Dental anxiety and the oral health of the population

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ORAL HEALTH OF THE POPULATION

The Adult Dental Health Survey is carried out every ten years in the UK (Scotland excepted) to assess the health of the adult population. I am going to present the main findings from the 2009 ADHS, first looking at general dental health and in particular dental anxiety and the impact on dental health.

The sample size for the survey was 13,400 households, including: 1,150 in each English Strategic Health Authority and Wales, and 750 households in Northern Ireland. A total of 11,380 individuals were interviewed, and 6,469 dentate adults were clinical examined, making this the largest ever epidemiological survey of adult dental health in the United Kingdom. Scotland did not take part in this survey so we do not have data for the whole UK. However oral health has continued to improve for the last 40 years, particular in the younger age groups. There is some variation between countries but the trends are similar, i.e. general improvements. However those who have dental disease need very complex care particular the older generation (O'Sullivan *et al*., 2011).

In 2009, 94% of people in England, Wales and Northern Ireland were dentate (i.e had at least one remaining natural tooth). The percentage with no natural teeth has fallen by 22% from 28% of the population in 1978 to just 6% in 2009. The vast majority (60%) of dentate adults had 27-32 teeth; around 17.9 sound and untreated teeth but this varied with age. Only 17% had healthy gums and only 10% had excellent oral health (decay and gum disease). A third of adults had decay on dental inspection and this varied between social class, with routine manual occupations having more decay than professional occupational. Eighty four percent of dentate adults had at least one filled tooth, and for those with a filling the mean number of teeth affected was 7.2 with an average of 2.1 surfaces affected per restored tooth. Adults aged under 45 years were less likely to have any fillings, and those who did had relatively low numbers of filled teeth. By contrast, 97% of dentate adults aged 45 to 54 had a filled tooth and they had 9.1 teeth affected on average. In 2009, 37% of dentate adults had artificial crowns. There was significant variation with age; only 5% of the 16-24-year-olds had crowns compared to between 55-59% of those aged 45-74. For those with crowns, on average there were three per person, amounting to an estimated 47.6 million crowns across England, Wales and Northern Ireland. The majority of dentate adults (85%) had a tooth affected by restoration (Fuller *et al*., 2011).

Among people with at least one restoration, 9% had some secondary decay (decay which is immediately adjacent to previously placed fillings or fissure sealants) in their mouth, and 26% had either secondary decay or an unsound restoration for some other reason, in other words the likely need for some sort of intervention. Not surprisingly, failing restorations were most common in the groups with the most restored teeth, so there was a significant age related risk of having a restored tooth needing some attention. The average number of restored but otherwise sound teeth has fallen from 8.1 teeth in 1978 to 6.7 in 2009. In 2009, nearly one in five adults wore removable dentures of some description (partial or complete). This included almost all of the 6% who were edentate, as well as 13% who relied on a combination of dentures and natural teeth. Over a third of people (37%) had none of the eight indicators of complexity and a further 27% had only one. Three or more indicators would represent a fair degree of complexity in terms of ongoing management of multiple conditions, and this threshold was reached by 19% of the population (Steele *et al.*, 2011).

PREVALENCE OF DENTAL ANXIETY

The assessment used in the ADHS was the modified dental anxiety scale (MDAS) Humphris *et al*., 1995), this includes assessing fears associated with local anaesthesia, as well as four scenarios including anticipated anxiety in relation to going to the dentist tomorrow and sitting in the dentist waiting room – waiting for treatment and having dental treatment – tooth drilled or scale and polish. The lowest possible score is five indicating no anxiety all, the highest score is 25 with a score of 19 or above indicating extreme anxiety.

Just over half of adults (51%) who had ever been to a dentist had an MDAS score of between 5 and 9, indicating low/no dental anxiety. Over a third of adults (36%) had an MDAS score of between 10 and 18 indicating moderate dental anxiety, and a further 12% had a score of 19 or more which suggests extreme dental anxiety. The two items on the MDAS that elicited anxiety most often were both associated with receiving dental treatment; 30% of adults said that having a tooth drilled would make them very or extremely anxious and 28% reported similar levels of anxiety about having a local anaesthetic injection. A smaller proportion of adults were very or extremely anxious about sitting in the dentist's waiting room (15%), about having to go to the dentist tomorrow (13%) and having a scale

and polish (8%) (Nuttall *et al*., 2011) (*Table 1*). There was a clear age gradient in terms of extreme dental anxiety; 15% of 16-24-year-olds had total MDAS scores above 19 and above compared with 6% of those aged between 75-84. Men were less dentally anxious than women, with 17% of women with extreme anxiety compared to 8% in men (however this is recorded information and men may have under reported their levels of anxiety *Figure 1*) (Nuttall *et al*., 2011).

The proportion of adults with extreme dental anxiety also varied by socio-economic occupation of the household; a greater proportion of adults from routine and manual occupation households had total MDAS scores indicative of extreme dental anxiety (15%) than adults from intermediate occupation households (12%) and managerial and professional households (10%). This pattern of a greater proportion of adults from lower socio-economic groups having greater dental anxiety held across all dimensions of the MDAS including having to go for treatment tomorrow and having a tooth drilled. Adults from managerial and professional occupation households were less likely to be very/extremely dentally anxious about having to go for treatment tomorrow (11%) compared with adults from routine and manual occupation households (15%). They were also less likely to be very/extremely dentally anxious about having a tooth drilled (27% and 33% respectively) (Nuttall *et al*., 2011).

DENTAL ANXIETY AND ORAL HEALTH STATUS

People with teeth are more anxious than those without! Poor dental health may stem from neglect arising from avoiding going to the dentist due to anxiety about visiting the dentist. Some 30% of adults who had a MDAS score of 19 or over self assessed their dental health as poor or very poor. The majority of people who score 19 or more on the MDAS had fewer treatment experiences than people with a lower score, this may be due to them not attending the dentist (Nuttall *et al.*, 2011).

The relationship between attendance for dental care and treatment and dental anxiety might be expected to vary considerably; it is logical that adults who have dental anxiety might avoid attending the dentist. The survey data support this with a greater proportion of adults who attended more than 10 years ago having total MDAS scores of 19 than adults who attended within the last 12 months, 24% compared with 9%. This pattern held across all five dimensions of the scale (Nuttall *et al*., 2011).

A similar pattern was observed in relation to the general reason for dental attendance. A smaller proportion of adults who said they go to the dentist for a regular check-up had MDAS scores indicative of extreme dental anxiety (8%) than adults who said they only go to the dentist when they have trouble with their teeth (22%).

RELATIONSHIP WITH THE DENTIST

A large majority of those interviewed were satisfied with all aspects of their interaction with the dentist at their most recent visit, feeling that the communication was good, that they had been treated with respect and that they had received a good explanation of options. This was not universal though. The quality of the relationship between dentist and patient assessed at the last visit to a dentist was markedly associated with the patients' assessment of their overall self-rated dental health, the length of time since their last dental visit and their level of dental anxiety (*Figure 2*). Generally speaking people whose last experience with a dentist was problematic gave a low rating of their own oral health, had not attended for a longer time and were more likely to be extremely dentally anxious than those whose experience was more positive. For example, 34% of adults who felt that the dentist did not treat them with dignity and respect at their last visit had extreme dental anxiety, compared with 12% of adults who felt they had been treated with respect by the dentist. Also, 26% of adults who felt that the dentist did not listen carefully to what they had to say about their oral health scored 19 or above on the MDAS indicating extreme dental anxiety compared with 11% of adults who felt they had been listened to.

These findings suggest that dentist-patient communication, whilst generally good, can be a real barrier to achieving optimal dental health and care in just the same way as other more familiar barriers such as cost and anxiety (Nuttall *et al*., 2011).

CONCLUSIONS

Dental anxiety is recognised as a key barrier to dental care both in the scientific literature and popular media. Extreme dental anxiety was estimated to be experienced by 12% of dentate adults. This report confirms the expected relationship between dental anxiety and visiting the dentist. It also indicates its association with dental health. The inter-relationship of the barriers considered in this report has not been formally assessed yet it seems likely that these barriers interact in complex ways.

In view of the long-term implications for patients' dental and oral health, as well as health-care resources, targeting those patients who have difficulty in accessing dental care as a result of their anxiety should be a priority. More specialised services are needed and further research into these areas is required.

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Table 1 modified dental aniety scale (Nuttall *et al*.,2011)

All adults[1]				England, Wales, Northern Ireland: 2009	
Anxiety		**Not anxious**	**Pslightly/fairly anxious**	**very/extremely anxious**	
Going for treatment tomorrow	%	53	34	13	
In the waiting room	%	50	35	15	
If tooth drilled	%	28	42	30	
For scale and polish	%	62	30	8	
For injection	%	30	41	28	
Total MDSA Score		5.9	10.18	18+	**Mean score**
	%	5.1	36	12	10.8

[1] Adults who have never been to a dentist were not asked the MDAS questions

Figure 1. Modified Dental Anxiety Scale: Prevalence against Gender (Nuttall *et al*., 2011)

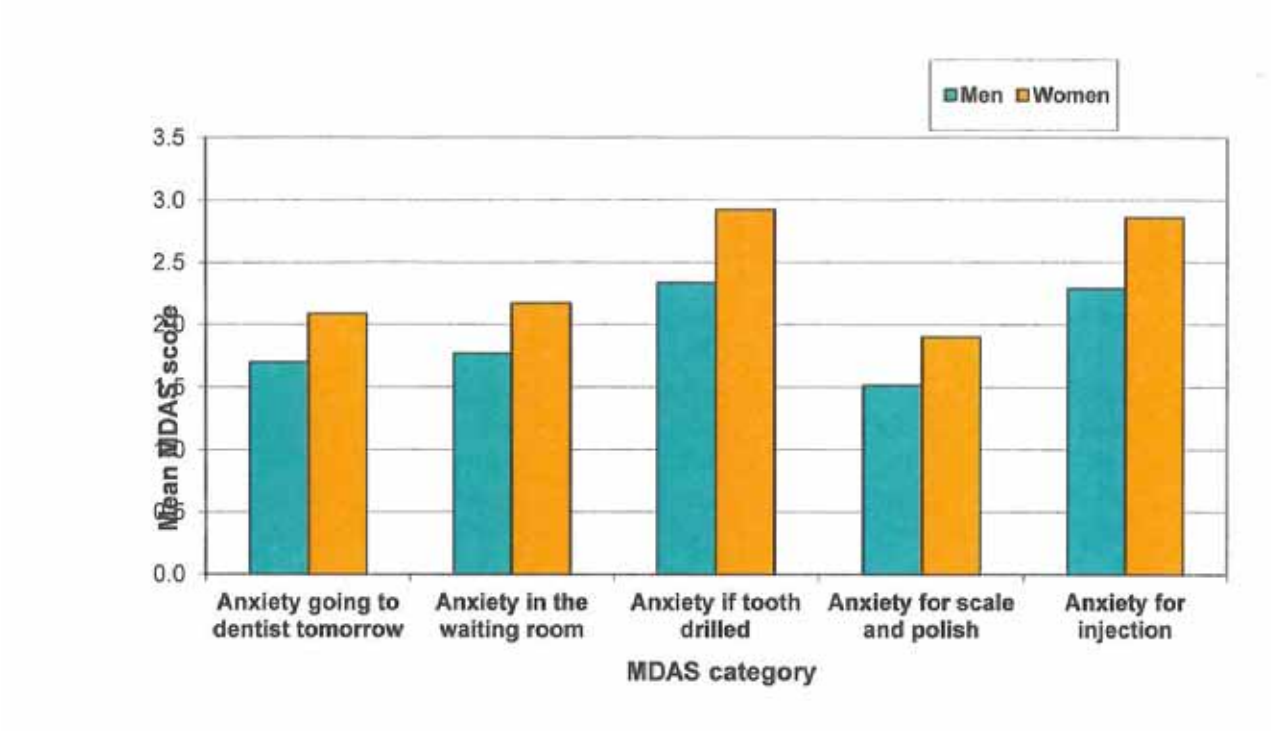
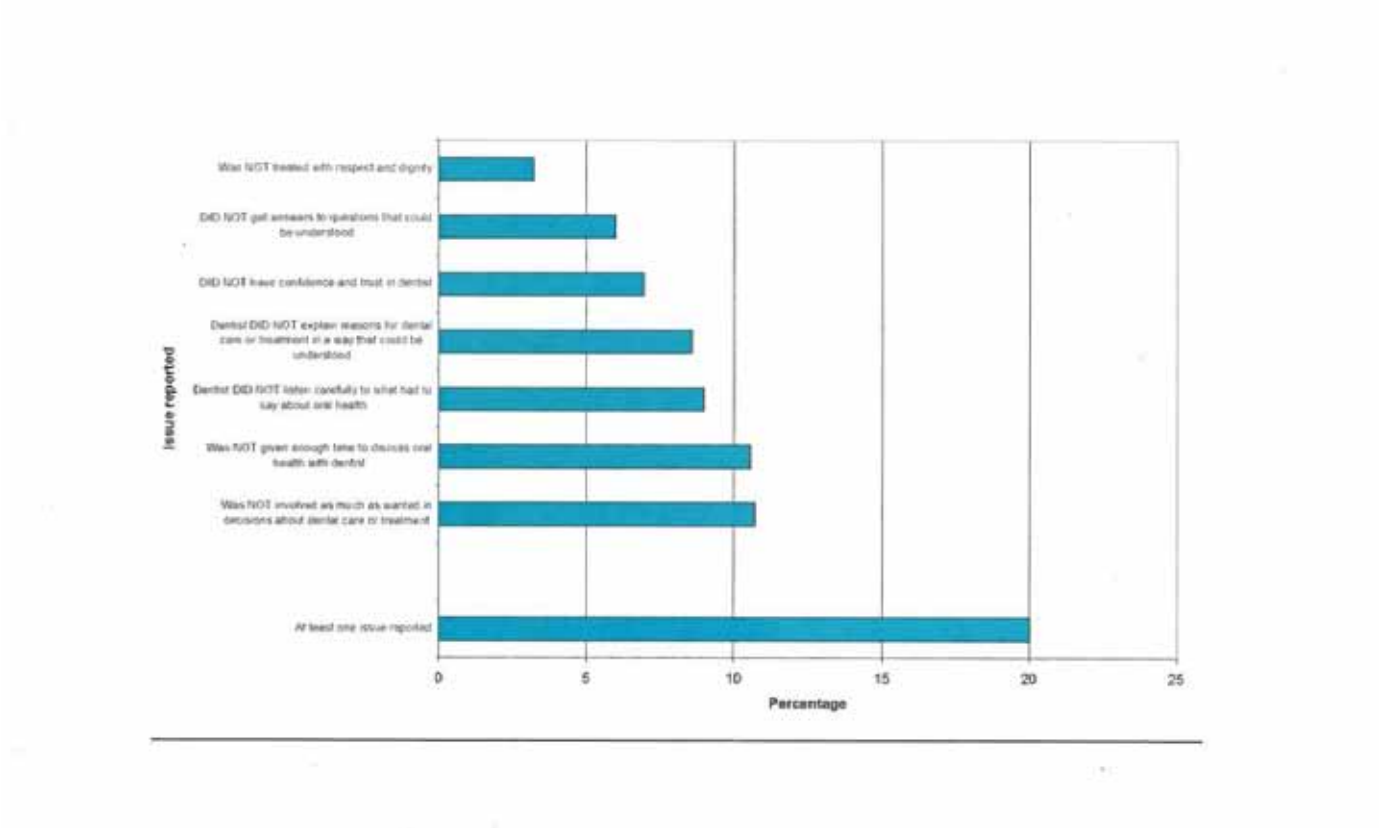


Figure 2. Relationship with the dentist at the last visit (Nuttall *et al*., 2011)



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