Research Article **IJDRR (2022) 5:51**

International Journal of Dental Research and Reviews
(ISSN:2637-3750)

Magnitude Of Dental Anxiety And Associated Factors Among Outpatient Dental Clinics Of Ayder Comprehensive Specialized Hospital And Mekelle General Hospital, Northern Ethiopia

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ABSTRACT

Background: Dental anxiety has been reported to lead to avoidance behavior and cause a delay in regular or necessary dental treatment and this also negatively affects dental health. However, the problem remained rarely investigated in our setting and at the national level. This study aims to assess the prevalence of dental anxiety and associated factors among dental clinics of Ayder comprehensive specialized hospital and Mekelle hospital. Objectives: To assess the magnitude of dental anxiety and associated factors among dental clinics of Ayder comprehensive specialized hospital and Mekelle hospital, Mekelle, Tigrai, Northern Ethiopia, 2019. Methods: An Institutional based cross-sectional study design was conducted to assess the prevalence of dental anxiety. The study was conducted from September 2019 to November 2019 on a total sample size of 236. A systematic random sampling technique was used to select participants. A Farsi version of the MDAS questionnaire was used to collect the data. The data collected was entered into a computer for analysis mainly using Statistical Package for Social Sciences (SPSS) for version 21. Then, data were coded, cleaned and some consistency checks were made to assess the quality. It was done by running frequencies and cross-tabulation among various reported cases or variables. Result: Females were 1.89 times AOR=1.896, 95% CI, [1.003-3.585] higher than males to develop dental anxiety. Urban residents were 2.57 times AOR= 2.576, 95% CI, [1.060-6.259] higher to develop dental anxiety than those who reside in rural. Regarding avoidance of dental care, those who avoid dental care were 5.77 times AOR=5.768, 95% CI, [2.107-15.79] higher to develop dental anxiety than those who don't avoid dental care. In respect of pain, patients who have experienced pain during the recent visit were 2.75 times higher AOR= 2.747, 95% CI, [1.101-6.854] higher to develop dental anxiety than those who didn't experience pain. Conclusion: The magnitude of dental anxiety among patients visiting Ayder Comprehensive Specialized Hospital and Mekelle General Hospital is high as 53.8% in the study. Sex of the respondent, residence, pain during a recent visit, and avoidance of dental care was found to be significantly associated with dental anxiety, which could become a barrier to receiving adequate dental care and improving the oral health of those who suffer from it.

Keywords: Dental Anxiety, Magnitude, outpatient dental clinics

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How to cite this article:
Firaol Mesfin Ayele, Lidya Tadesse. Magnitude Of Dental Anxiety And Associated Factors Among Outpatient Dental Clinics Of Ayder Comprehensive Specialized Hospital And Mekelle General Hospital, Northern Ethiopia. International Journal of Dental Research and Reviews, 2022, 5:51.

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Website: https://escipub.com/

1. INTRODUCTION

Anxiety is often expressed as an imaginary threat to a vague, unpleasant feeling accompanied by the premonition that something undesirable is going to happen. It can also be described as a reaction to a perceived danger that is known to the individual and is often characterized by feelings of tension, worried thoughts, apprehension, and physical changes like increased blood pressure, nausea, and palpitation, etc. On the other hand, anxiety is a biological response and a reaction to a known danger or threat. [1,2,3].

Dental anxiety refers to a patient's Specific reaction toward stress associated with dental treatment in which the Stimulus is unknown, vaguer not Present at the moment. In another way, Dental anxiety can be defined as an emotion and a major complication that is prevalent worldwide and cannot be limited to a particular country or population. It is a stress that is created in response to dental treatment where the precipitating stimuli could range from a specific cause to something vague or could be for no particular reason [4,5].

In dental practice, one of the most stressful challenges that face the dental team is the treatment of dentally anxious patients. These patients often manifest their anxiety in the form of disruptive behavior during the dental visit [6].

Dental anxiety partially limits, or completely prevents, utilization of oral health care services. It increases the prevalence of the dental disease. Anxious persons present more damaged or missing teeth and less restored teeth. Regular care is bypassed by dentally anxious persons, who rely on self-care, use of emergency services, and occasionally use of traditional or parallel remedies to relieve pain. The oral health and quality of life of this population are affected [7,8,9].

Dental anxiety has been reported to lead to avoidance behavior and cause a delay in regular or necessary dental treatment and this also negatively affects dental health. The prevalence and consequences of dental anxiety have been explored and its impact on dental health status has been reported previously in different countries. There is a psychosocial impact of dental anxiety on daily livelihood and physiological, cognitive, behavioral, health, and social impacts of dental anxiety have been identified.

No data on dental anxiety has been reported from Ethiopia. This study was conducted to explore the status of dental anxiety among patients attending a dental clinic and to assess its magnitude and association with different variables [10,11,12].

1.1. SIGNIFICANCE OF THE STUDY

Despite all the technological advancements in the dental profession, anxiety toward dentistry remains a major concern and potentially distressing problem in daily practice. However, there are no available data for Ethiopia. It is impossible to advocate for services for persons with dental anxiety without an idea of the numbers and types of persons affected. Special care for people with dental anxiety or anxiety has a cost and research studies are needed to support the reorganization of both dental teaching and dental services. This study aims to evaluate the prevalence, severity, and associations of dental anxiety declared in a sample of the Mekelle population and to analyses the impact of psychosocial variables on this anxiety.

Different dental health-related factors have been relatively investigated widely at the national level in a better manner as compared to patient's mental health; although it is highly important for the physical and psychological wellbeing of the patient. It is important to carry out a study on different aspects of a patient's health to provide certain guidance to dentists and other health care providers who care for a dental patient at outpatient and inpatient unit to assure comprehensive physical and emotional support. To provide psychological and social intervention

to dental patients, studies that assess the mental health well-being of the patient are important.

To clarify this issue, the objective of the present study is to examine the magnitude of dental anxiety and dental anxiety among dental clinics of Ayder comprehensive specialized hospital and Mekelle hospital, Mekelle, Tigrai, Northern Ethiopia, 2019.

2. METHODSAND MATERIALS

2.1. Study area

The study was conducted in Ayder comprehensive specialized hospital and Mekelle general hospital of Mekelle city, Tigray regional state, northern Ethiopia, in 2018/19. Mekelle is the capital city of Tigray Regional State located at about 783 km away north of Addis Ababa, Capital city of the Federal Democratic Republic of Ethiopia at geographical coordination of 39°28` East longitude and 13°32` North latitude. The average altitude of the city is 2300 m.a.s.l. with a mean annual rainfall and average annual temperature of 629 mm and 22°C, respectively. The population of the city is 406,338 (195, 605 male and 210,733 female) [24].

Ayder referral hospital was a referral and teaching governmental hospitals under the ministry of health. It serves up to 8 million populations in its catchment areas of the Tigray, South-eastern parts of the Amhara and the Afar Regional States. It provides a broad range of medical services to both in and outpatients of all age groups. As such, the hospital could be designated as the most advanced medical facility, by all accounts, in the Northern part of the country and that it stands as the second-largest hospital in the nation. It had 500 inpatient beds in four major departments and other specialty units. It's been used as a teaching hospital for the College of Health Sciences, Mekele University [25].

These two hospitals were providing a dental service for patients. Ayder referral hospital had a monthly average total patient flow of 900 patients. Mekele hospital had a monthly average total patient flow of 250 patients [unpublished data].

2.2. Study period

The study was conducted from September 2019 to November 2019

2.3. Study design

An Institutional based cross-sectional study design was conducted to assess the prevalence of dental anxiety.

2.4. Source of population and study population

2.4.1. Sources of the population:

The sources of the population of this study are all dental patients visiting the two hospitals for tooth extraction.

2.4.2. Study Population:

The study populations were sampled patients who are visiting the two hospitals during the study period.

2.5. Eligibility criteria

Inclusion criteria: All patients who vis/.the dental clinic for tooth extraction and aged 18 and above have participated in the study.

Exclusion criteria: patients who are in critical condition (i.e. new traumatic patient, severely agitated psychiatric patients, etc.) and unable to give information and who are below 18 were excluded from the study

2.6. Sample size and sampling procedure

2.6.1 Sample size

The sample size was calculated based on the following formula. [26]

$$n = \frac{Z^2 p (1-p)}{d^2}$$

Where, p was the anticipated population proportion, 29.2% [17]

d was the precision required on either side of the proportion (margin of error =0.05) andZ referred to the cut off value of the normal distribution and is based on a 95% confidence limit (=1.96).

A total of 5 percentage points of error was tolerated on each side of the estimated proportion,
expressed as d = 0.5.Therefore:

$$n=\frac{1.96^2\,(0.292)(1-0.292)}{(0.05)^2}=319 \quad \text{(for N>10,000)}$$

But since a total population (N) is 900, using reduction formula: $n_r = n/(1 + n/N)$ the re-adjusted sample size would be 236.

2.6.2. Sampling technique and procedure

The data was collected for a period of one month. The total patient flow in a month on average was 700 for Ayder and 200 for Mekelle hospital respectively. With proportional allocation to both facilities, 184 and 52 samples were collected from Ayder and Mekelle hospitals respectively.

A systematic random sampling technique was used to select participants. Sampling fraction was determined as dividing the total sample size (236) by total study population (900) which gives as 1/4. Therefore, Participants were selected from patients who visited the hospital dental unit on an interval of 4 (i.e.1-in-4). The selected patients were directed by the clinic staff to the data collector. The data collectors have introduced themselves to each patient, explained the purpose of the study, outlined the inclusion criteria, and finally, invite those who met the inclusion criteria to participate. Those who were approached and agreed to participate were included in the sample.

Data collection instruments

The measuring method was a questionnaire including three sections. The first section contained questions concerning socio-demographic information (age, gender, and educational level). The second section was a Farsi version of MDAS. This scale includes 5 brief multiple choice questions and concerns patients' anxiety in the following situations: Anticipating a visit to a dental clinic, waiting in the dentist's office for treatment, waiting in the dental chair for teeth extraction, about to have teeth to be extracted, and Waiting in the dental chair for receiving a local anesthetic injection.

Possible answers could range from "no anxious" with a value of 1, to "extremely anxious" with a value of 5. Summation of values for all answers assembles a score for level of dental anxiety with a minimum of 5 and a maximum of 25. Patients with scores of 11 or more are considered dentally anxious. Scores from 11 to 14 reflect moderate anxiety; and scores from 15 to 19 show high anxiety. In this scale, high levels of dental anxiety that may need special attention are designated with an experimentally established cut-off value of 19 and above [27].

2.7. Data collection process

The data was collected through a structured questionnaire in English and filled by Assistants (BDS, Nurses) and Doctor of Dental Surgery interns of Mekelle University. The questionnaire was classified into three parts. The first part was intended to generate information about the respondents' socio-demographic characteristics. All the necessary and relevant baseline information was collected on the data collection formats. Finally, the collected data was kept for further processing, analysis, and interpretation.

2.8. Study variables

2.8.1 Dependent variables

The dependent variable of the study was Dental anxiety.

2.8.2 Independent variables

Independent variables were Socio-demography (i.e. Age, sex, marital status, ethnicity, religion, income, education, occupation, …), Avoidance of dental care, Lack of regular dental appointment, Previous traumatic experience during the recent visit, Number of visits, Pain in the recent visit, Postponement of treatment, Treatment failure and Lack of IOPA.

2.9. Operational definitions

Some words may be confusing, to avoid this, for this research we have used the following definitions:

Dental anxiety: Patients with scores of 11 or more are considered dentally anxious. Scores from 11 to 14 reflect moderate anxiety; and scores from 15 to 19 show high anxiety. In this scale, high levels of dental anxiety that may need special attention are designated with an experimentally established cut-off value of 19 and above [27].

Age: Patients aged 18-34, 35-64, and above 65 years old are categorized as young adult, middle adult, and old adult respectively [28].

2.10. Data quality assurance

Data collection instrument was pre-tested on 10% of the sample size out of study area and necessary modifications were made on the instrument. Participants who were involved in the pre-test were excluded from the actual study analysis. Data was collected by well-trained collectors (assistants (BDS) and interns (DDS)); besides every day the principal investigator was checking the questionnaires for completeness and consistency. To limit social desirability bias, data collectors were trying to convince and ask in a way of less intimidating questions.

2.11. Data analysis and procedures

The data collected data was entered into a computer for analysis mainly using Statistical Package for Social Sciences (SPSS) for version 21. Then, data were coded, cleaned and some consistency checks were made to assess the quality. It was done by running frequencies and cross-tabulation among various reported cases or variables.

The analysis part consisted of descriptive statistics (frequency and cross-tabulation) and the gross effect of each predictor (independent) variable on the dependent variables was tested by crude odds ratio resulted after each variable has been fitted in the binary logistic regression without controlling all the other variables. Selecting the important variables, the logistic regression model (multivariate analysis) was used to test the net effect of each selected predictor variable on the dependent one controlling all the other variables.

2.12. Ethical consideration

Ethical approval was obtained from the Institutional Research Ethics Review Committee. Participation was voluntary, and the participants were told they can withdraw from the study at any time without explanation and penalty. Confidentiality was assured, and no personal details were recorded or produced on any documentation related to the study. Written informed consent was obtained from all participants.

3. RESULT

3.1. Participants' characteristics

Participants' general characteristics are shown in Table 1. Out of the 236 patients who completed the questionnaire, 127 (53.8%) were females. The mean and median age of the participants was 31.83(SD 12.171) and 28 respectively. The response rate was 100% with all questionnaire forms duly filled. In terms of educational status, the results revealed that 20(8.4%) were Illiterate, 61 (25.7%) were Elementary, 74(31.2%) were High school, and had Diploma and above 81 (34.2%). Besides, the result showed that 109(46%) were Single, 122(51.5%) were Married and 5(2.1%) were Divorced. One hundred ninety-seven (83.5 %) of respondents were from urban communities (Table 1).

Table 1: Frequency distribution of participant's characteristics of patients attending dental clinics of Ayder comprehensive specialized Hospital and Mekelle General Hospital, October 2019

Variables		Number(n=236)	Percent (%)
Age	Young Adults	163	69.1
	Middle-Aged Adults	56	23.7
	Older Adults	16	6.8
Sex	Female	127	53.8

	Male	109	46.2
Residence	Rural	39	16.5
	Urban	197	83.5
Marital Status	Single	109	46.2
	Married	122	51.7
	Divorced	5	2.1
Academic Status	Unable to read and wright	20	8.5
	Primary School	61	25.8
	Secondary School	49	20.8
	Preparatory School	25	10.6
	Collage and above	81	34.3
Occupation	Governmental	51	21.6
	Private	59	25.0
	Farmer	16	6.8
	Housewife	44	18.6
	Unemployed	19	8.1
	Student	47	19.9

3.2. Magnitude of Dental Anxiety

The Prevalence of dental anxiety among patients attending the dental clinic of the study area for tooth extraction was 53.8%. Based on the severity of dental anxiety, 75(31.8%) of patients were found to be moderately anxious, 33(14.0%), and 19 (8.1%) of patients were found to be highly and extremely anxious, respectively. (Figure 1)

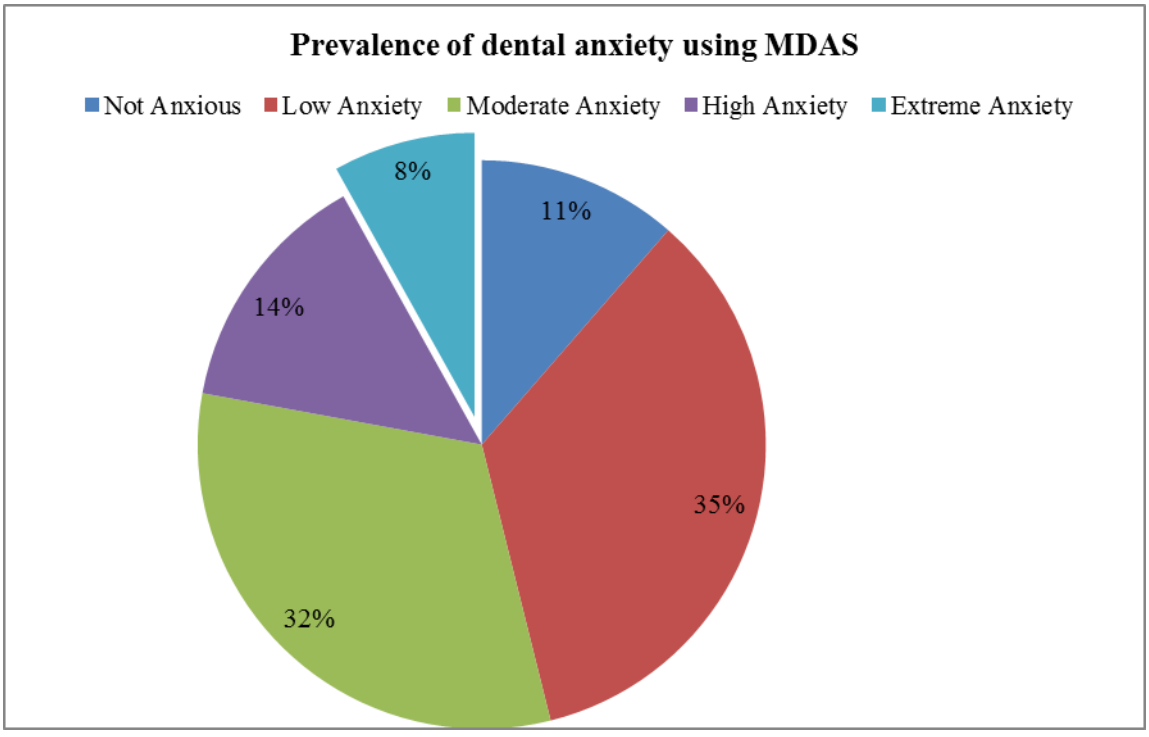

Figure 1. Prevalence of dental anxiety using MDAS among dental clinics of Ayder Comprehensive Specialized Hospital and Mekelle General Hospital, October 2019, Northern Ethiopia.

Among participants who have experienced dental anxiety, almost three fourth of them (93(73.8%)) were young adults. Regarding sex, 77(60.6%) of participants who have experienced dental anxiety were females (Table 2).

Table 2. Cross-tabulation of Dental anxiety and participant's characteristics of patients attending dental clinics of Ayder comprehensive specialized Hospital and Mekelle General Hospital, October 2019

Variables		Dental Anxiety	
		No N (%)	Yes N (%)
Age	Young Adults	70(64.2%)	93(73.8%)
	Middle-Aged Adults	30(27.5%)	26(20.6%)
	Older Adults	9(8.3%)	7(5.6%)
Sex	Female	50(45.9%)	77(60.6%)
	Male	59(54.1%)	50(39.4%)
Residence	Rural	24 (22.0%)	15 (11.8%)
	Urban	85 (78.0%)	112 (88.2%)
Marital Status	Single	47(43.1%)	62(48.8%)
	Married	60(55.0%)	62(48.8%)
	Divorced	2(1.8%)	3(2.4%)
Academic Status	Unable to read and wright	12(11.0%)	8(6.3%)
	Primary School	29(26.6%)	32(25.2%)
	Secondary School	24(22.0%)	25(19.7%)
	Preparatory School	12(11.0%)	13(10.2%)
	Collage and above	32(29.4%)	49(38.6%)
Occupation	Governmental	28(25.7%)	23(18.1%)
	Private	21(19.3%)	38(29.9%)
	Farmer	12(11.0%)	4(3.1%)
	Housewife	20(18.3%)	24(18.9%)
	Unemployed	8(7.3%)	11(8.7%)
	Student	20(18.3%)	27(21.3%)

3.3. Clinical Conditions

One-third of the study participants were avoiding dental care and from those clients, 68(53.5%) of them have experienced dental anxiety. Thirty-nine percent of the study participants reported a lack of regular dental appointment and one-fifth of them have reported previous traumatic experience.

Among the study participants, 103(43.6%) of them have experienced pain during the recent visit and 82(34.7%) of them have faced postponement of treatment. In addition to this 72(30.5%) of the study, participants reported treatment failure.

Lack of IOPA during treatment was also reported by 189(80.1%) of the study participants and it covers 105(82.7%) of those clients who have experienced dental anxiety (Table 3).

Table 3. Clinical conditions of patients attending dental clinics of Ayder comprehensive specialized Hospital and Mekelle General Hospital, October 2019

Variable		N (%)	Dental Anxiety	
			No	YES
Avoid dental care	No	160(67.8%)	101(92.7%)	59(46.5%)
	Yes	76(32.2%)	8(7.3%)	68(53.5%)
Lack of regular dental appointment	No	143(60.6%)	88(80.7%)	55(43.3%)
	Yes	93(39.4%)	21(19.3%)	72(56.7%)

Previous Traumatic experience	No	190(80.5%)	98(89.9%)	92(72.4%)
	Yes	46(19.5%)	11(10.1%)	35(27.6%)
Number of visit	Frist time	72(30.5%)	45(41.3%)	27(21.3%)
	Once	71(30.1%)	32(29.4%)	39(30.7%)
	More than Once	93(39.4%)	32(29.4%)	61(48.0%)
Pain in the recent visit	No	133(56.4%)	87(79.8%)	46(36.2%)
	Yes	103(43.6%)	22(20.2%)	81(63.8%)
Postponement of treatment	No	154(65.3%)	93(85.3%)	61(48.0%)
	Yes	82(34.7%)	16(14.7%)	66(52.0%)
Treatment failure	No	164(69.5%)	89(81.7%)	75(59.1%)
	Yes	72(30.5%)	20(18.3%)	52(40.9%)
Lack of IOPA during treatment	No	47(19.9%)	25(22.9%)	22(17.3%)
	Yes	189(80.1%)	84(77.1%)	105(82.7%)

3.4. Factors Associated with Dental Anxiety

3.4.1. Bivariate Logistic Regression

In the crude analysis, being female, residence, Avoidance of dental care, Lack of regular dental appointment, Previous Traumatic experience, Number of the dental visit, Pain in the recent visit, Postponement of treatment, and Treatment failure were found to be associated with having dental anxiety and was the variable selected to be included in the multiple linear regression models (Table 4).

3.4.2. Multivariate Logistic Regression

All variables that had p<0.25 in the bivariate analysis were included in multivariate analysis for entering logistic regression. From the total variables included in the logistic regression models, four variables were found to be statistically significant at the level of p<0.05. Accordingly: sex, residence, avoidance of dental care, and pain during the recent visit of study Participants have demonstrated a statistically significant association with dental anxiety (Table 4).

Table 4. Multivariate analysis of dental anxiety among patients attending dental clinics of Ayder comprehensive specialized Hospital and Mekelle General Hospital, October 2019

Variables		COR	95% CI	P-Value	AOR	95% CI	P-Value
Sex	Female	1.817	(1.082,3.051)	.024*	1.896	(1.003,3.585)	.049**
	Male (ref)	--	--	--	--	--	--
Residence	Rural (ref)	--	--	--	--	--	--
	Urban	2.108	(1.043,4.263)	.038*	2.576	(1.060,6.259)	.037**
Avoidance of dental care	No (ref)	--	--	--	--	--	--
	Yes	14.551	(6.539,32.38)	.000*	5.768	(2.107,15.792)	.001**

Lack of regular dental appointment	No (ref)	--	--	--	--	--	--
	Yes	5.486	(3.037,9.910)	.000*	1.855	(.778,4.419)	.163
Previous Traumatic Experience	No (ref)	--	--	--	--	--	--
	Yes	3.389	(1.626,7.067)	.001*	1.787	(.668,4.782)	.248
Number of the dental visit	First time	.315	(.166,.597)	.000*	1.517	(.623,3.695)	.359
	Once	.639	(.339,1.205)	.167*	.908	(.387,2.128)	.824
	More than once (ref)	--	--	--	--	--	--
Pain during a recent visit	No (ref)	--	--	--	--	--	--
	Yes	6.963	(3.855,12.579)	.000*	2.747	(1.101,6.854)	.030**
Postponement of appointment	No (ref)	--	--	--	--	--	--
	Yes	6.289	(3.334,11.861)	.000*	1.720	(.490,6.033)	.397
Treatment failure	No (ref)	--	--	--	--	--	--
	Yes	3.085	(1.693,5.623)	.000*	.507	(.167,1.545)	.232

NB: **=statistically significant at p-value <0.05

In terms of sex, females were 1.89 times AOR=1.896, 95% CI, [1.003-3.585] higher than males to develop dental anxiety. Urban residents were 2.57 times AOR= 2.576, 95% CI, [1.060-6.259] higher to develop dental anxiety than those who reside in rural. Regarding avoidance of dental care, those who avoid dental care were 5.77 times AOR=5.768, 95% CI, (2.107-15.79) higher to develop dental anxiety than those who don't avoid dental care. In respect of pain, patients who have experienced pain during the recent visit were 2.75 times higher AOR= 2.747, 95% CI, [1.101-6.854] higher to develop dental anxiety than those who didn't experience pain.

4. DISCUSSION

This study demonstrated that the magnitude of dental anxiety in the study area for tooth extraction was 53.8%. This finding is greater than the studies conducted in French [13], India [17], the kingdom of Saudi Arabia [20], In Nigeria [22], and In Accra, Ghana [23]. Whereas this finding is lower than the previous studies conducted in Iran [15] and Chinese [16]. This difference might be because of the tools used to assess dental anxiety, sample size, and study subjects.

The main finding of this study is avoidance of dental care is significantly associated with dental anxiety. Those patients who avoid dental care were 5.77 times AOR=5.768, 95% CI, (2.107-15.79) higher to develop dental anxiety than those who don't avoid dental care. This finding is supported by the study conducted in France [13]

In this study, patients who have experienced pain during the recent visit were 2.75 times higher AOR= 2.747, 95% CI, [1.101-6.854] higher to develop dental anxiety than those who didn't experience pain. This finding is consistent with a study conducted in China [16]

Sex of the respondent is also the other factor that is found significantly associated with dental anxiety. In terms of sex, females were 1.89 times AOR=1.896, 95% CI, [1.003-3.585] higher than males to develop dental anxiety. This finding is consistent with a study conducted in Israel, Jerusalem, Hebrew University [14], Iran [15], India [17], Saudi Arabia [19] [20], and Egypt [21]

Finally, this study has also revealed that residence is also another factor that is associated with dental anxiety. Urban residents were 2.57 times AOR= 2.576, 95% CI, [1.060-6.259] higher to develop dental anxiety than those who reside in rural.

5. CONCLUSION

The magnitude of dental anxiety among patients visiting Ayder Comprehensive Specialized Hospital and Mekelle General Hospital is high as 53.8% in the study. Sex of the respondent, residence, pain during a recent visit, and avoidance of dental care was found to be significantly associated with dental anxiety, which could become a barrier to receiving adequate dental care and improving the oral health of those who suffer from it.

6. RECOMMENDATION

Based on the results of this study, we recommend screening all dental patients using MDAS before providing dental treatment to identify those patients who have higher anxiety levels to assist the decision-making process on how to approach this condition.

- Before any extraction procedure, IOPA should be taken.
- Local anesthesia should be given at the appropriate site, dose, and syringe.

Further longitudinal studies should be conducted to identify the different variables that may affect dental anxiety prevalence, to more clearly determine the role each one of these has in the manifestation and prolongation of dental anxiety.

7. LIMITATION OF THE STUDY

This study was cross-sectional and the outcome variable may be affected by other confounding variables. These limitations could affect the overall prevalence of dental anxiety. Besides, Recall bias should thus be an issue in this measurement. This may overestimate or underestimate the association between the variables and dental anxiety among patients visiting the dental clinic.

LIST OF ABBREVIATIONS: ACSH: Ayder comprehensive specialized hospital; AOR: Adjusted odds ratio; COR: Crud Odds ratio; DA: Dental Anxiety; DAS: Dental Anxiety Scale; IOPA: Intraoral Periapical Radiography; MDAS: Modified Dental Anxiety Scale; MU: Mekelle University; MGH: Mekelle General Hospital; Q: Question; SD: Standard deviation; SPSS: Statistical Package for Social Science.

DECLARATIONS

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This Research was conducted after gaining ethical approval from the Institutional Review Board of the College of Health Sciences, Mekelle University. The study was conducted with a written consent that assures the willingness of each subject to participate in the study. Data collectors have read out and explained the information to non-literate participants and had obtained written consent on their behalf. Confidentiality and privacy of the clients were also kept secure. Also, any study subject was left free to withdraw from the study at any time. The subjects were compensated somehow for the time they waste on this study. Those clients in the screening process who have a severe degree of dental anxiety were immediately linked to the nearby psychiatry facilities.

AVAILABILITY OF DATA AND MATERIALS: The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

FUNDING: The research was conducted by financial funding from Mekelle University School of Dentistry.

ACKNOWLEDGMENT

We would like to extend my heartfelt gratitude and appreciation to the data collectors and study subjects for their kind support. Finally, we sincerely acknowledge Mekelle University, College Health Sciences School of Medicine, and the Department Of Dentistry.

HUMAN AND ANIMAL RIGHTS

Not applicable.

CONSENT FOR PUBLICATION: not applicable

COMPETING INTERESTS: The authors declare that there is no conflict of interest in this work.

AUTHOR CONTRIBUTIONS

Firaol M and Dr. Lidya T designed the study, collected data, analyzed the data, and reviewed

the manuscript. Dr. Solomon H supervised data collection, analyzed the data, drafted the manuscript, and critically reviewed the manuscript. All authors read and approved the final manuscript.

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