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State of play of odontophobia in the urban commune of Toliara

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Abstract

Introduction: Dental anxiety is omnipresent in our society. “Fear of the dentist” often leads patients to let their teeth deteriorate rather than go to a dental office. The objective of this study was to evaluate odontophobia among dental consultants at University Hospital Toliara as well as associated factors

Methods: This is a prospective, analytical study carried out with dental consultants at Antanambao Toliara University Hospital. The Modified Dental Anxiety Scale (MDAS) was used to determine the presence of dental phobia.

Results: 96.92% of patients were included in the study, the age of the patients varied between 18 to 71 years, 39.68% were in the age group 18 to 25 years; 67.46% were of the feminine gender. The patients presented dental phobia in 39.68% of cases. Socio-professional status was associated with the occurrence of dental phobia ($p=0.008$). The anxiety-provoking factors observed were: anesthesia ($p=0.000$), fear of pain ($p=0.001$), noise from instruments ($p=0.003$), drilling ($p=0.04$), extraction dental ($p=0.000$) and view of instruments ($p=0.000$). A significant statistical difference was observed between avoidance of oral check-ups, avoidance of dental care, negative effects on oral health and the MDSA scale.

Conclusion: Odontophobia is a reality. Identifying patients as early as possible as well as knowing the factors associated with its occurrence could improve the quality of care in the dental environment.

Keywords: Screening; Epidemiology; Madagascar; Odontophobia

1 Introduction

In recent years, the world of dentistry has evolved enormously, both in the technical and relational fields. Despite these many improvements, oral treatments remain a dreaded ordeal. Dental fear or anxiety is an omnipresent clinical dental phenomenon in our society.

Indeed, dental anxiety affects approximately 36% of the population, and only 12% suffer from extreme dental fear [1]. This anxiety can have a serious impact on an individual's oral health and is considered a significant barrier to dental

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attendance [2]. Dental anxiety constitutes a public health problem, researchers suggest to pay special attention to these patients because of the consequences of anxiety on oral health [3]. In Madagascar, there is little data on this subject, to our knowledge no study has yet been made on this subject in the South-West region of Madagascar. The objective of this study was to evaluate dental phobia among consultants in the dentistry of the university hospital center (CHU) Antanambao Toliara.

2 Material and method

2.1 Study website

The survey took place at the University Hospital Center (CHU) Antanambao Toliara in the Stomatology Department. Antanambao University Hospital Tolira is the reference center in the South West region of Madagascar. Toliara is the capital of the southwestern region of Madagascar. It is 910 km from the capital of Madagascar at the end of the National Road n°7. It is bounded by the region of Menabe to the North, by Haute Matsiatra and Ihorombe to the East, by Androy to the South-East and the Mozambique Channel to the West.

2.2 Type of study

This is a prospective, analytical study, carried out with dentistry consultants at the Antanambao Toliara University Hospital. Corah scale modified version or MDAS (Modified Dental Anxiety Scale) was used to assess anxiety.

2.3 Inclusion and exclusion criteria

Were included in the study patients who came for consultations in the dental department and who were over or equal to 18 years old and who consented to the study. Patients who reported psychiatric comorbidities and who had difficulty answering the questionnaire were excluded from the study.

2.4 Sampling and mode of data collection

The sampling method was exhaustive. In total, the sample size was 126.

The data was collected from individual survey forms. The questionnaire consists of two parts. The first part is intended for the sociodemographic variables and the second part concerns the MDSA scale as well as the anxiety factors. The MDSA is an adaptation of the original Corah Dental Anxiety Scale (CDAS) and is a valid and reliable instrument. The MDAS consists of 5 questions to measure the degree of dental anxiety in 5 situations.

Responses range from “not anxious” to “extremely anxious.” The total score ranges from 5 to 25: while higher scores indicate severe anxiety.

- If the score is less than 13, the patient is not anxious
- If the score is between 13 to 19, we speak of a moderate anxiety disorder.
- If the score is greater than or equal to 19, we speak of a severe anxiety disorder or dental phobia.

In this study, the result was classified into two groups: presence of dental phobia (if the scale is greater than or equal to 19) and absence of dental phobia (if the scale is less than 19).

Data were analyzed using Statistical Package for Sociological Sciences (SPSS) for Windows, version 20.0. The data were considered significant for a value of $p < 0.05$.

3 Results

During the study period, 130 patients answered the questionnaires, 96.92% were retained for the study (i.e. $n=126$).

3.1 Sociodemographic variables

The average age is 30.34 years with an extreme age ranging from 18 to 57 years; 39.68% were in the age group of 18 to 25; 33.33% in the age group of 25 to 35 years old, 11.11% in the age group of 35 to 45 years old; 8.73% in the 45 to 55 age group; 7.14% were aged 60 and over; 67.46% of the study population were female with a sex ratio of 0.48; 23.01% worked in the tertiary sector; 37.33% were unemployed and 33.33% were students.

The patients came to the dental office for consultation by appointment in 60.31% and in emergency in 39.69%.

3.2 MDSA scale

According to the Corah scale, 39.68% presented with dental phobia or high dental anxiety (Table 1).

Table 1 Distribution of patients according to the MDSA scale

Settings	Effective n=126	Percentage %
MDSA scale \geq 19	50	39.68
MDSA scale<19	76	60.32
Total	126	100

3.3 Relationship between socio-demographic parameters and the MDSA scale

The socio-professional status was strongly correlated with the occurrence of dental phobia, in particular unemployment. (Table 2)

Table 2 Distribution of patients according to the relationship between socio-demographic parameters and the MDSA scale

Sociodemographic parameters	MDSA scale \geq 19 n (%)	MDSA scale \geq 19 n (%)	P
Gender			0.37
Male	14(11.1)	27(21.4)	
Feminine	36(28.6)	49(38.9)	
Age range			0.57
[18-25]	22(17.5)	28(22.2)	
[25-35]	15(11.9)	27(21.4)	
[35-45]	5(4.0)	9(7.1)	
[45-55]	6(4.8)	5(4.0)	
55 and over	2(1.6)	7(5.6)	
Socio-professional situation			0.008
Primary sector	0(0.0)	4(3.2)	
Secondary sector	0(0.0)	1(0.8)	
Tertiary sector	13(10.3)	16(12.7)	
Retired	1(0.8)	2(1.6)	
Unemployed	11(8.7)	36(28.6)	
Students	25(19.8)	17(13.5)	

3.4 Anxiogenic factors

Anxiogenic factors associated with the occurrence of dental phobia were: anesthesia (p=0.000), fear of pain (p=0.001), noise from instruments (p=0.003), milling (p=0.04), tooth extraction (p=0.000) and sight of instruments (p=0.000). (Table 3)

Table 3 Distribution of patients according to the relationship between anxiety-provoking factors and the MDSA scale

Anxiogenic factors	MDSA scale \geq 19 n(%)	MDSA scale \geq 19 n(%)	P
Anesthesia			
Weak	2(1.6)	9(7.1)	
Moderate	13(10.3)	11(8.7)	
Raised	30(23.8)	19(15.1)	0.000
Neutral	5(4.0)	37(29.4)	
fear of pain			
Weak	2(1.6)	7(5.6)	
Moderate	13(10.3)	15(11.9)	
Raised	27(21.4)	19(15.1)	0.001
Neutral	8(6.3)	35(27.8)	
Instrument noise			
Weak	10(7.9)	12(9.5)	
Moderate	23(18.3)	20(15.9)	
Raised	6(4.8)	3(2.4)	0.003
Neutral	11(8.7)	41(32.5)	
Scratching sensation during milling			
Weak	8(6.3)	7(5.6)	
Moderate	16(12.7)	13(10.3)	
Raised	6(4.8)	6(4.8)	0.04
Neutral	20(15.9)	50(39.7)	
Dental extraction			
Weak	3(2.4)	8(6.3)	
Moderate	6(4.8)	12(9.5)	
Raised	30(23.8)	17(13.5)	0.000
Neutral	11(8.7)	39(31.0)	
The view of the instruments in the dental office			
Weak	12(9.5)	7(5.6)	
Moderate	15(11.9)	22(17.5)	
Raised	17(13.5)	8(6.3)	0.000
Neutral	6(4.8)	39(31.0)	

3.5 Impact of dental anxiety on oral health

A significant statistical difference was observed between the avoidance of oral check-ups ($p=0.003$), avoidance of dental care ($p=0.009$), the consequences on oral health and the MDSA scale (Table 4).

Table 4 Relationship between the impact of dental anxiety on oral health and the MDSA scale

Impact of dental anxiety on oral health	MDSA scale ≥ 19 n (%)	MDSA scale ≥ 19 n(%)	P
Avoidance of oral check-ups			
No way	29(23.0)	67(53.2)	
A little	9(7.1)	5(4.0)	
Neither agree/not disagree	1(0.8)	1(0.8)	
OK	8(6.3)	2(1.6)	
Totally agree	3(2.4)	1(0.8)	0.003
Avoidance of dental care			
No way	31(24.6)	66(52.4)	
A little	2(1.6)	2(1.6)	
Neither agree/not disagree	0(0,0)	1(0.8)	
OK	5(4.0)	1(0.8)	
Totally agree	12(9.5)	6(4.8)	0.009
Adverse effect on oral health			
No way	28(22.2)	67(53.2)	
A little	8(6.3)	5(4.0)	
Neither agree/not disagree	1(0.8)	2(1.6)	
OK	2(1.6)	1(0.8)	
Totally agree	11(8.7)	1(0.8)	0.000

4 Discussion

Dental phobia is a very common pathology. In this study population, 39.68% of patients presented with high dental anxiety or dental phobia. In Lebanon (2019), Kassem et al. report a prevalence of 22.4% [4]. In Brazil (2001), Kanegane et al. report a rate of 28.2% [5]. In Australia (2006), Armfield - et al. mention a prevalence of 16.1% [6]. In India (2018), Jeddy et al. noted a rate of 64.2% [7]. In Madagascar (2022), in a study carried out in the province of Mahajanga, Randriamalala et al. found a rate of 4.8% [8]. The prevalence varies from one study to another. This disparity could be explained by the characteristic of the study population as well as the scale used to assess dental anxiety.

Concerning the risk factors influencing the occurrence of dental anxiety. Studies have reported that young age is positively correlated with the occurrence of dental anxiety [9-10]. On the other hand, in India, authors have reported that age does not influence the occurrence of dental anxiety [11]. In this study, the result was not significant.

Women are more prone to anxiety than men. A high prevalence of dental anxiety has been reported in women compared to men [12]. In this study, there is a female predominance in patients who presented a dental phobia but there was no significant statistical link. In the literature, the results are controversial. In Nigeria, Udoye et al. report that gender has no influence on the occurrence of dental anxiety [13]. In contrast, in Germany, Guentsch et al. reported a significant correlation between female gender and dental phobia ($p=0.02$) [14]. This difference could be partly due to social constructions. Women are more able to express their feelings of panic, fear of pain, stress and depression towards dental procedures compared to men [15]. Authors have mentioned that men are less able to admit their fear because of the role assigned to them by society [16-17].

A significant statistical difference was observed between the socio-professional situation and the occurrence of dental anxiety ($p = 0.008$). This result is in agreement with that of Peter et al. in a study conducted in Benin (2013), with $p=0.012$ [10].

As far as anxiety-provoking factors are concerned, anesthesia is one of the most feared cause during dental treatment. In this study, a significant difference was found between dental phobia and the degree of anxiety about the injection of anesthesia. This result agrees with that of Raciene, as well as Randriamalala et al. The authors report that anesthesia is a high risk factor for the occurrence of dental care phobia with $p=0.000$ [8, 18]. This could be explained by the sight of the needle and the pain caused by the injections. Authors confirm that the needle constitutes one of the main stimuli provoking fear in connection with dental care [19].

A negative dental experience can influence the occurrence of dental anxiety [20]. According to Skaret et al. a painful experience is a major risk factor for dental anxiety [21]. In this study, the fear of pain was positively correlated with the occurrence of dental phobia. People who have experienced pain during dental treatments are more likely to react as being in a painful situation again. Kent mentions a stronger association between remembered pain and expected pain than between remembered pain and pain experienced especially for patients who scored high on the Dental Anxiety Scale [22].

Authors report that the intensity of anxiety in the face of instrument noise is positively correlated with the occurrence of dental phobia [8, 23]. This finding was also reported in this study.

Therapeutic acts could constitute an anxiogenic factor. Syringe and rotary instruments are the most anxiety-inducing [24]. In this study population a significant statistical difference was observed between the sensation of scratching during the use of these rotary instruments and dental phobia. But Kleinknech et al. state that the sensation of the drill was ranked as the most frightening stimulus [25].

Concerning dental extraction, the results in the literature are controversial. Honkala et al. report a significant association between dental phobia and dental extraction [26]. On the other hand, other authors who have evaluated this factor have not found this link [27]. In this study a significant difference was observed.

The sight of the instruments could also be a risk factor. A positive correlation was found between the sight of instruments in the dental office and the occurrence of dental phobia. This result corroborates with that of Rajeev et al. in a study from India. The authors report a positive correlation between fear of dental care and the sight of instruments [28]. Cohen et al. in a study carried out in London also demonstrate that the sight of instruments increases anxiety [29].

Dental anxiety is a major factor in avoidance of dental care and neglect of oral health. Authors have observed that the frequency of consultations decreases when patients are anxious [30]. In this study population, a significant difference was found between the behavior of avoidance of oral check-ups, avoidance of dental care and dental phobia. Nicolas et al. report that dental phobia is a high risk factor for avoiding dental care and regular dental visits [31]. The relationship between dental anxiety and avoidance of dental care has been described as a vicious cycle [32]. Avoidance behavior is one of the common complications of dental anxiety that can lead to deterioration of dental health leading to pain due to poor oral conditions and accentuated dental anxiety during dental care. In this study, dental phobia has a significant negative impact on oral health. In the literature, several authors have affirmed this point. Gaffar et al. and Costa et al. reported that dental anxiety is closely related to deterioration of oral health [33-34].

5 Conclusion

Dental phobia is a major public health problem, not only because of its frequency but also because of its harmful consequences on oral health. Although our study is not representative of the Tulearaise population, the results have demonstrated that dental phobia is a reality. Several factors influence the occurrence of this disorder, namely anesthesia, pain and dental extraction. In order to adopt an appropriate, effective and adapted therapeutic approach to these patients, dentists must first identify these patients as well as the risk factors, in order to reduce the progression of this disorder.

Compliance with ethical standards

Acknowledgement

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Disclosure of conflict of interest

No conflict of interest to declare.

Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

Statement of informed consent

The study was carried out after heads of the oral consent of the respondents. Before the administration of the questionnaires, we explained the objective of the survey, insisting on the total respect of the confidentiality of the data in order to encourage the respondents to answer the questionnaire with honesty. All information collected on individuals was kept confidential, respect for anonymity was enforced by using codes for each file.

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