIETY
- **COGNITIVE:** PAST TREATMENT EXPERIENCES, DIFFICULTY IN ACCESSING CARE, DIFFICULTY IN SPEAKING
- **PHYSIOLOGICAL:** HIGH HEART RATE, FEELING NAUSEATED, DRY MOUTH

Positive outcomes for dental practice

- Identify the dentally anxious patient: treatable in practice
- Identify the phobic patient: untreatable in practice: needs specialist care

Reduction in occupational stress
Factors enabling the formation of the dentist-patient relationship

**DENTIST**
- reduced occupational stress: containing the patient’s fears
- a patient centred approach

**PATIENT**
- reduced dental anxiety
- expressed treatment wishes

**TREATMENT ALLIANCE**
- trusting the dentist
- Good understanding and effective communication
Aims

- To suggest a strategy to differentiate dentally phobic patients from those who are dentally anxious

- To show how dental anxiety inventories may be used to assess dental anxiety states

- To describe how a patient-centred approach may be used in the management of dentally anxious and phobic patients
Dental anxiety or dental phobia?

THE PATIENT’S PRESENTING SYMPTOMS

EMOTIONAL: FEAR/ANXIETY

COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

DIAGNOSIS

DENTAL ANXIETY?

DENTAL PHOBIA?
Dental anxiety or dental phobia?

1. How widespread is dental anxiety and dental phobia in the general population?

2. How do we define dental anxiety and dental phobia?

3. How can we identify dentally anxious patients and differentiate them from dentally phobic patients?
Dental anxiety or dental phobia?

In 1992 Eli stated that:

- Fifteen percent of the world’s population avoided dental care to some extent
- Six percent of the world’s population avoid dental care due to fear

Is this still the incidence of dental fear to-day?
Dental anxiety or dental phobia?

• 60 percent of people said that ‘to some extent’ they were ‘nervous of some kinds of dental treatment’ ¹

• 32 percent of people said that ‘to some extent’ they were ‘nervous of some kinds of dental treatment’ ²

• 36 percent of people scored between 10-18 on the Modified Dental Anxiety Scale and were classified as being slight/fairly anxious of dental treatment ³

Dental anxiety or dental phobia?

• 58 percent of people said that they were ‘to some extent anxious about going to the dentist’ 1

• 24 percent of people stated that ‘to some extent anxious about going to the dentist’ 2

Dental anxiety or dental phobia?

- 10 percent of people stated that ‘they would definitely take painkillers for toothache rather than go to the dentist because of anxiety’

- 11 percent of people stated that they felt most strongly about being ‘anxious about going to the dentist’

- 12 percent of people scored 19 or over on the Modified Dental Anxiety Scale and were categorised as being dentally phobic

Dental anxiety or dental phobia?

• 5 to 17 percent of adults in Jönköping, Sweden described themselves as being ‘frightened of dental treatment’


Dental anxiety or dental phobia?

• 10 percent of adults in Helsinki and Jyvaskyla Finland; Belfast, Northern Ireland and Dubai, UAE had high dental anxiety

• A postal survey in Iceland showed that 8 percent of adults were dentally phobic according to DSM-IV criteria

• 9.3% of Finnish adults were very afraid of ‘visiting the dentist’

Dental anxiety or dental phobia?

• 10 percent of Canadian adults stated that they were fearful of dental treatment

• 8 percent had missed, cancelled or avoided treatment because of the extent of their dental fears

• 15 percent of Scottish people stated that they were ‘very nervous’ of visiting a dentist

Dental anxiety or dental phobia?

THE PATIENT’S PRESENTING SYMPTOMS

EMOTIONAL: FEAR/ANXIETY
COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING
PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

DIAGNOSIS

DENTAL ANXIETY
falling incidence of dental anxiety from 58% to 24%

DENTAL PHOBIA
incidence of dental phobia remains the same at ~10%

falling incidence of dental anxiety from 58% to 24%
Dental anxiety

THE PATIENT’S PRESENTING SYMPTOMS

EMOTIONAL:
FEAR/ANXIETY

COGNITIVE:
PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL:
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SWEATING
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DENTAL ANXIETY

falling incidence of dental anxiety from 58% to 24%

DENTAL PHOBIA

incidence of dental phobia remains the same at ~10%

TREATMENT FACTORS?

DIAGNOSIS
Defining Dental Anxiety

Coriat\(^9\) stated that dental anxiety was:

- a fear of the unknown
- an anticipatory anxiety
- in which previous frightening dental treatment experiences were relived and experienced as if they were happening in the present

---

Dental anxiety

• A history of frightening dental experiences is an indicator of dental anxiety

• Memories have a special relevance for these dental anxious patients

• They experience the past frightening experience as if it were happening in the ‘HERE and NOW’

Dental anxiety

• The past frightening dental experience sensitises the susceptible patient

• Each visit to the dentist is feared as they re-experience the original trauma and so feel anxious in anticipation

• This results in maintaining and intensifying of the anxiety resulting in a vicious circle of anticipatory dental fear¹⁰

Dental anxiety

• In dental anxiety states, a connection is made between disagreeable, past, dental treatment experiences to anticipated dental treatment experiences, which are in the here and now

• The anxiety from previous treatment experiences is transferred or displaced onto and concentrated upon the present

• This explanation provides the basis for the view that dental anxiety is anticipatory being associated with fears from previous treatment situations\textsuperscript{11}

Dental phobia

Diagnosis

Dental phobia

Treatment factors & psychological factors

Fear/Anxiety
History of past dental care
Difficulty in accessing care
Difficulty in speaking
High heart rate
Feeling nauseated
Dry mouth
Sweating
High respiratory rate

Incidence of dental phobia remains the same at ~10%

Falling incidence of dental anxiety from 58% to 24%
THE PATIENT’S PRESENTING SYMPTOMS

EMOTIONAL:
FEAR/ANXIETY

COGNITIVE:
PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL:
HIGH HEART RATE
FEELING NAUSEATED
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DIAGNOSIS

DENTAL PHOBIA

incidence of dental phobia remains the same at ~10%

falling incidence of dental anxiety from 58% to 24%

TREATMENT FACTORS & PSYCHOLOGICAL FACTORS

1. Dental phobia: false connections between things outside with inside the surgery
2. Dental phobia: a symptom of a wider psychological disorder
3. Dental phobia: profound learning disability

1. Dental phobia: false connections between things outside with inside the surgery
2. Dental phobia: a symptom of a wider psychological disorder
3. Dental phobia: profound learning disability
Dental phobia as a ‘false connection’

- **FALSE CONNECTIONS** are misunderstandings

- They occur in children as a result of confusing what they have seen, heard or experienced in one situation with what they have seen, heard or experienced in another

- The misunderstanding or confusion arises because the two situations have one or more elements in common
Dental phobia as a ‘false connection’

• With the false connection comes **DISPLACEMENT**

• Displacement describes the transfer or shift of emphasis from one situation, person or idea to another

• With the transfer or shift in emphasis there is the formation of substitutes for the situation, person or idea
Dental phobia as a ‘false connection’

• Dennis is a twenty-five year old single man

• He has always been nervous of dental treatment but over the last number of years he would describe himself as phobic

• He is frightened that the local anaesthetic injection will "not work properly"
Dental phobia as a ‘false connection’

- During the medical history, Dennis stated that he had been an insulin-dependent diabetic since childhood
- His diabetes had always been poorly controlled and he has had many hyperglycaemic attacks
- He always felt "it is because the insulin injection does not work properly"
- Since he injects himself it is a mystery to him why he should fear the local anaesthetic injection so much
Formulation

• **The Common Element**: the injection.

• **Displacement**: the anxiety associated with the insulin injection not working, was displaced onto the local anaesthetic injection. There was a change in emphasis from the insulin to the local anaesthetic injection. The local anaesthetic injection substituted for the insulin injection.

• **False Connection**: a false connection had been made between the insulin injection and the local anaesthetic injection.
**Dental phobia as a ‘false connection’**

- During the examination visit and to discuss treatment options for the extraction of three teeth, Ann talked about her fear of ‘needles’.

- She feared the needle as she believed that it would break inside her. She refused to have IV induction for a general anaesthetic (DGA) to allow the teeth to be extracted.

- Ann wanted a DGA but to have a gaseous induction as she was ‘needle phobic’.
Dental phobia as a ‘false connection’

- Ann talked of her daughter’s hospitalisation as an infant. Her daughter was nursed in intensive care and had an IV drip into one of the vessels in her scalp.

- Ann saw blood on the child’s pillow, the tube from the drip lying on the bed and panicked.

- The IV drip was beside the bed and Ann had the unbearable thought that the needle had broken in her daughter’s head.
Formulation

• **The Common Element**: the injection ‘needle’

• **Displacement**: the anxiety associated with the fear that the IV drip ‘needle’ had broken in her daughter’s head, was displaced onto the IV sedation injection ‘needle’ for her dental treatment. There was a change in emphasis from the IV drip ‘needle’ to the IV sedation ‘needle’. The IV sedation ‘needle’ substituted for the IV drip ‘needle’

• **False Connection**: a false connection had been made between the her daughter’s IV drip ‘needle’ and the IV injection ‘needle’ for Ann’s IV sedation ‘needle’
Dental phobia as ‘symptom’

- Jeanne is 16-years-old and refuses all dental care
- She attended routinely as a child
- There is no history of a frightening dental treatment experience – either in the past or now

- When she was 11-years-old her mother had a miscarriage. Mother became profoundly depressed and emotionally unobtainable for Jeanne
- Father was emotionally distant. Jeanne found it hard to connect with him.
Dental phobia as ‘symptom’

• After mother’s miscarriage Jeanne started to experience physical symptoms and emotional difficulties. Her behaviours suggested that she had fallen back in terms of her ‘age-adequate functioning’\(^\text{12}\):
  
  – **Physical difficulties**: abdominal distension and discomfort
  
  – **Psychological problems**: not wanting to go to school; panicky if mother left the house; unable to stay on her own; unable to sleep in her own room; unable to participate in sleep-overs; food fads; dental phobia

Dental phobia as ‘symptom’

• At the examination visit, in addition to dental phobia Jeanne complained of:
  – separation anxiety (fears of loss of mother)
  – food fads and avoidances
  – abdominal distension and discomfort
  – unable to tolerate any injection – meningitis inoculation
  – unable to be on her own (increased guilt)
Formulation

• Jeanne symptoms are a neurotic manifestation (aches and pains, food fads and avoidances) of fears of loss of love, rejection and punishment\textsuperscript{12} possibly as a result of mother’s depression.

• With the increasing guilt Jeanne’s isolated symptoms became organised into the syndromes which form infantile neuroses – that is full-blown phobias – in this case of the dentist, of separation, of school.

• Jeanne’s dental phobia was therefore part of a neuroses rather than an entity in its own right\textsuperscript{12,13}

Locker et al.\textsuperscript{13}

Table 2. Percent with psychological disorder by dental anxiety status

<table>
<thead>
<tr>
<th>Percent with:</th>
<th>Not anxious ((n=705))</th>
<th>Moderately anxious ((n=64))</th>
<th>Severely anxious ((n=36))</th>
<th>(P^*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more disorders</td>
<td>42.3</td>
<td>45.3</td>
<td>72.7</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Two or more disorders</td>
<td>18.6</td>
<td>25.0</td>
<td>47.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>15.9</td>
<td>23.8</td>
<td>22.2</td>
<td>NS</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>2.7</td>
<td>4.8</td>
<td>5.6</td>
<td>NS</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>1.0</td>
<td>1.6</td>
<td>0.0</td>
<td>NS</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>6.9</td>
<td>14.3</td>
<td>19.4</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>1.7</td>
<td>3.2</td>
<td>2.8</td>
<td>NS</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>4.4</td>
<td>4.8</td>
<td>13.9</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Social phobia</td>
<td>12.1</td>
<td>15.9</td>
<td>30.6</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Simple phobia</td>
<td>6.4</td>
<td>9.5</td>
<td>19.4</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Obsessive compulsive disorder</td>
<td>4.0</td>
<td>3.2</td>
<td>8.3</td>
<td>NS</td>
</tr>
<tr>
<td>Cannabis dependence</td>
<td>6.3</td>
<td>7.8</td>
<td>2.8</td>
<td>NS</td>
</tr>
<tr>
<td>Alcohol dependence</td>
<td>15.9</td>
<td>14.3</td>
<td>30.6</td>
<td>(P=0.06)</td>
</tr>
</tbody>
</table>

\(* P\)-values for differences in proportions between groups: chi-square test.
Table I. Description of the participants according to their dental fear, depressive and anxiety disorders, age and alexithymia total and sub-scale scores among men and women.\textsuperscript{6}

<table>
<thead>
<tr>
<th>Variable</th>
<th>Men</th>
<th>Women</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>M</td>
</tr>
<tr>
<td>Fear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very afraid</td>
<td>160</td>
<td>6.0</td>
<td>346</td>
</tr>
<tr>
<td>somewhat afraid</td>
<td>621</td>
<td>23.4</td>
<td>988</td>
</tr>
<tr>
<td>not at all afraid</td>
<td>1878</td>
<td>70.6</td>
<td>1620</td>
</tr>
<tr>
<td>Depressive disorder</td>
<td>105</td>
<td>4.4</td>
<td>229</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>75</td>
<td>3.2</td>
<td>134</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAS-20 total</td>
<td>47.8</td>
<td>10.2</td>
<td>43.8</td>
</tr>
<tr>
<td>Difficulty in identifying feelings</td>
<td>13.2</td>
<td>5.1</td>
<td>13.2</td>
</tr>
<tr>
<td>Difficulty in describing feelings</td>
<td>12.4</td>
<td>3.8</td>
<td>11.0</td>
</tr>
<tr>
<td>Externally-oriented thinking</td>
<td>22.2</td>
<td>4.2</td>
<td>19.7</td>
</tr>
</tbody>
</table>

<sup>a</sup>chi-square tests.  
<sup>b</sup>t-tests.

Dental phobia: learning disability

- Jimmy is a delightful 9-year-old. Because of Jimmy’s learning disability he is mute and unable to speak.
- Jimmy experiences extreme dental fear which makes treatment impossible – for instance during his first dental visit he wept.
- Descriptively Jimmy is dentally phobic.
Dental phobia: learning disability

• Jimmy’s mother talked of her worries for her son and described him as ‘not being right’

• She wished that he could accept dental treatment but realised he did not understand what was happening which made him so frightened

• The decision was made to refer him for specialist care
Dental phobia

- For dental phobia a pathway is proposed in which anxiety associated with situations removed from dentistry is displaced onto the dental situation. This results in such an intensity of anxiety as to result in the avoidance of care.

- 3 ‘types’ of dental phobia are suggested based upon false connections, emotional problems and learning disability

Strategy 1: taking a dental anxiety history

THE PATIENT’S PRESENTING SYMPTOMS

EMOTIONAL: FEAR/ANXIETY
COGNITIVE: PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING
PHYSIOLOGICAL: HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

DIAGNOSIS
DENTAL ANXIETY

DENTAL ANXIETY

HISTORY TAKING

History of painful/unpleasant dental treatment
False connection & displacement
Symptom of a neurosis
Learning disability
Strategy 2: using dental anxiety inventories
Dental Anxiety Assessment, MDAS & Importance of dentist/patient communication
Dental anxiety inventories

• Which dental anxiety inventories are used in practice?

• Are these questionnaires reliable and valid assessments of patients’ dental anxiety states?

• What effect do they have on patient dental anxiety?
CORAH’S DENTAL ANXIETY SCALE

• The DAS was developed by Corah in 1969\(^1\)

• Each item has 5 responses which correspond to feeling relaxed (scoring 1) to anxiety (scoring 5)

• Range of scores from 4 to 20

• Scores between 17 and 20 corresponds to dental phobia

• Mean score for a normative population is 8.89

• Reliability for DAS is favourable for both internal consistency and test-retest reliability over a 3 month period

---

1. If you had to go to the dentist to-morrow how would you feel?
   I would look forward to it as a reasonably enjoyable experience □=[1]
   I wouldn’t care one way or the other □=[2]
   I would be a little uneasy about it □=[3]
   I would be afraid that it would be unpleasant and painful □=[4]
   I would be very frightened of what the dentist might do □=[5]

2. While you are waiting at the dentists for you turn in the dental chair, do you feel?
   Relaxed □=[1]
   A little uneasy □=[2]
   Tense □=[3]
   Anxious □=[4]
   So anxious that I break out in a sweat and feel physically sick □=[5]

3. While you are in the dentist’s chair while he gets his drill ready to begin work on your teeth, how do you feel?
   Relaxed □=[1]
   A little uneasy □=[2]
   Tense □=[3]
   Anxious □=[4]
   So anxious that I break out in a sweat and feel physically sick □=[5]

4. You are in the dentist’s chair to have your teeth cleaned. While you are waiting and the dentist is getting out the instruments he will use to scrape your teeth around your gums how do you feel?
   Relaxed □=[1]
   A little uneasy □=[2]
   Tense □=[3]
   Anxious □=[4]
   So anxious that I break out in a sweat and feel physically sick □=[5]

---

MODIFIED DENTAL ANXIETY SCALE (MDAS) ²,³

- The MDAS was developed in 1995 by Humphris et al.

- This is a modification of Corah’s scale and includes a question about local anaesthesia

- Scores range from 5 to 25. Scores 19 and above indicating dental phobia

- Mean score for a GDP population is 10.79

- Reliability for MDAS is favourable (internal consistency= 0.89; test-retest= 0.82)

---

If you went to your dentist for TREATMENT TOMORROW, how would you feel?

- Not anxious  □=1
- Slightly anxious □=2
- Fairly anxious □=3
- Very anxious □=4
- Extremely anxious □=5

If you were sitting in the WAITING ROOM (waiting for treatment), how would you feel?

- Not anxious  □=1
- Slightly anxious □=2
- Fairly anxious □=3
- Very anxious □=4
- Extremely anxious □=5

If you were about to have your TEETH DRILLED, how would you feel?

- Not anxious  □=1
- Slightly anxious □=2
- Fairly anxious □=3
- Very anxious □=4
- Extremely anxious □=5

If you were about to have your TEETH SCALED AND POLISHED, how would you feel?

- Not anxious  □=1
- Slightly anxious □=2
- Fairly anxious □=3
- Very anxious □=4
- Extremely anxious □=5

If you were about to have a LOCAL ANAESTHETIC INJECTION in your gum, above an upper back tooth, how would you feel?

- Not anxious  □=1
- Slightly anxious □=2
- Fairly anxious □=3
- Very anxious □=4
- Extremely anxious □=5

---


“Now the most widely used measure for dental anxiety in the UK and USA”

• Translated into 20+ foreign languages
• Validation studies in Spanish ⁴, Greek ⁵, Turkish ⁶ and Chinese ⁷
• Other studies recently completed with Arabic, Italian and Japanese

The scale showed excellent reliability Cronbach’s alpha = 0.93, and unidimensionality

\[ \text{chi-sq}=5.47, \text{ df } 2, p = .065, \text{ CFI}= .999; \] 
\[ \text{RMSEA}= .041 [ .000 \text{ to } .081]. \]
Dental Anxiety

11.1% of students were categorised as highly anxious (at or above cut-off of 19).

King & Humphris 2009
<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>1024</td>
<td>100</td>
</tr>
<tr>
<td><strong>Statement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) I have a fear of dental treatment or I AM ABLE to withstand the dental treatment BUT with intense fear.</td>
<td>218</td>
<td>21.3</td>
</tr>
<tr>
<td>ii) I avoid or give up things because of this fear.</td>
<td>84</td>
<td>8.2</td>
</tr>
<tr>
<td>iii) This fear is excessive or greater than justified.</td>
<td>174</td>
<td>17</td>
</tr>
<tr>
<td>iv) The anxiety or avoidance interferes significantly with daily functioning.</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total responding with 'yes' to all four statements.</strong></td>
<td>7</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Reliability of MDAS

• Secondary data analysis of 78 studies that have used original CDAS and ‘new’ MDAS
scale group

MDAS

CDAS

Frequency

alpha

Humphris & Petman 2010
Humphris & Petman 2010
Additional question

• Has dental anxiety reduced over the years?
  – Lowering decay levels
  – Better pain control
66 studies
Normative data on MDAS
Adult Dental Health Survey 2009

• Conducted every 10 years in UK
• Approximately 12,000 respondents
• All had clinical examination
• All given the MDAS
UK population norms for the modified dental anxiety scale with percentile calculator: adult dental health survey 2009 results

Gerry Humphris¹, John R Crawford², Kirsty Hill³, Angela Gilbert⁴ and Ruth Freeman⁵,⁶*

Abstract

Background: A recent UK population survey of oral health included questions to assess dental anxiety to provide mean and prevalence estimates of this important psychological construct.

Methods: A two-stage cluster sample was used for the survey across England, Wales, and Northern Ireland. The survey took place between October-December 2009, and January-April 2010. All interviewers were trained on survey procedures. Within the 7,233 households sampled there were 13,509 adults who were asked to participate in the survey and 11,382 participated (84%).

Results: The scale was reliable and showed some evidence of unidimensionality. Estimated proportion of participants with high dental anxiety (cut-off score = 19) was 11.6%. Percentiles and confidence intervals were presented and can be estimated for individual patients across various age ranges and gender using an on-line tool.

Conclusions: The largest reported data set on the MDAS from a representative UK sample was presented. The scale’s psychometrics is supportive for the routine assessment of patient dental anxiety to compare against a number of major demographic groups categorised by age and sex. Practitioners within the UK have a resource to estimate the rarity of a particular patient’s level of dental anxiety, with confidence intervals, when using the on-line percentile calculator.

Keywords: Dental anxiety, Representative survey, Psychometrics, Percentiles, On-line calculator
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Keywords: Dental anxiety, Representative survey, Psychometrics, Percentiles, On-line calculator
MDAS mean scores: Adult Dental Health Survey

Gender | age in years | dental attendance

male | female | 16-24' | 25-34' | 35-44' | 45-54' | 55-64' | 65-74' | 75+ | regular | Occas | pain/in trouble

male | female | 16-24' | 25-34' | 35-44' | 45-54' | 55-64' | 65-74' | 75+ | regular | Occas | pain/in trouble

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male | female | 16-24' | 25-34' | 35-44' | 45-54' | 55-64' | 65-74' | 75+ | regular | Occas | pain/in trouble
<table>
<thead>
<tr>
<th>Raw score</th>
<th>Percentile rank</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>0.4</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
<td>183</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>265</td>
</tr>
<tr>
<td>8</td>
<td>42</td>
<td>364</td>
</tr>
<tr>
<td>9</td>
<td>49</td>
<td>447</td>
</tr>
<tr>
<td>10</td>
<td>56</td>
<td>51.6</td>
</tr>
<tr>
<td>11</td>
<td>62</td>
<td>57.9</td>
</tr>
<tr>
<td>12</td>
<td>68</td>
<td>63.7</td>
</tr>
<tr>
<td>13</td>
<td>73</td>
<td>69.1</td>
</tr>
<tr>
<td>14</td>
<td>78</td>
<td>74.7</td>
</tr>
<tr>
<td>15</td>
<td>82</td>
<td>78.8</td>
</tr>
<tr>
<td>16</td>
<td>85</td>
<td>82.2</td>
</tr>
<tr>
<td>17</td>
<td>88</td>
<td>85.4</td>
</tr>
<tr>
<td>18</td>
<td>90</td>
<td>87.4</td>
</tr>
<tr>
<td>19</td>
<td>92</td>
<td>893</td>
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<tr>
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<td>94</td>
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<tr>
<td>21</td>
<td>95</td>
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<td>22</td>
<td>97</td>
<td>95.4</td>
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<tr>
<td>23</td>
<td>98</td>
<td>96.4</td>
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<td>98</td>
<td>97.4</td>
</tr>
<tr>
<td>25</td>
<td>99</td>
<td>98.2</td>
</tr>
</tbody>
</table>
Table 3 Percentile ranks (point and 95% interval estimates) corresponding to MDAS raw scores for females aged 16 to 34

<table>
<thead>
<tr>
<th>Raw score</th>
<th>Percentile rank</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5</td>
<td>0.2</td>
<td>9.8</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>9.1</td>
<td>15.7</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>144</td>
<td>22.5</td>
</tr>
<tr>
<td>8</td>
<td>25</td>
<td>209</td>
<td>28.5</td>
</tr>
<tr>
<td>9</td>
<td>31</td>
<td>267</td>
<td>36.0</td>
</tr>
<tr>
<td>10</td>
<td>37</td>
<td>339</td>
<td>41.2</td>
</tr>
<tr>
<td>11</td>
<td>43</td>
<td>388</td>
<td>47.2</td>
</tr>
<tr>
<td>12</td>
<td>49</td>
<td>450</td>
<td>53.8</td>
</tr>
<tr>
<td>13</td>
<td>55</td>
<td>514</td>
<td>58.9</td>
</tr>
<tr>
<td>14</td>
<td>60</td>
<td>565</td>
<td>64.4</td>
</tr>
<tr>
<td>15</td>
<td>66</td>
<td>621</td>
<td>69.5</td>
</tr>
<tr>
<td>16</td>
<td>70</td>
<td>671</td>
<td>73.6</td>
</tr>
<tr>
<td>17</td>
<td>74</td>
<td>711</td>
<td>77.2</td>
</tr>
<tr>
<td>18</td>
<td>78</td>
<td>747</td>
<td>80.3</td>
</tr>
<tr>
<td>19</td>
<td>81</td>
<td>781</td>
<td>84.4</td>
</tr>
<tr>
<td>20</td>
<td>85</td>
<td>826</td>
<td>87.8</td>
</tr>
<tr>
<td>21</td>
<td>89</td>
<td>861</td>
<td>91.2</td>
</tr>
<tr>
<td>22</td>
<td>92</td>
<td>897</td>
<td>93.7</td>
</tr>
<tr>
<td>23</td>
<td>94</td>
<td>924</td>
<td>95.8</td>
</tr>
<tr>
<td>24</td>
<td>96</td>
<td>946</td>
<td>97.1</td>
</tr>
<tr>
<td>25</td>
<td>98</td>
<td>963</td>
<td>99.9</td>
</tr>
</tbody>
</table>
Website: [http://www.st-andrews.ac.uk/dentalanxiety/](http://www.st-andrews.ac.uk/dentalanxiety/)
### MDAS: 23 language translations

<table>
<thead>
<tr>
<th>Language</th>
<th>Scale translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>Arabic modified dental anxiety scale (34 KB)</td>
</tr>
<tr>
<td>Bulgarian</td>
<td>Bulgarian modified dental anxiety scale (98 KB)</td>
</tr>
<tr>
<td>Chinese</td>
<td>Chinese modified dental anxiety scale (24 KB)</td>
</tr>
<tr>
<td>Dutch</td>
<td>Dutch modified dental anxiety scale (39 KB)</td>
</tr>
<tr>
<td>English</td>
<td>English modified dental anxiety scale (37 KB)</td>
</tr>
<tr>
<td>Finnish</td>
<td>Finnish modified dental anxiety scale (26 KB)</td>
</tr>
<tr>
<td>French</td>
<td>French modified dental anxiety scale (36 KB)</td>
</tr>
<tr>
<td>German</td>
<td>German modified dental anxiety scale (29 KB)</td>
</tr>
<tr>
<td>Greek</td>
<td>Greek modified dental anxiety scale (27 KB)</td>
</tr>
<tr>
<td>Irish (Gaeilge)</td>
<td>Irish (Gaeilge) modified dental anxiety scale (40 KB)</td>
</tr>
<tr>
<td>Italian</td>
<td>Italian modified dental anxiety scale (13 KB)</td>
</tr>
<tr>
<td>Hindi</td>
<td>Hindi modified dental anxiety scale (291 KB)</td>
</tr>
<tr>
<td>Japanese</td>
<td>Japanese modified dental anxiety scale (43 KB)</td>
</tr>
<tr>
<td>Lithuanian</td>
<td>Lithuanian modified dental anxiety scale (42 KB)</td>
</tr>
<tr>
<td>Malay</td>
<td>Malay modified dental anxiety scale (40 KB)</td>
</tr>
<tr>
<td>Norwegian</td>
<td>Norwegian modified dental anxiety scale (379 KB)</td>
</tr>
<tr>
<td>Polish</td>
<td>Polish modified dental anxiety scale (24 KB)</td>
</tr>
<tr>
<td>Portuguese</td>
<td>Portuguese modified dental anxiety scale (41 KB)</td>
</tr>
<tr>
<td>Punjabi</td>
<td>Punjabi modified dental anxiety scale (343 KB)</td>
</tr>
<tr>
<td>Romanian</td>
<td>Romanian modified dental anxiety scale (58 KB)</td>
</tr>
<tr>
<td>Spanish</td>
<td>Spanish modified dental anxiety scale (39 KB)</td>
</tr>
<tr>
<td>Turkish</td>
<td>Turkish modified dental anxiety scale (28 KB)</td>
</tr>
<tr>
<td>Urdu</td>
<td>Urdu modified dental anxiety scale (28 KB)</td>
</tr>
</tbody>
</table>
1. Code age
2. Code gender

% CI

Report?
1. Code age
2. Code gender
95% CI
Report?

Raw score on the Modified Dental Anxiety Scale (MDAS):
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>age</td>
</tr>
<tr>
<td>2</td>
<td>gender</td>
</tr>
</tbody>
</table>

**95% CI**

**Report?**

**Raw score**

[Button] **press**
**Patient's gender is** : Female  
**Age band for patient is:** 16-34 years  
**Interval required** : 95%

---

**MDAS Summary statistics for overall normative sample and subsample with same demographics as patient:**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Range</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Sample</td>
<td>10,990</td>
<td>10.74</td>
<td>9</td>
<td>5.57</td>
<td>5-25</td>
<td>0.96</td>
</tr>
<tr>
<td>Females aged 16 to 34</td>
<td>1,391</td>
<td>12.89</td>
<td>12</td>
<td>5.73</td>
<td>5-25</td>
<td>-</td>
</tr>
</tbody>
</table>

**MDAS results for individual patient (percentile rank with confidence limits):**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw Score</th>
<th>Percentile Rank (PR)</th>
<th>( 95% CI on PR )</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDAS</td>
<td>18</td>
<td>78</td>
<td>( 74.7 to 80.3 )</td>
</tr>
</tbody>
</table>
Clinical Significance: A Statistical Approach to Defining Meaningful Change in Psychotherapy Research

Neil S. Jacobson and Paula Truax
University of Washington

In 1984, Jacobson, Follette, and Revenstorf defined clinically significant change as the extent to which therapy moves someone outside the range of the dysfunctional population or within the range of the functional population. In the present article, ways of operationalizing this definition are described, and examples are used to show how clients can be categorized on the basis of this definition. A reliable change index (RC) is also proposed to determine whether the magnitude of change for a given client is statistically reliable. The inclusion of the RC leads to a twofold criterion for clinically significant change.
SPECIAL SECTION: CLINICALLY SIGNIFICANT CHANGE

Figure 2 Scatter plot of pretest and posttest scores on the Dyadic Adjustment scale with jagged band showing reliable change index.
MDAS: Reliable Change (5 units)

Follow up visit

First visit

A. No change
B. Borderline change
C. Reliable change
Do they affect patient dental anxiety?

A recent survey of dentists with a special interest in dental anxiety found that the routine use of questionnaires was very limited.

Reasons given were:
1. dentists’ lack of time and expertise in the interpretation of dental anxiety questionnaires
2. that assessing dental anxiety before treatment would increase the patient’s dental anxiety
Do they affect patient dental anxiety?

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Reasons given were:

1. dentists’ lack of time and expertise in the interpretation of dental anxiety questionnaires

2. that assessing dental anxiety before treatment increases patient anxiety
Study 1

- A randomised controlled trial used a convenience cluster sampling of dental practices within a region of Northern Ireland.
- Patients were randomised by whole sessions intervention (MDAS completed) or control (no MDAS).
- The mean score for dental anxiety for the entire sample was 10.70.

Situational anxiety (STAIS-S) means, standard deviations and confidence intervals for the two study groups

<table>
<thead>
<tr>
<th></th>
<th>No MDAS Questionnaire Group</th>
<th>MDAS Questionnaire Group</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>11.01</td>
<td>11.36</td>
<td>1.28</td>
<td>.20</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>4.35</td>
<td>4.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(95%CI)</strong></td>
<td>10.62, 11.40</td>
<td>10.99, 11.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The use of dental anxiety questionnaires prior to treatment does not increase patient anxiety.
- They can be used with confidence in general practice

The use of dental anxiety questionnaires prior to treatment does not increase patient anxiety. They can be used with confidence in general practice.

Does the MDAS influence state anxiety?

Study 2

Design

STAIS → MDAS → STAIS
Using the MDAS: influence on state anxiety

<table>
<thead>
<tr>
<th>Dental Anxiety</th>
<th>Mean</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Non-Phobic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>14.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Post</td>
<td>14.0</td>
<td>13.2</td>
</tr>
<tr>
<td>Phobic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>19.2</td>
<td>18.3</td>
</tr>
<tr>
<td>Post</td>
<td>18.9</td>
<td>18.1</td>
</tr>
</tbody>
</table>

Using the MDAS: influence on state anxiety\(^\text{19}\)

<table>
<thead>
<tr>
<th>Dental Anxiety</th>
<th>Mean</th>
<th>95%CI</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Non-Phobic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>14.1</td>
<td></td>
<td>13.3</td>
<td>15.0</td>
</tr>
<tr>
<td>Post</td>
<td>14.0</td>
<td></td>
<td>13.2</td>
<td>14.9</td>
</tr>
<tr>
<td>Phobic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>19.2</td>
<td></td>
<td>18.3</td>
<td>20.1</td>
</tr>
<tr>
<td>Post</td>
<td>18.9</td>
<td></td>
<td>18.1</td>
<td>19.8</td>
</tr>
</tbody>
</table>

\(^{19}\) Humphris G, Hull P. Do dental anxiety questionnaires raise anxiety in dentally anxious adult patients? A two wave panel study. Primary Dental Care 2006 (in press)
Using the MDAS: influence on state anxiety

<table>
<thead>
<tr>
<th>Dental Anxiety</th>
<th>Mean</th>
<th>95%CI</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Non-Phobic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>14.1</td>
<td>13.3</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>14.0</td>
<td>13.2</td>
<td>14.9</td>
<td></td>
</tr>
<tr>
<td>Phobic</td>
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</tr>
<tr>
<td>Pre</td>
<td>19.2</td>
<td>18.3</td>
<td>20.1</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>18.9</td>
<td>18.1</td>
<td>19.8</td>
<td></td>
</tr>
</tbody>
</table>

Study 3

• An RCT using a convenience sample of patients attending 8 dental practices in North Wales

• Participants were invited to complete the MDAS. Those scoring 5 on any item or who had scores higher than 19 were invited to take part

• Participants were randomised into intervention (MDAS given to dentist) or control (MDAS left with receptionist) groups

• The mean score for dental anxiety for the intervention group was 17.90 and for control group 17.80.

When dental anxiety questionnaires are completed by patients and given to the dentist prior to treatment reduces patient anxiety after treatment.

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group</th>
<th>Control Group</th>
<th>$F[\text{df}]$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>4.1</td>
<td>1.9</td>
<td>8.74 [1,119]</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>SE</strong></td>
<td>0.54</td>
<td>0.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(95%CI)</strong></td>
<td>3.1, 5.1</td>
<td>0.8, 3.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

 ANCOVA controlling for age and gender

-Change in Situational anxiety (STAIS-S) between baseline and post treatment for intervention and control groups

Change in Situational anxiety (STAIS-S) between baseline and post treatment for intervention and control groups

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group</th>
<th>Control Group</th>
<th>F[df]</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.1</td>
<td>1.9</td>
<td>8.74 [1,119]</td>
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<td></td>
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</tbody>
</table>

ANCOVA controlling for age and gender

• When dental anxiety questionnaires are completed by patients and given to the dentist prior to treatment reduces patient anxiety after treatment

INTERACTION HYPOTHESIS
Study 4

- Group 1 the MDAS was left at reception, as expected by the patient.
- Group 2, the dentist received the MDAS although the patient did not expect this. **BEHAVIOUR HYPOTHESIS**
- Group 3 the dentist received the MDAS and the patient expected this. **INTERACTION HYPOTHESIS**
Study 4

- Group 1 the MDAS was left at reception, as expected by the patient.
- Group 2, the dentist received the MDAS although the patient did not expect this. **BEHAVIOUR HYPOTHESIS**
- Group 3 the dentist received the MDAS and the patient expected this. **INTERACTION HYPOTHESIS**
Trial Profile

MDAS(>19) STAIS

Randomisation

Dentist NOT informed

N=60

Rx

STAIS

CONTROL

Dentist Informed BUT NOT Pt

N=62

Rx

STAIS

BEHAVIOUR

Dentist informed

N=59

Rx

STAIS

INTERACTION

N=181
<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Behaviour</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>60</td>
<td>62</td>
<td>59</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>34</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Gender %</td>
<td>65</td>
<td>60</td>
<td>63</td>
</tr>
<tr>
<td>Restoration</td>
<td>22</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Local An</td>
<td>22</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Extractn.</td>
<td>15</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Pain (0-10)</td>
<td>4.7</td>
<td>4.4</td>
<td>5.0</td>
</tr>
</tbody>
</table>
change in state anxiety (95% CIs)

Interaction
Control
Behaviour

F[2, 180] = 3.26, p = 0.04
Did you discuss your anxiety with the dentist?

Hull & Humphris 2011
Hull & Humphris 2011

Graphs by Did you discuss your anxiety with the dentist?

$p = .004$
CSO funded study

- Humphris & Hull
  - Access clinics
  - No follow-up
  - Self-report measures

- Hally, Humphris & Freeman
  - GDPs
  - 3 mth follow-up
  - Video and pulse rate
CSO funded study

- Humphris & Hull
  - Access clinics
  - No follow-up
  - Self-report measures

- Hally, Humphris & Freeman
  - GDPs
  - 3 mth follow-up
  - Video and pulse rate
Data Collection

1. Patients complete MDAS and STAI-S
2. Have their heart rate measured
3. Have their treatment videoed
4. Complete another STAI-S
5. Have their heart rate measured
6. 3 months later MDAS by telephone
Investigating the interaction hypothesis

• Why did giving the dentist the completed MDAS questionnaire prior to treatment reduce patient anxiety (STAI-S) on completion of treatment?

• What is suggested here is that the completed MDAS acted as a vehicle to allow the patient to ventilate their fears and reduce their dental anxiety.

• In order to examine this hypothesis we repeated Dailey’s RCT and this time recorded the patients handing their completed MDAS to the dentist.
Trial design, inclusion criteria and patient sample

Inclusion Criteria

1. Agreed to participate in study
2. Able to give written informed consent
3. Aged 18 years or over
4. Generally fit and well
5. Treatment session
6. MDAS scoring 19 and over or 5 on any one question

Appointment type

Routine Conservation 26
Advanced Conservation 4
Routine Extraction 3
Surgical Extraction 6
Scale and Polish 3
Advanced Periodontal Treatment 3
Prosthetic treatment 3
Toothache 5
Total 53

MDAS score
19.70 with scores ranging from 11 to 25
89% had at least one of the five MDAS categories =5
Dental anxiety questionnaire as a vehicle for expressing fears?

- The findings from the repeated RCT showed that there was **no difference** between intervention and control group’s anxiety on completion of dental treatment.

<table>
<thead>
<tr>
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<th>Intervention Group</th>
<th>Control Group</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (95%CI)</td>
<td>13.04, 14.54</td>
<td>14.35, 15.58</td>
<td>0.08</td>
<td>0.93</td>
</tr>
</tbody>
</table>
Investigating the interaction hypothesis

- To examine why the MDAS intervention had not worked, we carefully examined the video-recording of the dental treatment visit with all of the patients and dentists who took part.

- Specifically we examined:
  - did the dentist look at the completed questionnaire?
  - did the patient’s express their fears?
  - did the dentist provide space for discussion of the patient’s anxieties?
The Verona Coding Definitions of Emotional Sequences (VR-CoDES CC)

- A consensus based system for coding patient expressions of emotional distress in medical consultations
- **Concern**: a **clear** and unambiguous expression of a troubling current or recent emotion which is **explicitly verbalized**. (eg. I’m worried about… I am upset.)
- **Cue**: a verbal or non-verbal **hint** which suggests an underlying troubling emotion that lacks clarity.
- Seven cue types, for example:
  - I feel very tight (Cue A);
  - I feel cold as ice (Cue B);
  - I could not go to sleep (Cue C).
Do you have any allergy?

Ignore

Shutting down

Information-advice

REDUCE SPACE

Silence

Back Channel

Acknowledge

Active Invitation

Implicit Empathy

PROVIDE SPACE

REDUCE SPACE

Switching

Post-poning

Information-advice

Active blocking

CONTENT

Acknowledge

Explore

AFFECT

Acknowledge

Explore

Empathy

Worry does not do you any good.

What help have you had after your visit to prison?
Investigating the interaction hypothesis?

- **Dentist CoDES:**
  - Explicit response to the patient’s cue or concern
  - Non-explicit response to the patient’s cue or concern
  - Reducing space – prohibits further verbalisation of cue or concern
  - Providing space for verbalisation of cue or concern

- **Patient CoDES:**
  - Cue – allusion or expression of an emotion either verbally or non-verbal
  - Concerns – verbalisation of emotional state
Did the dentist look at the completed questionnaire?

- Comparison of changes in mean scores after (before and after treatment) between patients who dentists looked and did not look at the completed MDAS

<table>
<thead>
<tr>
<th></th>
<th>Adherent dentists (n=19 patients)</th>
<th>Non-adherent dentists (n=8 patients)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean MDAS score (SD)</td>
<td>3.76 (3.98)*</td>
<td>3.25 (0.25)</td>
<td>0.25</td>
<td>0.80</td>
</tr>
<tr>
<td>Mean STAI-S score (SD)</td>
<td>3.67 (4.27)</td>
<td>0.00 (4.51)</td>
<td>2.17</td>
<td>0.04</td>
</tr>
</tbody>
</table>

*Positive scores indicate a reduction in anxiety
Did the patient express a cue?

- Comparison of changes in mean scores (before and after treatment) between patients who expressed a cue and those who had no expressed cues or concerns

<table>
<thead>
<tr>
<th></th>
<th>Expressed cue (n=3)</th>
<th>No expressed cue or concern (n=19)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean MDAS score (SD)</td>
<td>1.67 (2.08)</td>
<td>6.10 (4.51)</td>
<td>1.65</td>
<td>0.11</td>
</tr>
<tr>
<td>Mean STAI-S score (SD)</td>
<td>-1.67 (5.51)</td>
<td>3.26 (3.02)</td>
<td>2.37</td>
<td>0.03</td>
</tr>
</tbody>
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*Positive scores indicate a reduction in anxiety*
Did the patient express a concern?

- Comparison of changes in mean scores (before and after treatment) between patients who expressed a cue and those who had no expressed cues or concerns

<table>
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*Positive scores indicate a reduction in anxiety*
Did the dentist reduce space for discussion of the patient’s anxieties?

- Mean change in anxiety scores in patients in relation to dentists who reduced space for discussion of MDAS

<table>
<thead>
<tr>
<th></th>
<th>Reduced space only (n=13)</th>
<th>No reduced space (n=19)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean MDAS score (SD)</td>
<td>1.61 (5.32)*</td>
<td>6.10 (4.51)</td>
<td>2.57</td>
<td>0.01</td>
</tr>
<tr>
<td>Mean STAI-S score (SD)</td>
<td>2.46 (4.56)</td>
<td>8.10 (13.38)</td>
<td>0.56</td>
<td>0.58</td>
</tr>
</tbody>
</table>

*Positive scores indicate a reduction in anxiety.
What predicts dental anxiety (MDAS)?

<table>
<thead>
<tr>
<th></th>
<th>B (SE)</th>
<th>t</th>
<th>p</th>
<th>ΔF</th>
<th>Δp</th>
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<tbody>
<tr>
<td>constant</td>
<td>3.77 (2.11)</td>
<td>1.79</td>
<td>0.08</td>
<td>5.32</td>
<td>0.02</td>
</tr>
<tr>
<td>Patient age†</td>
<td>0.04 (0.05)</td>
<td>0.89</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient gender◊</td>
<td>1.86 (1.46)</td>
<td>1.27</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of appointments ¥</td>
<td>0.11 (0.29)</td>
<td>0.37</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentist reduces space†</td>
<td>-2.99 (1.30)</td>
<td>2.31</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$R^2=0.14$

† patient age: continuous variable
◊ female=0: male=1
¥ Number of appointments: continuous variable
† Reduced space=0: no reduction of space=1
Strategies 1 & 2: differentiating the dentally phobic patient from the dentally anxious patient

THE PATIENT’S PRESENTING SYMPTOMS

DIAGNOSIS

History taking

Dental anxiety assessment

DENTAL ANXIETY

History of painful/unpleasant dental treatment
DAS score: >8<17
MDAS score: >10 but <18

False connection & displacement
DAS score: >17
MDAS score: >19

DENTAL PHOBIA

Symptom of a neurosis
DAS score: >17
MDAS score: >19

Learning disability

EMOTIONAL:
FEAR/ANXIETY

COGNITIVE:
PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

PHYSIOLOGICAL:
HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

False connection & displacement
DAS score: >17
MDAS score: >19

Symptom of a neurosis
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Learning disability
Strategy 3: a patient centred approach

THE PATIENTS PRESENTING SYMPTOMS

Dental anxiety assessment

History of painful/ unpleasant dental treatment
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DENTAL ANXIETY

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DENTAL PHOBIA

HIGH HEART RATE
FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

DIFFICULTY IN SPEAKING
DIFFICULTY IN ACCESSING CARE
PAST TREATMENT EXPERIENCES

FEAR/ANXIETY

EMOTIONAL:

COGNITIVE:

PAST TREATMENT EXPERIENCES
DIFFICULTY IN ACCESSING CARE
DIFFICULTY IN SPEAKING

FEELING NAUSEATED
DRY MOUTH
SWEATING
HIGH RESPIRATORY RATE

DIAGNOSIS

Behavioural management - a patient centred approach
Strategy 3: a patient centred approach

• What communication skills do we use for a patient centred approach?

• How do we:
  – assess choice and ambivalence
  – negotiate treatment plans
  – adopt the principles of good practice
Strategy 3: a patient centred approach

- **Questioning**
  - simple open questions

- **Listening**
  - Active listening
  - What has been said
  - What has been left out
  - Listening with the ‘third ear’
Strategy 3: a patient centred approach

• Clarifying and summarising
  ❖ Checking you understand what the patient has said
  ❖ Checking that the patient understands what you have said

• Reflective listening
  ❖ These statements reflect and confirm the patient’s statement
  ❖ Reduce the gap between patient and dentist
MOTIVATIONAL INTERVIEWING: NEGOTIATING BEHAVIOUR CHANGE

**CHOICE OF BEHAVIOURS**    **SINGLE BEHAVIOUR**

- let patient select
- raise subject

**ASSESS READINESS TO CHANGE**

- **NOT READY**
- **UNSURE**
- **READY**

**UNDERSTAND AMBIVALENCE**

**NEGOTIATE, HELP, PLAN, ACTION**
DENTALLY ANXIOUS PATIENT

1. Choice of treatments
   - Let patient select
   - Single option (referral)
   - Raise subject

2. Assess readiness to accept dental treatment
   - Not ready
   - Unsure
   - Ready for treatment

3. Understand fears
   - Ambivalence, anxiety
   - Negotiate and plan treatment

DENTALLY PHOBIC PATIENT

1. Choice of treatments
   - Let patient select
   - Single option (referral)
   - Raise subject

2. Assess readiness to accept dental treatment
   - Not ready
   - Unsure
   - Ready for treatment

3. Understand fears
   - Ambivalence, anxiety
   - Negotiate and plan treatment
The Readiness Rule
Principles of good practice

- respect for patients’ autonomy
- readiness to change must be taken into account
- ambivalence is common and reasons for conflict need to be explored and understood
- target/goals should be identified by the patient
- the dentist must provide information and support
- the patient makes the final decision.
Differentiating dental phobia from dental anxiety strategies for practice

Patient's presenting symptoms

Diagnosis

Patient category 1: Dental anxiety
Assessment: History of painful or unpleasant dental treatment
DAS score: > 8 and < 17
MDAS score: > 10 and < 18

Patient category 2: Dental phobia
Assessment: History of frightening medical or dental treatment and history of false connection with past dental treatment
DAS score: > 17
MDAS score: > 19

Patient category 3: Dental phobia
Assessment: No apparent history of painful or unpleasant experience; other emotional problems
DAS score: > 17
MDAS score: > 19

Patient category 4: Dental phobia
Assessment: Patient with learning difficulties

Treatment

Dentist treats, using effective communication, behavioural management and/or inhalation sedation

Dentist treats, using effective communication, behavioural management and/or inhalation sedation

Dentist refers to general medical practitioner for appropriate care

Dentist refers for specialist dental care

Emotional: Fear, anxiety
Cognitive: Treatment experiences
Difficult in accessing care
Difficult in speaking

Physiological: High heart rate
Feeling of nausea
Dry mouth
Sweating
High respiratory rate
Conclusions

• Strategies for practice:

  ❖ Take the dental anxiety history to differentiate dentally phobic patients from those who are dentally anxious

  ❖ Use recognised valid and reliable dental anxiety inventories to assess dental anxiety states

  ❖ Adopt a patient-centred approach