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Influence of Dental Phobia and Traumatic Treatment Experiences on Care-Seeking Behaviour: A University-Based Cross-Sectional Study

Osuh ME[1,2], Babatunde MO[2], Osuh JI[3], Akpa SA[4]

[1] Department of Periodontology & Community Dentistry, University of Ibadan & University College Hospital, Nigeria
[2] Faculty of Dentistry, Federal Medical Center, Abeokuta, Ogun State, Nigeria
[3] Department of Psychology, Faculty of Social Sciences, Federal University, Oye-Ekiti (FUOYE), Ekiti State, Nigeria
[4] Faculty of Dentistry, University of Benin Teaching Hospital, Edo State, Nigeria.

Correspondence: Akpa SA
Email: simonchinobi@gmail.com

ABSTRACT

Background: Dental phobia and previous traumatic treatment experiences are major psychological barriers that drive avoidance and emergency-only dental attendance. Despite being university students, Nigerians frequently delay care due to fears of pain and negative clinical memories. However, research on how these factors specifically impact students' dental care-seeking habits is currently limited.

Objective: This study aims to evaluate the influence of dental phobia and traumatic treatment experiences on dental care-seeking behaviour among students at the University of Ibadan.

Methods: A cross-sectional design was utilized, targeting students from non-health-related faculties to minimize professional knowledge bias. A proportionate stratified sampling technique was employed to ensure representation across all faculties. Data were collected using an online self-administered questionnaire comprising sociodemographic characteristics, the Modified Dental Anxiety Scale (MDAS), the Level of Exposure to Distressing Events Questionnaire (LOE-DEQ), and items assessing dental care-seeking behaviour. Analysis included the Chi-square test, Spearman's rank correlation, and binary logistic regression, performed using SPSS version 27, with statistical significance set at $p < 0.05$.

Results: A total of 397 students were included. The mean age of participants was 22.07 ± 3.13 years. The prevalence of dental phobia and high exposure to traumatic events was 16.9% and 31.8%, respectively. Exposure to traumatic events showed a positive correlation with dental anxiety. Logistic regression revealed that the strongest predictors of dental phobia were a dentist not providing information about an invasive procedure (OR = 3.88), feelings of extreme helplessness during dental treatment (OR = 1.73), and being a victim of a violent crime (OR = 2.40). Individuals with lower levels of exposure were more likely to seek care and attend routine dental check-ups ($p < 0.001$).

Conclusion: Dental phobia and traumatic experiences significantly impede routine dental attendance among University of Ibadan students, with clinical communication failures and personal trauma acting as the strongest predictors of avoidance. Adopting trauma-informed care models that prioritize patient communication and psychological support is essential to mitigate helplessness and improve care-seeking behaviour in this population.

Keywords: Dental phobia; Dental anxiety; Care-seeking behaviour; Traumatic experiences.

INTRODUCTION

Dental phobia and anxiety are prevalent concerns worldwide, frequently arising from traumatic dental experiences.[1–3] Such experiences may lead to the avoidance of dental care, which in turn exacerbates oral health problems and negatively impacts overall well-being.[4] University students appear to be especially vulnerable to dental anxiety due to factors such as academic stress, limited awareness, and prior negative dental encounters.[5]

Although often used interchangeably in the literature, dental anxiety and dental phobia are distinct concepts. Dental anxiety is a reaction to an unknown danger and is very common, occurring to varying degrees among patients anticipating new dental procedures.[4] However, dental phobia is characterized by a persistent, unrealistic, and intense fear of a specific stimulus, which can lead to complete avoidance of the perceived threat.[4,6,7] Reported prevalence rates of dental phobia vary globally, with studies from the Netherlands, Australia, and Japan indicating rates between 3% and 24%.[7] In Nigeria, research among dental patients has similarly revealed significant levels of dental phobia, with prevalence ranging from 26% to as high as 48%.[8,9] Contributing factors to dental phobia include negative dental experiences, past exposure to violence, humiliation during dental visits, family history of dental phobia, and genetic predisposition.[4,6,10]

Conditioning theory offers a widely accepted framework for understanding the onset of phobias, proposing that phobias often develop following negative or traumatic experiences, particularly when current stimuli resemble past distressing or traumatic events.[10,11] Dental treatment has frequently been cited as a context in which such a process can occur, as it is often associated with pain, loss of control, and serious treatment errors (e.g., filling or extraction of a healthy tooth).[11,12] This association is supported by several studies showing that individuals who report traumatic dental experiences are more likely to develop dental anxiety in line

with conditioning theory.[12-14] For example, one investigation found that people with high dental anxiety were approximately eighteen times more likely to have experienced a traumatic dental event compared to those with low dental anxiety.[13] Similarly, evidence shows that about 50% of dentally phobic individuals attribute their condition to socially embarrassing incidents within a dental setting.[15] Taken together, these findings highlight how adverse dental experiences can act as potent conditioning events shaping dental anxiety and phobia.

Dental anxiety and phobia can also stem from traumatic or distressing experiences outside the dental environment.[10] Research on highly anxious individuals has shown that they report a significantly higher occurrence of traumatic events outside medical and dental settings compared to low-anxious groups.[16] This, along with other evidence, suggests that dental phobia may develop through multiple pathways, and experiences such as persistent physical and verbal abuse, or being a victim of violent or sexual crimes, may play a key role in its development.[16,17]

Research has shown that dental phobia is associated with decreased or irregular dental visits, resulting in a worsening of oral health status, as well as reinforcing anxiety related to dental treatment—a phenomenon referred to as "vicious cycle dynamics."[6] Patients with dental phobia rarely benefit from the preventive measures offered by routine checkups because they are unwilling to seek dental care.[1] Without adequate dental care, oral symptoms inevitably progress to more severe and debilitating conditions, often requiring more invasive, urgent, and costly treatment. Such delayed presentation reinforces patients' expectations of painful or traumatic treatment, thereby intensifying dental phobia and anxiety.[1,10] Furthermore, dental phobia in children and adults can make treatment challenging and time-consuming, and may lead to behavioural issues that render dental visits stressful for both the practitioner and the patient.[18]

In Nigeria, studies have shown that dental anxiety is a significant concern among dental patients. However, limited research exists examining how traumatic dental experiences—as well as traumatic events outside the dental environment—influence phobias and care-seeking behaviour among university students. This study aims to investigate the influence of traumatic dental experiences and phobias on care-seeking behaviour in this population, to inform effective strategies that can improve oral health outcomes and reduce dental anxiety.

METHODS

Study design and population: This descriptive cross-sectional study was conducted among students enrolled in non-health-related degree programs at the University of Ibadan, in their first to fifth year of training. The University of Ibadan (UI) is located in Ibadan, Oyo State, South-Western Nigeria. As Nigeria's premier federal university, UI maintains a distinct multiethnic and multicultural profile, reflecting the nation's "federal character" through a student body drawn from all 36 states and the Federal Capital Territory. While geographically situated in a predominantly Yoruba-speaking region, the university's selective admission policies and national mandate ensure significant representation from the Igbo, Hausa, and other minority ethnic groups across Nigeria. This diverse environment provided a representative population of approximately 36,800 students for examining the intersection of cultural backgrounds, prior traumatic experiences, and dental care-seeking behaviors in a contemporary Nigerian academic setting. The University of Ibadan offers a wide array of courses across 17 faculties and 92 academic departments.

Sample size estimation: Using the formula for proportions, a prevalence value of 26% from a previous study conducted in Nigeria,[9] a 95% confidence level, Z as the standard normal deviate of approximately 1.96, $q = 1 - p$, a margin of error of 5%, and adjusted for a non-response rate of 20%, the minimum sample size was calculated as 355.

Sampling technique and procedure: Proportionate stratified sampling was employed to ensure representation across the university's faculties. Medical and health-related faculties were excluded to prevent potential bias arising from prior clinical exposure. The number of participants recruited from each faculty was determined based on faculty enrollment figures to approximate proportional representation. Recruitment was conducted through targeted social media campaigns on student platforms, one-on-one engagements, and repeated reminders, in accordance with the minimum sample sizes calculated using the proportional sampling technique.

Tools: Data on sociodemographic variables, dental anxiety, dental experiences, and oral health care-seeking behaviour were collected via a semi-structured, self-administered online survey using Google Forms. The instrument was pretested and validated prior to the main study.

Measures and scales: The Modified Dental Anxiety Scale (MDAS), developed by Humphris et al. (1995), was used to assess dental anxiety through five items rated on a 5-point Likert scale, providing both overall and procedure-specific anxiety scores.[19] The Level of Exposure–Dental Experience Questionnaire (LOE-DEQ) by Oosterink et al. (2008) evaluated participants' prior exposure to distressing dental and traumatic life events using 23 items scored as "never" (0) or "ever" (1), with summed scores

reflecting cumulative exposure.[10] Care-seeking behaviour was assessed using items adapted from previous research, which addressed clinic attendance, reasons for seeking care, preferred location for care-seeking, and the delay before seeking care.[20,21]

Pretest: A pretest was conducted among first-year medical and dental students at the University of Ibadan to assess questionnaire clarity and functionality. This led to minor revisions that ensured complete responses in the main study.

Data handling: Questionnaire data were collected digitally via an online survey platform. Responses were monitored during data collection to identify and correct inconsistencies. All submitted questionnaires were completed and included in the final analysis. The finalized dataset was exported to Microsoft Excel and then analyzed using SPSS version 27.

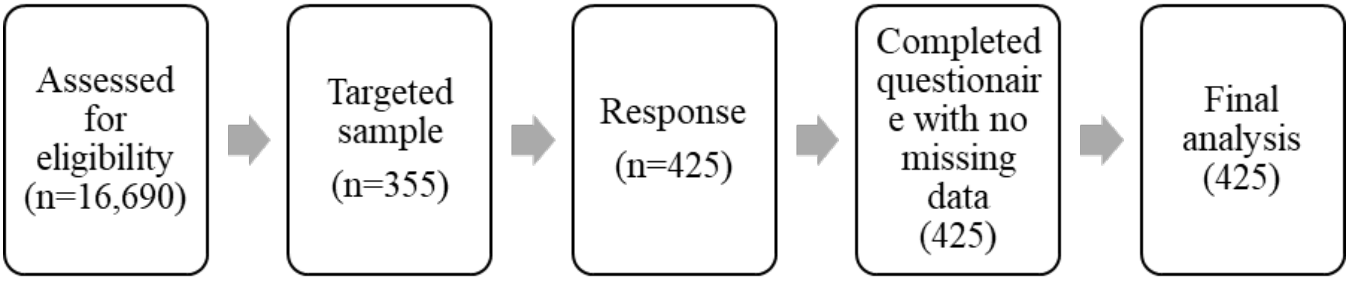

Figure 1: STROBE flow diagram of participant recruitment process

Data analysis: Descriptive statistics were used to summarize the participants' socio-demographic characteristics. Results of univariate analysis were presented as counts, percentages, means, and standard deviations. The Modified Dental Anxiety Scale was scored on a 5-point Likert scale, with responses ranging from 'not anxious' (1) to 'extremely anxious' (5). Individual item scores were summed to obtain a total score ranging from 5 to 25. Scores between 5-9 indicated low or no anxiety, 10-18 represented moderate anxiety, and 19-25 denoted high dental anxiety or dental phobia. For further analysis, dental anxiety was dichotomized into 'dentally phobic' (≥19) and 'non-dentally phobic' (≤18).[19] The Level of Exposure-Dental Experience Questionnaire consists of 23 items, with participants indicating whether they had 'never' (score 0) or 'ever' (score 1) been exposed to each event. A raw LOE-DEQ score was calculated by summing item responses, yielding a total score ranging from 0 to 23. In the absence of an established cut-off for the LOE-DEQ, a percentile-based approach was adopted, with participants scoring at or below the 75th percentile categorized as having low exposure and those above this threshold classified as having high exposure. Spearman's rank correlation was used to assess the association between MDAS and LOE-DEQ scores. Association between individual LOE-DEQ items and MDAS was examined using multivariable binary logistic regression, with adjusted odds ratios (AORs) and 95% confidence intervals (95% CIs) estimated after adjustment for age and sex.[10,12] Responses to each question on Oral Care-Seeking Behaviour (OCSB) were coded as follows: 1 = yes, indicating the participant engaged in that care-seeking behaviour, and 0 = no, indicating they did not. Pearson's chi-square tests of independence and the independent Students t-test were used for bivariate analysis to examine the association between dental phobia, care-seeking behaviour, and participants' socio-demographic characteristics.[20]

Ethical considerations: Ethical approval was obtained from the University of Ibadan/University College Hospital (UI/UCH) Ethical Review Committee. Informed consent was obtained from all participants prior to participation, in line with ethical guidelines for human research.

RESULTS

Socio-demographic characteristics: A total of 425 university students participated in the study. The mean age of respondents was 22.07 ± 3.13 years. Males constituted a slightly higher proportion (53.1%). Most respondents were in their second year (24.9%) or third year (24.7%) of study, while the fewest were in their fifth year (4.3%). Participants represented eight non-health faculties. The highest proportion was from the Faculty of Science (26.2%), followed by the Faculties of Education (15.9%), Arts (15.1%), and Technology (14.6%).

Table 1: Socio-demographic characteristics of the university students (n=425)

Characteristics	Variables	n (%)
Age	≤ 19 years (Adolescents)	77 (18.1)
	20–24 years (Youths)	270 (63.5)
	≥ 25 years (Adults)	78 (18.4)
	Mean (±SD)	22.09 (±3.09)
Gender	Male	242 (56.9)
	Female	183 (43.1)
Academic level	100	51 (12.0)
	200	60 (14.1)
	300	101 (23.8)
	400	159 (37.4)
	500	54 (12.7)
Faculty	Arts	66 (15.5)
	Agriculture	33 (7.8)
	Education	82 (19.3)
	Law	29 (6.8)
	Sciences	101 (23.8)
	Social Sciences	32 (7.5)
	Technology	61 (14.4)
	Economics	21 (4.9)

Dental anxiety: The mean MDAS score was 14.12 (SD = 4.37), with a range of 5 to 25. Based on the standard MDAS cutoffs, 72 participants (16.9%) were identified as having low or no anxiety, 284 participants (66.8%) as moderately anxious, and 69 participants (16.2%) as highly anxious or dentally phobic. Bivariate analysis, presented in Table 2, showed significant associations between dental anxiety and both age and gender ($p = 0.021$ and $p = 0.003$, respectively).

Level of exposure to traumatic life events (LOE-DEQ): The Level of Exposure–Dental Experience Questionnaire (LOE-DEQ) scores ranged from 0 to 23, with a mean score of 2.14 (SD = 2.65). A total of 135 participants (31.8%) reported 'high exposure', while 290 participants (68.2%) reported 'low exposure' to traumatic events. The results of bivariate analysis are presented in Table 2. Level of exposure was significantly associated with participants' faculty ($p = 0.03$).

Association between MDAS and LOE-DEQ scores: A weak, positive correlation was found between dental anxiety and the level of exposure to distressing dental events, although this correlation was not statistically significant ($r_s = 0.090$, $p = 0.065$). As shown in Table 3, the distressing experiences most strongly associated with pathological levels of dental phobia included 'dentist not providing sufficient information about invasive treatments' (OR = 3.88) and 'having a tooth extracted which caused extreme pain or other forms of severe distress' (OR = 2.25). Other associated experiences included 'feelings of extreme helplessness during dental treatment' (OR = 1.73) and 'being a victim of a violent crime' (OR = 2.40). However, none of the examined experiences demonstrated a statistically significant association with dental phobia.

Table 2: Relationship between the participants' socio-demographic characteristics and level of exposure anxiety (n=425)

Characteristics	Dental Phobia N (%)	N (%)		LOE-DEQ	N (%)	N (%)	χ^2(df)	
	Non-dentally phobic 356 (83.8)	Dentally phobic 69 (16.2)	χ^2(df)	p-value	Low exposure 290 (68.2)	High exposure 135 (31.8)		p-value
Age								
Adolescents (≤19)	70 (90.9)	7 (9.1)			56 (72.1)	21 (27.3)		
Youth (20–24)	216 (80.0)	54 (20.0)	7.75 (2)	0.021*	180 (66.7)	90 (33.3)	1.05 (2)	0.589
Adults (≥25)	70 (89.7)	8 (10.3)			54 (69.2)	24 (30.8)		
Gender								
Male	214 (88.4)	28 (11.6)	8.99 (1)	0.003*	162 (66.9)	80 (33.1)	0.43 (1)	0.510
Female	142 (77.6)	41 (22.4)			128 (69.9)	55 (30.1)		

Academic level								
100	44 (86.3)	7 (13.7)			38 (74.5)	13 (25.5)		
200	53 (88.3)	7 (11.7)			45 (75.0)	15 (25.0)		
300	88 (87.1)	13 (12.9)	3.97 (4)	0.410	69 (68.3)	32 (31.7)	3.47 (4)	0.481
400	127 (79.9)	32 (20.1)			102 (64.2)	57 (35.8)		
500	44 (81.5)	10 (18.5)			36 (66.7)	18 (33.3)		
Faculty								
Arts	55 (83.3)	11 (16.7)			47 (71.2)	19 (28.8)		
Agriculture	27 (81.8)	6 (18.2)			23 (69.7)	10 (30.3)		
Economics	19 (90.5)	2 (9.5)			19 (90.5)	2 (9.5)		
Education	68 (82.9)	14 (17.1)	1.776 (7)	0.971	58 (70.7)	24 (29.3)	14.76 (7)	0.039*
Law	26 (89.7)	3 (10.3)			20 (69.0)	9 (31.0)		
Sciences	83 (82.2)	18 (17.8)			70 (69.3)	31 (30.7)		
Social Sciences	27 (84.4)	5 (15.6)			14 (43.8)	18 (56.3)		
Technology	51 (83.4)	10 (16.4)			39 (63.9)	22 (36.1)		

***Statistically significant.**

Table 3: Multivariable logistic regression of distressing dental experiences and high dental anxiety using LOE-DEQ (n = 425)

Aversive experiences	Dental Phobia OR (95% CI)	p-value
Dentists' behaviour and patients' emotions		
A dentist criticized you.	0.28 (0.06–1.27)	0.100
A dentist did not seem to understand you.	0.00 (0.00)	1.000
A dentist did not provide information about invasive treatments.	3.88 (0.46–32.57)	0.368
You had an impolite or rude dentist.	5.1×10^{7} (0.00)	0.998
You felt extremely ashamed during dental treatment.	0.59 (0.18–1.87)	0.367
You felt extremely helpless during dental treatment.	1.73 (0.43–6.95)	0.442
You felt extremely sick during dental treatment.	0.64 (0.17–2.41)	0.504
You almost suffocated during treatment.	0.27 (0.24–2.82)	0.428
Distressing dental procedures		
You received a root canal treatment, which caused extreme pain or other severe distress.	1.39 (0.37–5.28)	0.631
You had a tooth drilled, which caused extreme pain or other severe distress.	0.71 (0.18–2.85)	0.633
You suffered from extreme pain after a dental treatment.	0.92 (0.23–3.59)	0.901
You received during dental treatment an injection, which caused extreme pain or other form of severe distress.	0.58 (0.18–1.88)	0.363
You had a tooth extracted, which caused extreme pain or other forms of severe distress.	2.25 (0.55–9.21)	0.258
Other distressing dental events		
You were exposed to frightening or horrific stories about dental experiences.	0.92 (0.43–1.98)	0.927
You were exposed to information in the media regarding dentistry, which caused a lot of distress.	0.84 (0.37–1.89)	0.673
You witnessed a treatment of an extremely anxious patient.	0.69 (0.34–1.43)	0.324
General traumatic events		
You were seriously injured in an accident.	0.76 (0.23–2.54)	0.660
You were a victim of a natural disaster or war.	2.8×10^{8} (0.00)	0.999
You witnessed someone being seriously injured or killed.	1.17 (0.48–2.85)	0.732
You witnessed a tragic death or illness.	0.61 (0.26–1.41)	0.246
You experienced a horrific medical treatment.	1.22 (0.44–3.39)	0.705
You were a victim of sexual assault.	1.51 (0.42–5.40)	0.528
You were a victim of a violent crime.	2.40(0.20–28.72)	0.491

Bold=estimates are unstable due to sparse data. Multiple comparisons were performed, and p-values were not adjusted for multiple testing.

Care-seeking behaviour: Of the 425 respondents, 155 (36.5%) reported ever seeking treatment for a dental condition. The most common reasons for seeking care were pain (n = 84, 19.8%) and gum swelling (n = 54, 12.7%). Fewer respondents reported difficulty with chewing, mouth odour, dental caries, or a routine check-up as a reason for seeking care. Many participants sought care at a dental clinic (n = 108, 25.4%) and reported seeking care within one week of the onset of their dental problems (n = 40, 9.4%).

As presented in Table 4, treatment-seeking behaviour was not significantly associated with dental phobia (p = 0.111); however, treatment-seeking was significantly related to levels of exposure to distressing events (p < 0.001), with participants reporting low exposure to distressing events more likely to seek treatment.

Among the specific reasons for seeking care, a routine check-up was significantly associated with the level of exposure to distressing events (p = 0.006), with participants with high exposure being less likely to report this reason. Participants with low exposure were also more likely to seek treatment at a dental clinic than their counterparts (p = 0.048).

Table 4: Relationship between participants' care-seeking behaviour, level of anxiety, and exposure to distressing events (n=425)

Care Seeking Behaviour	Overall (N)	Dental phobia		χ^2(df)	p-value	LOE-DEQ		χ^2(df)	p-value
		Non-dentally phobic N (%)	Dentally phobic N (%)			Low exposure N (%)	High exposure N (%)		
Treatment Seeking									
Yes	155	124 (80.0)	31 (20.0)	2.54 (1)	0.111	87 (56.1)	68 (43.9)	16.49 (1)	<0.001*
No	270	232 (85.9)	38 (14.1)			203 (75.2)	67 (24.8)		
Reason for seeking care									
Pain									
Yes	84	66 (78.6)	18 (21.4)	0.23 (1)	0.629	46 (54.8)	38 (45.2)	0.13 (1)	0.709
No	71	58 (81.7)	13 (18.3)			41 (57.7)	30 (42.3)		
Gum swelling									
Yes	54	44 (81.5)	10 (18.5)	0.11 (1)	0.736	28 (51.9)	26 (48.1)	0.61 (1)	0.433
No	101	80 (79.2)	21 (20.8)			59 (58.4)	42 (41.6)		
Chewing difficulty									
Yes	37	28 (75.7)	9 (24.3)	0.56 (1)	0.451	19 (51.4)	18 (48.6)	0.45 (1)	0.502
No	118	96 (81.4)	22 (18.6)			68 (57.6)	50 (42.4)		
Mouth odour									
Yes	13	9 (69.2)	4 (30.8)	1.02 (1)	0.310	10 (76.9)	3 (23.1)	2.49 (1)	0.114
No	142	115 (81.0)	27 (19.0)			77 (54.2)	65 (45.8)		
Dental caries									
Yes	46	37 (80.4)	9 (19.6)	0.008 (1)	0.930	23 (50.0)	23 (50.0)	0.99 (1)	0.318
No	109	87 (79.8)	22 (20.2)			64 (58.7)	45 (41.3)		
Broken tooth									
Yes	20	18 (90.0)	2 (10.0)	1.43 (1)	0.231	9 (45.0)	11 (55.0)	1.14 (1)	0.283
No	135	106 (78.5)	29 (21.5)			72 (56.3)	56 (43.8)		
Routine check-up									
Yes	13	10 (76.9)	3 (23.1)	0.08 (1)	0.772	12 (84.6)	1 (15.4)	7.54 (1)	0.006*
No	142	114 (80.3)	28 (19.7)			75 (52.8)	67 (47.2)		
Discolored tooth									
Yes	21	16 (76.2)	5 (23.8)	0.22 (1)	0.639	14 (66.7)	7 (33.3)	1.09 (1)	0.295
No	134	108 (80.6)	26 (19.4)			73 (54.5)	61 (45.5)		
Place of care									
Dental clinic									
Yes	108	89 (82.4)	19 (17.6)	1.29 (1)	0.256	55 (50.9)	53 (49.1)	3.91 (1)	0.048*
No	47	35 (74.5)	12 (25.5)			32 (68.1)	15 (31.9)		

Pharmacy									
Yes	34	26 (76.5)	8 (23.5)	0.33 (1)	0.560	22 (64.7)	12 (35.3)	1.30 (1)	0.254
No	121	98 (81.0)	23 (19.0)			65 (53.7)	56 (46.3)		
Home remedy									
Yes	35	27 (77.1)	8 (22.9)	0.23 (1)	0.631	20 (57.1)	15 (42.9)	0.19 (1)	0.891
No	120	97 (80.8)	23 (19.2)			67 (55.8)	53 (44.2)		
Traditional remedy									
Yes	8	6 (75.0)	2 (25.0)	0.13 (1)	0.717	3 (37.5)	5 (62.5)	0.30 (1)	0.234
No	147	118 (80.3)	29 (19.7)			84 (56.2)	63 (43.8)		
Delay before care									
< 1 week									
Yes	40	30 (75.0)	10 (25.0)	0.84 (1)	0.359	26 (65.0)	14 (35.0)	1.72 (1)	0.189
No	115	94 (81.7)	21 (18.3)			61 (53.0)	54 (47.0)		
1–4 weeks									
Yes	37	30 (81.1)	7 (18.9)	0.36 (1)	0.851	21 (56.8)	16 (43.2)	0.008 (1)	0.930
No	118	94 (79.7)	24 (20.3)			66 (55.9)	52 (44.1)		
1–3 months									
Yes	24	21 (87.5)	3 (12.5)	0.99 (1)	0.318	11 (45.8)	13 (54.2)	1.22 (1)	0.269
No	131	103 (78.6)	28 (21.4)			76 (58.0)	55 (42.0)		
3–6 months									
Yes	11	9 (81.8)	2 (18.2)	0.02 (1)	0.876	5 (45.5)	6 (54.5)	0.53 (1)	0.333
No	144	115 (79.9)	29 (20.1)			82 (56.9)	62 (43.1)		
> 6 months									
Yes	29	23 (79.3)	6 (20.7)	0.01 (1)	0.918	14 (48.3)	15 (51.7)	0.89 (1)	0.345
No	126	101 (80.2)	25 (19.8)			73 (57.9)	53 (42.1)		

*Statistically significant. Multiple comparisons were performed, and p-values were not adjusted for multiple testing.

DISCUSSION

Findings: This study examined the prevalence of dental phobia among university students, its relationship with exposure to distressing life and dental events, and its influence on oral care-seeking behaviour. The findings showed that dental anxiety was common among university students, with most participants experiencing moderate to high levels of anxiety. Higher exposure to traumatic events was associated with a greater likelihood of dental phobia. Specific experiences, including feeling insufficiently informed during dental treatments, undergoing painful extractions, and experiencing helplessness during dental care, contributed to heightened levels of anxiety and dental phobia, as did exposure to extreme traumatic events outside the dental clinic setting. Care-seeking behaviour was influenced more by exposure to distressing events than by anxiety itself.

The prevalence of dental anxiety observed in this study exceeds most global estimates reported in previous literature.[3,22] Similar levels of dental phobia have, however, been documented in studies from the United States, Canada, Germany, and the West Indies.[3,23] In contrast, reports from sub-Saharan Africa indicate lower rates, more consistent with global averages of severe dental anxiety.[3,22,24] These discrepancies may reflect not only cultural differences but also methodological differences in the measurement tools used to assess the level of anxiety and phobia across these populations.

The high prevalence of dental phobia in this study aligns with global trends showing a peak among young adults in their early twenties.[3,22,25] This pattern suggests that younger adults, characterized by higher self-consciousness and limited prior clinical exposure, are more susceptible to apprehension than older individuals with more positive dental experiences.[3,22,25] Furthermore, women were significantly more likely to report phobia than men, a consistent finding across diverse populations.[3,26] These differences may stem from biological and psychosocial mechanisms. Women are generally more expressive of fear and anxiety, and they perceive or report higher pain sensitivity, which could amplify anticipatory fear associated with dental procedures.[22,26] Given the "vicious cycle" of phobia-induced avoidance and the associated global financial burden of dental disease.[1,27] these findings emphasize the need for gender-sensitive and age-targeted interventions to manage dental fear.

The role of negative or traumatic dental experiences in the development of dental phobia and anxiety is well established within classical conditioning theories of anxiety onset.[3,10] According to this framework, a painful or distressing dental or life event may serve as an unconditioned stimulus, leading to the development of fear responses to subsequent dental stimuli.[1,12] Although one-third of our participants reported high trauma exposure, bivariate analysis showed only a weak, non-significant correlation with dental anxiety. This suggests that the impact of distressing events may be moderated by individual cognitive appraisals, supporting the Cognitive Vulnerability model. This model posits that perceptions of uncontrollability and unpredictability are more critical to developing dental anxiety than exposure to the experience itself.[2]

This study demonstrates that dental-specific stressors have greater predictive value for phobia than general traumatic events. Feelings of extreme helplessness and inadequate communication regarding invasive procedures emerged as primary drivers, similar to painful treatments like extractions, injections, and root canals. While non-dental traumas such as violent crime or medical trauma showed associations, their predictive strength was lower. These results corroborate findings from the Netherlands[12] and the United Kingdom,[12] identifying perceived helplessness and procedural pain as central contributors to dental fear.

Implications: Our findings indicate that traumatic dental events are stronger predictors of reduced care-seeking than dental phobia itself. From a conditioning perspective, prior distressing experiences reinforce avoidance by associating dental settings with discomfort, leading individuals to delay care regardless of their self-reported anxiety levels.[3,18] This aligns with Australian data showing that avoidant individuals eventually require more invasive procedures, further reinforcing the cycle of fear.[1] While routine check-ups were significantly lower among those with high trauma exposure, emergency motives such as pain, swelling, or chewing difficulties remained unrelated to either phobia or traumatic exposure levels. [1,2,12]

Trade-Offs (Limitations): Nonetheless, some limitations must be acknowledged. First, the cross-sectional design precludes definitive causal inferences regarding trauma and phobia. Self-reported data may also introduce recall and social desirability biases, in which students might underreport phobias or misremember the exact details of a prior clinical encounter. However, we reassured them of the confidentiality of their information and used the most recent event. Furthermore, as a single-center study in South-Western Nigeria, the findings may not fully generalize to students in other regions with differing socio-cultural norms. Finally, unmeasured variables such as financial constraints and geographic distance to clinics may have also influenced care-seeking patterns.
The study's strengths lie in addressing a critical gap in African dental research and in providing localized, 2025-level data from a major academic hub. We utilized logistic regression to identify specific, actionable predictors of dental phobia, such as communication failures and the link between personal violent trauma and dental avoidance, offering robust, data-driven recommendations for clinical practice in resource-constrained settings. Our use of a proportionate stratified sampling technique across eight non-health faculties ensures that our sample is highly representative of the broader University of Ibadan student population, rather than just clinic attendees. By purposefully excluding health-related faculties, the study avoids "professional knowledge bias," where medical or dental students might report lower anxiety levels due to their specialized clinical exposure. Despite these limitations therefore, our findings contribute to a growing body of evidence highlighting the impact of dental phobia and prior traumatic experiences on oral care-seeking behaviour. They reiterate that dental phobia is a clinically relevant condition that can compromise oral health outcomes.

Take-Home (Conclusion): This study reveals a significant psychological burden among University of Ibadan students, with 16.2% experiencing dental phobia and 31.8% reporting high exposure to traumatic events. Our findings confirm that traumatic dental and general life experiences are critical drivers of fear, directly facilitating a cycle of avoidance, delayed care-seeking, and oral health deterioration. To break this cycle, it is imperative to shift from traditional curative models toward trauma-informed dental practices. This includes implementing routine anxiety screening, improving dentist-patient communication to mitigate feelings of helplessness, and developing interdisciplinary interventions that address the psychological barriers preventing young adults from accessing preventive care.

Expectations for future research: Future studies evaluating public health initiatives in Nigeria must shift the narrative from emergency-only visits to preventive care. The culture of "symptom-driven" dental visits must change.
Recommendations: To address the significant psychological barriers identified in this study and improve dental care-seeking behaviour in Nigeria, clinics must transition from a purely clinical focus to a trauma-informed care (TIC) model that prioritizes patient autonomy and psychological safety—one that acknowledges and addresses potential trauma.[28] Some clinical recommendations include:

1. Implement Structured Patient Communication: Dental practitioners could adopt "Tell-Show-Do" techniques for all age groups to restore patient autonomy and reduce feelings of helplessness.[29]
2. Establish Anxiety Screening Protocols: Clinics could integrate validated tools like the Modified Dental Anxiety Scale (MDAS) into routine medical history intake to proactively identify high-risk patients before procedures begin.[30]
3. Adopt Trauma-Informed Environmental Changes: Clinics could modify physical spaces using calming music, nature-based imagery, or sensory modifications like "lavender-scented bibs" to foster a sense of psychological safety and mitigate triggers for patients with high trauma exposure.[28,30]
4. Strengthen Interdisciplinary Referrals: Since personal trauma (such as violent crime) correlates with dental avoidance, clinics should establish referral pathways to psychological services. This holistic approach helps patients manage

underlying anxiety while receiving essential oral care.[28,30]

Oral health education should emphasize that regular check-ups reduce the need for the painful, invasive procedures that often form the basis of traumatic memories.[31-33] Stakeholders in dental education and federal health agencies in Nigeria prioritize patient psychology and TIC within curricula and national oral health policies to ensure a sustainable, empathetic workforce capable of breaking the "vicious cycle of avoidance."

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