

RESEARCH ARTICLE

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Prevalence of pre-operative depression and anxiety levels in patients presenting for dental treatment in Lagos State, Nigeria

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Abstract

Objective: Depression and anxiety can lead to neglect of dental care. These conditions are widespread mental disorders in contemporary society; hence, this study aims to assess the levels of depression and anxiety among patients visiting the dental clinic.

Methods: The hospital anxiety and depression scale was used in assessing the level of depression and anxiety (HADS). The HADS questionnaire was for the assessment of participants who met the inclusion criteria. The Statistical Product and Service Solutions (IBM SPSS Statistics) version 25 was used for data analysis. A P-value less than 0.05 was considered statistically significant.

Result: A total of 112 participants met the inclusion criteria and were recruited for the study. The prevalence of depression was 30.4%, while anxiety was 25%. Age and gender did not significantly affect the depression and anxiety scores.

Conclusion: Depression and anxiety are prevalent among patients visiting the dental clinic for care. There is a need for constant education to prevent negligence in dental care.

Keywords: Depression, Anxiety, Dental phobia, Hospital anxiety and depression scale

Plain English Summary

Mental health disorders are prevalent among people in middle-income countries. Anxiety and depressive disorders are the most common mental health disorders. Oral diseases are some of the most common diseases globally. The WHO estimates that globally, close to 3.5 billion people (approximately 50% of the population) suffer from one or another form of oral disease. These disorders may lead to patients avoiding dental treatment. 112 participants were analysed. The prevalence of depression was 30.4%, while that of anxiety was 25%. This study showed that depression and anxiety are common mental health disorders

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prevalent among patients visiting a dental clinic. If awareness is not created, this can lead to negligence of oral health.

Introduction

Oral diseases are among the most common diseases globally. The WHO estimates that globally, close to 3.5 billion people (approximately 50% of the population) suffer from one or another form of oral disease (1, 2). Untreated dental caries, severe periodontal disease, edentulism, and cancer of the lip and oral cavity are reported to be the leading causes of oral disease burden worldwide (2, 3). Other common oral diseases with a significant impact on the health and well-being of populations include orofacial clefts, Noma, and traumatic dental injury (2, 3, 4).

In 2019, the WHO estimated that 1 in every 8 people in the world lives with one form of mental disorder or another (5). This number was believed to have risen significantly in 2020 because of the COVID-19 pandemic. Mental disorders are characterised by a clinically significant disturbance in an individual's cognition, emotional regulation, or behaviours (5). They include anxiety disorders, depression, bipolar disorder, post-traumatic stress disorder, schizophrenia, and eating disorders, amongst many others (1, 5). Among these, anxiety and depressive disorders are the most common, and although there are known and effective treatments for mental disorders, more than 75% of people in middle-income countries receive no treatment (5).

Depression involves a depressive mood or loss of pleasure or interest in activities for long periods, and it can affect all aspects of life, including relationships with family, friends, and community.⁶ On the other hand, anxiety is a distinct mental disorder, which includes panic disorder, specific phobia, social anxiety disorder or phobia, and generalised anxiety disorder (5, 6). Both depression and anxiety have adverse effects on a person's quality of life.

Dental anxiety is commonly found in the population, especially among those with previous unpleasant dental experiences (3, 7). Dental anxiety may lead to patients avoiding or even giving up treatment altogether. This may consequently contribute to the overall deterioration of an individual's oral health status (7). Depression has also been reported to hurt a patient's oral health status. Although there are various reports on depression and dental anxiety in the literature, the levels and degrees vary among studies; hence, this study seeks to assess the level of depression and anxiety among patients visiting a general hospital in Lagos State, Nigeria, for dental treatment.

Materials and Methods

This was a cross-sectional study carried out at the dental department of Lagos Island General Hospital, Lagos, Lagos State, Nigeria, to determine the prevalence of depression and anxiety among patients visiting the dental clinic for treatment between 2024 and 2025

Subject Selection and Eligibility

The study included all patients visiting the hospital's dental outpatient clinic for treatment and who met the inclusion criteria.

Inclusion criteria

Patients who consent to participate in the study and sign the written informed consent form.

Subjects who are 18 years and above on their last birthday

Clearly filled questionnaire

Exclusion criteria

Patients diagnosed with anxiety or depression disorders

patient on antidepressants

Any mental disorder

A formula for calculating sample size in a prevalence study was used to determine the required sample size (1).

$$n = Z^2 \cdot p \cdot (1-p) / d^2$$

Where:

n = required sample size

Z = Z-score corresponding to the desired confidence level (usually 1.96 for 95% confidence)

p = estimated prevalence (expressed as a decimal;

e.g., 0.0743 for 7.43% dental anxiety score (4))

d = desired precision or margin of error (e.g., 0.05 for $\pm 5\%$).

$$1.96^2 \times 0.0743 (1-0.0743) / 0.05^2 = 106$$

124 participants were, however, recruited in this study.

All history taking and examination were done on the dental chair with the patient sitting comfortably. A detailed history of patients' complaints was obtained, relevant investigations were done, and a diagnosis was made for each complaint for all participants by the dentist on duty.

Patient's depression and anxiety levels were assessed by the Hospital Anxiety and Depression Scale (HADS) by a dental officer who was trained and standardised on the use of this tool by a consultant psychiatrist in the hospital. The HADS

consists of seven items (each for depression and anxiety) that yield a score of between 0 and 21. Each of the items is rated on a 4-point Likert scale (0-3), 0 (no impairment), and 3 (severe impairment). A score of 0-7 is considered normal, 8-10 (borderline normal), and 11-21 (abnormal). All participants were treated according to hospital protocol for their specific complaints and discharged home when fit to do so. All data collected were recorded in the study questionnaire. The Statistical Product and Service Solutions (IBM SPSS Statistics) version 25 was used for data analysis. Variables were assessed using descriptive analysis. Percentage, mean, and standard deviation were used to represent

numerical variables. Frequencies and percentages were used for categorical variables. Chi-square was used to determine the association between categorical variables. A P-value less than 0.05 was considered statistically significant.

Result

One hundred and twenty-four participants were recruited in this study; however, only 112 were noted to carefully complete the questionnaire and were enrolled on the study. The age range was from 18 to 73 years, with a mean age of 35.32 (± 14.28). There were more females (58.8%) than males, and the most common diagnosis was apical periodontitis (46.4%), as shown in Table 1.

Table 1: Social Demographics

Variable	Frequency	Percentage
Age	35.32 (+_ 14.28)	
Sex		
Male	45	40.2
Female	67	59.8
Pre-existing complaint		
Dental Caries and Sequelae	76	67.9
Trauma Related	7	6.3
Facial Swelling	12	10.7
Others	17	15.2
Diagnosis		
Apical Periodontitis	52	46.4
Dentoalveolar/Periapical Abscess	11	9.8
Pericoronitis	5	4.5
Tumours	12	10.7
Pulpitis	5	4.5
Tooth fracture	3	2.7
Others	24	21.4

Half 56 (50%) of the participants fell within the normal depression score, with 34 (30.4%) being abnormal (Figure 1).

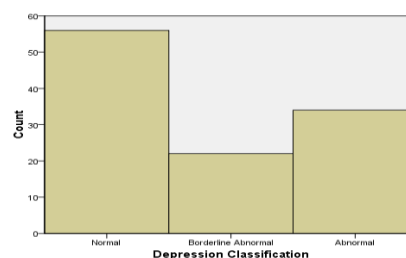


Figure 1: shows the prevalence of depression

Fifty-nine (52.7%) participants fell within the normal anxiety score range, with approximately one-

quarter belonging to the abnormal score category, accounting for 28 (25.0%) (Figure 2).

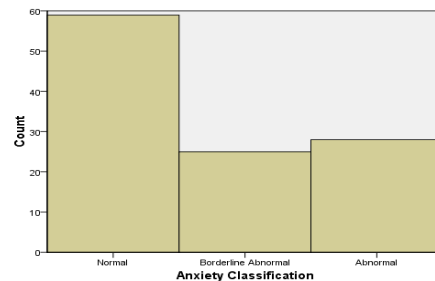


Figure 2: shows the prevalence of anxiety

Age and sex did not significantly affect depression and anxiety, as shown in Table 2.

Table 2: shows the demographic association between depression and anxiety

Variable	Normal	Borderline	Abnormal	X ²	p-value
Age and depression					
10-19	5	1	3	70.759	0.882
20-29	15	12	16		
30-39	14	4	5		
40-49	8	2	5		
50-59	7	3	3		
60-69	4	0	1		
70-79	3	0	1		
Age and anxiety					
10-19	4	2	3	66.3	0.943
20-29	16	11	16		
30-39	13	7	16		
40-49	10	2	3		
50-59	9	2	2		
60-69	4	1	0		
70-79	3	0	1		
Sex and depression					
Male	20	9	16	1.139	0.566
Female	36	13	18		
Sex and anxiety					
Male	25	6	14	3.964	0.138
Female	34	19	14		

Discussion

Dental diseases have a high economic impact on both the individuals and the government, and this is particularly worse in an individual who does not present early for care, either due to negligence or a perceived phobia of dental treatment in general (8). Oral diseases pose a public health burden to both developed and developing countries (8). Dental anxiety can lead to abstinence from dental care by patients (3). Depression and anxiety have an overall effect on the quality of life and affect the ability to seek care (1). The age range of this study was 35.32 (± 14.28) years. This was similar to Seifu *et al* (1), who reported a median age of 32 with an interquartile range (26- 41 years). There were more

females (59.8%) in this study than males. Seifu *et al'* also reported more female participants in their study. The reason why there were more females might be due to the female gender being highly responsive in attitude (1).

Various complaints can lead to patient visits to the dental clinic. In this context, the most commonly diagnosed oral disease was apical periodontitis. Studies have reported periodontal disease as the eleventh most common oral disease worldwide (1, 8, 9). Seifu *et al* (1) reported that more than half of their study population, who presented to the dental clinic, were diagnosed with periodontal disease.

The prevalence of depression in the study population was about a third of the studied

participants (30.4%). This was almost similar to a study conducted by Seifu *et al.* (1), who reported a depression score of 29.2%. Similarly, a study conducted in Brazil reported the prevalence of depression to be 28.5% (10). This was almost similar to our study. Contrary to this study, other studies have reported a much lower depression score (11, 12). The reason for this discrepancy in terms of the prevalence of depression might be a result of the different study populations. Different study designs have also been suggested to affect the depression score of the studied population (1). The prevalence of anxiety in this study was 25%, representing approximately a quarter of the studied population. This was somewhat similar to a study conducted in Pakistan, where a prevalence of 22.5% was reported (13). Furthermore, Seifu *et al.* (1) reported an anxiety score of 33.9%. Contrary to this study, a study conducted in the USA reported a lower anxiety score of 13.4% (11). A much lower anxiety score of 10% has also been reported (14). In a study conducted at University College Hospital, Ibadan, the prevalence of dental anxiety was reported to be 7.43% (4). The observed difference in the prevalence of anxiety in our study and other studies might be due to differences in study design, sample size and data collection tool (1).

The prevalence of depression was noted to be higher in the third decade of life, while anxiety was observed during the third and fourth decades of life. This trend was, however, found not to be statistically significant. This is in agreement with a study conducted in Canada, where the highest dental anxiety score (DAS) was reported to be recorded within the ages of 24-34, whereas older patients reported a lower score (15). Similarly, Arigbede *et al.* (4) in their study conducted in Nigeria, did not find any statistical significance difference concerning age and dental anxiety.

In this study, gender did not affect depression and anxiety levels, as this was found not to be statistically significant. Contrary to this, Arigbede *et al.* (4) reported a dental anxiety score that is statistically significant concerning gender, with the female gender presenting with more dental anxiety. Also, another study conducted in Nigeria reported a higher anxiety level among females (3).

Preoperative depression and anxiety are often major factors that determine the ability of a patient to seek dental care, and this is partly due to the perceived phobia and assumed pain from dental care.

Conclusion

Dental phobia is a major contributory factor to oral health negligence. Perceived phobia of dental treatment can result in depression and dental anxiety in the operating room. This study showed that participants in the third and fourth decades of life had higher abnormal depression and anxiety scores. Gender did not affect the level of depression and anxiety. Depression and anxiety are prevalent among patients visiting the dental clinic for care. There is a need for constant education to prevent negligence in dental care.

Limitation

The study is a single-centre study, and as such, the results may not be representative of the entire Nigerian population.

Recommendation

A multicenter study is needed.

List of abbreviations

HADS: Hospital Anxiety and Depression Scale.

Declaration

Ethical approval and consent to participate

Ethical approval for the study was obtained from the Health Research and Ethics Committee (HREC) at the Lagos State General Hospital, Lagos, Lagos State, Nigeria, with assigned number of ADM/DSCST/HREC/APP/6926. Written informed consent was obtained from all patients who consented to participate in this study.

Conflict of interest

There was no conflict of interest in this study.

Funding

This study did not receive any external source of funding.

Availability of data and materials

The datasets used and/or analysed in this study are available from the corresponding author on reasonable request.

Competing interests

There are no competing interests from all authors

Author's contribution

AMO worked on the conception, design, acquisition, analysis, interpretation of data, revising, final approval of the version to be published, and agreement to be accountable. EO did the Design, acquisition, analysis, interpretation of data, drafting, revising, final

approval of the version to be published, and agreement to be accountable.

AMAS, AEA and AAOS worked on Design, acquisition, interpretation of data, revising, final approval of the version to be published, and agreement to be accountable.

NHF did the design, acquisition, interpretation of data, drafting, final approval of the version to be published, and agreement to be accountable.

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