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Original Article

Dental Anxiety Impact on Oral Health Related Quality of Life: A Cross-Sectional Study in Benghazi, Libya

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Abstract
Dental anxiety (DA) is a common condition associated with subsequent health-related and psychosocial outcomes. The sense of well-being and satisfaction with daily performances influenced by dental and oral conditions is known as oral health-related quality of life (OHRQoL). This study aimed to evaluate the impact of dental anxiety on quality of life in Benghazi city. The basic research design included a cross-sectional study involving a randomly selected sample of the Benghazi population (N=717, age = 16 – 72 years old). The data was collected by means of a questionnaire on Google Forms online and printed handouts. Statistical analyses were made with descriptive statistics, inference t- test and chi-square using IBM SPSS Statistics version 22.0. Among the study group, 64.2% were females and 35.8% were males. Based on the MDAS score, 15.8% of the participants were identified to be highly anxious and suffering from dental phobia. Generally, more female participants 72% had dental phobia than males. There were significant differences between the phobic group's and non-phobic group's Oral Health Impact Profile-5 (OHIP), with phobic participants having generally higher scores. Dental anxiety is associated with the impact oral health has on life quality; participants experiencing high levels of dental anxiety were mostly females and had poorer oral health-related quality of life than those who didn't.
Keywords. Dental Anxiety, Oral Health Related Quality Of Life, Oral Health Impact Profile

Introduction

Dentists all over the world face the problem of Dental Anxiety in their daily practice. Dental Anxiety (DA) is defined as the patient's response to stress that is specific to dental situations like local anesthesia injections, the sound of drilling, or the dental settings in general, which requires a good dentist's skills to provide proper management in clinical practice. Dental phobia is a severe type of dental anxiety characterized by more persistent anxiety related to dental treatment. The difference between dental anxiety and phobia is subjective, and there's no clear demarcation between them in previous literature; hence, both terms are used interchangeably [1].

Despite the advances in dentistry, anxiety associated with dental procedures is still common, as it has been ranked fifth among common fears in the general population [2].

Patients that have dental anxiety tend to have irregular dental visiting habits, this prolonged dental avoidance can cause deteriorating oral health which makes them more predisposed to different oral diseases, dental anxiety can also be the reason behind other serious consequences such as medical complications due to stress as well as poor psychological health, therefore the prevalence of dental anxiety has been focus of several surveys over the years, it varies from 5 to 21% of the population depending on the method of measurement used. Moreover, previous studies have suggested that dental anxiety has a negative influence on the patient's well-being and substantially affects their oral health-related quality of life [3].

Oral health-related quality of life (OHRQoL) characterizes an individual's perception of how oral health influences their quality of life. This concept has received a lot of attention from psychologists, with different instruments being developed to measure it.

High dental anxiety is consistently linked to poor OHRQoL for patients in the United Kingdom (UK), Germany, Switzerland, Sweden, and India [4-8]. There's a lack of information on the prevalence of dental anxiety and its effects on OHRQoL in Libya; hence, the present study aimed to collect data on the prevalence of DA and its impact on OHRQoL among adults in Benghazi, Libya.

Methods

The basic research design included an observational cross-sectional study and was conducted among 717 participants in Benghazi, Libya. Based on previous studies, it was found that 699 subjects are enough for conducting the research at a power of 0.90, confidence interval 0.99, and alpha level of 0.05. The inclusion criteria specified that participants had to be aged 16-70 years old, currently Benghazi residents, and willing to participate in the survey; people who couldn't understand the Arabic language were excluded.

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The purpose of this study was explained to each participant, and the information was collected using a questionnaire. The questionnaire consists of two parts: the first part collected socio-demographic data such as age, gender, educational levels, along with the smoking habits and dental visiting habits. Whereas the second part is composed of items on the dental anxiety levels and oral health-related quality of life (OHRQoL). The two most frequently used adult questionnaires to measure dental anxiety are the dental anxiety scale DAS by Corah; its content validity was further modified, creating the Modified Dental Anxiety Scale (MDAS) by Humphris et al. [15].

The Arabic verified version of MDAS was used. It consists of 5-item scales used to assess dental anxiety in five dental situations, which include, on the day prior to the dental appointment, sitting in the waiting area, in the dental chair during teeth drilling, when the teeth are cleaned, and when receiving an anesthetic injection. Each item has scores of 1 = not anxious; 2 = slightly anxious; 3 = moderately anxious; 4 = highly anxious; 5 = extremely high anxiety. The total score range is between 5 and 25. The cut-off score was >19 = dental phobia/anxiety, which was validated by Humphris et al. The MDAS is simple, reliable, and quick; hence, it was translated into different languages and used in many countries all over the world [13].

The data also included the effects of oral health on quality of life (OHRQoL), which was assessed by the 5-item Arabic version of the Oral Health Impact Profile-5 (OHIP-5), the 5 items asked if the participant has experienced any presence of functional limitation, physical pain, psychological discomfort, and taste alterations in the last 12 months due to dental causes,. The questions are answered on a five-point Likert scale from 1 = "never" to 5 = "very often". Higher scores indicated lower oral health-related quality of life [16].

The questionnaires were distributed by means of Google Forms online and printed handouts. The collected data were entered into spreadsheets and were statistically analyzed with descriptive statistics, and an independent sample t-test was performed to detect the difference in means and data of two groups, where One-way ANOVA and Post-hoc tests were used in several groups. The chosen level of significance was P<0.05 for the total study group. All calculations were performed using (software: Statistics IBM SPSS version 22.0.)

Results

The total sample consisted of 717 participants (60% female and 40% male). The female participants were shown to be more anxious than the male participants in the study group (P<0.001) (Table 1). The mean age was 28.34 (SD 11.3), and it was seen that most of the participants (375) belonged to the age group ≤20-29 years (52%), then 17.2% of the participants (123) belonging to the age group 30-39. Whereas the lowest percentage was seen in the age group ≤60 with 2.2%. Furthermore, it was noticed that younger participants were more anxious, although the difference was statistically insignificant (P-value 0.101) (Table 2).

Table 1: Gender distribution

	Gender	***N***	***Mean***	***SD***	***P value***
MDAS	Male	257	10.83	5.077	P<0.05
	Female	460	13.02	5.138	.000

Table 2: Age group and dental anxiety

Age group	***N***	***Mean***	***SD***	***P value***
<20	101	13.35	5.275	P<0.05 .101
20-29	375	11.92	4.996	
30-39	123	12.63	5.274	
40-49	61	11.49	6.063	
50-59	43	12.77	5.524	
60+	16	11	4.531	
Total	717	12,24	5.22	

However, the mean total score for dental anxiety on MDAS was 12.23 (SD = 5.216). Based on the MDAS score, 84% of the subjects were identified as not or less anxious, and 16% (≥19 total score) were suffering from severe dental anxiety or dental phobia (Figure 1).

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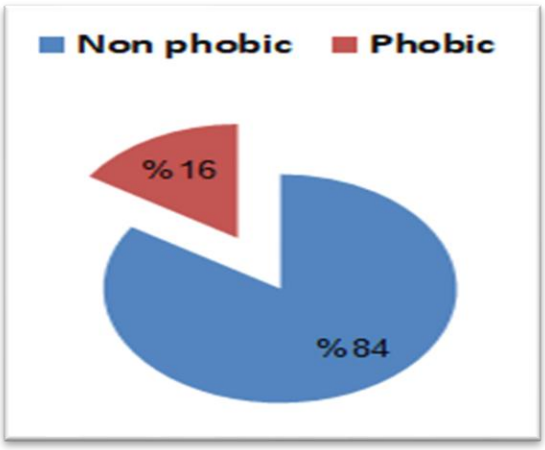

Figure 1: Phobic and Non-phobic

Regarding the educational level, there was a statistically significant difference between groups where participants with secondary school level education (144) had the highest dental anxiety scores with a mean of 12.47 (P-value 0.048) in comparison to bachelor's educational level (507) with a mean 12.35 and with master's educational level (66) with a mean 10.89 (Table3).

Table 3: Educational level and dental anxiety

Education level	***N***	***Mean***	***SD***	***P-value***
Secondary level	144	12.47	4.895	P<0.05 0.048
Bachelor's degree	507	12.35	5.382	
Master's degree	66	10.89	4.455	
Total	717	12.24	5.220	

Furthermore, it was noticed that those who avoided visiting the dentist by taking only medication (101) had significantly higher scores of dental anxiety with a mean of 14.8 and SD 5.568, in comparison with those participants who only goes to the dentists when they feel pain (458), or those participants who going routinely for a dental checkup (108), with a mean 12.16 and 9.588 and SD 5.098 and 4.019 respectively (Table4).

Table 4: Dental visiting habits and dental anxiety

MDAS	***N***	***Mean***	***SD***	***P-value***
Routinely for a check-up	108	9.58	4.019	P<0.05 .000
Only when I feel pain	458	12.16	5.098	
Only take medications	101	14.8	5.568	
Never been to a dentist	50	13.52	5.136	
Total	717	12.24	5.22	

Moreover, the difference between smokers (102), nonsmokers (600), and previous smokers (15) was insignificant (P-value 0.180), with means of 11.75, 12.37, and 10.27 and SD 5.8, 5.142, and 3.575, respectively (Table 5).

Table 5: Smoking and dental anxiety

	N	***Mean***	***SD***	***P-value***
Smoker	102	11.75	5.8	P>0.05 .180
Non smoker	600	12.37	5.142	
Previous smoker	15	10.27	3.575	
Total	717	12.24	5.22	

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The participants were divided into two subgroups, namely phobic and non-phobic, according to their dental anxiety scores (cut-off score >19). The table reported that phobic individuals had higher OHIP mean scores (9.4). Hence, lower oral health-related quality of life than non-phobic participants, OHIP (4.14) (Table 6)

Table 6: Phobic and Non-Phobic

	Concerning	***N***	***Mean***	***SD***	***P-value***
OHIP	Phobic	114	9.4	0.74271	P<0.05 .000
	Non phobic	603	4.14	1.12799	

Discussion

In the present study, the mean total dental anxiety score was 12.23 (SD±5.2), which is close to the anxiety levels reported from studies in other developing countries, such as Saudi Arabia 11.39 (SD ± 2.7) and Iran (12.34 ± 4.74) [13,17]. The prevalence of dental phobia between the study populations was 16%, which is more prevalent than studies conducted in Western countries like the UK (11%), Swedish adults (4.7%) [6,12]. It's also more than studies conducted in Arab countries such as Saudi Arabia (12.4%) [13]. The difference could be due to multiple factors, such as low dental health awareness levels, false beliefs about dental treatment, cultural differences between populations, or different methodologies.

It was found that the prevalence of dental anxiety was greater among females (15% of the total female participants), whereas the prevalence of phobic males was (11% of the total male participants), also the difference was observed in dental anxiety levels between males (MDAS10.83) and females (MDAS 12.03) in disagreement with few previous studies [7]. But, in accordance with the analysis of oral health surveys in the UK, and in Saudi Arabia [12,13]. The difference could have been due to the fact that women usually admit their fears more easily than men.

Regarding the smoking habit, there was no significant difference found between the groups, in contrast to the analysis of oral health survey by Newton JT et al in the UK and in the Swedish population [6,12].

Results also showed that there was no significant difference between age groups and their mean MDAS score; this finding agrees with Staatchi, who reported that dental anxiety was not affected by age [17]. And in contrast to the findings of previous studies in India by Acharya and Kumar, and Saudi Arabia, where a negative correlation between respondent age and dental anxiety was observed [7,11,13]. In the present study, the youngest age of patients was 16 years old. Hence, this could be a reasonable explanation for why anxiety levels for the age groups showed no difference.

Regarding education, the results of the study showed that education had a significant effect on dental anxiety; individuals with secondary school education had the highest scores in comparison to highly educated individuals. This result agrees with the UK national health survey and in Saudi Arabia [12,13].

Individuals with high MDAS scores were less likely to report to a dental clinic for a routine check-up than individuals with low dental anxiety. This supports earlier findings in the adult dental health survey in the UK, Sweden, and findings in India that individuals with dental anxiety tend to avoid dental treatment and postpone their dental procedures [6,7,12].

In this study, the five-item version of the OHIP scale was used to measure OHRQoL. A relationship between OHRQoL and DA was found when phobic and non-phobic groups were compared. On average, non-phobic participants had a mean score of 4.14 in OHIP, and in contrast to phobic participants, who had a score of 9.4, the difference was statistically significant. The finding of high DA associated with low OHRQoL was expected, and this finding is well in line with previous literature [4-8]. This could be since people with dental anxiety neglect their oral health to a level that they have a lot of untreated oral diseases, which in turn affects their quality of life to a considerable degree.

Conclusion

Dental anxiety differed significantly with gender, education, sleep quality, and dental visiting habits. More importantly, dental anxiety was significantly associated with OHRQoL.

Development of this study and more research with a larger sample size should be carried out to further assess these impacts in Libya.

Conflicts of Interest

The authors declare no conflicts of interest

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