Stress amongst primary dental care patients

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Abstract

Aims: to determine the prevalence of dental fear amongst primary dental care units (PDCU) patients and to characterize them according to socio-demographic features. Study design: non-probabilistic sampling on new and consecutive patients demanding exodontia at the Burela, Praza do Ferrol and Viveiro (Lugo) PDCUs from 9 january to 7 march and from 18 june to 21 september 2007. The variables considered were "demographic" (age, gender, address and educational level), "treatment-related" (reason for extraction, root extraction), "attitudes" (accompanied yes/no, spontaneous fear comments yes/no) and "stress" determined using a visual analogue scale (VAS). Results: A total of 804 patients entered the study. The mean VAS value was 3.54±2.63 (range 0 to 10; median 2.95; mode 0). A 96.8% referred some degree of stress, and a 10.1% of the sample scored high values (>7.5 in the scale). These values resulted to be influenced by sex (p=0.000), address (p=0.025) and by the presence of an accompanying person in the room (p=0.008). Logistic regression analysis identifies female gender (OR=3.26; 95%CI: 1.93 , 5.49), urban (OR=2.02 95%CI: 1.04 , 3.91) or rural (OR=2.16; 95%CI: 1.15 , 4.08) address and the absence of an accompanying person in the room (OR=1.68; 95%CI: 1.05 , 2.70) as predictors for a high level of stress. Conclusion: A 10.1% of the patients experience a high level of stress before tooth extraction. This phenomenon is more common among unaccompanied women from rural or urban areas.

Key words: Dentistry, tooth extraction, primary care, stress, dental fear, dental anxiety.

Introduction

Dental visits have traditionally been recognised as an unpleasant -when not painful- event. Nowadays, this idea still remains within some patients despite the important efforts made by clinicians to provide an atmosphere of relax and confidence in the surgery, supported by the use of different stress-control techniques, and backed by the increasing weight that behavioural sciences have in undergraduate dental curricula (1).
Dental fear, also known as "dental anxiety" affects up to a

50% of the general population (2). This problem not only conditions the delivery of care but patients experiment higher levels of pain if anxiety in the dental surgery is high, and this finding is independent from the trait anxiety in the subjects (3). Moreover, dental fear may become a vicious circle (4) where the patient avoids dental visits causing worsening of his/her dental health, thus requiring more complex treatments that -once performed- reinforce the original behaviour of avoidance.
Some reports on the prevalence of dental fear (5-8) could

be recovered and none of them included data on Spanish patients. However, and taking into account the particularities of public dental care in Galicia, it is very unlikely that those reports could depict the actual situation of the patients attending public PDCUs.

The identification of the typical features of anxious patients could allow for the introduction of specific stress-control measures and the implementation of strategies for interrupting the vicious circle of dental fear. Thus, the aim of this study has been to determine the prevalence of dental fear among patients attending the Galician Health Service's PDCUs and to typify them according to socio-demographic variables.

Patients and Methods

The sample was obtained by non-probabilistic sampling on new, consecutive adult patients seeking tooth extraction at the PCDUs of Burela, Praza do Ferrol and Viveiro (Lugo). These units provide primary dental care for a population of 65,827 people. The study was undertaken from 9 January to 7 March and from 18 June to 21 September 2007.

The variables considered were grouped under the headings "demographic" (age, gender, address –defined as urban those cities greater than 80,000 inhabitants, as rural those smaller than 5,000 and as peri-urban any other-, educational level –defined as non-standard education, compulsory education, secondary education and university degree-, and patient's language –Galician, Spanish, other-), "treatment variables" (cause of exodoncia, root extraction), "attitude" (accompanying person -yes/no-, spontaneous fear comments –yes/no-) and "stress" determined by means of a visual analogue scale (VAS).

The VAS is considered an effective, precise, reliable, reproducible and easy to use method. This scale consists of a 10 cm line drawn on a white paper that represents the variable to measure; the patient is informed that one end of the line represents the absence of the variable and the other symbolizes the most intense manifestation the subject can imagine. The patient scores the intensity of the expression of the variable marking the point between both ends that more accurately represents the strength of the variable he/she is experimenting. The result is quantified measuring the distance from 0 to the point marked by the patient.

The sample size was determined for a population of 65,827 people with an expected prevalence of dental fear of 50% (2) and a 95% confidence level with a precision of 3,5%. In these circumstances, the required sample size was 775 patients.

Data were collected in two different forms (VAS and other variables) and entered into a SPSS+ (8.0) statistical package and analyzed on a PC-type computer.

Patients were distributed in 3 age groups (18-34; 35-64; 65+). Stress scores obtained from the VAS were arbitrarily grouped in four degrees: I (0 to 2.5 cm scored on the VAS),

II (2.6 to 5 cm), III (5.1 to 7.5) and IV (7.6 to 10 cm).

A descriptive statistical analysis was performed, studying the relationships between variables using the Chi square test. The significance level chosen for all tests was 5%.

In order to identify predicting variables for high stress levels, logistic regression models were adjusted considering as depending variable to have or not a high level of stress (VAS>7.5) and as independent variables those related to high stress levels in the univariate analysis (with p<0,20).

Results

Description of the sample

A total of 804 patients entered the study, mainly males (51.2%), from urban (38.1%) or rural areas (30.1%). A 31.8% came from districts defined as peri-urban.

The mean age of the patients was 55.16±27.43 being most subjects within the 35-64 age group (44.3%), followed by those elder than 65 (36.9%) and by the individuals between 18 and 34 (18.8%).

The breakdown of the educational level for the subjects in the sample shows a 32.5% without standard education, and a 41.8% who had completed compulsory education. Up to a 21.3% of the sample had secondary education grades and a 4.5% hold a university degree.

Most exodontias were caused by decay (48.9%), followed by periodontal diseases (30%) and other reasons (21.1%).

Most patients (64.8%) had and an accompanying person in the room, making spontaneous stress comments a 2.3% of the sample.

Stress level

The mean VAS score was 3.54±2.63; ranging from 0 to 10 with a median value of 2.95 and a mode of 0.

A 96.8% of the sample referred some degree of stress before treatment, being a 47% within the range defined as degree I; a 24% in the degree II group; a 18.9% in degree III; and a 10.1% of the patients scored high stress values (degree IV).

Female patients elicited high stress marks before tooth extraction more frequently than males (p=0.000); a high stress level also resulted to be influenced by the patient's address (p=0.025) and by the presence of an accompanying person in the room (p=0.008), whereas the rest of the variables considered did not show significantly different distributions among patients with high stress scores (Table 1).

Logistic regression analysis confirmed that gender, patient's address and the presence of an accompanying person in the room are predicting variables for a high level of stress before tooth extraction (Table 2).

Table 1. Distribution of patients with high level of stress (Group IV).

	n	% of the sample	High stress level (% VAS>7.5)	p value
Gender				
Male	412	51,2	5,1	0,000*
Female	392	48,8	15,3	
Age group				
18-34	151	18,8	13,2	
35-64	356	44,4	10,7	0,166
65 +	297	36,9	7,7	
Address				
Urban	306	38,1	12,1	
Rural	242	30,1	12	0,025*
Periurban	256	31,8	5,9	
Educational level				
Non-standard education	261	32,5	8,8	
Compulsory education	336	41,8	9,8	0,669
Secondary education	171	21,3	11,7	
University degree	36	4,5	13,9	
Language				
Spanish	225	28,1	12,9	
Galician	542	67,6	8,9	0,228
Other	35	4,4	8,6	
Companion in the room				
Yes	496	61,7	7,9	0,008*
No	308	38,3	13,7	
Spontaneous expression of stress				
Yes	14	1,7	14,3	0,597
No	790	98,3	10	
Exodontia of decayed root				
Yes	226	28,1	7,1	0,078
No	578	71,9	11,2	

*Statistically significant.

Table 2. Predicting variables for high stress level.

	OR	95% IC		p value
Gender				
Male	1*			
Female	3,26	1,93	5,49	0,0000
Address				
Urban	2,02	1,04	3,91	0,0378
Rural	2,16	1,15	4,08	0,0172
Periurban	1*			
Companion in the room				
Yes	1*			
No	1,68	1,05	2,70	0,0310

* Reference category.

Discussion

Dental fear and its correlation with clinical parameters has been a matter of concern for behavioural scientists (9) who have been able to correlate stress scores with cortisol levels in urine. Whereas the effects of dental stress are objectively detected, there does not seem to exist a consensus among the scientific community on how it should be measured, as different tools have been suggested, eg: Dental Anxiety Scale (10), Dental Fear Survey (11) or Oral Surgery Confidence Questionnaire (12). Despite the fact that these tools have been validated and its effectiveness confirmed by their use, they do not seem to measure the same dimensions of dental anxiety, as its application to the same sample of subjects resulted on very different prevalences, ranging for 8.2% to 23.4%, depending on the tool used for the determination (8).

The use of a single item to determine dental anxiety, constructed on such a way that it includes all aspects of the dental visit has been proposed (13); and the results from the application of this question correlated well with those from the Dental Anxiety Scale. In this sense, and taking into account that the aim of this study was to investigate the subjective perception of stress during the dental visit, the use of a Visual Analogue Scale (VAS) to quantify the stress level was decided. This scale is a useful instrument for measuring psychosocial responses to health problems, as subjective phenomena like pain, stress or comfort vary in terms of intensity and are difficult to describe verbally. In these conditions, the VAS constitutes a valid and reliable alternative (14).

Our results show that most patients experiment some kind of stress in the dental clinic, but only about one quarter of them exceed the midpoint of the scale, and a 10.1% go through a intensity of stress that could be defined as high (beyond the 75% of the scale). The present study disagrees with previous reports (3), as female patients elicit higher levels of stress than their male counterparts (5, 6). The patient's educational level does not seem to influence the presence of a high stress score, despite previous descriptions stating that the degree of anxiety correlates negatively with the subject's instructive achievements (15).

The elevated rank of anxiety experienced by women in the surgery should be taken into account by the professionals during the clinical interview and treatment, as females seem to be more prone to disregard their oral health because of dental anxiety (2).

It is somehow interesting that subjects willing to have an accompanying person in the room do not reach higher stress levels (p=0.008), acting the companion as a plausible tranquilizing agent.

The subjective perception of the difficulty of the treatment (exodontia of a decayed root) does not seem to condition a high level of stress in these patients (p=0.078), as well as the spontaneous expression of stress or discomfort (p=0.597).

Conclusion

The prevalence high level of anxiety in the dental surgery is 10.1% among the patients treated at the Galician Health Service PCDUs. This high intensity of stress is more frequent among women, from rural or urban areas, attending the surgery on their own.

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