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EXPLORING DENTAL ANXIETY: THE IMPACT OF ACADEMIC DISCIPLINE ON LIMU UNIVERSITY STUDENTS' PERCEPTIONS AND EXPERIENCES

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ABSTRACT

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Background: Dental anxiety affects many college students and can have a negative effect on both their general well-being and academic achievement. The current study aims to ascertain the demographic parameters impacting anxiety levels about dental treatment in different faculties at LIMU University in Benghazi, Libya. Materials and Methods: The current cross-sectional study included 350 randomly selected students from a total of 1988 enrolled in various LIMU university faculties. Participants were given a printed, anonymous self-administered questionnaire to assess dental anxiety, which employed the Modified Dental Anxiety Scale (MDAS) developed by Humphris et al. in 1995. The MDAS is made up of five closed-ended questions that ask respondents to rate their anxiety about dental procedures on a scale of 1 (not anxious) to 5 (extremely hesitant), with scores ranging from 5 to 25. In this study, those who scored 20 or higher were considered to have significant dental anxiety, which could imply dental phobia. Results: The age range of the respondents was 17 to 28. There were no variations in the mean anxiety levels across the seven faculties that were examined, according to the one-way ANOVA (p-value = 0.056). But with the greatest anxiety levels-22.3% within the high range-students in the Applied Medical Sciences outscored those in Information Technology (19.4%) and Pharmacy (18.1%). Conversely, there were less nervous participants in the Faculty of Human Medicine, and no students in the faculties of Engineering or Business Administration had the lowest anxiety scores. Conclusion: The majority of respondents had moderate degrees of anxiety, with higher percentages of worry in some faculties. These results highlight the need for focused treatments to address and reduce dental anxiety, especially for students in the faculties of pharmacy, information technology, and applied medical sciences.

KEYWORDS: Dental Anxiety, Anxiety Levels, Dental Health Awareness, Dental Treatment Anxiety, Health Education

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INTRODUCTION

An emotional condition of fear or dread at the thought of receiving dental care is known as dental anxiety. It has been recognized as a concern by dental professionals and patients generally⁽¹⁾. Dental anxiety is the term used to describe a patient's unique reaction to stress related to dental settings. Individuals who have severe anxiety regarding their teeth are far more likely to put off or avoid going to the dentist ^(2,3). Extensive dental procedures include injections, high-speed hand pieces for cavity preparation, and potentially frightening sharp blades and equipment's are considered alarming by patients ⁽¹⁾.

The person experiences mental, physical, emotional, and behavioral reactions toward dental treatments and terror which eventually results in dental anxiety. Patients with anxiety usually experience greater discomfort that lasts longer because anxiety is frequently intimately linked to unpleasant stimuli and enhanced pain perception. Due to their lack of cooperation, nervous patients require more time and resources during treatment, which can be stressful for the dentist and eventually contribute to an unpleasant encounter for both the individual receiving treatment and the dentist.⁽⁴⁾

The interpersonal components of dental care are receiving more attention in dentistry education and training due to the substantial potential influence on individual patients and the difficulties in treating dental anxiety. Therefore, it has become more crucial in recent years for dentistry students to grasp their personal practices with dental anxiety.⁽⁵⁾

A variety of anxiety and fear scales have been developed to help treat this problem in an efficient manner for the patients. Tools such as the Modified Dental Anxiety Scale (MDAS) and Corah's Dental Anxiety Scale (CDAS) can be used to objectively assess dental anxiety.⁽⁶⁾

A particular group of students identified as dentistry students gradually gain knowledge and skills in various dental treatments while pursuing their education. For dentistry students who are anxious about their teeth, this might be viewed as a form of exposure treatment. When used to treat dental anxiety and phobia, exposure to stimuli that cause fear is a crucial part of cognitive behavioral therapy. It's feasible that this "environmental habituation," along with the dental instruction they receive, will help dental students feel less anxious about their teeth. ⁽⁷⁾

The aim of this study will be to estimate the levels of dental anxiety amongst students from different fields whom include dental, medical, pharmacy, engineering, health informatics and business administration students at the Libyan International University in Benghazi city.

MATERIALS AND METHODS

The current Observational a cross-sectional study was carried out on 350 students who were randomly selected out of 1,988 students enrolled in different university departments. A printed, anonymous, self-administered questionnaire intended to measure dental anxiety was given to participants. The "Modified Dental Anxiety Scale" (MDAS), which was first created in the United Kingdom in 1995 by Humphris et al., served as the main instrument in this investigation⁽⁸⁾. The MDAS is a self-administered tool that consists of five closed-ended questions designed to gauge an individual's level of anxiety over dental operations (Figure-1).

On a scale of 1 to 5, where a "1" means "not anxious" and a "5" means "extremely anxious," respondents were asked to rate their level of anxiety. The answers to all five questions are added together to determine the MDAS's overall score, which can vary from 5 to 25. In the current study, participants with significant dental anxiety—which may be a sign of dental phobia—were defined as having a cutoff score of 20 or higher. In order to better understand the psychological elements impacting dental health habits among students, the obtained data were analyzed to find tendencies and patterns of dental anxiety among the participants. The primary outcome of this study was to evaluate the levels of dental anxiety among students across various academic disciplines. The secondary outcomes included analyzing the differences in dental anxiety levels across academic faculties and assessing the impact of demographic variables (such as age and gender) on dental anxiety scores.

	Modified Dental Anxiety Scale
CAN	YOU TELL US HOW ANXIOUS YOU GET, IF AT ALL
	WITH YOUR DENTAL VISIT?
Age :	year : Faculty : Gender:
l = If you we	nt to your dentist for treatment tomorrow, how would you feel?
	not anxious slightly anxious fairly anxious
	very anxious extremely anxious
2 = If you we	ere sitting in the waiting room, how would you feel?
	not anxious slightly anxious fairly anxious
	very anxious extremely anxious
3 = If you we	re about to have a tooth drilled, how would you feel?
	not anxious slightly anxious fairly anxious
	very anxious extremely anxious
4 = If you we	re about to have your teeth scaled and polished, how would you feel?
	not anxious slightly anxious fairly anxious
	very anxious extremely anxious
5 = If you we feel?	re about to have a local anesthetic injection in your gum, how would you
	not anxious slightly anxious fairly anxious
	very anxious extremely anxious

Fig. (1) The Modified Dental Anxiety Scale (MDAS) Questionnaire

RESULTS

A total of 339 of the 350 surveys that handed over were returned, yielding a 97% response rate. Sixteen questionnaires, however, were determined to be incomplete and were disregarded in the study. Thus, 323 participants made up the final sample size for this study, yielding a 92.2% effective response rate. The respondents' ages ranged from 17 to 28 years old on average. Tables 1 through 4 provide specifics on the participant demographic distribution, including gender, academic year, age group, and field of study.

A one-way ANOVA with a p-value of 0.056 was performed to see whether there were statistically significant differences in the anxiety levels among individuals from different faculties. This suggested that the mean anxiety levels for each of the seven faculties included in the study did not differ in a way that was statistically significant. The Modified Dental Anxiety Scale total scores and mean scores for each faculty are shown in Table 5.

With 18 individuals scoring in the higher anxiety range (scores of 4 or 5), students from the Applied Medical Sciences faculty showed the highest levels of anxiety among the various faculties. In particular, 3 individuals obtained a score of 5, whereas 15 participants (22.3%) got a score of 4. Closely behind, as seen in Table 6, were students from the faculties of pharmacy and information technology, who reported higher anxiety levels (19.4% and 18.1% of their participants, respectively).

As shown in Table 6, the Department of Human Medicine reported a total of 9 participants with high anxiety scores, while the Departments of Dentistry, Engineering, and Business Administration each recorded 7 participants in the same anxiety range. Table 6 indicates that the Faculty of Human Medicine and the Faculty of Information Technology had the largest percentages of participants who did not experience anxiety, with 5 (38.4%) and 4 (30.7%) people, respectively, receiving a score of 1. Furthermore, no students from the colleges of engineering and business administration received a score of 1.

Gender	Ν	Percent
Male	113	35.0
Female	210	65.0
Total	323	100.0

TABLE (1) The distribution of the participant based on gender

TABLE	(2):	The	distribution	of	the	participant
	base	ed on	field of study			

Field of study	Ν	Percent
Medicine	70	21.7
Dental	42	13.0
Pharmacy	36	11.1
AMS	71	22.0
IT	61	18.9
Engineering	22	6.8
Business	21	6.5
Total	323	100.0

TABLE (3) The distribution of the participant based on academic year

Year	Ν	Percent
First	126	39.0
Second	34	10.5
Third	72	22.3
Fourth	37	11.5
Fifth	54	16.7
Total	323	100.0

TABLE (4) The distribution of the participant based on age group

Age Group	n	Percent
17-19	147	45.5
20-21	91	28.2
22-23	62	19.2
24-25	16	5.0
26-28	7	2.2
Total	323	100.0

			Score				
Faculty -	Score (1)	Score (2)	Score (3)	Score (4)	Score (5)	Total	Arithmetic
	(5)	(5_10)	(10-15)	(15-20)	(20_25)	Total	average
Medicine	5 (38.4%)	22 (20.9%)	34 (26.5%)	8 (11.9%)	1(10%)	70	14
Dental	2 (15.3%)	22 (20.9%)	11 (8.5%)	6 (8.9%)	1(10%)	42	8.4
Pharmacy	1 (7.6%)	6 (5.7%)	15 (11.7%)	13 (19.4%)	1(10%)	36	7.2
AMS	1 (7.6%)	22 (20.9%)	30 (23.4%)	15 (22.3%)	3 (30%)	71	14.2
IT	4 (30.7%)	19 (8.5%)	23 (17.9%)	13 (19.4%)	2 (20%)	61	12.2
Engineering	0	7 (6.6%)	8 (6.25%)	7 (10.4%)	0	22	4.4
Business	0	7 (6.6%)	7 (5.4%)	5 (7.4%)	2(20%)	21	4.2
Total	13	105	128	67	10	323	64.6
	4.02%	32.5%	39.6 %	20.7%	3.1%		

TABLE (5) Description the Arithmetic average of individual faculty and total scores of the (MDAS)

TABLE (6) The Distribution Of Anxiety Level Among Different Faculties

	Score					
Faculty	Free of anxiety	Moderate anxiety	Sever anxiety			
	(score1)	(Score 2-3)	(Score 4_5)			
Medicine	5 (38.4%)	56 (24.0%)	9 (11.6%)			
Dental	2 (15.3%)	33 (14.1%)	7 (9.09%)			
Pharmacy	1 (7.6%)	21 (9.01%)	14 (18.1%)			
AMS	1 (7.6%)	52 (22.3%)	18 (23.4%)			
IT	4 (30.7%)	42 (18.02%)	15 (19.4%)			
Engineering	0	15 (6.4%)	7 (9.09%)			
Business	0	14 (6%)	7 (9.09%)			
Total	13 (4.02%)	233 (72.1%)	77 (23.8%)			



Fig. (2) Pie chart illustrate "score 1" Anxiety Level among Different Faculties



Fig. (3) Pie chart illustrate "score 4 and 5" Anxiety Level among Different Faculties

DISCUSSION

The results of this study highlight how crucial oral health education is in helping patients overcome their worries and anxieties, which can eventually result in low compliance and unfavorable attitudes about dental treatment. According to the statistics, there is an urgent need for improved educational initiatives targeted at raising students' awareness of dental health issues, as a deficiency in information and comprehension may perhaps be crucial in the observed anxiety levels.

The outcomes confirm that the Modified Dental Anxiety Scale (MDAS) is a valid and trustworthy tool for gauging dental anxiety. Remarkably, 72% of participants across all faculties reported having anxiety levels between 2 and 3, making up the bulk of the sample; only 4% of participants were classified as being anxiety-free. This implies that even if a large number of pupils have mild anxiety, a sizable segment of the population still needs assistance.

Students from the Applied Medical Sciences faculty reported the highest levels of anxiety (scoring 4-5) out of all the faculties, with 23% showing serious dental anxiety. After them, anxiety was higher among pharmacy and information technology students (19% and 18%, respectively). On the other hand, no discernible variations were observed in the frequency of extreme anxiety (scoring 4-5) across other academic disciplines; the percentages for Dentistry, Engineering, and Business Administration were all 9%. These results are consistent with previous research were conducted in 2009 study by Humphris et al.,⁽⁹⁾ that discovered a comparable rate of high dental anxiety in a sizable representative cohort study in the UK, with 11% of participants showing scores suggestive of high dental anxiety.

Additionally, our findings demonstrated that anxiety was present among dentistry students at varied degrees, with a noteworthy incidence of 15.3% score 1 (Table6) which indicates free of anxiety. This result is in contrast to a study conducted by Omari et al.⁽³⁾ (2009), which revealed that dentistry students had reduced anxiety (11.2%) than their counterparts in the engineering and medical disciplines (26.85%). It's remarkable to

note that, at 69.1%, medical and IT students in this

study had the lowest levels of dental fear.

The study's gender breakdown revealed that 35% of participants were male and 65% of the sample consisted of females. Females were shown to have a significantly higher prevalence of dental anxiety, which is similar with previous research by Goh et al., ⁽¹⁰⁾ and Talo et al., ⁽¹¹⁾ that found a higher frequency of dental anxiety in females. Nevertheless, that certain research show no discernible gender differences in dental anxiety or even suggest that men have higher levels of worry. This discrepancy can result from differences in the particular populations under study or from cultural factors.

Interestingly, the data revealed that female students exhibited higher anxiety levels compared to their male counterparts, consistent with findings from earlier research.⁽¹²⁾

Such gender differences in dental anxiety could be attributed to social and psychological factors, including societal expectations and previous negative experiences with healthcare. ⁽¹³⁾

The overall low percentage of students reporting no anxiety suggests a pervasive issue that cannot be overlooked. This finding indicates a critical need for comprehensive oral health education to demystify dental procedures and reduce the stigma around dental visits. Educational interventions could include workshops, seminars, and counseling services focused on anxiety management techniques.⁽¹⁴⁾

In contrast to the results of our study, which showed that women made up a higher percentage of participants at 65%, Tarrosh et al., ⁽¹⁾ (2022) systematic analysis of cross-sectional studies carried out in Saudi Arabia kingdom revealed that 60% of participants were male. These variations show how more culturally aware study in diverse populations is required to fully understand the variables causing dental fear.

High dental anxiety patients can be difficult to work with in a clinical context; they frequently need more time in treatment and specific techniques to help them cope with their anxieties. Effective therapy strategies that are customized to meet the requirements of these patients are essential for dental professionals to use since anxiety that goes untreated can cause significant stress for both the patient and the dentist.

CONCLUSION

Generally, most of the university students had moderate anxiety levels, with most scoring between 2 and 3. These results point to the necessity of focused interventions to treat dental anxiety, especially for students majoring in pharmacy, information technology, and applied medical sciences. It is necessary to conduct more studies to determine the underlying factors contributing to dental anxiety in these group of population. Overall, the results of this study highlight the need for focused interventions meant to lower dental fear and promote favorable attitudes about dental care.

List of abbreviations

LIMU - Libyan International Medical University

MDAS - Modified Dental Anxiety Scale

ANOVA - Analysis of Variance

CDAS - Corah's Dental Anxiety Scale

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

The authors declare that they have no conflicts of interest.

Ethics approval

Ethics approval was obtained from the Ethics Committee of the Libyan International Medical University.

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