

Dental anxiety levels in British servicemen and women

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Objectives: The objectives of the study were to determine: 1, the level of dental anxiety in British Service personnel; 2 whether there was a difference in dental anxiety levels across the three Services; and, 3, the relationship between number of operational tours and level of dental anxiety. **Basic research design:** Cross sectional questionnaire survey of individuals attending 3 Armed Services dental treatment centres in the UK. The questionnaires were completed between February 2008 and April 2009. **Participants:** 50 patients each from the Royal Navy, Army and Royal Air Force, selected consecutively from those attending the centres for treatment. There was a 100% response rate. **Main measures:** Dental fear as assessed by the Dental Fear Survey (DFS) and scores on a scale of fear of dental injections. **Results:** 27% of the Armed Services experienced severe dental anxiety: a level similar to that found in the general population. There was no difference in the level of dental anxiety or fear of dental injections across the three Armed Services. There was no relationship between number of operational tours undertaken and level of dental anxiety. **Conclusions:** Dental anxiety is found amongst members of the British Armed Services at levels similar to that in the general population. This represents a challenge for service provision, particularly in operational settings.

Key words: dental anxiety, Armed Services

Introduction

Dental anxiety is common amongst the general population and has an impact both on oral health and quality of life. Severe dental anxiety affects 10 to 20% of the adult population (Armfield *et al.*, 2006; Gatchel *et al.*, 2003; Stouthard and Hoogstraten, 1990), though even at less severe levels, dental anxiety can lead to delays in attending for care (Liddell and May 1984). It can act as a barrier to treatment as patients avoid appointments and attend only for emergencies. The management of these patients can be stressful, problematic and time-consuming for both patient and clinician (Samorodnitzky and Levin, 2005). Whilst this may not be problematic in civilian practice, dental avoidance or refusal of treatment has no place in the military operational environment where general anaesthetic and sedation may not be available for soldiers deployed on operations, often in austere conditions and distant from immediate medical and dental care.

One might assume that Service personnel are all bullish, stoic people, though this ethos may be changing in the Armed Services. Furthermore Service personnel do show, and admit to, dental anxiety and fear. The Armed Services represent a broad cross-section of society and as such, one might expect similar prevalences of anxious patients in the services and society, and those serving. However, the Armed Services are subjected to the additional external stresses of operational tours which might cause Service personnel to have higher general anxiety levels which may impact on their dental anxiety.

Although administrative guidelines require Servicemen and women to have periodic dental inspections and

dental fitness is a prerequisite for deployment on operations, Service personnel are renowned for ambivalence to dental treatment, and those who are dental phobics can easily find ways around this, resulting in their deployment as dentally unfit.

To date there has been little information and no previous study on the levels of dental anxiety in British Service personnel. There are studies into dental anxiety amongst military personnel from Germany, Israel and Norway (Eitner *et al.*, 2006; Kaufman *et al.*, 1992; Wisloff *et al.*, 1995), all of which show that dental anxiety may be an important factor in the avoidance of seeking dental care.

One author (GG) has been employed by the Defence Dental Services for 20 years, and within the last 8 years has anecdotal evidence that there has been a noticeable increase in the number of patients openly expressing their dental fears and phobias. Many request sedation for treatment to overcome this anxiety.

If the delivery of dental care for individuals who are dentally anxious is typically challenging, for those in the Armed Services it is potentially particularly complex in operational settings, where access to pharmacological (sedation and general anaesthetic) and non-pharmacological (cognitive behavioural therapy, hypnosis and behaviour management) options for managing dental anxiety are limited. There is also the possibility that the experience of living and working in war zones may increase dental fear. Researchers from King's Centre for Military Health Research Kings College London (Greenberg *et al.*, 2008) found "that there is a link between military action and psychological injury is not in doubt. Military

peacekeepers are often exposed to traumatic stressors. Such stressors may not only be associated with Post-Traumatic Stress Disorder, but also with other serious psycho-pathologies such as substance misuse, anxiety disorders and depression.”

However, de Jongh *et al.* (2006) reported that, “among the dentally anxious sample, traumatic experiences in the dental setting were more common than other types of traumatic events [which] is not surprising and is in line with the conditioning account of dental anxiety”

With this background, it was decided to investigate the hypothesis that Service personnel have higher general anxiety levels, which may impact on their dental anxiety levels. The objectives of the study were to determine: 1, the level of dental anxiety in British Service personnel; 2, whether there was a difference in dental anxiety levels across the three Services; and, 3, the relationship between number of operational tours and level of dental anxiety.

Method

The focus of the study was a cross-sectional questionnaire survey of patients from all three Services attending for dental care. The survey comprised 3 sections: general dental background, the patient’s thoughts and feelings about dental treatment, and their demographic and general health details. Six questions were considered: the patient’s general dental background; their thoughts on their dental health; their frequency of attendance; the reasons for their attendance; whether they had previously put off making an appointment and the reasons for it; and if fear had prevented them making, failing or cancelling an appointment. The Dental Fear Survey (DFS, Kleinknecht *et al.*, 1984) was administered comprising five questions rating their experience of specific physiological symptoms associated with dental anxiety and a further 15 questions scored how much fear they felt from certain dental situations and procedures. Five questions captured the patients’ reactions to dental injections and five questions concerned biographical details including how long they had served in the Forces and how many operational tours they had completed. The last part of the questionnaire was completed by the dentist with the patient and included the American Society of Anaesthesiology (ASA) classification, previous sedation and GA for dentistry, medication taken, and any history of mental health problems.

The survey included 50 consecutive volunteer patients attending for dental appointments from each of the 3 Services (Royal Navy, Army and Royal Air Force). All 150 patients selected for the survey responded. The patients were asked to complete the questionnaire in the waiting room before their appointment. They were informed that the questionnaire was part of a project looking into anxiety levels in service personnel, assured of confidentiality and asked if they were happy to participate in the study. They were then given the questionnaire by the reception staff with a form to explain how to complete the questions. Completion of the questionnaire was taken as implied consent for participation. Completed forms were then given to the dentist by the patient at the beginning of the appointment. The dentist then completed the last part with the patient.

The questionnaires were distributed to selected dental centres and completed between February and April 2008. The questionnaires were confidential but not anonymous.

The questionnaires’ responses were coded and data analysed in SPSS v16.

Sociodemographic characteristics of the participants were compared across the three Services, using the Chi-square test for categorical variables, and One-way Analysis of Variance (ANOVA) for continuous variables (age, time in the forces, and number of operational tours). Where significant differences were found with the ANOVA, post-hoc Tukey B tests were used to determine homogenous subgroups. A significance level of 0.05 was adopted.

Results

The characteristics of the participants in the three groups are summarised in Table 1. The respondents from the Army were typically younger than those from the other two Services and consequently had spent less time serving in the forces though there was no difference across the Services in the number of operational tours experienced. The Army had the highest proportion of respondents without university education.

There was no difference in self-rated oral health across the Services with 38% overall identifying their oral health as poor/fair and 62%, good/excellent. Participants were regular attendees at the dentists. There were no differences in attendance patterns across the Services with 65.3% attending once a year or more.

There was no difference between the mean DFS score for the participants in the three Services (ANOVA statistic, $F=1.2$ $p=0.31$), see Table 2. Overall 27% were severely anxious about visiting the dentist. There was no difference in the mean score between the Services in terms of the fear of needle scales ($F=1.3$ $p=0.28$).

Mean scores on the DFS and the Fear of Dental Injections scales were compared for female ($n=16$) and male ($n=134$) respondents, as well as for age groups as divided by the median age (34 years) for the overall sample (see Table 2). While significant differences were found for comparisons by gender, there were none by age.

Ranked in descending order of cause of anxiety, individual item responses for the fear of the needle scale were: feeling the needle injected, seeing the anaesthetic needle, hearing the drill, seeing the drill, and feeling the vibrations of the drill.

There was no association between the number of operational tours and dental anxiety (DFS score) ($\rho=-0.03$, $p=0.68$).

Discussion

Service personnel are required to attend for dental inspections in accordance with administrative guidelines – this does not mean they return for treatment. A series of internal reviews on the topic of dental anxiety in the Dental Defence Service (DDS) written in 2003 suggest an increasing awareness of dental anxiety amongst Service personnel. As a consequence, the DDS has sought to put in place measures to support the management of dental anxiety through non-pharmacological and pharmacological methods.

Table 1. Summary of the demographic characteristics

	<i>Army (n=50)</i>	<i>Royal Navy (n=50)</i>	<i>Royal Air Force (n=50)</i>
Gender			
Male	47	45	42
Female	3	5	8
Age in years, mean (sd) ^a	29.3(6.4) ^x	36.0 (9.3) ^y	35.7 (9.4) ^y
Highest educational level ^b			
O levels, GCSE or equivalent	37	16	31
A levels	7	8	4
BTEC	3	12	5
Degree	1	8	7
Postgraduate qualifications	0	4	1
Missing data	2	2	0
Time in the forces in years, mean (sd) ^a	10.6 (6.7)	17.1 (9.6)	17.1 (9.8)
Number of operational tours, mean (sd)	3.6 (2.8)	3.4 (3.2)	3.4 (3.2)
Ethnicity			
White	12	50	48
Non-White	38 ^c	0	2
Smoker	23	15	10
Years of smoking, mean (sd)	4.3 (6.2)	4.8 (8.4)	2.8 (6.6)
Experienced previous GA for dentistry	28	24	21
Experienced previous sedation for dentistry	8	6	2
Alcohol consumption in units/week, mean (sd)	8.6 (10.1)	13.0 (11.2)	10.0 (11.6)
With a history of mental health problems	4	3	2
On medication	6	8	9
ASA classification			
I	49	49	49
II	1	1	1

^a Homogenous subsets as determined by post-hoc Tukey B tests indicated by the same superscript

^b For statistical analysis two groups were formed 'O levels' vs 'All other qualifications'.

^c of this 38, 29 are of Black origin

Table 2. Mean values for the Dental Fear Survey and the Fear of Dental Injections scale for each Service and across the three Services by gender and age group.

	<i>Dental Fear Survey mean (sd)</i>	<i>Fear of Dental Injections Scale mean (sd)</i>
Armed Services		
Army (n=50)	32.6 (14.5)	9.55 (5.03)
Navy (n=50)	31.4 (11.0)	8.04 (4.61)
Royal Air Force (n=50)	35.5 (14.4)	9.08 (4.86)
One way ANOVA, significance	F=1.2, p=0.31	F=1.3, p=0.28
Gender		
Males (n=134)	32.2 (12.9)	8.61 (4.69)
Females (n=16)	40.7 (16.7)	11.19 (5.90)
t-test, significance	t=2.38, p= 0.02	t=2.03, p= 0.04
Age		
Below median (34 and younger)	24.3 (14.9)	9.19 (4.56)
Above median (35 and older)	31.8 (11.8)	8.51 (5.17)
t-test, significance	t=1.11, p=0.27	t=0.86, p=0.39

Outside the Armed Services setting, dental treatment performed under sedation has allowed increasing numbers of anxious individuals to receive necessary dental care and improve their immediate oral health. In studies of both emergency dental patients (Allen and Girdler 2005; Baker *et al.*, 2006) and in the general population (Dionne *et al.*, 1998), over half of respondents indicated a strong interest in receiving dental treatment with the aid of some type of sedative medication, particularly when anxiety was high. The provision of sedation offers a possible solution for those Armed Service personnel with significant levels of dental anxiety.

Based on this premise, this study examined the levels of dental anxiety in the Armed Services, and sought to determine whether there was a difference in the level of anxiety in the Services, and the relationship between operational tours and dental anxiety levels.

Of the sample taken, 27% were severely anxious about visiting the dentist; this proportion is similar to that found in other samples of adults. There was no difference in anxiety levels between the three Services and there was no relationship between the frequency of operational tours and dental anxiety levels.

Patients report that anticipation of dental treatment did not cause as much dental anxiety as seeing the dentist and having treatment. The triggers seemed to be needles and the dental drill.

Conclusion

In conclusion, the study showed that dental anxiety levels among Armed Services personnel are similar to the general population; over a quarter were severely anxious about visiting the dentist. Previous surveys have suggested that a significant proportion of individuals returning from operations showed symptoms of Post-Traumatic Stress Disorder, though this does not seem to manifest as increased anxiety about visiting the dentist. The study substantiates the need in the Armed Services for a cohort of dentists trained in techniques for the treatment of anxious patients.

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