Original Article

Assessment of Clinical Attachment Level in Anxious Patients

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Abstract

Objective: This study aimed to assess the clinical attachment level in anxious patients with periodontitis using the Hamilton Anxiety Scale Rate.

Methods: The study was conducted at the University of Sulaimani, and Shorsh Dental Center teaching hospital; 100 individuals (50 males and 50 females) were included in the study ranging from (30- 65) years old. The individuals' anxiety level was evaluated using Hamilton Anxiety Scale Rate (HAM-A), and the WHO probe measured the clinical attachment level (CAL). The collected data were analyzed using the Chi square test and Spearman correlation, and p≤0.05 was significant.

Results: Among 100 individuals that participated in the study,38% had mild anxiety, and the remaining (21,12,18 and 11) % had moderate, severe, very severe, and no anxiety, respectively. In these groups, the majority of participants had stage II periodontitis, followed by stage I, none periodontitis, stage III, and stage IV periodontitis, respectively. There's no significant difference in CAL between genders (P=0.81). But there were significant differences in anxiety between genders (P=0.028), and there was no significant association between anxiety and CAL (P= 0.803).

Conclusions: In the present study, the severity of anxiety was stronger in males than in females. Anxiety didn't cause CAL.

Keywords: *Periodontist, Clinical attachment level, Anxiety, Hamilton anxiety rate scale.*

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Introduction

Anxiety is a natural and frequently healthy emotion. When an individual usually feels disproportionate anxiety levels, it might become a medical disorder(1). Anxiety disorders form a mental health diagnosis category that leads to excessive nervousness, fear, apprehension, and worry(2). It is generally equated with sadness, a protean feeling state in its manifestation, ranging from mild, transient disappointment to severe, confusing, enduring melancholy. Anxiety persists for at least two weeks but can last for months or years(3). Periodontitis affects millions of people every year due to the periodontium's bacterially induced chronic inflammatory disease that marks the periodontium's destruction(4). The presence of periodontitis indicates that the integrity of tooth-supporting tissues has been compromised(5); also, periodontitis can result in tooth loss, atherosclerosis(6), aspiration pneumonia(7) and some cancers(8). The development of periodontal diseases has been related to periopathogenic bacteria, with positive correlations between psychological factors(9), such as anxiety(10,11), and periodontal diseases. The literature will identify and discuss some biological and behavioral risk factors that can further increase periodontitis onset. These behavioral habits are associated with periodontitis development, such as smoking(12) and poor oral hygiene(13). The biological factors are associated with periodontitis development as advancing age(14) and diseases such as diabetes(15). The relationship between periodontitis and psychological factors can provide different understandings regarding the potential improvements which can be made following treatment, or prevention, for the onset of periodontal disease. The need to provide further insight into this relationship is critical as it can provide an understanding of the additional benefits of prevention and treatment of periodontitis and the psychological benefits which could be produced from it.

Patients and methods

The survey was recruited at The University of Sulaimani, and the Shorsh Dental Center teaching hospital. A total of 100 individuals (50 males and 50 females) were included ranging from 30 to 65 years. The individuals' psychological condition was evaluated using Hamilton Anxiety Scale Rate (HAM-A), and CAL was measured using a WHO probe.

The inclusion criteria of the study were as follows:

1- Individuals should have a minimum of 20 teeth with wisdom teeth excluded.

2- Individuals have never received professional treatment for anxiety or mental health issues and have no prior history of anxiety or anxiety-related conditions.

3- Smoker, alcoholic drinking, and drug abuse conducting exclude from the sample.

4- Pregnant women and diabetic patient excludes from the sample.

The severity of anxiety was determined after consultation with the psychiatrist. The Hamilton Anxiety Rating Scale is one of the best psychological assessment tools for anxiety and is more dependable in this study.

Hamilton anxiety rating scale (HAM-A)

The HAM-A allows an examination of the severity of anxiety symptoms and is commonly used in clinical and research settings(16). The HAM-A is a clinical-based questionnaire that consists of 14 symptom-defined elements while providing consideration for psychological and somatic symptoms of anxiety(17). The scale was rated using a 4 point-Likert scale consisting of 0 = none, 1 = mild, 2 = moderate, 3 = severe, and 4 = very severe(16). With a total score ranging from (0-56) (appendix). Following recommendations from Thompson(17), the scores below 17 were considered non-anxiety, scores between 17-25 were considered mild anxiety, whereas scores of 25-30 were considered moderate to severe.

Scores of 30 or higher were considered very severe anxiety. The recruited individuals were of the Kurdish nationality, so the (HAM-A) questionnaire was translated into the Kurdish language and then blindly translated back into the English language by another person to ensure that there were no errors in translation.

Periodontal evaluation

Upon completion of the questionnaires, a clinical periodontal examination was conducted. The procedure was replicated in a previous study by Nayak and colleagues(18). The examination was done using a WHO probe, with the CAL measurement being made at four proximal sites on all teeth, the buccal, lingual, mesial,

and distal sides of each tooth. According to the new periodontal disease classification, the severity of the periodontal disease is determined by staging. Stage I (CAL 1-2 mm), stage Π (CAL 3-4 mm), stage ΠI & IV (CAL ≥5 mm), to make a difference between stage III &IV, in stage III (≤4 teeth loss due to periodontitis, vertical bone loss, furcation involvement class II or III, moderate ridge defects) in stage IV (≥5 teeth loss due to periodontitis, Masticatory dysfunction, secondary occlusal trauma, tooth mobility degree ≥ 2, severe ridge defects, – bite collapse, drifting, flaring, less than 20 remaining teeth[19].

Statistical Analysis:

The Statistical Package analyzed the Social Sciences (SPSS ver. 20) data to describe continuous and descriptive analysis; mean, standard deviation (SD), and percentage frequency was used, respectively. The minimum, maximum, and Range were also reported for each questionnaire item. The association between the questionnaire data and accumulative periodontal CAL was analyzed using the Chi-square test and Spearman correlation. The significance level of $p \leq 0.05$ was adopted throughout the study.

Results

In this study, among 100 individuals that participated in the study, the mean age was 41.83 ± 7.8 years (Figure 1). The gender distribution of the sample is equal for both genders, male (50%) and female (50%). There were four age groups in the sample: 30–40 (53 %), 41–50 (33%), 51–60 (12%), and >60. (2%).

The sample is divided into four stages of periodontitis: stage I (26%), stage II (35%), stage III (9%), stage IV (4%), and none (26 %).

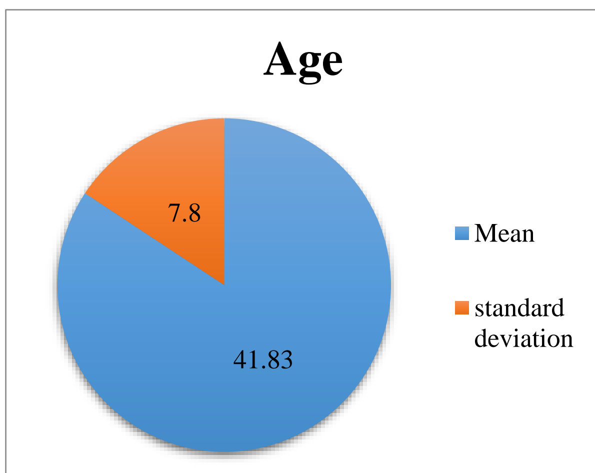


Figure 1: The mean age.

The sample distribution according to the HAM-A is mild (38%), moderate (21%), severe (12%), very severe (18%), and none present (11%). Chi-squared test was used to test significant differences between variables. A P-value of <0.05 was regarded as significant, as shown in Table 1.

The genders-wise distribution of subjects according to CAL categories, in both males and females. Most of the subjects corresponding belonged to stage II periodontitis (40% male, 30% female), followed by non-periodontitis (24% male, 28% female) and stage I periodontitis (22% male, 30% female), stage III (10% male, 8% female), and stage IV (4% male, 4% female). Chi-square value: 1.59, *P*=0.81 there's no significant difference between genders in any periodontal CAL categories (Figure 2).

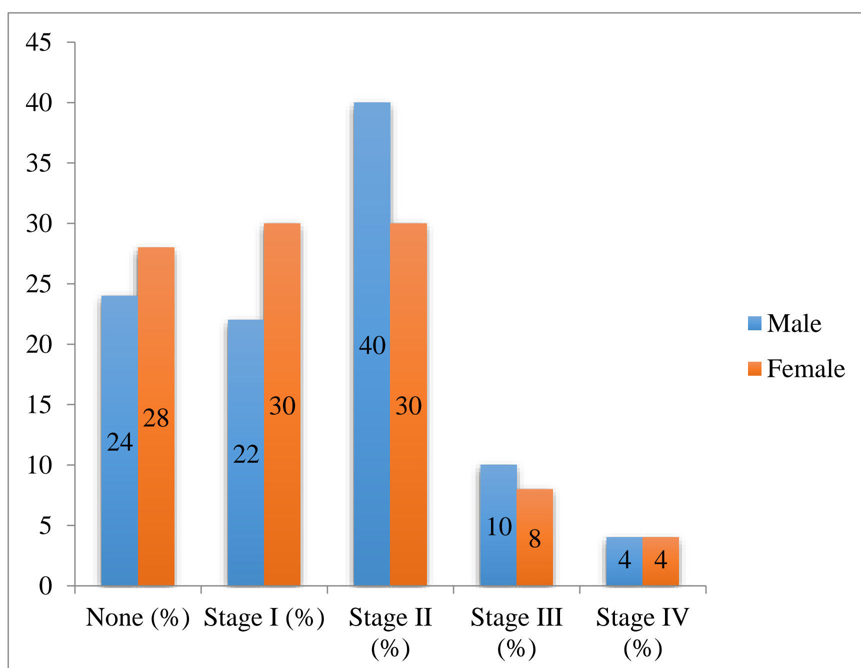
The genders distribution of individuals according to anxiety, most males have mild anxiety (52%). In comparison, most females have very severe anxiety (26%), and males and females showed significant differences, Chi-square value: 10.91, P=0.028, as shown in (Figure 3).

The sample distribution on the HAMA scale Anxiety categories with periodontitis. Individuals who didn't have periodontitis had mild anxiety 11%, very severe anxiety 6%, moderate anxiety 5%, severe anxiety 4%, and no one had non-anxiety 0%. Individuals with periodontitis in stage I had mild anxiety 9 %, moderate anxiety 6%, severe and very severe anxiety 4%, and non-anxiety 3%. Individuals with stage II periodontitis had mild anxiety 13%, non-anxiety 7%, moderate and very severe 6%, and severe 3%. Mild and moderate anxiety 3% of those with stage III periodontitis, very severe anxiety 2%, non-anxiety 1%, and no one had severe anxiety 0%. Those with stage IV periodontitis had 2% mild anxiety, 1% moderate and 1% severe anxiety, and 0% non-anxiety and severe anxiety. Chi-square value: 11.09, P: 0.803, rho=0.087, p=0.392. However, there was no significant association between anxiety and CAL, as shown in Tables 2 and 3.

Table 1: Selected demographic indicators of the participants, Characteristics of respondents (n=100).

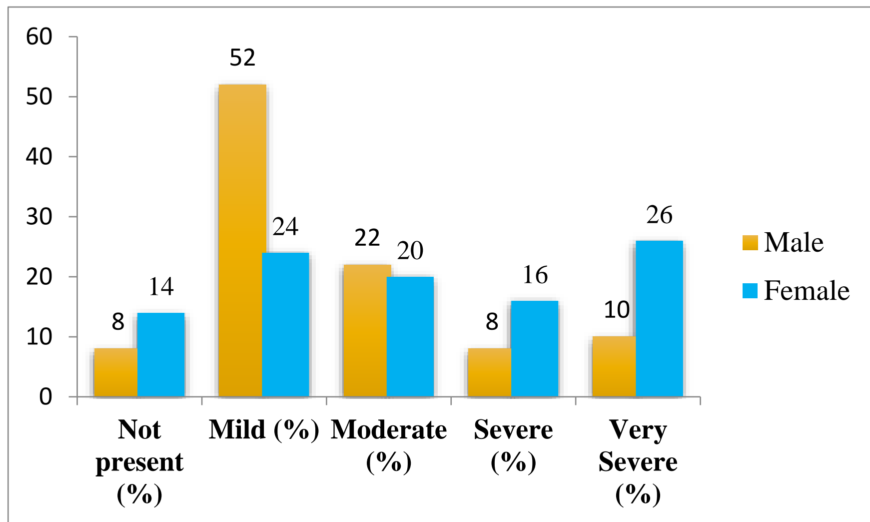
Characteristics		No of cases (N)	Percentage (%)
Gender	Male	50	50.0
	Female	50	50.0
Age	30 – 40	53	53.0
	>40 – 50	33	33.0
	>50 – 60	12	12.0
	>60	2	2.0
Periodontitis	Stage I	26	26.0
	Stage II	35	35.0
	Stage III	9	9.0
	Stage IV	4	4.0
	None	26	26.0
HAM-A Scale	Mild	38	38.0
	Moderate	21	21.0
	Severe	12	12.0
	Very	18	18.0
	Not	11	11.0

Chi-squared test was used to test significant difference between variables.
Differences between men and women in nominal data were tested by the Chi-squared test.
A P-value of <0.05 was regarded as significant.



Chi-square value: 1.59, *P*=0.81 (Not significant).

Figure 2: CAL distribution according to the gender.



Chi-square value: 10.91, P=0.028 (Significant at level of P=0.05).

Figure 3: HAM-A distribution of anxiety individuals. according to the gender.

Table 2: The distribution of samples that had HAMA scale anxiety with periodontitis.

Periodontitis	HAMA scale					P value
	Not present (%)	Mild (%)	Moderate (%)	Severe (%)	Very Severe (%)	
None	0	11 (42.3)	5(19.2)	4(15.4)	6(23.1)	0.803
Stage I	3(11.5)	9(34.6)	6(23.1)	4(15.4)	4(15.4)	
Stage II	7(20.0)	13(37.1)	6(17.1)	3(8.6)	6(17.1)	
Stage III	1(11.1)	3(33.3)	3(33.3)	0	2(22.2)	
Stage IV	0	2(50)	1(25)	1(25)	0	

Chi-square value: 11.09, P: 0.803

Table 3: Correlations of periodontitis to HAMA scale anxiety.

			Periodontitis	HAM-A
Spearman's rho	Periodontitis	Correlation Coefficient	1.000	.087
		Sig. (2-tailed)	.	.392
		N	100	100
	HAM-A	Correlation Coefficient	.087	1.000
		Sig. (2-tailed)	.392	.
		N	100	100

Discussion

Periodontitis is a chronic multifactorial inflammatory disease characterized by the progressive destruction of the tooth-supporting apparatus and inflammation that results in periodontal attachment loss[20]. Anxiety is characterized by a sense of unease, such as fear or worry, which can be mild or severe. Anxiety is a fact of life, and it can be viewed as a process that includes both psychological and physiological components. The study evaluated the association between CAL and anxiety by using the Hamilton anxiety scale rate HAM-A scale. In the present study, males have higher anxiety levels than females in mild and moderate anxiety stages.

In comparison, females have higher anxiety levels than males in the severe and very severe anxiety stages. Findings agree with Peeran and Kumar 2014 and disagree with McLean et al. 2011[21]. It may be because anxiety is generally more common in females than males[21]. Also, the present study found that there was no significant difference between males and females in the CAL. Some studies have indicated a positive relationship between gender and periodontal attachment loss[22]. There is no significant association between periodontal CAL and anxiety in the current research, agrees with Peeran and Kumar 2014[23]; otherwise, according to other studies, there was a significant association between periodontal CAL and anxiety[24,25]. It could be interpreted because the type of the study is a prevalence study in which the data was taken at a specific point of time which doesn’t include any follow-ups, so conducting the incidence study which will follow the cases within the period may result in a different result[26], the periodontal CAL was the only periodontal parameter examined, although it is the best among the clinical parameters; the clinical parameters cannot assess precisely the loss of periodontal attachment, which can only be done by histometric methods[27], whereas the psychometric scales generally measure the state for a limited period in an individual near short-memory, which for example in the case of HAM-A is two weeks.

Conclusions

Both the genders have periodontitis without significant differences. However, in the Sulaimani governed Kurdistan-Iraq, males have a high level of anxiety than females, and anxiety doesn't affect CAL.

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Appendix

Hamilton Anxiety Scale questionnaire

Symptoms	Not Present	Mild	Moderate	Severe	Very Severe
1- Anxiety Worry, irritability, fearful anticipation	0	1	2	3	4
2- Tension Restlessness, stress, inability to relax	0	1	2	3	4
3- Fear Irrational phobia, excessive worry	0	1	2	3	4
4- Insomnia Fatigue, inability to sleep, nightmares, night terrors	0	1	2	3	4
5- Intellectual Symptoms Poor concentration, memory impairment	0	1	2	3	4
6- Depressed Mood Decreased interest in activities, diurnal swing, early waking	0	1	2	3	4
7- Muscular Symptoms Aches and pains, stiffness, twitching, teeth grinding	0	1	2	3	4
8- Sensory Symptoms Tinnitus, blurred vision, hot/cold flushes, weakness	0	1	2	3	4
9- Cardiovascular Symptoms Tachycardia, palpitations, chest pain, fainting, throbbing	0	1	2	3	4
10- Respiratory Symptoms Chest pressure/constrictions, choking, sighing, dyspnea	0	1	2	3	4
11- Gastrointestinal Symptoms Swallowing difficulties, abdominal pain, nausea, weight loss	0	1	2	3	4
12- Genitourinary Symptoms Frequency/urgency of micturition, amenorrhea, impotence	0	1	2	3	4
13- Autonomic Symptoms Dry mouth, flushing, pallor, sweating, giddiness, headache	0	1	2	3	4
14- Behavior at Interview Fidgeting, restlessness, tremors, sighing, pallor, straining	0	1	2	3	4
Total score for each column					

Grand total (sum of 5 column totals)