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Editorial:
Dental Fear and Anxiety – Why Do We Care?

The thought of visiting a dentist for preventive care or a procedure is often interpreted by the patient as a threatening stimulus, which evokes an emotion referred to as dental anxiety, while the reaction to this perceived threat is dental fear. Dental phobia on the other hand is persistent, unrealistic, and intense fear of a specific stimulus, leading to complete avoidance of the perceived danger. Overwhelming and irrational fear of dentistry associated with devastating feelings of hypertension, terror, trepidation, and unease is termed "odontophobia", and has been diagnosed under specific phobias according to the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV and the International Statistical Classification of Diseases and Related Health Problems (ICD)-10.

Dental fear and anxiety towards dental treatment and the dentist may lead to treatment avoidance. This may lead to late presentation to the dental office and the need for more complex and invasive dental treatment. These complex treatment procedures require more resources, more time at the dental office, frequent recalls and may further worsen the anxiety resulting in a vicious cycle. Additionally, treating an anxious patient is usually more stressful to the dentist and the required levels of cooperation is rarely achieved resulting in a strained Dentist-Patient relationship and possibility of unintended injury. The management of dental fear and anxiety must therefore be an essential component of the oral health care package or plan. However, this being the case most providers of oral health care are not so well equipped with all the necessary tools to diagnose and manage dental fear and anxiety.

Riaz et al conducted a study among the Asian Community in Nairobi, Kenya and reported in a section of this journal a dental phobia prevalence of 16%. They were also able to demonstrate a relationship between phobia and missed dental appointments. Dental anxiety is a global public health concern due to its impact on oral health related quality of life. The global prevalence ranges from 5 to 61% in children and 1 to 52% in adults, when participants with both moderate and high dental anxiety are considered. In the prevention of the cognitive, emotional, behavioral, and psychological impacts of dental fear and anxiety on the individual, the positive identification of dentally phobic patients is paramount. This then leads to change in management and treatment aimed at achieving a pleasant experience and successful oral health care in both the growing child and adult.

This contributes to reducing disease burden and prognosis of dental disease and conditions in the affected patients. While the measurement of dental anxiety includes both objective and subjective measurements, the dental environment may modify these measurements. Assessment should begin during the interaction with the front desk, and so does the management. Some of the management strategies include guided imagery, biofeedback, communication skills, rapport and trust building, distraction and acupuncture, psychotherapeutic management and cognitive therapy, hypnotherapy, enhancing control, systemic desensitization along with positive reinforcement among others. Lately there have also been advancements in restorative management with the aim of making the treatment experience better. Some schools of thought advocate for pharmacological interventions. The drawback of pharmacological interventions is that special expertise and equipment may be required, they are also costly and not all patients may fit into the eligibility criteria. Considering the setting in least developed countries the pharmacological management may be out of reach for most of the patients in the public sector.

However, in the private sector, the treatment options may be available depending on the payer/ health provider/ health insurance. One of the main advantages of using nonpharmacological techniques or psychological techniques is that although they are time consuming the level of cooperation achieved over time is usually greater than that achieved by using pharmacological techniques.

In conclusion therefore, all oral health practitioners should be re-trained on the diagnosis and management of dental fear and anxiety. The treatment strategies should also be built in the practical aspects of the training curriculum.

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An assessment of the behaviour management techniques used on paediatric dental patients by selected dentists in Nairobi

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Keywords: paediatric behaviour management techniques

Abstract

Objective: The objective of this study was to assess the behaviour management techniques (BMT) used on the paediatric dental patients by a selected group of dentists in Nairobi.
Methodology: 73 dentists selected via convenient sampling were questioned on their use of behaviour management techniques. Data was collected by means of a closed-ended questionnaire. Data was then analysed SPSS version 23.
Results: A total of 73 dentists participated in this study. 56.2% were males and 43.8 % were females. 53.4% were in private practice and 46.6% were in public practice. 82.2% were aware of universal guidelines on behaviour management. The most preferred BMT reported by 56.2% was the combination of non-pharmacological and pharmacological techniques. 94.5% used Tell-Show-Do and 82.2% used distraction during the treatment of a child. 78.1% concluded that the dental clinic environment played a role in BMT. 89% used positive reinforcement and 82.2% used euphemisms. 50.7% always allowed parents in the clinic during the procedure. 68.5% of dentists reported not to use hand-over-mouth and 61.6% used voice control. 46.6% reported that they used protective stabilization. 72.6% used sedation and 27.4% used General Anaesthesia. 77.8% of dentists had trained their staff on BMT.
Conclusion: Based on the findings of this study, it was concluded that the commonly used BMT were Tell-show-do, positive reinforcement and distraction.

Introduction

Dental anxiety in patients is the generalized state of uneasiness and negative thoughts of dental treatment. Dental fear is a normal reaction or response to a threatening dental stimulus. On the other hand, dental phobia is the severe form of dental anxiety where the patient avoids dental treatment or undergoes treatment while in a state of dread.[1] The aetiology of dental anxiety is complex and multifactorial and hence a variety of different reasons have been suggested. It could be triggered by the sight of needles, the sound of high-power dental drills and the dental setting in general.[2] Several BMT to deal with dental anxiety are known.

Behaviour management techniques (BMT) are approaches used by the dentist to achieve good communication with the child, eliminate any fears and anxiety within the child, attain positive interactions between the dentist, child and the parents, and enhance a positive attitude within the child towards dental treatment.[3]

Behaviour management techniques can be classified into pharmacological and non-pharmacological techniques. Pharmacological methods include sedation and general anaesthesia. Sedation entails use of pharmacological drugs to depress the central nervous system of the patient to reduce the awareness of the patient.

The non-pharmacological techniques can further be divided into non-aversive conditioning and aversive conditioning.[3] The aversive conditioning includes techniques such as hand-over-mouth (HOM), hand-over-mouth with airway restriction (HOMAR), patient immobilization or protective stabilization and separation of the child and the parents.

Parental separation in the dental clinic is like a two-sided coin when it comes to behaviour management for the paediatric dental patient. It could sometimes be beneficial in managing the child or sometimes it can hinder the child's management. In the United Kingdom, 80% of dentists allowed parents to accompany their children to the dental clinic[4].

Voice control is the act of modifying the volume, pace and tone of the voice in order to gain attention and cooperation from an uncooperative child. Walli et al.[5] reported that 30.5% of dentists modified their voice and tone to manage the child.

Hand-over-mouth technique is a restraining technique whereby the dentist puts his/her hand over the patients mouth and informs the patient that he/she will only remove the hand if the patient will stop crying and will cooperate. Walli et al.[5] showed that 12.5% of dentists' often put their hand over the mouth of a hysterical child to gain control of the situation.

This study aims at identifying the common behaviour management techniques in use by dentists practicing in Nairobi.

Methodology

The study was carried out in public and private dental clinics within Nairobi, the capital city of Kenya. The study involved 73 dentists using a degree of accuracy of 1.962, prevalence of 50% was assumed and confidence level of 0.5, the value attained is 384 for a population greater than 10,000 and since the population was less than 10000 the sample size was moderated and the minimal sample size calculated was 79 dentists. However, 73 dentists agreed to participate in the study which is 92.4% of the desired sample size.

A total of 73 dentists practising within Nairobi who gave informed consent were interviewed using self-administered questionnaires. Ethical approval of the study was sought and obtained from Kenyatta National Hospital/University of Nairobi –Ethics and Research Committee before commencement of the study Ref UP933/11/2019. No names were written on the questionnaires and the information obtained was treated with utmost confidentiality. The data collected was analysed using SPSS version 20.0

Results

A total of 73 dentists participated in the study. The ages of the dentists ranged between 24 to 54 years of age. Out of whom, 27(37.0%) were in the age range of 20-30 years, 23(31.5%) in the 30-40 years, 19(26%) in the 40-50 years and 4(5%) in the 50-60 years age group. (Figure 1)

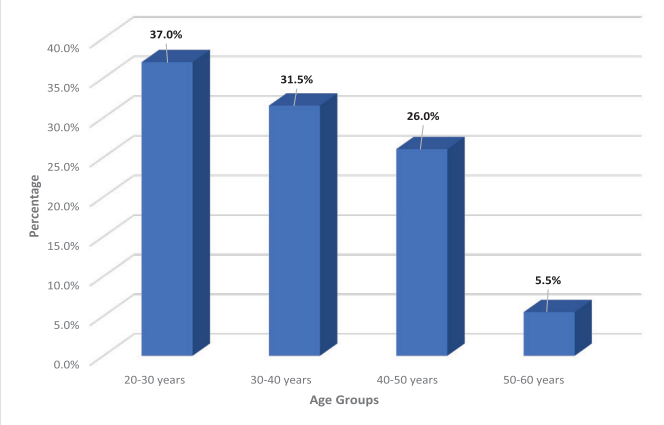


Figure 1: Distribution of participants by age groups

Most of the dentists interviewed, 47(64.4%), always took the responsibility of treating a child patient when needed.

With regards to parental separation, 37(50.7%) dentists preferred parents in the clinic while 15(20.6%) never allowed parents in the clinic while performing the procedure.

50(68.5%) dentists never put their hand over the mouth of the child as seen in figure 2.

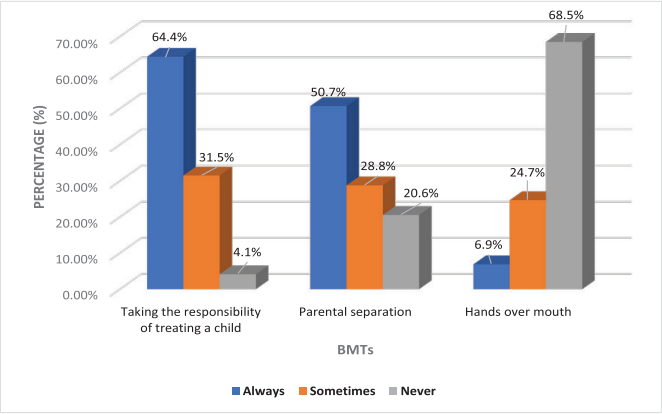


Figure 2: Responsibility of treating a child, parental separation and Hand-Over-Mouth

As indicated in table 1, many dentists, 39(53%), did not use any method of protective stabilization, whereas 34(47%) limited the movement of the child patient with the help of a parent or dental staff. None of the dentists 0(0%) were found to use passive restraints such as Papoose board or Pedi wrap.

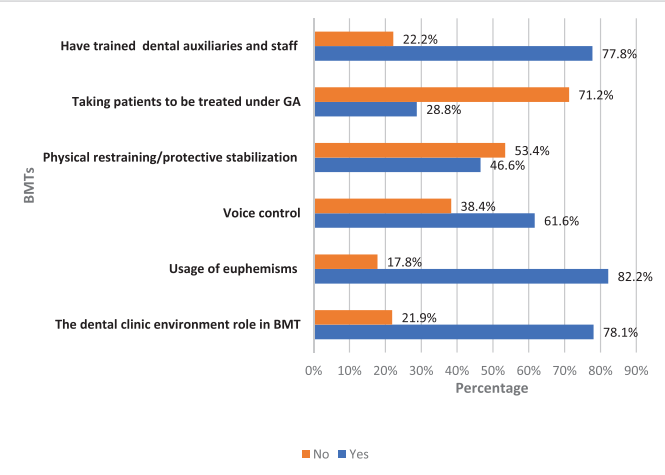
Table 1: Method of protective stabilization

Method of protective stabilization	Frequency (n)	Percentage (%)
Active physical restrains	34	47
Passive restraints such as Papoose board or Pedi wrap	0	0
No physical restrains	39	53
Total	73	100

Many of the dentists, 56(77.8%) had trained their staff on appropriate behaviour management techniques while 16(22.2%) had not. A minority, 21(28.8%) carried out the treatment under General Anaesthesia (GA).

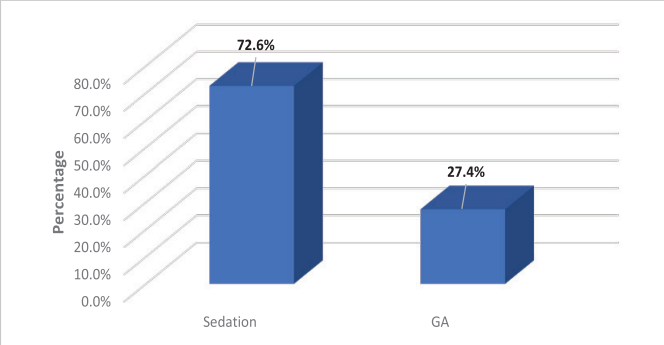
Most of the dentists, 45(61.6%) said that they used voice control while managing the patient. Majority, 60(82.2%) dentists said that they used euphemisms. Many dentists, 57(78.1%) said that the dental clinic environment had a role in behaviour management of the child patient (Figure 3).

Figure 3: Type of BMTs used



Majority of the dentists who used pharmacological methods, 53(72.6%), preferred the child to be treated under sedation whereas 20(27.4%) dentists preferred the child to be treated under General Anaesthesia as shown in figure 4.

Figure 4: Use of General Anaesthesia and sedation



Discussion

Information pertaining to the study was obtained from a total of 73 participants, who were all dentists. There were both male and female participants, 56.2% males and 43.8% females. The ratio of males to females was 1:1 which could be a reflection of Kenyan population where the ratio of males to females is 1:1 according to the World Data Atlas.[6] Most of the dentists in this study 68.5% were in the age range of 20-40 years, and only 5.5% in the 50-60 years old. A survey on the health task force in Kenya showed that 88% of dentists in Kenya are below 40 years of age and only 5.1% are above 60 years. [7]

A significant number of dentists in Nairobi, 64.4% reported that they always take the responsibility to treat the paediatric patient. This was a high number of dentists treating children without hesitation during their routine practise. This may be reflection of the training the dentists received in the undergraduate programme. This was also the case in Saudi Arabia where 85% of dental surgeons took the responsibility to treat paediatric dental patients which is very inspiring. [8] However, Wali et al.[5] concluded that only 38% of dentists in Pakistan took the responsibility to treat children. This could be explained by the lack of adequate skills and training in paediatric dentistry of the dentists interviewed.

Half the dentists (50%) who participated in this study reported that they always allowed the parents in the clinic while treating the child. This differs from the USA where 84% of the dentists allowed parents in the clinic while performing the procedure.[9] In comparison, in Pakistan, 89.5% of dentists allowed parents in the clinic.[5] Having parents in the clinic with their child during the procedure further helps in managing the behaviour of a child as the parent can comfort the child during treatment. One of the

sources of anxiety for a child is parental separation. Therefore, children tend to feel more relaxed when they know their parents are around rather than being all alone on the dental chair with all sorts of machines running and various instruments in their mouth.

A large number of dentists 68.5% reported that they never put their hand over the child's mouth while managing the child, this is probably due to the medico-legal issues that may arise with aversive techniques like Hand-over-mouth exercise (HOME) and also that parents do not accept the technique. Carr et al.9 showed that 90% of dentists do not use HOME and Hand-over-mouth-with-airway-restriction (HOMAR). Hand-over-mouth exercise is associated with professional controversy and poor parental acceptance the world over. [10]

46.6% of dentists reported to physically restrain an uncooperative child by limiting their movement using the help of the parent or dental staff. This is contrary to a study in the USA by McKnight-Hanes et al.[11] where only 3% of general dentists used the physical restraining method for behaviour management. This can be attributed to the lower occurrence of medico-legal issues with aversive techniques usage in public dental practice in Kenya compared to the more developed countries. Another explanation could be that there is a less use of other techniques like the pharmacological techniques to manage the uncooperative child in Kenya. In this study, no dentist reported use of passive restraints such as Pedi wrap or Papoose boards.

Conclusion

Based on the findings of this study, it was concluded that aversive techniques such as hand-over-mouth and protective stabilization were not popular among dentists in Nairobi.

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Oral Health Seeking Practices Amongst Dental Students.

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Keywords: oral health, practices, dental students

Abstract.

Objective: To investigate Oral health seeking practices amongst dental students.
Study design: Descriptive cross-sectional study
Methodology: A total of 73 dental students at the University of Nairobi Dental School who gave informed consent and met the inclusion criteria were interviewed using self-administered questionnaire (open ended and close ended questionnaires).
Results: A total of 73 dental students were recruited to the study. Their ages ranged between 18-20 years; 13(17.8%), 21-23years 37(50.7%) and 24-26years 23(21.7%) of whom, 30(41.1%) were male, 43(58.9%) were female a ratio of 1:1.4. Majority 63(86.3%) of the participants had been to a dentist before with most of them 20(13.7%) having gone within the last three months. 14(22.2%) had visited the dentist within the last six months, 10(15.9%) had their last dental visit more than six months ago but less than a year. Regarding regular dental visits, 7(11%) visit the dentist every six months, 19(30.2%) participants visit the dentist every six to twelve months, 10 (15.9%) normally visit the dentist after every twelve months. Main reasons for visiting the dentist was 17(37%) pain, and 27(58.7%) scheduled appointment.
In terms of work done, 8(13.3%) participants had had extractions done, 14(23.3%) had been to the dentist for simple fillings, 11(18.3%) had gone for scaling, 7(11.7%) had had oral prophylaxis done, 10(16.7%) of the participants had gone for checkups and consultation, 1(1.7%) of the participants had gone for X rays, 1(1.7%) had periodontal treatment done. With regards to missed dental appointments, the majority of the participants 32(50.8%) had missed a dental appointment. This excluded those who have never visited a dentist before. Reasons stated for missing dental appointments were 18(52.9%) due to lack of time, 6(17.6%) did not attend due to lack of pain, 3(8.8%) due to treatment cost being high 2(5.9%) due to fear of the dental needle, while 5(14.7%) were due to fear of the dental procedure to be undertaken. Majority of the participants 42(57.5%) had an existing dental problem that they had not sought treatment for.
Conclusion: Most of the students had existing dental problems that they have not sought treatment for. Many reported irregular dental visits and a significant number cited pain as the motivation to go visit a dentist.

Introduction.

Oral health seeking practice is the behaviour that encourages one to seek preventive dental care. There are various factors that affect oral health seeking practices. These include dental hygiene, cultural beliefs and demographic changes as well as socioeconomic status of the patient.1 Regular dental visits can prevent dental diseases and assist in detecting problems early and thus interventions are simpler and less invasive. Several dental illnesses are lifestyle-related and can be prevented. By avoiding dental visits, one is more likely to need more complex treatments when they finally attend. The patient will also be lacking in oral health education and awareness which increases likelihood of oral pathology. It is noteworthy that many of the lifestyle factors that lead to diabetes, obesity, heart disease, stroke and some cancers are similar to those that lead to dental disease. This points to the fact that dental disease should not be ignored thus oral health should be regarded as being just as important as general health.2 For example, dental diseases could lead to fatalities in instances where oral infections lead to cardiovascular events, mediastinitis, endocarditis and septicaemia. Therefore, individuals should be encouraged to regularly visit the dentist to avoid

severe disease, but some people have fear of visiting the dentist. For some people, increased levels of fear and anxiety culminates in a pattern of avoidance of visiting the dentist leading to substantial levels of suffering or improper functioning of the dentition. Dental phobia which mostly manifests as total avoidance of dental treatment is one of the major limitations. Individuals who have this exaggerated fear will go to extremes to evade dental treatment. Evasion of any and all types of dental treatment is detrimental to these individuals leading to poor health.[3]

Maubi et al, 2013, in Kenya showed that factors influencing oral treatment seeking practices include cost of treatment, symptoms, time factor, accessibility to dental facilities and fear of pain4. Other factors that greatly influence oral treatment seeking behaviour include education level, knowledge of oral diseases and severe symptoms. [4]

A study conducted in a Kenyan University shows that oral health seeking behaviour can be determined by assessing various practices. Such practices include frequency of visits, reason for the most recent visit to a dentist, treatment offered as well as the reason of absence of dental care.[5]

In Ouagadougou, the most common reason prompting patients to seek dental care services was caries with pulpal involvement, 60% of complaints were associated with pain. Patient dental care requirements were found to differ significantly according to gender, health insurance coverage and occupation.6 Research done in Ivory Coast revealed that 92.8% of patients only make appointments with dentists particularly when advanced lesions occur such as acute pulpal inflammation, abscess and cellulitis. Secondly, they inclined not to show up for their appointment when painful symptoms disappear. [7]

Dental students have the highest frequency of dental visits, majority of which were dental check-ups as illustrated by Mariam et al, 2009, in Kenya.[8] A similar study conducted among dental students showed that females had better oral hygiene practices, better oral health seeking practices and less parafunctional habits. Fourth year students also had better oral health seeking practices than preclinical students.[9] It may be concluded that knowledge, attitudes and practices related to oral health of female students were better than male students. Dental students had better attitudes, knowledge, and practices pertaining to oral health than medical and pharmacy students. Further, emphasis on the need to have oral health check-ups is generally necessary in undergraduate training for dental and medical students. This is to improve knowledge, attitudes and practices regarding oral health among students. Students in the health sciences are the future guides of dental, medical and pharmacy care and will act as role models for oral health education among their patients and communities.[10] In Kerala, India, a significant difference in the scores of oral health behaviour was found when dental students in preclinical and clinical years were compared. A substantial improvement in knowledge, attitude and health seeking behaviour was noted with advancement in years of study.[11]
The aim of this study was to investigate the oral health seeking practices among University of Nairobi dental students.

Materials and Methods.

The School of Dental Sciences is situated off Argwing's Kodhek road. It offers undergraduate training leading to the Bachelor of Dental Surgery degree and postgraduate training leading to the Master of Dental Surgery (MDS) degrees in Oral and Maxillofacial Surgery, Prosthetic and Conservative Dentistry, Paediatric and Orthodontic Dentistry and Periodontology. The school acts as a referral centre for patients from all parts of the country.

This study was conducted amongst undergraduate dental students studying at the University of Nairobi Dental School (UoNDS).

A convenient sampling design was used for those who met the inclusion criteria. The study involved 73 students using a degree of accuracy of 1.96 2,a prevalence of 50% was assumed and confidence level of 0.5, the value attained is 384 for a population greater than 10,000 and since the population was less than 10,000 the sample size was moderated and the minimal sample size calculated was 80 of which 73 was attained.

A total of 73 students studying at the UoNDS who gave informed consent were interviewed using self-administered questionnaires (open and close ended

questionnaires). The data collected was analysed using SPSS version 20.0.

A pre-test of data collection methodology was conducted on 10 students at the University of Nairobi Dental School. Adjustments were made where necessary to enhance reliability and validity of study findings. The principal investigator was calibrated by the second author to calculate inter-examiner reliability.

Ethical approval of the study was given by Kenyatta National Hospital/University of Nairobi Ethics and Research Committee before commencement of the study: Ref UP135/02/2019. Permission was obtained from relevant authorities from the School of Dental Sciences. The subjects were informed and interviews proceeded only after consent was obtained. No names were written on the questionnaires and the information obtained was treated with utmost confidentiality. Students were allowed to terminate their consent and withdraw if they wished to, without penalty.

Results

A total of 73 students participated in the study. The sample population constituted of University of Nairobi dental students from all academic years. The age range was from 18 to 25 years. Those aged 18-20 were 13 (17.8%), 21-23 were 37 (50.7%), and 24-26 were 23 (31.5%). (Fig 1)

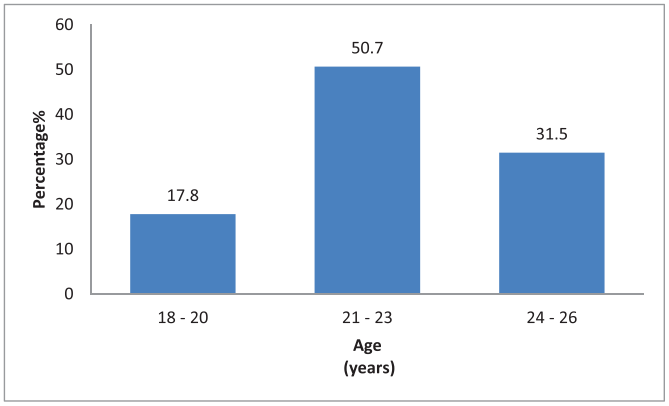


Figure 2: Distribution by age

Majority of the participants were female 43(58.9%) while the male participants were 30 (41.1%) as illustrated in Table1.

Table 1: Distribution by gender.

GENDER	FREQUENCY (n)	PERCENTAGE (%)
MALE	43	58.9
FEMALE	30	41.1

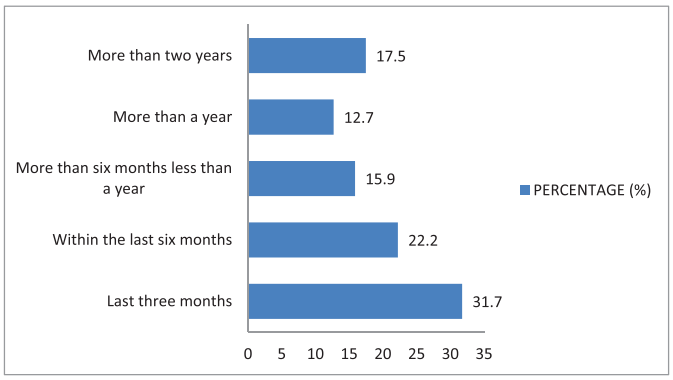
Table 2 shows that majority of the participants had visited a dentist before 63(86.3%) while 10 (13.7%) had never been to the dentist.

Table 2: Previous dental visit.

PREVIOUS DENTAL VISIT	FREQUENCY (n)	PERCENTAGE (%)
YES	63	86.3
NO	10	13.7
TOTAL	73	100

Out of the 63 participants who had visited a dentist, 20 (31.7%) had visited the dentist in the last three months. Fourteen 14 (22.2%) had visited the dentist within the last six months. Ten 10 (15.9%) had their last dental visit more than six months ago but less than a year. Eight 8 (12.7%) had last visited the dentist more than a year ago and 11(17.5%) had last visited a dentist more than two years ago as shown in Figure 2.

Table 3: Frequency of dental visit.



Twenty two 22 (30.1%) did not regularly visit the dentist while 7 (11%) visit the dentist every six months. A good proportion 19 (30.2%) visit the dentist every six to twelve months. (Table 3) Ten 10 (15.9%) visit the dentist after every twelve months with the remaining 5 (7.9%) frequent the dentist every two years.

Table 3: Frequency of dental visit.

FREQUENCY OF DENTAL VISIT	FREQUENCY (n)	PERCENTAGE (%)
Every six months	7	11.1
Six – Twelve months	19	30.2
After twelve months	10	15.9
Every two years	5	7.9
More than two years/not regular	22	34.9

Figure 3 shows that 23(37%) stated that their reason for their last dental visit was due to pain, 3(4.3%) visited the dentist due to pressure from family and friends. Thirty seven [37] (58.7%) visited the dentist due to a scheduled appointment.

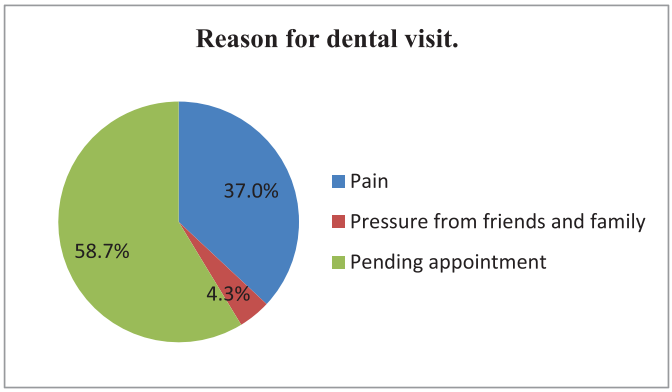


Figure 4: Reason for dental visit.

Eight [8] (13.3%) participants had had extractions done, 15 (23.3%) had been to the dentist for simple fillings. Twelve [12] (18.3%) had gone for scaling. Seven [7] (11.7%) had had oral prophylaxis done. Eleven [11] (16.7%) of the participants had gone for check-ups and consultation. One [1] (1.7%) of the participants had gone for radiographs, one [1] (1.7%) had periodontal treatment done and 8(13.3%) had orthodontic treatment (Table 4).

Table 4: Treatment done.

TREATMENT DONE	FREQUENCY (n)	PERCENTAGE (%)
EXTRACTION	8	12.7
FILLING	15	23.8
SCALING	12	19.1
ORAL PROPHYLAXIS	7	11.1
CHECKUP/ CONSULTATION	11	17.5
TAKING X-RAYS	1	1.6
PERIODONTAL TREATMENT	1	1.6
ORTHODONTIC TREATMENT	8	12.6
TOTAL	63	100

Majority of the participants 32(50.8%) have missed a dental appointment. This excludes those who had never visited a dentist before.

Two [2] (5.9%) of those who missed their dental visit stated that it was due to fear of the dental needle, whereas 3 (8.8%) did not attend their dental visit due to treatment cost being high. Seventeen [17] (52.9%) stated that the reason for not honouring the appointment was due to lack of time. Six [6] (17.6%) did not attend due to lack of pain and 4 (14.7%) did not keep the appointment due to fear of the impending dental procedure Figure 4).

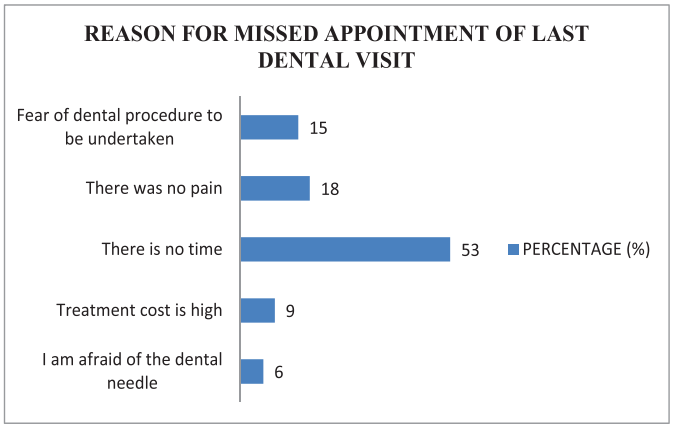


Figure 5: Reasons for not keeping the dental appointment of the last visit.

As indicated in Table 5, the majority of the participants have a an existing dental problem that they have not sought treatment for 42 (57.5%) whereas 31 (42.5%) did not have an existing dental problem.

Table 5: Existing dental problems.

EXISTING DENTAL PROBLEMS	FREQUENCY (n)	PERCENTAGE (%)
YES	42	57.5
NO	31	42.5
TOTAL	73	100

When questioned on dental fear, thirty one [31] (42.5%) fear the dentist and 42 (57.5%) do not fear the dentist.

Discussion.

The bulk of the participants were within the age group of 21-23 years (50.7%) this is most likely due to the target population being undergraduate dental students. The participants consisted mostly of female students 43 (58.9%) and the males were and 30(41.1%). The ratio of males to females was approximately 1:1 which could be a reflection of Kenyan population where the ratio of males to females is 1:1 according to the World Data Atlas.12 The majority of students had visited a dentist within the past three months. 37% due to pain. Only 16.1% had gone to the dentist for a routine dental check-up. This shows that a significant number of the participants visited the dentist for emergency treatment. These findings are similar to those of a study conducted in Belo Horizonte, Brazil where a significant number of dental students cited pain as the main reason for visiting a dentist.[13] This is also similar to a study by Al Kawas et al, 2010, [14] where just under 50% of dental students only visited the dentist when they had toothache.

A significant number of the participants 34.9% had taken over two(2) years to visit a dentist and the reason given by 53% of them was lack of time. This is in contrast to a similar study done in 2013 amongst dental students in University of Nairobi where the dental students regularly visited the dentist 9 and another by Kumar et al. 2017 which illustrated that most dental students believed that regular dental visits to the dentist were crucial to proper oral health care[10].

When asked if they feared the dentist, a larger percentage 57.5% reported that they did fear the dentist, which was in agreement with a study conducted in Jordan[15] where majority of the dental students reported having fear of dental procedures when they themselves were patients.

Nearly half of the participants 15(48.3%) who fear the dentist reported high levels of anxiety. Some of those who do not fear the dentist [7](16.7%) of them had high levels of anxiety before dental treatment. This is similar to a study done by Al Omari et al, 2009 15 which showed that only a few students have a high level of anxiety towards dental treatment. These results could be attributed to increased dental health knowledge as well as clinical exposure to dental procedures leading to fewer students being anxious about treatment. This is in agreement with another study done by Kumar et al, 2017 [10] where they showed that oral health knowledge and attitude is high amongst dental students because it forms a significant part of their curriculum and this positively influences their attitude and behaviour.

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Dental Phobia amongst the Kenyan Asian Population

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Keywords: dental phobia, Asian population, Kenya

Abstract

Objective: To investigate dental phobia amongst the Kenyan Asian population.
Study design: Descriptive cross-sectional study.
Study Area: A community-based centre known as Jaffery Islamic Centre, Nairobi.
Methodology: A total of 79 Kenyan residents of Asian descent at the Jaffery Islamic Centre who gave informed consent and fit the inclusion criteria were interviewed using self-administered questionnaire (open ended and close ended questionnaires). Dental anxiety was measured using the Modified Dental Anxiety Scale.
Results: A total of 79 participants were recruited for the study, of whom, 40(50.6%) were females, 39(49.4%) were males. The highest number of participants belonging to the 18-35 years age category 51(64.56%). Majority 71(89.9%) had been to a dentist before with most of them 25(35.2%) having visited for fillings or root canal treatment. The procedure associated with the most discomfort was fillings and root canal treatment 29(40.8%) followed by extraction of teeth 22(30.99%). Administration of an injection was found to be the major source of anxiety 45(16.4%). A number of participants 16(20.25%) had previously missed a dental appointment. Prevalence of dental phobia among the Kenyan Asian population was 16.46% with females reporting a higher incidence 9(22.5%) than males 4(10.3%). Age was inversely proportional to dental phobia, the highest prevalence being in 18-34 years (76.92%). The study showed that dental phobia led to missing dental appointments. 5(31.3%) who had missed an appointment were dental phobics (p=0.045).
Conclusion: The prevalence of dental phobia amongst the Kenyan Asian population was 16.46%. Age was inversely proportional with dental phobia. The study showed that dental phobia significantly led to missed dental appointments (p=0.045).

Introduction

Phobia is an irrational, severe fear that leads to avoidance of the feared situation, object or activity.[1] Dental phobia is the extreme fear of a dentist and dental procedures which may lead the phobic individual to completely avoid dental visits. Closely related to dental phobia, is "dental anxiety" which refers to the sense of uneasiness associated with dental visits.[2] The signs and symptoms of dental phobia usually include the avoidance of dental visits, sweating, tachycardia, feeling tense and having trouble sleeping the night before a dental visit, panicked state or having trouble breathing during a dental appointment is common.[2,3]

Dental phobia is recognized all over the world as a serious issue, with prevalence varying from 3-10% in a wide range of populations and cultures.4,5 The prevalence in the Asian population according to some studies was found to be 5.9-22.6%6,7, which is relatively higher when compared with the global scale.

Dental anxiety and phobia can sometimes be seen to arise during adulthood, although mostly it begins in childhood. Dental phobia can be caused by a variety of factors, including negative past dental experience (including traumatic experiences of family members and friends), improper perception of dental treatment methods and instruments, fear of pain, vulnerability associated with lying flat on a dental unit among others. Anxiety can also be evoked by sensory stimuli such as smell of dental materials, seeing needles and the sound of drilling.[3] Injections, as a way of administering local anaesthesia, are commonly the major causes of dental anxiety, and phobia. Many patients cannot

stand the sight of an approaching needle in their oral cavity. Several studies have confirmed this to be true.[8,9] In 2008, a survey of 127 patients visiting the University of Nairobi dental hospital showed that the injection was the greatest source of anxiety and also suggested that the vast majority (62.5%) of patients with dental phobia would only seek oral healthcare when in pain.[8] Culture has been reported to have an effect on the prevalence and development of dental phobia.[10] Studies have also shown that ethnicity as well as religion have a role to play in the expression of dental anxiety.[11,12]

In Mumbai, India, one study showed that there was a rise in overall prevalence of dental anxiety.[13] Another study carried out in South India suggests that the prevalence of Dental anxiety in the Indian population is higher compared to other Western countries.[4] Reasons for this can be attributed to ignorance about dental treatment procedures and superstitious beliefs about dental treatment. In addition, views from other members of the family have been shown to contribute to phobia, therefore any unpleasant experience of a family member can be reflected in another member's attitude.

The relationship between dental health status, phobia and avoidance of treatment is complex, because it includes a wide range of factors from socio-economic to psychosocial and environmental. Thus, leading to poor oral health, with more missing and decayed teeth as well as poor periodontal health. [3]

Material and methods

The study was conducted at a community based centre, The Jaffery Islamic centre which is situated on Naushad Merali drive, Lavington, Nairobi. The centre contains a mosque, school, library and sports ground established by Muslims of Asian heritage.
The subjects recruited were adults above the age of 18 residing in Kenya and of Asian descent. The subjects included Asians from a wide range of economic, occupational, religious and sector backgrounds visiting the centre for religious, social and recreational activities.

The study recruited 79 Kenyan Asians using a degree of accuracy of 1.962, prevalence of 51.5% was assumed and confidence level of 0.5, the value attained was 384 for a population greater than 10,000 and since the population is less than 10000 the sample size was moderated and the minimal sample size calculated and obtained was 79 participants.
Data was obtained from 79 Kenyan Asian adults using a structured, custom made, interviewer administered close-ended questionnaire. Dental phobia was assessed using the Modified dental anxiety scale (MDAS)[14]. The questionnaires were used by the interviewer to obtain information from the respondents. This allowed for any clarifications required by the respondents to be made immediately. Analysis of data was done using SPSS(Statistical package for social sciences) and Microsoft Excel..

A pretest of data collection was conducted on 10 subjects at the study area and all necessary adjustments were made to improve the reliability and validity of the study. The research was approved by KNH-UON ethics and research committee (ERC) (reference no. UP913/11/2019). Permission to carry out the study was also granted by the Dean, school of dental sciences and the relevant authorities at the Jaffery Islamic centre. Written informed consent was obtained from the participants. Information from the respondent was kept confidential. Only those who gave consent were included in the study. Subjects were at liberty to withdraw from participation in the study at any given point, without penalty.

Results

A total of seventy-nine participants were recruited into the study. The age of participants ranged from 19 to 79 years with a mean age of 34.05±14.97 and a median of 27. Those aged 18-34 years were 50 (63.29%), 35-51 years were 16 (20.25%), 52-68 years were 10(12.66%) and 69-85 years were 3(3.80%). (Fig 1) Majority of the participants 40 (50.63%) were females and 39 (49.37%) were males

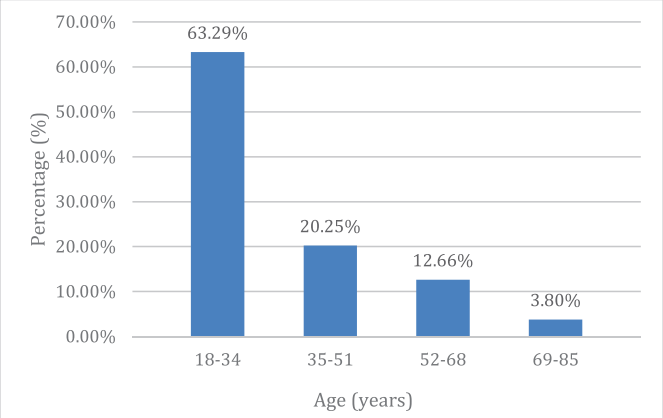

Figure 1: Age distribution of participants

From the 79 participants interviewed, 6 (7.59%) were found to be not anxious, most 22 (27.85%) had low anxiety, 21 (26.58%) were moderately anxious and 17 (21.52%) had high anxiety. The prevalence of dental phobia was 13(16.46%). The mean dental anxiety score was 13.06 (±5.46) (Figure 2).

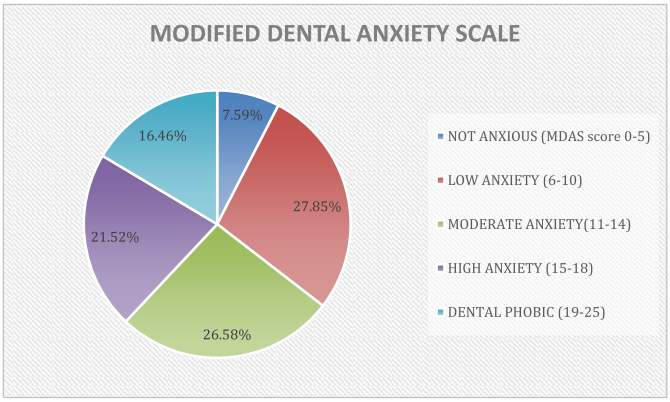

Figure 2: Modified dental anxiety score

Majority, 71 (89.87%) participants had visited a dentist before and 8 (10.13%) had never been to the dentist before. Most of the participants had not missed a dental appointment 63 (79.75%) with 16 (20.25%) having previously missed an appointment. Amongst those who had dental phobia most were in the age range of 18-34 years 10(76.92%), followed by those in the 35-51 age group (15.39%) and 52-68 years 1(7.69%). Age was inversely proportional to dental phobia, however this was not statistically significant ($\chi 2=16.93$, df=12, p=0.065) (Table 1).

Table 1: Dental phobia among Age groups

Age Group	LEVEL OF ANXIETY n(%)					Pearson Chi (χ^2) Test
	Not Anxious	Low Anxiety	Moderate Anxiety	High Anxiety	Dental Phobic	
18-34	3(50.00%)	9(40.91%)	15(71.43%)	13(76.48%)	10(76.92%)	
35-51	1(16.67%)	9(40.91%)	2(9.52%)	2(11.76%)	2(15.39%)	χ^2= 16.93 p=0.065
52-68	0(0.00%)	3(13.64%)	4(19.05%)	2(11.76%)	1(7.69%)	
69-85	2(33.33%)	1(4.54%)	0(0.00%)	0(0.00%)	0(0.00%)	
Total	**6(100.00%)**	**22(100.00%)**	**21(100.00%)**	**17(100.00%)**	**13(100.00%)**	

It was shown that the prevalence of dental phobia amongst females 9(22.50%) was higher than that of males 4(10.25%). This was not statistically significant ($\chi 2= 2.276$, df =4, p=0.704) (Table 2).

Table 2: Dental phobia among genders

Gender	LEVEL OF ANXIETY n(%)					Total	Pearson Chi (χ^2) Test
	Not Anxious	Low Anxiety	Moderate Anxiety	High Anxiety	Dental Phobic		
Male	3(7.69%)	12(30.77%)	11(28.21%)	9(23.08%)	4(10.25%)	39	χ^2=2.276 p=0.704
Female	3(7.50%)	10(25.00%)	10(25.00%)	8(20.00%)	9(22.50%)	40	
Total	**6(7.59%)**	**22(27.85%)**	**21(26.58%)**	**17(21.52%)**	**13(16.46%)**	**79**	

Of those who had previously visited a dentist, 12 (16.90%) had dental phobia. Only 1 (12.50%) of those who had not previously been to a dentist proved to have dental phobia, however this was not statistically significant ($\chi 2=3.693$, df=4, p=0.414).

Table 3: Dental phobia and previous dental experience

Previously visited a dentist	LEVEL OF ANXIETY n(%)					Total	Pearson Chi (χ^2) Test
	Not Anxious	Low Anxiety	Moderate Anxiety	High Anxiety	Dental Phobic		
Yes	6(8.45%)	21(29.58%)	19(26.76%)	13(18.31%)	12(16.90%)	71	χ^2=3.693 p=0.414
No	0(0.00%)	1(12.50%)	2(25.00%)	4(50.00%)	1(12.50%)	8	
Total	**6(7.59%)**	**22(27.85%)**	**21(26.58%)**	**17(21.52%)**	**13(16.46%)**	**79**	

From the group of those who had missed dental appointments, 5(31.25%) reported dental phobia, while those who had not missed any dental treatment 8(12.70%) reported dental phobia as shown in Table 4. This was found to be statistically significant ($\chi 2=8.965$, df=4, p=0.045).

Table 4: Dental phobia and missed dental appointments.

Missed dental appointment	LEVEL OF ANXIETY n(%)					Total	Pearson Chi (χ^2) Test
	Not Anxious	Low Anxiety	Moderate Anxiety	High Anxiety	Dental Phobic		
Yes	3(18.75%)	4(25.00%)	1(6.25%)	3(18.75%)	5(31.25%)	16	$\chi 2=8.965$ p=0.045
No	3(4.76%)	18(28.57%)	20(31.75%)	14(22.22%)	8(12.70%)	63	
Total	**6(7.59%)**	**22(27.85%)**	**21(26.58%)**	**17(21.52%)**	**13(16.46%)**	**79**	

Most of the participants, 45(16.42%) admitted that the dentist administering an injection was an important source of anxious feelings when visiting a dentist. Other important sources of anxiety reported were the dentist informing the patient that they will require an extraction 30(10.95%) and the noise of a dentist's drill 30(10.95%). Figure 3 highlights more sources of anxiety and their relative percentages.

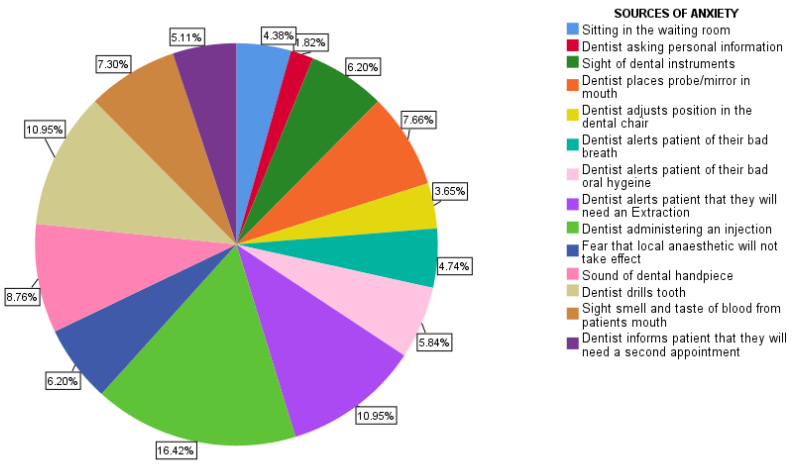

Figure 3: Sources of Anxiety in a dental clinic

Majority 49(69.01%) of the participants who had previously visited a dentist, felt they had been embarrassed by the dentist on matters concerning their oral health, while the other 22 (30.99%) did not feel the same.

Discussion

In this study, many of the participants were in the age group of 18-34 years 50(63.29%) with the median age being 27 years. The ratio of males to females was 1:1 which could be a reflection of Kenya's population according to a worldwide database by the American Library association15. In contrast, the median age of Kenyans according to this database was 19 years whereas in this study it was 27 years. This difference could be attributed to the fact that older individuals are more inclined to participate in religious activities.

A vast majority of the participants 71(89.87%) had visited a dentist before. This is similar to a study conducted by Devaraj et al, 2012, where a higher percentage (67.78%) of people had also previously visited dentists[16].

The prevalence of dental phobia among the Kenyan Asian population was found to be 16.46%. A local study by Gichu et al, 2017, reported only 3.9% had a high level of anxiety17. This could be attributed to the difference in the study populations. The latter study looked at parents accompanying their children to the dental clinic while the current study investigated Asian adults randomly visiting a religious centre. An Indian study7 of 340 patients noted that 22.6% of subjects were dental phobics. These results were similar to the findings of the current study.

When age of the subjects was investigated, age had an inverse relationship with dental phobia in the Kenyan Asian population, such that the highest prevalence of dental phobia was reported amongst those 18-35 years of age (76.92%). This illustrates that younger people have higher levels of dental anxiety presumably due to having had less exposure and knowledge of dental procedures. Females reported higher levels of dental phobia (22.5%) than the male counterparts (10.25%). This finding is also reported in another local study, where the greatest prevalence of anxiety was seen in participants below 30 years of age (5%). Similarly, females were found to be more anxious (4.8%) than males (1.8%)17. An Indian study also showed that the mean anxiety score reduced with age and was higher in females as compared to males[7].

A minority (12.50%) of those who had not previously been to a dentist were shown to have dental phobia. Gichu et al. also showed that amongst those who had never visited a dentist before, only 1.1% presented with high levels of anxiety17. In the present study, 31.25% of participants who had missed a dental visit reported to have dental phobia which was a significant finding ($\chi 2=8.965$, $p=0.045$). This is similar to an Indian study which showed higher levels of anxiety in those who missed dental appointments[6].

Conclusion

The prevalence of dental phobia amongst the Kenyan Asian population was 16.46%. Age was inversely related to dental phobia and females had a higher prevalence of dental anxiety however, this was not statistically significant.

The study showed that dental phobia led to missing dental appointments and this relationship was found to be statistically significant by Pearson Chi test ($p=0.045$), suggesting a positive association between dental phobia and avoidance of dental treatment.

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INFORMATION FOR CONTRIBUTORS

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World Health Organization. World Health Report (Online) 2005. URL: http://www.whot.int/whr/2005/r; accessed on 05.06.05.Editorial

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