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Dental Anxiety among Dental Students at the University of Nairobi Dental School, Kenya

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Abstract:

Objective: To investigate dental anxiety among University of Nairobi dental students. Study Design: Descriptive cross-sectional study. Study Area: University of Nairobi Dental School.

Methodology: A total of 73 students who study at the UONDS 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 73 dental students were involved in the study, their ages ranged between 18-20 years 13(17.8%), 21-23 years 37(50.7%) and 24-26 years 23(21.7%) of whom, 30(41.1%) were male, 43(58.9%) were female. Majority of the students, 63(86.3%) had been to a dentist before. Incidence of high dental anxiety among the dental students was 30% with 13(30%) and 9 (30.2%) females and males respectively reporting high levels of level anxiety. Half of the participants, 32(50.8%) had missed a dental appointment and out of those, 10(31.2%) had high levels of anxiety. 42(57.5%) participants had reported existing dental problems, 11(26.2%) of them reported high anxiety. 31(42.5%) students fear the dentist and of those, nearly half, 15(48.4%) reported high levels of anxiety

The main reason cited for motivating the students to visit a dentist was pending appointment 27(58.7%) followed by pain 17(37%) and 2(4.3%) visited the dentist due to pressure from family and friends.

Conclusion: The prevalence of dental anxiety amongst university of Nairobi undergraduate dental students was 30%. There was no relationship between level of anxiety and age or gender. However, there was a positive relationship between dental anxiety and self-perception of the fear of the dentist. Though there was no statistical significance those with missed dental anxiety seemed to have high dental anxiety. Most of the students have existing dental problems that they have not sought treatment with most of them reporting irregular dental visits and a significant number citing pain as the motivation to go visit a dentist. This may suggest that dental treatment is only sought in the emergency stages of the disease.

Keywords: Dental students, dental anxiety, university of Nairobi dental school

1. Introduction

Phobia is defined as an exaggerated, commonly incomprehensible and irrational fear of a specific object or situation.¹ Dental phobia is commonly defined as an extreme fear of seeking and receiving dental care from dentists. There are various causes of dental phobia. It may be attributed to earlier dental experience especially during childhood that they perceived as negative or traumatic. This may cause one to associate the psychological and emotional stress with the procedure that caused it leading to total avoidance of that activity. It may also be brought about by traumatic experiences and negative experiences from anxious family members or peers. A lack of understanding of procedures and equipment is also a cause of dental phobia and so is the fear of the unknown. Some may attribute it to lying in a vulnerable position on the dental chair as a source of fear and pain among others. It has been observed that dental phobia can be triggered by certain stimuli for example sights of needles, sounds of drilling and smells of various dental materials.²

Dental phobia is a global problem and a significant one as well having been ranked fifth amongst the most common fear³ with studies indicating prevalence of 8-10%.⁴ A Kenyan study showed that more than 50% of the

participants, majority of who were female, feared dentists with more than 60% visiting a dentist only when in severe pain (62.5%) of those who failed to attend dental appointments feared dental visits). Other reasons of failure to attend to dental appointments included lack of funds and fear of dental treatment. The study found that the dental treatment of which was most disliked treatment was extractions primarily due to a painful experience.⁵

Maggirias et al. studied the relationship between negative dental experiences and dental anxiety among adult patients seeking dental treatment with the findings indicating that 71% of the patients had had painful experiences, 23% had frightening encounters, and 9% were met with embarrassing situations this also illustrated the extent of which dental pain contributes to a negative experience.⁶

University students training to become health professionals are not exempt from effects of dental phobia in addition to the general adult population. A Kenyan study showed that most undergraduates from the University of Nairobi failed to seek dental treatment due to the fear that the treatment would be painful and or uncomfortable.⁷ This compared to a study conducted in India among undergraduate students showed that Medical students displayed high dental anxiety followed by nursing students. Dental students recorded the least dental anxiety scores.⁸ Sghaireen et al. in Saudi Arabia showed that when compared to their medical colleagues, dental students were considerably less anxious.⁹ Al Omari et al. conducted a similar study but of students at the university students undertaking different courses. The results were consistent with the previous studies which concluded dental students generally experience the lowest levels of anxiety. This is indicative that knowledge of dental health is linked to dental anxiety. High levels of fear and anxiety are a consequence of lack of proper knowledge on dental health and often lead to uncompliant and uncooperative patients.¹⁰ In a study done by Peretz et al., dental students are shown to have greater levels of anxiety at the initial stages of training compared to those at the end of their training further augmenting the fact that awareness and knowledge positively affects dental anxiety.¹¹ Negra et al., conducted a study among Brazilian dental students, which showed that 27.5% of training dental students reported fear a certain level of fear in instances where they are the dental patients.¹² Similarly, another study conducted in Saudi Arabia found that dental students had significantly higher scores in cancelling appointments as a consequence of them being dental patients, majority of them being female.¹³

Serra et al. conducted a study among dental students in Brazil which showed that dental phobia had a prevalence of 27.5, most of whom was due to negative dental experiences in childhood.¹²

2. Materials and Methods

2.1. Study Area

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, Periodontology, Prosthetic dentistry and Paediatric dentistry. Together with three other clinical departments, the school acts as a referral center for patients from all parts of the country. This study was conducted among undergraduate dental students studying at the University of Nairobi Dental School. Convenient sampling was used for all students who met the inclusion criteria.

The study involved 73 dental students using a degree of accuracy of 1.96%, 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 population was less than 10000 the sample size was moderated and the minimal sample size calculated was 80 participants of who 73 were attained.

3. Data Collection and Analysis

A total of 73 students who study at the UONDS who gave informed consent were interviewed using self-administered questionnaire (open ended and close ended questionnaires). Dental anxiety was measured using Modified Dental Anxiety Scale which divides the participants into two categories of high and low anxiety. The data collected was entered into a computer and analyzed using SPSS version 20.0. The information obtained was presented using descriptive and analytical statistics. Graphs, tables and pie charts were used to illustrate the data in diagrammatic format.

4. Reliability and Validity of Instruments

A pretest of data collection was conducted on ten subjects 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 supervisors to calculate inter examiner reliability.

4.1. Ethical Considerations

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 UP135/02/2019. Permission was obtained from relevant authorities from School of Dental Sciences. The subjects were informed and proceeded only when 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 do so, without penalty.

5. Results

5.1. SocioDemographic Data

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)

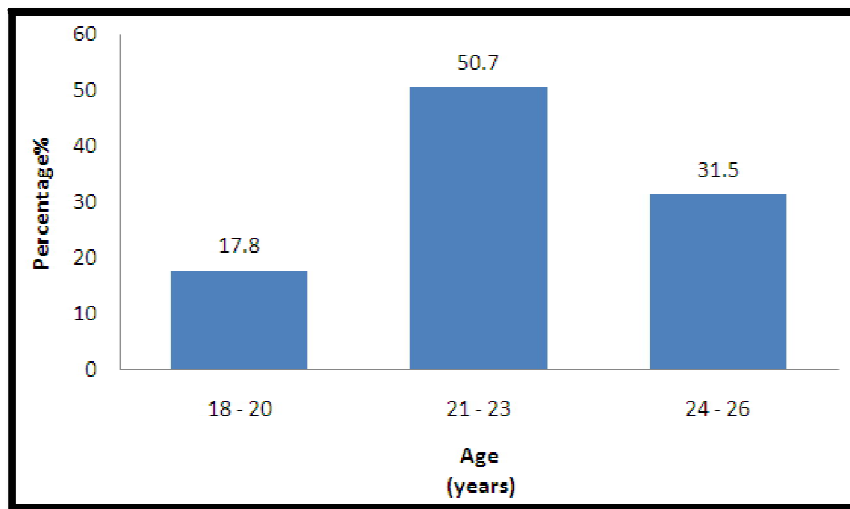


Figure 1: Distribution by Age

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

Gender	Frequency (N)	Percentage (%)
FEMALE	43	58.9
MALE	30	41.1

Table 1: Distribution by gender

5.2. Modified Dental Anxiety Score

Out of the 73 students interviewed, 22 (30%) had high anxiety and 51 (70%) had low anxiety as seen in Figure 2.

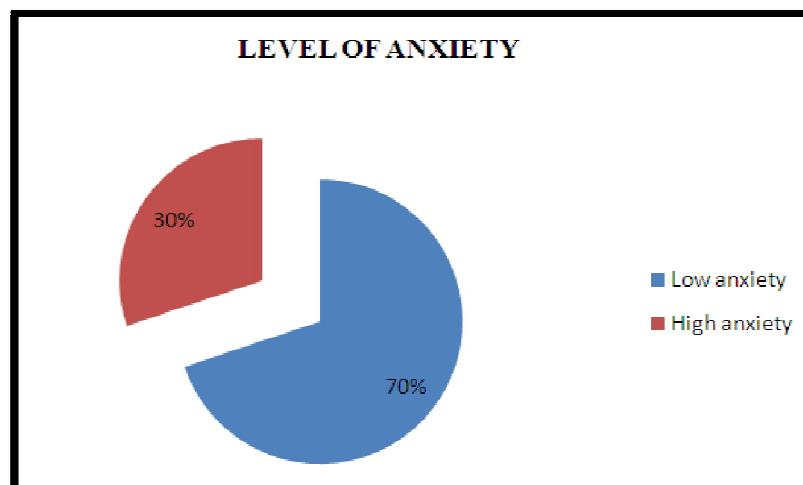


Figure 2: Level of Anxiety

5.3. Level of Anxiety and Sociodemographic Variables

The highest number of those with high anxiety fell within the age range of 21-23 years 14(37.9%) those within the 18-20 year age group had 3 (23.1%) with high levels and anxiety compared to those within the age range of 24 – 26 years 5(21.7%) having high anxiety levels, however this was not statistically significant ($\chi^2=2.87$, $df=2$, $p=0.346$). (Table 2)

Age (Years)	Level of Anxiety n (%)		Total n(%)	Pearson CHI (χ ²) TEST
	Low Anxiety	High Anxiety		
18 – 20	10 (76.9)	3 (23.1)	13 (17.8)	χ ² = 2.87 p=0.346
21 – 23	23(62.1)	14 (37.9)	37(50.7)	
24 – 26	18 (78.3)	5 (21.7)	23(31.5)	
TOTAL	51(69.9)	22(30.1)	73(100)	

Table 2: Level of Anxiety and Age

Majority of those with the high level of dental anxiety were female 13(30%) and the male participants were 9(30.2%). This was not statistically significant (χ²= 0.00, df =1, p=0.983) (Table 3)

Gender	Level of Anxiety N (%)		Total N(%)	Pearson Chi (χ ²) Test
	LOW ANXIETY	HIGH ANXIETY		
MALE	21 (70)	9 (30)	30(41.1)	χ ² = 2 p=0.983
FEMALE	30 (69.8)	13 (30.2)	43(58.9)	
TOTAL	51(69.9)	22(30.1)	73(100)	

Table 3: Level of Anxiety and Gender

6. Reason for Dental Visit

Figure 3 shows that 17 (37%) stated that their reason for their last dental visit was due to pain, 2(4.3%) visited the dentist due to pressure from family and friends. 27 (58.7%) visited the dentist due to a pending appointment.

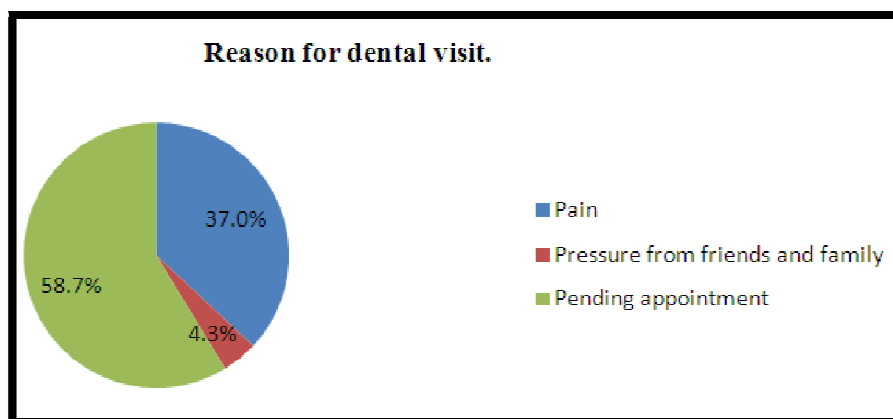


Figure 3: Reason for Dental Visit

7. Previous Dental Visit

Table 4 shows that majority of the participants had visited a dentist before 63(86.3%) while 10 (13.7%) had never been to the dentist before.

Previous Dental Visit	Frequency (N)	Percentage (%)
Yes	63	86.3
No	10	13.7
Total	73	100

Table 4: Previous dental visit

8. Missed Dental Appointment

Table 5 illustrates that majority of the participants 32(50.8%) had missed a dental appointment with 31(42.5%) had not missed a dental appointment. This excludes those who have never visited a dentist before.

Missed Dental Appointment	Frequency (N)	Percentage (%)
YES	32	50.8
NO	31	42.5

Table 5: Missed Dental Appointment

8.1. Level of Anxiety and Missed Dental Appointments

Of those who had missed dental treatments only 10(31.2%) reported high levels of anxiety. Those who had not missed any dental treatment 26(83.9%) reported low anxiety as shown in Table 6. This however is not statistically significant ($\chi^2=1.985$, $df=1$, $p=0.159$).

Missed Dental Treatment	Level of Anxiety N (%)		Total N(%)	Pearson Chi (χ^2) Test
	Low Anxiety	High Anxiety		
YES	22 (68.8)	10 (31.2)	32(51)	$\chi^2=1.985$ $p=0.159$
NO	26 (83.9)	5 (16.1)	31(49)	
TOTAL	48 (76.2)	15 (23.8)	63(100)	

Table 6: Level of Anxiety and Missed Dental Treatment

8.2. Existing Dental Problem Not Sought Treatment For

As indicated in Table 7, Majority of the participants have a dental problem they have not sought treatment for an existing dental problem 42 (57.5%) and 31 (42.5%) did not have an existing dental problem that they had not sought treatment for.

Existing Dental Problems	Frequency (N)	Percentage (%)
Yes	42	57.5
No	31	42.5

Table 7: Existing Dental Problems

8.3. Level of Anxiety and Existing Dental Problems

Out of those who had existing dental problems, 11(26.2%) had high levels of anxiety and those who did not have existing dental problems with 11(35.5%) reporting high levels of anxiety. ($\chi^2=0.738$, $df=1$, $p=0.392$) This was not statistically significant.

Existing Dental Problems	Level of Anxiety N (%)		Total N(%)	Pearson CHI (χ^2) Test
	Low Anxiety	High Anxiety		
YES	31 (73.8)	11 (26.2)	42 (57.5)	$\chi^2=0.732$ $p=0.392$
NO	20 (64.5)	11 (35.5)	31 (42.5)	
TOTAL	51 (69.9)	22(30.1)	73 (100)	

Table 8: Level of Anxiety and Existing Dental Problems

8.4. Fear of Dentist

31 (42.5%) fear the dentist and 42 (57.5%) do not fear the dentist (Table 9).

Fear Of Dentist	Frequency (N)	Percentage (%)
YES	31	42.5
NO	42	57.5

Table 9: Fear of the Dentist

8.5. Level of Anxiety and Fear of Dentist

Nearly half of the participants 15(48.4%) that fear the dentist reported high levels of anxiety and 7(16.7%) had high levels of anxiety out of those who do not fear the dentist. This was statistically significant ($\chi^2=8.524$, $df=1$, $p=0.04$).

Fear Of Dentist	Level Of Anxiety N (%)		Total N(%)	Pearson CHI (χ^2) Test
	LOW ANXIETY	HIGH ANXIETY		
YES	16 (51.6)	15 (48.4)	31 (42.5)	$\chi^2=8.542$ $p=0.04$
NO	35(83.3)	7 (16.7)	42 (57.5)	
TOTAL	51 (69.9)	22 (30.1)	73 (100)	

Table 10: Level of Anxiety and Fear of the Dentist

9. Discussion

The bulk of the participants fall within the age group of 21-23 years (50.7%) this could be due to the study being in a dental school targeting undergraduate dental students. The participants consisted mostly of female students and the males were 43 (58.9%) and 30(41.1%) respectively. 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.¹⁴ When asked if they fear the dentist, a larger percentage 57.5% reported that they did fear the dentist, which was in agreement with a study conducted in Jordan¹⁶ where majority of the dental students reported having a fear of dental procedures when they themselves were patients. High levels of anxiety were reported in the study by 30% of the participants. Similar results are seen in a Brazilian study¹² where less than half of the participants generally had high anxiety levels. This could imply that awareness and increased dental knowledge plays a major role in anxiety levels of students being low. This coincides with a study done by Kirova et al where a significantly larger percentage of dental students reported low levels of dental anxiety.¹

Higher levels of anxiety were reported among those within 21-23 years of age where 14(37.9%) illustrating that younger students have higher levels of dental anxiety presumably due to less exposure and knowledge of dental procedures. This was also demonstrated by Thomson et al. where age had an inverse relationship with level of anxiety.¹⁶ In the current study, more females reported higher levels of anxiety 13(30%) than their male counterparts. A similar trend was found in Madrid where dental anxiety was higher among the female participants.¹⁷

In regards to missed dental visits, only 5% participants reported high anxiety levels. Similar findings were reported by Drachev et al.¹² where those who were more adherent to their dental visits had a lower dental anxiety score. The current study differs from a Jordanian study which illustrated that missed dental visits played a major role in higher levels of anxiety. The major reason in this study reported, was lack of time to attend dental appointments. 37% had reported pain as the reason for their last dental visit. This shows that a significant number of the participants visited the dentist due to emergencies. This is similar to a study conducted in Belo Horizonte, Brazil where a significant number of dental students cited pain as the causative factor of visiting a dentist.¹²

73.8% of the participants who had existing dental problems reported low anxiety which does not agree with a study in Turkey where those with existing dental problems tended to be patients who were highly anxious. This may be due to increased knowledge of dental procedures in developed countries and therefore higher anxiety in anticipation of the dental procedures to be undertaken.¹⁹

Less than half 42.5%, feared dentists and out of those, 48.4% had high levels of anxiety. This coincides with a study conducted by Al Omari et al.¹⁰ whose study also found that less of the students participating had high levels of anxiety in relation to perception of the dentist. These results could be attributed to increased dental health knowledge. More clinical exposure may also be the reason less students are anxious as they are trained to be dentists they tend to fear one less.

10. Conclusion

The prevalence of dental anxiety amongst university of Nairobi undergraduate dental students was 30%. There was no relationship between level of anxiety and age or gender. However, there was a positive relationship between dental anxiety and self-perception of the fear of the dentist. Though there was no statistical significance those with missed dental anxiety seemed to have high dental anxiety. Most of the students have existing dental problems that they have not sought treatment with most of them reporting irregular dental visits and a significant number citing pain as the motivation to go visit a dentist. This may suggest that dental treatment is only sought in the emergency stages of the disease.

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