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Assessment of Dental Anxiety Scale and Oral Health Literacy Among a Sample of the New Alamein Population: A Cross-Sectional Study.

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ABSTRACT:

Background: *Oral health awareness is a crucial component of dental public health, as it provides opportunities for disease prevention, early diagnosis, and treatment of dental problems. Oral health literacy (OHL) has an influential impact on the physical, mental, social, and economic health of both individuals and communities. Inadequate oral health knowledge and low oral health levels endanger communication between patients and dentists in different communities. Consequently, such ignorance may lead to postponing or avoiding dental appointments, ultimately contributing to poor oral health care.*

Purpose: *The purpose of this study was to assess dental anxiety (DA) and oral health literacy (OHL) among Alamein's population.*

Material and Methods: *A cross-sectional convenience study was carried out to assess the dental anxiety scale (DA) and oral health literacy (OHL) of 80 patients selected from the outpatient clinic of the Arab Academy for Science, Technology, and Maritime Transport. Any patient between 20 and 50 was considered for the study. Data were collected through a structured, interview-administered questionnaire based on the Modified Dental Anxiety Scale (MDAS). The questions were developed and modified from the previous studies. This questionnaire was designed to assess the dental anxiety levels of patients and analyze the knowledge, attitude, and behavior (KAP) toward oral health literacy. The assessment of the patient's anxiety levels took into account several variables that can influence their mental health. The survey covered their age, gender, level of education, and the number of dental visits.*

Results: *This study involved 80 participants; the majority were aged 35–50 years (57.5%) and male (57.5%). Regarding employment, a slightly higher proportion were employed (53.8%). Overall, dental anxiety scores indicated moderate levels of anxiety, particularly fear of invasive procedures. Females had significantly higher anxiety scores than males (p-value = 0.004). Correspondingly, unemployed individuals reported higher anxiety compared to employed individuals (p-value = 0.006). There were no significant differences in dental anxiety scores based on age, marital status, and education level ($p > 0.05$).*

Conclusion: *This current study found that dental anxiety was significantly higher among females than among males. However, gender and employment status showed statistically significant associations with dental anxiety. Preventive measures should be promoted among dentally anxious patients to increase awareness and education about comprehensive oral care practices.*

KEYWORDS:

Dental Anxiety, Oral Health Literacy, Dental Care Utilization, Patient Education, Fear of Dental Visits, Oral Health Outcomes, Psychological Impact..

1. REVIEW OF LITERATURE

Dental anxiety (DA) is still a psychological problem that affects a significant portion of the population. It includes a wide range of emotional reactions, from mild nervousness to intense fear when faced with dental visits or procedures. A fear of pain, embarrassment about oral hygiene, traumatic dental experiences in the past, or even

the sounds and smells of the dental office can all contribute to this anxiety. [1] Between 2 and 30 percent of people worldwide have DA, which is highly prevalent. [2] [3] It is ranked ninth among severe fears and fourth among common fears. [4] According to other studies, poor compliance, low utilization, and treatment discontinuation are associated with dissatisfaction with the standard of dental care and costs. [5]

According to Pado et al. (2020) [6], 10–20% of people reported having moderate to severe dental anxiety, and another 30–40% reported having mild anxiety related to dental visits. Consequently, DA often leads to the avoidance of dental care, causing delayed visits and worsening oral health conditions over time.

The impact of dental anxiety (DA) extends beyond oral health, as it can lead to systemic health problems. Untreated dental conditions such as dental caries, gingival disease, and tooth loss may occur in those who neglect their dental care. Furthermore, there is growing evidence that respiratory infections, diabetes, cardiovascular disease, and other more general systemic health issues are associated with poor oral health. However, people who suffer from high dental anxiety frequently attribute their anxiety to past dental experiences, which can result in decreased cooperation, missed appointments, and the possibility of misdiagnosis and mistreatment. [7] By examining these factors and exploring their consequences on oral health care, dental professionals can implement customized strategies to ameliorate the negative effects and improve oral health outcomes. [8]

Oral health literacy (OHL) has made remarkable advancements, in addition to being crucial in lowering oral health disparities and significantly improving dental care, oral hygiene habits, and preventative measures. Studies have consistently demonstrated that increased levels of oral health literacy correlate with improved oral health outcomes, including adherence to preventive measures and being more comfortable while receiving dental treatment. [9] However, a substantial segment of the population experiences limited oral literacy due to factors such as low educational level, language barriers, and cultural influences. This lack of knowledge can not only prevent patients from seeking appropriate care but also contribute to increased dental anxiety, as individuals may feel overwhelmed about treatments. [10]

There is a growing connection between dental anxiety (DA) and oral health literacy (OHL). Those with low oral health literacy are more liable to experience heightened anxiety about dental visits. [11] However, individuals with high dental anxiety may experience considerable challenges in maintaining their regular dental care routines. A harmful cycle occurs between dental anxiety and oral literacy, which results in postponed dental care and the worsening of oral conditions. Those caught in this detrimental loop may experience heightened dental anxiety and may need more extensive dental treatment for a current oral issue compared to individuals who regularly attend dental follow-ups. [12] These factors, which hinder individuals from seeking appropriate dental care, affect people on an individual and community level and pose a significant dental public health challenge. [8]

Prior studies on dental care in relation to dental anxiety have mostly concentrated on individual factors like oral hygiene awareness, brushing frequency, and dental visit avoidance. Most studies consistently show that poor oral hygiene practices are associated with higher levels of dental anxiety. [13] [14] [15] By enhancing dental education, improving communication between patients and dental providers, and enhancing the bond of trust between the patient and the dentist, dental professionals are in a better position to reduce anxiety and encourage individuals to engage more proactively with their dental care. [12]

The purpose of this study was to assess dental anxiety and oral health literacy among the New Alamein population.

2. MATERIAL AND METHODS

2.1. Study Design

This study was designed as a cross-sectional study, "descriptive type," aimed at assessing dental anxiety (DA) and oral health literacy (OHL) among a sample of the New Alamein population. The approach of this study allowed for data collection at a single point, providing a snapshot of the variables of interest within the study sample. All data were gathered through structured, interview-administered questionnaires during routine clinical workflow.

2.2. Study setting

This study was conducted at the outpatient clinic of the "Arab Academy for Science, Technology, and Maritime Transport Hospital" (AASTMT). This outpatient clinic serves a wide range of dental services for Alamein's population, making it an appropriate setting for evaluating the

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dental anxiety scale, knowledge, attitude, and behavior toward oral health literacy among a convenience sample. The environment allowed for proper interaction with patients, facilitating data collection through a structured interview.

2.3. Pilot study

Before implementing the main study, a pilot study with a convenience sample of 15 participants was conducted to assess the feasibility, clarity, and reliability of the questionnaire. Based on the trial, minor adjustments were made to ensure a precise and smoothly structured questionnaire.

2.4. Study participants

A convenience sample of 80 patients, both male and female, was enrolled in the outpatient clinic. To establish the prevalence of dental anxiety, power analysis was used to calculate the sample size (n = 80), assuming a moderate effect size (Cohen's d = 0.5), a power of 0.80, and α = 0.05. The calculated minimum sample size was 64, and to compensate for possible nonresponses, 80 participants were included. Although a convenience sample was used, participants were recruited from the Arab Academy Hospital, serving diverse socioeconomic groups across New Alamein. Any patient between 20 and 50 was included in this study. Inclusion criteria encompassed patients who were able to participate in the survey and had dental problems. The exclusion criteria comprised patients not willing to participate in the study, those with medically compromised diseases, and those with physical and mental disabilities. A structured, interview-administered questionnaire based on MDAS, originally developed by **Humphris et al. (1995)** [17]. The questions were developed and modified from the previous studies. [18] [19] This questionnaire, composed of 5 questions, was designed to assess the dental anxiety scale of patients.

2.5. Ethical Considerations

The following research proposal was submitted on July 1, 2025, and was registered and exempted by **the Institutional Review Board Organization, Arab Academy for Science and Technology, School of Dentistry**, IRB #1. Research Number: IORG0012504.

Verbal consent was obtained from each patient with an agreement to participate in this questionnaire. Prior to data collection, all participants were informed about the plan of the study and its purpose. All gathered information was safely stored and used exclusively for research objectives.

2.6. Study variables

Dental anxiety, knowledge, attitude, and behavior about oral health literacy were crucial dependent variables, which were assessed in this study. Other independent variables included age, gender, educational level, and employment status. All data were systematically analyzed to identify the dental anxiety scale in the study sample.

2.7. Study instrument

The study used a structured, interview-administered questionnaire based on MDAS, originally developed by **Humphris et al. (1995)** [17], as the primary data collection tool. MDAS is a widely recognized tool that measures a patient's level of dental anxiety (DA). The survey included three parts: a section on demographics, the Modified Dental Anxiety Scale, and an evaluation of knowledge, attitudes, and behaviors related to oral health literacy.

The first section discussed the demographic data from the sample of Alamein's population, depending on variables of the participants like age, gender, marital status, educational level, and employment status. The second section consisted of 5 questions to measure the anxiety level of the participants using MDAS, a brief, self-completed questionnaire composed of 5 questions summed together to produce a total score ranging from 5 to 25. It has good psychometric properties and low instrumental effects, is relatively quick to complete, and scoring is easy. It can be incorporated into routine dental practices. The third section was concerned about the oral health literacy of a sample of the new Alamein population. Oral Health Literacy (OHL) was assessed indirectly through a structured Knowledge, Attitude, and Practice (KAP) questionnaire. This approach provides a practical measure of functional literacy through the comprehension of dental terminology, self-care behaviors, and preventive awareness. Future studies should consider cross-cultural adaptation and validation of the standardized (OHL) instrument for the Egyptian population. The KAP survey is a useful diagnostic tool for assessing knowledge, attitudes, and practices related to particular subjects, especially oral health literacy. This survey is based on the concept that knowledge positively influences attitude, which subsequently influences actions. [19] Questions about KAP in the questionnaire discuss the knowledge of the Alamein sample towards oral health literacy (OHL), such as knowledge of some

definitions, such as "dental caries" or "plaque", and hearing about fluoride toothpaste. Other questions were about the patient's attitude about visiting the dentist regularly, and the last section was about behavior regarding oral health care, such as tooth brushing.

2.8. Questions coding

Using the questionnaire, dental anxiety was assessed. The MDAS is a validated survey consisting of five questions; each question in the MDAS consists of five options, scored from 1 (not anxious) to 5 (extremely anxious). The total score ranges from 5 to 25, with higher scores indicating greater levels of dental anxiety. [3]

All items will be rated on a 5-point scale: 1 = not anxious, 2 = slightly anxious, 3 = fairly anxious, 4 = very anxious, and 5 = extremely anxious.

2.9. Statistical Analysis

Data was analyzed using **IBM SPSS Statistics software version 23 for Windows, Armonk, NY, USA**. Qualitative data were described using frequency and percentage, while quantitative data, "anxiety scores," were summarized using mean, standard deviation, median, and interquartile range (IQR) according to the normality of distribution of the data by using the Kolmogorov-Smirnov test, so the Mann-Whitney U test was employed to assess differences in anxiety scores in relation to demographic variables. All tests were two-tailed, and the significance level was set at p-value < 0.05.

3. Results

This study was conducted to assess dental anxiety (DA) and oral health literacy (OHL) among Alamein's population and to analyze the relationship between dental anxiety and sociodemographic variables. Among the 80 study participants, the majority were aged 35–50 years (57.5%) and male (57.5%). Most participants were married (77.5%) and had received some form of education (58.8%). Regarding employment, a slightly higher proportion were employed (53.8%) compared to unemployed (46.3%). **[Table 1]**

The Modified Dental Anxiety Scale results among Alamein's population revealed varying anxiety levels across different dental situations. Most participants reported low anxiety before visiting the dentist (Q1: 48.8% not anxious) and in response to the dental clinic environment (Q2: 55% not anxious). Similarly, 68.8% were not anxious about the smell of dental materials (Q3), showing minimal sensory-related anxiety. In contrast, anxiety increased significantly when participants were asked about dental anesthesia (Q4), with 21.3% feeling "extremely anxious" and a higher mean score of 2.69 ± 1.61. The highest anxiety was observed in response to surgical procedures like tooth extractions (Q5), where 27.5% were "extremely anxious," and the mean score peaked at 3.21 ± 1.67. The overall dental anxiety score averaged 11.28 ± 4.64, indicating moderate anxiety, particularly driven by fear of invasive procedures. According to the dental anxiety questionnaire's results, the fifth question (which asked about the patients' feelings about surgical procedures like extractions) had the major impact on the overall anxiety score. **[Table 2]**

Dental anxiety levels were recorded among the patients in New Alamein, showing that 21.3% experienced low anxiety, 28.8% had moderate anxiety, 17.5% faced high anxiety, and 13.8% dealt with extreme anxiety. **[Figure 2]**

Most participants demonstrated good basic oral health knowledge, with 85% correctly recognizing the term "plaque" and 100% identifying "caries" as a known term. However, awareness declined for "cavities," with only 70% responding correctly. Knowledge about preventive measures was limited: only 31.3% had heard of fluoride toothpaste, and 33.8% were aware of dental floss as part of good oral hygiene. Concerning the replacement of toothbrushes, only 13.8% accurately recognized "every 3 months" as the recommended time frame. Encouragingly, 72.5% correctly recognized that both sugar and poor oral hygiene contribute to tooth decay. Only 17.5% correctly identified brushing twice daily as the standard. These results highlight strong recognition of disease-related terms but indicate gaps in awareness of preventive practices. **[Table 3]**

A majority of participants (56.3%) felt comfortable with dental treatments, indicating a generally positive perception toward oral health care, yet 16.3% reported extreme fear. While 83.8% believed oral health is important compared to overall health, only 48.8% considered regular dental visits crucial, and over a quarter (27.5%) viewed them as not important. This reflects a potential gap in awareness of the prevention of dental care within the community. Most participants (67.5%) were willing to invest in dental care, but 66.3% incorrectly believed that brushing alone is sufficient for maintaining oral hygiene, while 33.8% disagreed. This reveals a misconception that may undermine the importance of oral hygiene practices such as regular tooth brushing, flossing, and regular dental checkups. Overall,

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these findings reflect generally positive attitudes toward oral health. **[Table 4]**

Most participants (73.8%) had visited a dentist within the past six months, indicating a positive trend in dental attendance. However, 13.8% had not visited a dentist in over a year. Daily oral hygiene habits were suboptimal; only 5% used dental floss, and 12.5% used mouthwash. Sugar consumption was frequent, with 30% consuming it multiple times daily and 27.5% once per day. Additionally, tongue cleaning was not widely practiced, with just 17.5% including it in their routine, while 82.5% did not include it in their hygiene routine. This suggests that most individuals may not be receiving adequate guidance on complete oral care techniques. Overall, while dental visit frequency was high, preventive oral hygiene behaviors were limited, suggesting a need for increased awareness and dental public health education on comprehensive oral care practices. **[Table 5]**

Analysis of the relationship between dental anxiety and sociodemographic variables revealed no significant differences in dental anxiety scores based on age, marital status, or education level ($p > 0.05$). However, gender and employment status showed statistically significant associations with dental anxiety. Females exhibited notably higher levels of anxiety (mean = 12.79 ± 3.82) compared to men (mean = 10.15 ± 4.91; $p = 0.004$). Similarly, unemployed individuals reported higher anxiety (mean = 12.57 ± 3.74) compared to employed individuals (mean = 10.16 ± 5.08; $p = 0.006$). Overall, most demographic variables did not show a significant relationship with dental anxiety in this study; the key factors were gender and employment status. Suggesting that social and economic factors may influence psychological responses to dental care, particularly among women and unemployed individuals. **[Table 6]**

Table 1: Demographic variables of the study participants

Variables		Total sample = 80 n (%)
Age in years	20 – 35	34 (42.5%)
	35 – 50	46 (57.5%)
Gender	Male	46 (57.5%)
	Female	34 (42.5%)
Marital status	Single	18 (22.5%)
	Married	62 (77.5%)
Educational level	Not Educated	33 (41.3%)
	Educated	47 (58.8%)
Employment status	Unemployed	37 (46.3%)
	Employed	43 (53.8%)

Table 2: Dental anxiety levels using the Modified Dental Anxiety Scale among Alamein's population

	Q1	Q2	Q3	Q4	Q5
	n (%)				
Not anxious (1)	39 (48.8%)	44 (55%)	55 (68.8%)	29 (36.3%)	21 (26.3%)
Slightly anxious (2)	10 (12.5%)	20 (25%)	17 (21.3%)	15 (18.8%)	11 (13.8%)
Fairly anxious (3)	19 (23.8%)	6 (7.5%)	7 (8.8%)	5 (6.3%)	8 (10%)
Very anxious (4)	7 (8.8%)	6 (7.5%)	0 (0%)	14 (17.5%)	10 (12.5%)
Extremely anxious (5)	5 (6.3%)	4 (5%)	1 (1.3%)	17 (21.3%)	30 (27.5%)
Mean ±SD	2.11 ±1.28	1.83 ±1.17	1.44 ±0.76	2.69 ±1.61	3.21 ±1.67
Median (IQR)	2.00 (2.000	1.00 (1.00)	1.00 (1.0)	2.00 (3.00)	3.50 (4.00)
Overall score Mean ±SD Median (IQR)	11.28 ±4.64 11.00 (7.50)				

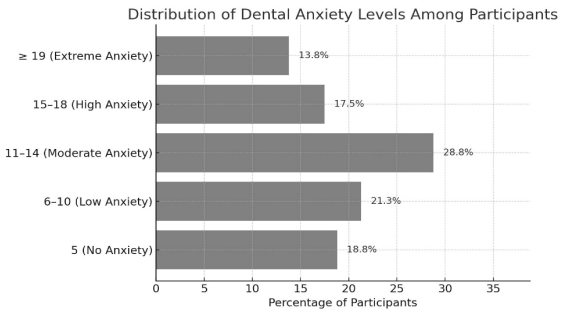

Figure 1: Distribution of dental anxiety levels among participants – (Horizontal Bar Chart)

Table 3: Oral health knowledge among Alamein's population

Items		Total sample = 80
Do you know terms like "plaque"?	Yes	68 (85%)
	No	12 (15%)
Do you know terms like "Caries"?	Yes	80 (100%)
	No	0 (0%)
Do you know terms like "Cavities"?	Yes	56 (70%)
	No	24 (30%)
Have you ever heard about toothpaste containing fluoride?	Yes	25 (31.3%)
	No	55 (68.8%)
Have you ever heard about dental floss for good oral hygiene?	Yes	27 (33.8%)
	No	53 (66.3%)
How often should you replace your toothbrush?	Every 1 month	30 (37.5%)
	Every 2 months	9 (11.3%)
	Every 3 months	11 (13.8%)
	Don't know	30 (37.5%)
Which of the following can cause tooth decay?	Sugar	4 (5%)
	Poor oral hygiene	18 (22.5%)
	Both together	58 (72.5%)
What is the recommended tooth brushing frequency?	Once	33 (41.3%)
	Twice	14 (17.5%)
	More than twice	3 (3.8%)
	No brushing	30 (37.5%)

Table 4: Oral health attitude among Alamein's population

Items		Total sample = 80
How do you feel about dental treatments?	Comfortable	45 (56.3%)
	Neutral	22 (27.5%)
	Extremely fear	13 (16.3%)
What do you think about visiting the dentist regularly?	Important	39 (48.8%)
	Neutral	19 (23.8%)
	Not important	22 (27.5%)
What do you think about the importance of dental health compared to general health?	Important	67 (83.8%)
	Sometimes important	9 (11.3%)
	Not important	4 (5%)
Are you willing to invest money in a dental procedure to maintain good oral hygiene?	Yes	54 (67.5%)
	No	26 (32.5%)
Do you believe brushing alone can be sufficient to maintain good oral hygiene?	Yes	53 (66.3%)
	No	27 (33.8%)

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Table 5: Oral health behavior among Alamein's population

Items		Total sample = 80
When was your last dental visit?	<6 months	59 (73.8%)
	6 months – 1 year	6 (7.5%)
	>1 year	11 (13.8%)
	Never	4 (5%)
Do you use additional oral hygiene aids like dental floss?	Yes	4 (5%)
	No	76 (95%)
Do you use additional oral hygiene aids like mouthwash?	Yes	10 (12.5%)
	No	70 (87.5%)
How often do you consume sugar?	Multiple times/day	24 (30%)
	Once/day	22 (27.5%)
	Twice/day	11 (13.8%)
	Don't know	23 (28.7%)
Do you clean your tongue as part of oral hygiene?	Yes	14 (17.5%)
	No	66 (82.5%)

Table 6: Relation between demographic variables and dental anxiety scores

Variables		Mean ±SD	Median (IQR)	*p* value[1]
Age	20 – 35	11.26 ±4.81	11.00 (8.00)	0.973
	35 – 50	11.28 ±4.57	11.00 (6.00)	
Gender	Male	10.15 ±4.91	9.00 (9.00)	***0.004****
	Female	12.79 ±3.82	14.00 (4.00)	
Marital status	Single	9.94 ±3.67	9.00 (7.25)	0.235
	Married	11.66 ±4.85	11.00 (7.25)	
Education	Not Educated	11.09 ±4.72	11.00 (9.00)	0.910
	Educated	11.40 ±4.64	11.00 (6.00)	
Employment	Unemployed	12.57 ±3.74	12.00 (4.00)	***0.006****
	Employed	10.16 ±5.08	9.00 (9.00)	

***Statistically significant difference at p value<0.05, p value1: Mann Whitney U test**

4. Discussion

Dental anxiety (DA) poses a significant challenge that negatively affects both patients and dentists, greatly contributing to the development of dental problems by preventing patients from seeking proper oral health care. This study highlights dental anxiety (DA) as a prevalent obstacle among the New Alamein population. In terms of sociodemographic factors, females or individuals with lower socioeconomic status may experience greater anxiety due to stress-inducing factors in daily life, impaired stress response, or limited access to dental health education messages. [20] Furthermore, low awareness of fluoride or flossing may be derived from poor exposure to preventive health campaigns of routine dental care. The MDAS is a popular, effective, and reliable method for evaluating dental anxiety in both clinical and research settings. [21] In the present study, high dental anxiety was found more in females than in male patients (*p-value* = 0.004) **(Table 6)**, with documented evidence in the literature **(Silveira et al., 2020; Bashiru & Omotola, 2016).** [22,23].

Correspondingly, a study by **Armfield (2010)** [15] found that lack of self-confidence and unemployment can lead to avoidance behavior, with unemployed people reporting higher levels of anxiety than employed people. Furthermore, in this study, unemployed individuals showed higher dental anxiety (*p-value* = 0.006) **(Table 6).** The prevalence of dental anxiety was low in response to routine clinical settings and sensory triggers such as dental smells or waiting room environments. However, noticeable spikes in dental anxiety were observed when participants were asked about dental anesthesia; the highest anxiety was observed in response to surgical procedures like tooth extractions. The overall percentage of DA items was 17.5% for moderate anxiety, which was the highest percentage, followed by 27.5% for severe anxiety and 25% and 23.8% for low and high anxiety **(Table 2).**

The development of oral health promotion strategies that can impact individual and community health outcomes can be facilitated by oral health literacy, which is influenced by social determinants of health. [24] Despite most participants demonstrating good oral health knowledge, with 85% correctly recognizing the term "plaque" and 100% identifying "caries" as a known term, significant gaps were noted in their awareness of preventive practices related to the use of fluoride toothpaste, with only 31.3% **(Table 3)** and 5% of participants using dental floss **(Table 5).** Although many participants recognize the importance of dental health, this awareness does not consistently translate into preventive behaviors such as regular brushing, tongue cleaning, or using dental aids. For instance, only 17.5% of participants reported cleansing their tongue as a part of their oral hygiene practice **(Table 5)**, indicating a lack of adherence to comprehensive self-care practices.

A review indicates that fear and anxiety related to dental treatments often arise from a past traumatic experience at the dentist. [25] Cooperation of both the dentists and the patients has a crucial role in making the dental treatment easier. It has to make the people more aware of the necessity of dental treatment. The impact of dental anxiety and fear seems to be multifactorial, resulting in an individual's tendency to have worse oral health in addition to postponing dental appointments. [25]

Recent international studies have reinforced the link between oral health literacy and dental anxiety. For instance, **Gudipaneni et al. (2024)** [26] demonstrated that low OHL in parents increased both parental and child anxiety levels, while **Yu et al. (2024)** [27] emphasized that OHL is a determinant of preventive behavior in the elderly. These findings align with the present results, emphasizing that community-based oral health education programs can reduce fear and enhance preventive care uptake.

Considering the findings of this study, demographic variables such as age (*p-value* = 0.973), marital status (*p-value* = 0.235), and educational level (*p-value* = 0.910) did not show a significant relationship with dental anxiety **(Table 6)**. It's vital to emphasize more oral health education for patients to encourage them to seek dental treatment. For women, previous research had indicated a greater tendency to report health-related fears and seek healthcare more frequently, which may increase awareness of oral healthcare and, therefore, anxiety. [22, 23]. Integrating oral health education into primary healthcare and workplace wellness programs may help address both psychological and behavioral barriers to care. Unemployed individuals, on the other hand, may face financial barriers to consistent dental care, contributing to irregular visits and increased fear due to the anticipation of more extensive or painful treatments. [15]

5. Conclusion

This study revealed that females exhibited notably greater anxiety levels compared to males. However, gender and employment status showed statistically significant associations with dental anxiety. A high risk of oral disease, poor oral health outcomes, and inappropriate oral health behaviors is associated with dental anxiety. As a strategy to prevent oral diseases, it is important to measure and identify individuals with dental anxiety to help prevent oral diseases. Dental public health initiatives should focus on improving oral health education and providing supportive environments to encourage regular dental visits and preventive care.

6. Limitations

The findings of this study should be interpreted with the following limitations in mind. Firstly, the cross-sectional design of this study prevents it from identifying causality. An association was noted only between gender and employment status. Accordingly, this study reflects only the DA and OHL of patients attending a university-based dental clinic and does not necessarily reflect that of the greater population. Secondly, the collected data relied on self-perceived outcomes, which could be biased, as the patients may over- or

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underestimate their response. Another limitation is the absence of a standardized, validated OHL tailored for the Egyptian population. Even with these restrictions, the study provides valuable baseline data for guiding future longitudinal and interventional studies focused on reducing anxiety and improving oral health literacy.

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Conflicts of interest
There are no conflicts of interest.

References

1. Robinson OJ, Vytal K, Cornwell BR, Grillon C. The impact of anxiety upon cognition: perspectives from human threat of shock studies. Front Hum Neurosci. 2013;7.
2. Grisolia BM, dos Santos APP, Dhyppolito IM, Buchanan H, Hill K, Oliveira BH. Prevalence of dental anxiety in children and adolescents globally: A systematic review with meta-analyses. Int J Paediatr Dent. 2021 Mar 9;31(2):168–83.
3. Appukuttan D. Strategies to manage patients with dental anxiety and dental phobia: literature review. Clin Cosmet Investig Dent. 2016 Mar;35.
4. do Nascimento DL, da Silva Araújo AC, Gusmão ES, Cimões R. Anxiety and fear of dental treatment among users of public health services. Oral Health Prev Dent. 2011;9(4):329–37.
5. Al-Hussyeen AJA. Factors affecting utilization of dental health services and satisfaction among adolescent females in Riyadh City. Saudi Dent J. 2010 Jan;22(1):19–25.
6. Bado FMR, De Checchi MHR, Cortellazzi KL, Ju X, Jamieson L, Mialhe FL. Oral health literacy, self-rated oral health, and oral health-related quality of life in Brazilian adults. Eur J Oral Sci. 2020 Jun 29;128(3):218–25.
7. Barasuol JC, da Silva Assunção LR, Fraiz FC, Menezes JVNB. Oral health literacy as a predictor of dental anxiety in parents of children undergoing dental treatment. J Dent Child (Chic). 2017;84(3):125–31.
8. Winkler CH, Bjelopavlovic M, Lehmann KM, Petrowski K, Irmscher L, Berth H. Impact of Dental Anxiety on Dental Care Routine and Oral-Health-Related Quality of Life in a German Adult Population—A Cross-Sectional Study. J Clin Med. 2023 Aug 14;12(16):5291.
9. Yu S, Huang S, Song S, Lin J, Liu F. Impact of oral health literacy on oral health behaviors and outcomes among the older adults: a scoping review. BMC Geriatr. 2024 Oct 22;24(1):858.
10. Baskaradoss JK. Relationship between oral health literacy and oral health status. BMC Oral Health. 2018 Dec 24;18(1):172.
11. Gudipaneni RK, Alzabni KMD, Alrashedi FFA, Alruwaili DHJ, Albalawi FA, Alanazi AH, et al. The impact of parental dental anxiety and oral health literacy on child oral health and dental-visit patterns: a cross-sectional study. BMC Oral Health. 2024 Jul 27;24(1):853.
12. Saba Z, Katirci G. Relationship between dental anxiety levels and oral health among dental patients in Turkey: a cross-sectional study. BMC Oral Health. 2023 May 25;23(1):328.
13. DeDonno MA. Dental anxiety, dental visits and oral hygiene practices. Oral Health Prev Dent. 2012;10(2).
14. Pohjola V, Rekola A, Kunttu K, Virtanen JI. Association between dental fear and oral health habits and treatment need among University students in Finland: a national study. BMC Oral Health. 2016 Dec 27;16(1):26.
15. Armfield JM, Slade GD, Spencer AJ. Dental fear and adult oral health in Australia. Community Dent Oral Epidemiol. 2009 Jun 15;37(3):220–30.
16. Petersen PE. World Health Organization

global policy for improvement of oral health - World Health Assembly 2007. Int Dent J. 2008 Jun;58(3):115–21.

17. Humphris GM, Dyer TA, Robinson PG. The modified dental anxiety scale: UK general public population norms in 2008 with further psychometrics and effects of age. BMC Oral Health. 2009 Dec 26;9(1):20.

18. Mahore RK, Gupta V, Panika RK. Assessment of Knowledge, Attitude, and Practices Regarding Oral and Dental Hygiene among Dental Outpatients in Central India. Journal of the Scientific Society. 2021 May;48(2):73–8.

19. Zhao J, Cao A, Xie L, Shao L. Knowledge, attitude, and practice toward oral health management among orthodontic patients: a cross-sectional study. BMC Oral Health. 2024 Dec 18;24(1):1500.

20. Muneer MU, Ismail F, Munir N, Shakoor A, Das G, Ahmed AR, et al. Dental Anxiety and Influencing Factors in Adults. Healthcare. 2022 Nov 23;10(12):2352.

21. Al Ahmari NM, Al Moaleem MM, Al Dhelai TA, Al-Ahmari MM, Adawi HA, Aldowsari MK, et al. Dental Anxiety and Fear among Patients in Jazan, Kingdom of Saudi Arabia: A Cross-sectional Study. J Contemp Dent Pract. 2021 Jul 9;22(5):549–56.

22. Silveira ER, Cademartori MG, Schuch HS, Armfield JA, Demarco FF. Estimated prevalence of dental fear in adults: A systematic review and meta-analysis. J Dent. 2021 May;108:103632.

23. Bashiru BO, Omotola OE. Prevalence and determinants of dental anxiety among adult population in Benin City, Nigeria. European J Gen Dent. 2016 Sep 1;5(03):99–103.

24. Badran A, Keraa K, Farghaly MM. The impact of oral health literacy on dental anxiety and utilization of oral health services among dental patients: a cross sectional study. BMC Oral Health. 2023 Mar 12;23(1):146.

25. Nermo H, Willumsen T, Rognmo K, Thimm JC, Wang CEA, Johnsen JAK. Dental anxiety and potentially traumatic events: a cross-sectional study based on the Tromsø Study—Tromsø 7. BMC Oral Health. 2021 Dec 23;21(1):600.

26. Gudipaneni RK, Alzabni KMD, Alrashedi FFA, Alruwaili DHJ, Albalawi FA, Alanazi AH, et al. The impact of parental dental anxiety and oral health literacy on child oral health and dental-visit patterns: a cross-sectional study. BMC Oral Health. 2024 Jul 27;24(1):853.

27. Yu S, Huang S, Song S, Lin J, Liu F. Impact of oral health literacy on oral health behaviors and outcomes among the older adults: a scoping review. BMC Geriatr. 2024 Oct 22;24(1):858.