The prevalence of dental anxiety across previous distressing experiences

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ABSTRACT

Aims: To compare the prevalence of high dental anxiety across a variety of past distressing experiences with a previously reported Dutch sample.

Method: University students from the UK (N = 1024) completed an online survey containing; the Modified Dental Anxiety Scale, and the Level of Exposure–Dental Experiences Questionnaire (LOE–DEQ). Adjusted odds ratios (OR) were calculated to assess the association of self-reported distressing experiences and dental anxiety.

Results: The percentage of respondents with high dental anxiety (HDA) (total MDAS score ≥ 19) was 11.2%. Significant prevalence of HDA across several distressing experiences was shown in both UK and Dutch samples notably: extreme helplessness during dental treatment, lack of understanding of the dentist and extreme embarrassment during dental treatment. There were little or no effects of non-dental trauma, with the exception of sexual abuse in the UK sample.

Conclusions: Trauma from various past experiences may be implicated in an increased risk of high dental anxiety.

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1. Introduction

Dental fear and anxiety are both widespread problems, with approximately 25% of UK adults and 20% of US adults reporting delays in visiting the dentist due to dental fear (Boyle, Newton, & Milgrom, 2009; Smith & Heaton, 2003). Similarly, there have been numerous studies that have reported high dental anxiety levels in approximately 10–20% of their participants (Locker, Liddell, Dempster, & Shapiro, 1999; Locker, Liddell, & Shapiro, 1999; Humphris, Dyer, & Robinson, 2009; Sohn & Ismail, 2005). Dentally anxious individuals frequently experience negative thoughts, feelings and fears, the fright response, sleep disturbances, and impaired social functioning in work and personal life (Cohen, Fiske, & Newton, 2000). Such individuals often avoid dental treatment and suffer detrimental effects to their oral health (Berggren & Meynert, 1984; Richard & Lauterbach, 2007).

The role of previous dental experiences has been one of the major factors to explain dental anxiety. Such experiences have been linked to increased perception of pain and negative cognitions regarding dental treatment (De Jongh, Adair, & Meijerink-Anderson, 2005). Moreover, this group of authors confirmed individuals with high dental anxiety (HDA) reported significantly more traumatic past experiences (including those in the dental setting) than individuals with lower dental anxiety (73% vs. 21%) (De Jongh, Fransen, Oosterink-Wubbe, & Aartman, 2006). Distressing experiences in the dental setting were the most frequently reported traumatic event, and 41% of HDA individuals indicated suffering from at least one of the post-traumatic stress disorder (PTSD) symptom clusters (insomnia, avoidance, etc.). This demonstrates that dental trauma does not simply affect oral health through avoidance of treatment, but can also impact mental health negatively with the development of PTSD. Therefore, it appears that previous distressing experiences play a major role in the development of dental anxiety and consequently require serious consideration.

Oosterink et al. reviewed a number of studies and concluded that distressing experiences that are linked to the dental setting should be categorized as: “…dental treatment-related-distressing experiences…” or “…distressing experiences which fulfill the DSM-IV-TR stressor criterion and are not related to the dental setting per se…” (Oosterink, de Jongh, & Aartman, 2009, p. 451). They also suggest that exemplars from the first category may involve: invasive dental treatments (injection, root canal); pain; distress resulting from dentist behavior; emotional distress in response to dental treatment (e.g., feelings of loss of control); and distressing stories told by others who are regarded as important. Distressing experiences which are not related to the dental setting may include: sexual abuse; war trauma; severe traffic accidents; distressing medical experience; and physical assault (Oosterink et al., 2009).

Furthermore, the degree of exposure to a negative dental event should be investigated when examining the event’s relation to subsequent anxiety. Hence Oosterink et al. developed the 23-item...
Level of Exposure-Dental Experiences Questionnaire (LOE-DEQ). This was designed to assess an individual’s degree of exposure for events occurring within and outside the dental setting (Oosterink et al., 2009). At present the originators of this scale have only quoted data from their local Dutch population and investigated the relationship of the scale with their own preferred dental anxiety assessments. As previous experiences are confirmed to be a major antecedent factor in the development of dental anxiety it would be important to compare the findings presented by the Amsterdam group with a separate UK sample to improve generalizability. Hence the aim of this study was to compare levels of dental anxiety across distressing experiences taken from the Level of Exposure-Dental Experiences Questionnaire (LOE-DEQ) in a UK sample.

2. Method

2.1. Sampling

Ethical approval was obtained from the University Teaching and Ethics Committee (UTREC) at the University of St Andrews, Fife. Undergraduate and taught postgraduate students voluntarily participated via an online “Dental Anxiety Questionnaire” link on the WebCT 6.0 virtual learning program. Further advertising was included within the weekly university messages including a pop-up window in the WebCT ‘Campus Announcements’ menu. Entry into two £25 voucher prize draws, separately conducted on 31st January 2009, and 31st March 2009, was offered upon participation and submission of contact details. Data was collected from December 2008 until March 2009.

2.2. Questionnaire

The online questionnaire consisted of the Modified Dental Anxiety Scale (MDAS) and the LOE-DEQ. Questions relating to demographic variables, self-reported dental attendance patterns and treatment preferences were also included. All questions were presented in a multiple-choice response format.

The MDAS is a five-item self-report measure designed to assess levels of anxiety associated with an upcoming dental visit, the dentist’s waiting room, tooth drilling, teeth scaling and local anaesthetic injection. Responses are rated with a 5-point scale, ranging from Not Anxious (score of 1) to Extremely Anxious (score of 5) and then summed to produce a total score. Total scores can range from 5 to 25, with an empirically determined cut-off value of 19 and above indicating high dental anxiety (Humphris, Morrison, & Lindsay, 1995).

The LOE-DEQ (Oosterink, de Jongh, & Aartman, 2008) is a 23-item questionnaire designed to investigate the development of dental anxiety and to identify those with increased susceptibility for experiencing it. The LOE-DEQ items are based on a literature review examining almost every experience previously reported with dental anxiety onset (Oosterink et al., 2008). The first 16 items refer to typical dental experiences (i.e., root canal treatment, tooth drilling, extraction, injection). The seven additional items relate to general traumatic life events (i.e., sexual abuse, severe car accident, violent crime). This measure has been tested on highly dentally anxious patients, general dental patients, students, psychiatric outpatients and oral surgery patients. Results indicated satisfactory internal consistency (Cronbach’s alpha values from 0.69 to 0.85) and sufficient test–retest reliability (intra-class correlation coefficient = 0.78) (Oosterink et al., 2008).

2.3. Procedure

This cross-sectional survey could be accessed via a link (‘Dental Anxiety Questionnaire’) on participants’ WebCT course lists. The introductory page contained participant information, including the statement that completion of the questionnaire would act as their informed consent. Two links were provided underneath entitled, “Complete Questionnaire Now!” and “Debriefing Form & Prize Entry.” Participants clicked on the first link, completed the questionnaire, returned to the introduction page and submitted their details via the second link if they wished to do so. Contact details for the project supervisor were presented on the introduction page. Contact details of the University student support service, local GPs and other professional organizations were included on the debriefing webpage.

2.4. Statistical analysis

SPSS v17 was employed. Frequency distributions of high dental anxiety (HDA: MDAS score ≥ 19) versus low dental anxiety (<19) were calculated for each demographic variable (gender, age, faculty of study and region of origin). Cross-tabulations were conducted for MDAS scores (divided into low dental anxiety: <19, and HDA: ≥19) and each LOE-DEQ item (1 = yes, 0 = no). Associations between the LOE-DEQ items and HDA were estimated via calculation of adjusted odds ratios (OR) and 95% confidence intervals (95% CI). LOE-DEQ items significantly related to HDA were entered into a forward stepwise logistic regression model, with HDA as the outcome variable.

3. Results

3.1. Response rate

1068 questionnaires were submitted, 44 had missing data and were excluded from data analysis. The remaining sample contained 1024 full time undergraduate and taught postgraduates, representing 15.4% of the total undergraduate and taught postgraduate population (N = 6649) enrolled at the University of St Andrews, 2008–2009.

3.2. Sample characteristics

Table 1 shows the gender breakdown of the sample. The frequency of participants within the following age groups was 16–25 years (53.8%), 26–40 years (40.8%), 41–60 years (21.1%) and 60+ years (0.1%). The representation from each faculty of study was: Arts (52.8%), Science (39.1%), Divinity (2.7%) and Medicine (3.4%) and
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