



Unique Journal of Medical and Dental Sciences

Available online: www.ujconline.net

Research Article

MODIFIED AMSTERDAM PREOPERATIVE ANXIETY AND INFORMATION SCALE (APAIS) FOR ORAL SURGERY

Sagtani A^{1*}, Sybil D¹, Pokharel K², Niraula S³, Giri DK⁴

¹Dept of Oral & Maxillofacial Surgery, College of Dental Sciences and Hospital, Nepal Medical College, Kathmandu, Nepal

²Dept of Anesthesiology and Critical Care, BPKIHS, Dharan, Nepal

³School of Public Health and Community Medicine, BPKIHS, Dharan, Nepal

⁴Dept of Periodontology & Oral Implantology, Nobel Medical College & Teaching Hospital, Biratnagar, Nepal

Received: 21-08-2014; Revised: 20-09-2014; Accepted: 18-10-2014

*Corresponding Author: **Dr Alok Sagtani**

Associate Professor College of Dental Sciences and Hospital, Nepal Medical College.

ABSTRACT

Background: Various studies have been done to assess dental anxiety amongst patients. However, none of the studies is directed towards the specific fear of needles seen in many patients. General anxiety scales may thus be missing an important cause for dental anxiety especially in patients needing extractions of teeth. We modified the current APAIS scale by adding two questions that address needle related anxiety.

Objective: To assess the need for needle related anxiety to determine overall anxiety in patients coming for extraction of teeth.

Materials and Methods: One hundred and forty patients who were able to read and comprehend Nepali were given a modified APAIS questionnaire prior to undergoing extraction, after taking consent. Standard statistical methods were used for analysis.

Result: Modified APAIS scale (8 questions) was found to be more reliable than APAIS scale (6 questions) in assessing overall anxiety as shown by Cronbach's α value of 0.860 and 0.828 respectively.

Conclusion: Based on this study we feel that it is also important to address needle related anxiety in patients prior to dental extractions especially if they are undergoing the procedure the first time.

Keywords: Modified Anxiety Scale, Dental Procedure, Reliability test, APAIS questionnaire.

INTRODUCTION

Anxiety remains a barrier to dental care for a consistent proportion of the population¹. Over two thirds of patients awaiting dental surgery are anxious². Anxiety not only produces emotional unease, but may provoke patient behavior that hinders surgery, in some cases prolonging the intervention and complicating postoperative recovery³. The factors which contribute to anxiety include age, gender, type and extent of proposed surgery, familiarity with and preparedness for the procedures, previous surgical experience and personal susceptibility to stressful situations^{4,5}. Dental anxiety is most commonly provoked by treatments involving anesthetic injection, use of drill and/or tooth removal⁶⁻⁹. Several methods have been used to assess dental anxiety amongst patients. The most common is the Corah's Dental Anxiety Scale and unfortunately this scale does not enquire about local anesthetic injection which is a focus for most patients' anxiety^{10,11}. The Dental Fear Survey¹² includes two items on anesthetic needle but it consists of many questions and is more suitable for

intensive research purposes than routine clinical use¹⁰. Amsterdam preoperative anxiety and information scale (APAIS) is a simple, reliable measure of preoperative anxiety¹³. It is easy to use, less time consuming and correlates well with other scales^{14,15}. We therefore chose to use and modify the APAIS scale (Fig. 1).

PATIENTS AND METHODS

APAIS was modified by adding two questions (Question 4 and 5) to assess anxiety towards anesthetic needle (Fig. 2). The patient inclusion criteria were a) patients undergoing extraction of single or multiple teeth and b) literate patients who were able to comprehend the questionnaire. The exclusion criteria were a) patients beyond age of reasoning, b) patients on any form of antipsychotic, antidepressant drugs or therapy, c) medically compromised patients and d) patients not willing to be part of the study. Patients were asked to fill out the questionnaires on their own, preoperatively. A note was made of the patients' age, sex and history of previous tooth extraction if any.

RESULTS

One hundred and forty patients participated in the study of which 56 were male and 84 were female. 71 patients had a previous history of tooth extraction. The reliability of the modified APAIS was statistically assessed as compared to APAIS using the Cronbach's alpha reliability score. It was found that the modified APAIS (8 questions) was more reliable than the APAIS (6 questions) with a Cronbach's alpha value of 0.860 and 0.828 respectively (Table 1). Females were more anxious of the needle than males (p values .001 and .010 for Q 4 & Q 5 respectively) (Table 3). Patients who had a history of extraction were significantly less anxious of needles (p values .002 and .009 for Q 4 & Q 5 respectively) (Table 2). It was found that females were more anxious than males about all the three components of anxiety on the scale- anesthesia related, needle related and surgery related. Females were also found to have a higher information desire component. Patients with no history of previous extraction were found to be more anxious about the anesthesia and surgery. It was found that these patients had a higher information desire component than the others.

DISCUSSION

Majority of the minor oral surgical procedures require the administration of local anesthesia using a needle. Fear of the needle has driven patients to postponement of treatment, delaying appointments and worsening their health in general³. Studies have shown that anxiety is highest towards the anesthetic needle followed by the drill among all dental instruments. Peretz et al. using a dental anxiety scale and dental fear survey showed that the most anxiety-provoking stimuli were feeling and seeing the needle¹⁶. Needle was the most anxiety provoking stimuli followed by the drill was also shown by Redi et al¹⁷ and Wardle J¹⁸. Most anxiety assessment scales do not include the needle related anxiety and may thus be missing an important cause for dental anxiety especially in patients needing simple oral surgical procedures. Thus, arose the need for a needle related anxiety component in anxiety assessment scales.

Symptoms of dental pain or discomfort, fear of the dentist's disapproval, negative expectations concerning the outcome of treatment, a history of low-quality dental treatment, complications experienced in previous dental care, and negative dentist-patient interactions, have all been associated with high dental anxiety¹⁹. Patient anxiety makes it harder to provide treatment, causes lost time and can potentially decrease the quality of dental work²⁰. An understanding of how anxious patients are when they undergo dental treatment would aid dentists' efforts to improve patient care. Having effective communication skills is an important task for practitioners. It has been suggested that as a consequence of improved doctor communication skills, patients would "suffer less anxiety, be more satisfied with their care, recover faster and maybe suffer less postoperative pain"²¹. Studies have evaluated the effectiveness of communication skills of practitioners by examining the pre- and post-consultation changes in anxiety levels^{21,22}. These have shown that inadequate information transmission during the interaction has

an anxiety provoking effect. It has been demonstrated that patients of doctors trained in communication skills reported greater satisfaction and less anxiety²². Wijk A et al. have suggested that oral surgeons should have a separate consultation and possibly a more intensive one for reducing anxiety levels before third molar surgeries²³.

We observed higher anxiety levels in female patients than in male patients, as in other studies^{3,8,15,24}. Only one previous study²⁵ found anxiety levels to be higher in men than in women. Contrary to Hasan Garip et al.¹⁵, who found no difference in the anxiety scores of patients who had had previous local anesthetics, we found that patients who had a history of previous extraction were less anxious of it the second time. The calculated Cronbach's alpha level of the APAIS scale in our study (0.828) is very similar to those reported by Moerman et al. (0.86)¹⁴ and Miller et al. (0.82). The brief time required to complete APAIS and its ability to be easily understood makes it a practical tool to measure anxiety in the preoperative period¹³. Addition of two questions regarding needle related anxiety in the APAIS has rendered it more reliable among patients requiring oral surgery.

CONCLUSION

Based on this study we feel that it is important to address needle related anxiety in patients prior to oral surgical procedures especially if they are undergoing the procedure the first time and we suggest use of Modified Amsterdam Preoperative Anxiety and Information Scale (M-APAIS) for anxiety assessment during routine oral surgical practice.

REFERENCES

1. Smith T, Heaton L. Fear of Dental care: Are we making any progress. *Journal of the American Dental Association* 2003; 134: 1101-8.
2. Ramsey MAE. A survey of pre-operative fear. *Anaesthesia* 1972;27:396-402.
3. Frazer M, Hampson S. Some personality factors related to dental anxiety and fear of pain. *Br Dent J* 1998; 165:436.
4. Badner NH, Neilson WR, Munk S, Kwaithowska C, Gelb AW. Preoperative anxiety: detection and contributing factors. *Can J Anaesth* 1990; 37: 444-7.
5. Millar K, Jelicic M, Bonke B, Asbury AJ. Assessment of preoperative anxiety: comparison of measures in patients awaiting for breast cancer. *Br J Anaesth* 1995; 74: 180-3.
6. Molin C, Seeman K. Disproportional dental anxiety: Clinical and nosological considerations. *Acta Odontol Scand* 1970; 28:197.
7. Gale EN. Fears of the dental situation. *J Dent Res* 1972; 51: 964.
8. Beggren U, Meynert G. Dental fear and avoidance: causes, symptoms and consequences. *J Am Dent Assoc* 1984; 109:247.
9. Earl P. Patient's anxieties with third molar surgery. *Br J Oral Maxillofac Surg* 1994; 32: 293-7.

10. Newton J, Buck D. Anxiety and pain measures in dentistry: a guide to their quality and application. J Am Dent Assoc. 2000; 131(10):1449-57.
11. Lindsay SJE, Humpphris GM, Barnby G. Expectations and preferences for routine dentistry in anxious dental patients. Br Dent J 1987;163:120-4
12. Kleinknecht R, Bernstein D, the assessment of dental fear. Behav Therap 1978; 9:626-34.
13. Boker A, Brownell L, Donen N. The Amsterdam Preoperative Anxiety and Information scale provides a simple and reliable measure of preoperative anxiety. Can J Anaesth 2002; 49:79-8.
14. Moerman N, Van Dam FSAM, Muller MJ, Osting H. The Amsterdam Preoperative Anxiety and Information scale (APAIS). Anesth Analg 1996; 82: 445-51.
15. Garip H, Abali O, Goker K. et al. Anxiety and extraction of third molars in Turkish patients. Br J Oral Maxillofac Surg 2004; 42: 551-54.
16. Peretz B, Efrat J. Dental Anxiety among young adolescent patients in Israel. Int J Pediatr Dent 2000; 10(2):126-32.
17. Redi R, Sutcliffe P, Donnan PT, McConnachie J. The prevalence of dental anxiety in a group of 13- and 14-year-old Scottish children. Int J Pediatr Dent 1992; 2: 17-24.
18. Wardle J. Fear of dentistry. British J of Medical Psychology 1982; 55: 119-26.
19. Elter JR, Strauss RP, Beck JD. Assessing dental anxiety, dental care use and oral status in older adults. J Am Dent Assoc 1997;128:591-7.
20. Smyth JS. Some problems of dental treatment. Part 1. Patient anxiety: some correlates and sex differences. Aust Dent J 1993; 38:354-9.
21. Smith AF, Shelly MP. Communication skills for anesthesiologists. Can J Anesth 1999;46:1082-8.
22. Evans BJ, Kiellerup FD, Stanley RO, Burrows GD, Sweet B. A communication skills programme for increasing patients' satisfaction with general practice consultations. Br J Med Psychol 1987; 60: 373-8.
23. Wijk A, Lindeboom J. The effect of separate consultation on anxiety levels before third molar surgeries. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2008; 105: 303-7.
24. Liddell A, Locker D. Gender and age differences in attitudes to dental pain and dental control. Community Dent Oral Epidemiol 1997; 25: 314.
25. Rome M, Moore T. Self report measures of dental fear: Gender differences. Am J Health Behav 1998; 22: 243.
26. Miller KM, Wysocki T, Cassady JF Jr, Cancel D, Izenberg N. Validation of measures of parents' preoperative anxiety and anesthesia knowledge. Anesth Analg 1999; 88: 251-7.

Table 1: Reliability Test

	APAIS	Modified APAIS
Cronbach's α	.828	.860

Table 2: Comparison of anxiety scores among male and female patients

Sex		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8
Male	Mean	1.59	1.41	2.66	1.71	1.63	2.25	1.98	3.00
	N	56	56	56	56	56	56	56	56
	Std. Deviation	.890	.757	1.564	1.057	.964	1.254	1.198	1.595
Female	Mean	2.13	1.86	2.79	2.42	2.23	2.90	2.57	2.75
	N	84	84	84	84	84	84	84	84
	Std. Deviation	1.200	1.088	1.514	1.337	1.374	1.428	1.320	1.520
Total	Mean	1.91	1.68	2.74	2.14	1.99	2.64	2.34	2.85
	N	140	140	140	140	140	140	140	140
	Std. Deviation	1.116	.991	1.530	1.276	1.258	1.394	1.301	1.550
<i>p</i> value		.005	.009	.609	.001	.010	.007	.005	.379

Table 3: Comparison of anxiety scores among patients with previous history of extraction

History of Extraction		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8
Yes	Mean	1.72	1.52	2.65	1.83	1.75	2.27	2.10	2.59
	N	71	71	71	71	71	71	71	71
	Std. Deviation	.865	.734	1.503	1.159	1.143	1.264	1.255	1.573
No	Mean	2.12	1.84	2.83	2.45	2.23	3.03	2.58	3.12
	N	69	69	69	69	69	69	69	69
	Std. Deviation	1.301	1.184	1.562	1.323	1.330	1.424	1.311	1.491
Total	Mean	1.91	1.68	2.74	2.14	1.99	2.64	2.34	2.85
	N	140	140	140	140	140	140	140	140
	Std. Deviation	1.116	.991	1.530	1.276	1.258	1.394	1.301	1.550
<i>p</i> value		.143	.290	.451	.002	.009	.001	.021	.031

1. I am worried about the anesthetic	Not at all	1	2	3	4	5	Extremely
2. The anesthetic is on my mind continually		1	2	3	4	5	
3. I would like to know as much as possible about the anesthetic		1	2	3	4	5	
4. I am worried about the procedure		1	2	3	4	5	
5. The procedure is on my mind continually		1	2	3	4	5	
6. I would like to know as much as possible about the procedure		1	2	3	4	5	
<i>The subscales</i>							
Anesthesia-related anxiety Sum A = 1 + 2							
Surgery-related anxiety Sum S = 4 + 5							
Information desire component = 3 + 6							
Combined anxiety component Sum C = sum A + sum S (1 + 2 + 4 + 5)							

Figure 1: Amsterdam Preoperative Anxiety and Information Scale (APAIS)

1. I am worried about the anesthetic	Not at all	1	2	3	4	5	Extremely
2. The anesthetic is on my mind continually		1	2	3	4	5	
3. I would like to know as much as possible about the anesthetic		1	2	3	4	5	
4. I am worried about the injection		1	2	3	4	5	
5. The injection is on my mind continually		1	2	3	4	5	
6. I am worried about the procedure		1	2	3	4	5	
7. The procedure is on my mind continually		1	2	3	4	5	
8. I would like to know as much as possible about the procedure		1	2	3	4	5	
<i>The subscales</i>							
Anesthesia-related anxiety Sum A = 1 + 2							
Injection-related anxiety Sum I = 4 + 5							
Surgery-related anxiety Sum S = 6 + 7							
Information desire component = 3 + 8							
Combined anxiety component Sum C = sum A + sum I + sum S (1 + 2 + 4 + 5 + 6 + 7)							

Figure 2: Modified Amsterdam Preoperative Anxiety and Information Scale (M-APAIS)

Source of support: Nil, Conflict of interest: None Declared