

Dental Education, Is it a Cause for Anxiety and Parafunctional Habits for Dental Students, A Cross Sectional Study

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Abstract:

Dental anxiety and parafunctional habits are common in all societies and vary in intensity with physical and psychological implications. A large body of literature examining stress in under- graduate dental students has revealed a significant increase in stress that intensifies with students' year of study. The aim of the present study is to find whether anxiety and parafunctional habits are common among dental students in Ahram Canadian Dental School. **Materials and Methods:** A cross-sectional study, has been conducted on randomly selected dental students from the first and fifth year (Faculty of Dentistry, Ahram Canadian University) with a total 84 students from both levels. Hamilton Anxiety Rating Scale (HAM_A scale) had been used to examine the anxiety. History was taken as well as clinical examination was performed to measure parafunctional habits. Data were collected, statically analyzed to obtain results. **Results:** It was found that students in the fifth year showed higher tension and depressed mode than students in the first year. However, students in level one showed higher fear and respiratory symptoms than students of the fifth year. First year students also revealed a higher parafunctional habit as nail biting than those of fifth year. **Conclusion:** According to HAM_A scale there was a positive relation between parafunctional habits and anxiety among dental students. First year students showed higher scores of fear and insomnia than those of fifth year. Fifth year students showed higher scores of tension and depressed mode than those of first year. **Recommendations:** Providing support programs and preventive measures to help students, especially those who are susceptible to higher levels of psychological conditions **Keywords:** Anxiety, parafunctional habits, Dental students, cross sectional study, Hamilton anxiety scale (HAM_A scale)

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Introduction

Anxiety is defined as an emotional state which is characterized by physiological and behavioral concomitants and that is practiced in formal testing or other evaluative situations ⁽¹⁾. Dental education could be considered as a significant source of stress among dental students, many studies revealed a higher level of stress among dental students rather than in the general population ⁽²⁾. Several studies have been done to examine stress in undergraduate dental students, they revealed a significant increase in stress among them ⁽³⁾. Many external physical or mental factors that affect psychological state of individuals is due to stress ⁽⁴⁾. **Spielberger and Vagg**, revealed that anxiety is considered as an element of general anxiety that affects the performance of examination and academic situations ⁽⁵⁾. Additionally, several researches showed that a smart student can get lower scores in examinations because of test anxiety ⁽⁶⁾. Anxiety can lead to nervousness, worries and fear that may affect students and cause problems in their evaluative situations and affect their learning ⁽⁷⁾. There is a relationship subsists between parafunctional habits and anxiety, with the severity of anxiety contributing to the prevalence of these habits ⁽⁸⁾. It is important to have obvious operational definition of a “habit” as a concept before explaining the concept and significance of

oral parafunctional habits. A habit means the action that is regularly practiced unconsciously by individuals during their daily activities ⁽⁹⁾. In this study, the term habit was related to any abnormal hyperactivity of the oromandibular system ⁽¹⁰⁾, this abnormal activity may be lip and nail biting, bruxism, thumb sucking, mouth breathing, self-injurious habits, and tongue thrusting ⁽¹¹⁾. Such activities will alter the normal function of the masticatory structures, the performance of essential movements and cause harm to the vital oral structures. It is essential to understand the fundamental causes to develop supportive interventions by take in consideration these potential physical and psychological implications of such negative habits ⁽¹¹⁾. In this study ⁽¹²⁾. It was observed that children who are exposed to stressful life events are more prone to perform oral parafunctional activities. Other studies reported that children and adolescents that show harmful oral habits are more likely to be affected with anxiety symptoms ⁽¹³⁾. On the other hand, a study was performed on children in Saudi Arabia revealed that there was no association between oral parafunctional habits and emotional status ⁽¹⁴⁾. The aim of the present study is to find whether anxiety and parafunctional habits are common among dental students in Faculty of dentistry, the Ahram Canadian University.

Materials and Methods:

A cross-sectional study has been conducted on randomly selected dental students from the first and fifth year (Faculty of Dentistry, Ahram Canadian University) with a total 84 students from both levels.

Hamilton Anxiety Rating Scale was used to examine the anxiety. History has been taken as well as clinical examination was performed to measure parafunctional habits. Data was collected, statically analyzed to obtain results. Statistical analysis was performed using a commercially available software program (SPSS 18; SPSS, Chicago, IL, USA). Values were presented as mean, standard deviation (SD), median and range. Data were explored for normality using Kolmogorov-Smirnov test of normality. As non-parametric data, scores were compared using Mann Whitney U test for 2 groups comparisons. Spearman Correlation test was used to correlate anxiety score and parafunctional habits. The level of significance was set at $P \leq 0.05$.

Results:

Based on sample size calculation, a total sample size of 84 students will be adequate to represent the target population with 95% confidence level and 90% confidence interval. In first year, the mean age for male students was 18.05 ± 0.22 , in comparison to 18.29 ± 0.56 in female students. In fifth year, the mean age for male students was 22.62 ± 0.74 , in comparison to 21.9 ± 0.56 in female

students.

Comparison between both genders within the same level

In first year, a higher value was recorded in females for anxious mood, and depressed mode, with no statistically significant difference between genders. Both genders recorded the same median value for tension and insomnia. Males recorded a higher value for intellectual, with no statistically significant difference between genders. Fear score showed a statistically significant higher value in females ($p=0.008$), (Table 1, Fig.1).

A significantly higher value was recorded in males for somatic muscular, with a statistically significant difference between genders ($p=0.024$). There was no statistically significant difference between genders regarding somatic sensory, respiratory, cardiovascular, gastrointestinal, genitourinary and autonomic symptoms, nor in behavior at interview (Table 2, Fig.2,3)

In fifth year, a higher value was recorded in males for fear and intellectual, with no statistically significant difference between genders. Both genders recorded the same median value for anxious mood, tension, insomnia and depressed mode, (Table 1, Fig.1). A higher median value was recorded in males for cardiovascular symptoms, with a

statistically significant difference between genders ($p=0.025$), while there was a statistically significant higher value in

females for autonomic symptoms ($p=0.043$), (Table 2, Fig.2, 3)

Table (1) Descriptive statistics of anxiety scores and comparison of both genders within the same level (Mann Whitney U test)

	Group		Anxious	Tension	Fear	Insomnia	Intellectual	Depressed
			mood					mood
First year	Males	Mean	1.33	1.90	1.29	1.71	2.38	1.38
		Median	1.00	2.00	1.00	2.00	3.00	1.00
		Mode	.00	1.00	.00	.00	3.00	1.00
		Std. Dev	1.35	1.48	1.45	1.45	1.53	1.16
		Min	.00	.00	.00	.00	.00	.00
		Max	4.00	4.00	4.00	4.00	4.00	4.00
	Females	Mean	1.81	1.67	2.52	2.29	2.10	1.81
		Median	2.00	2.00	3.00	2.00	2.00	2.00
		Mode	2.00	2.00	4.00	2.00	4.00	3.00
		Std. Dev	1.03	1.11	1.36	1.10	1.51	1.21
		Min	.00	.00	.00	.00	.00	.00
		Max	4.00	3.00	4.00	4.00	4.00	3.00
	P value (first year)			.203 ns	.727 ns	.008*	.188 ns	.544 ns
Fifth year	Males	Mean	2.05	2.05	1.86	1.90	1.86	2.19
		Median	2.00	2.00	2.00	1.00	2.00	2.00
		Mode	3.00	2.00	2.00	1.00	3.00	3.00
		Std. Dev	1.02	.92	1.01	1.37	1.46	1.17
		Min	.00	1.00	.00	.00	.00	.00
		Max	4.00	4.00	4.00	4.00	4.00	4.00
	Females	Mean	2.24	1.81	1.48	1.52	1.33	2.14
		Median	2.00	2.00	1.00	1.00	1.00	2.00
		Mode	2.00	2.00	.00	.00	1.00	3.00
		Std. Dev	1.37	1.33	1.44	1.44	1.02	1.15
		Min	.00	.00	.00	.00	.00	.00
		Max	4.00	4.00	4.00	4.00	3.00	4.00
	P value (fifth year)			.578 ns	.479 ns	.300 ns	.353 ns	.267 ns

Table (2) Descriptive statistics of symptoms score and comparison of both genders Within the same level (Mann Whitney U test)

	Group		Somatic		Symptoms					Behavior at interview
			Muscular	Sensory	Cardio-vascular	Respiratory	Gastro-intestinal	Genito -urinary	Auto-nomic	
First year	males	Mean	.71	1.14	.71	1.1	1.43	.90	1.38	1.52
		Median	.00	.00	.00	.00	1.00	1.00	1.00	1.00
		Mode	.00	.00	.00	.00	.00	1.00	2.00	1.00
		Std.De v	1.15	1.53	.90	1.45	1.36	1.046	1.07	1.12
		Min	.00	.00	.00	.00	.00	.00	.00	.00
		Max	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00
	females	Mean	.095	1.14	.76	.81	2.00	.81	1.43	1.19
		Median	.00	1.00	.00	.00	2.00	.00	1.00	1.00
		Mode	.00	.00	.00	.00	.00	.00	1.00	1.00
		Std.De v	.30	1.35	.995	1.25	1.73	1.08	1.29	.512
		Min	.00	.00	.00	.00	.00	.00	.00	.00
		Max	1.00	4.00	3.00	3.00	4.00	4.00	4.00	2.00
	P value (first year)		.024*	.892 ns	.956 ns	.525 ns	.305 ns	.645 ns	.844 ns	.451 ns
Fifth year	Males	Mean	1.14	.81	.48	.67	.38	.048	.33	1.19
		Median	1.00	1.00	.00	.00	.00	.00	.00	1.00
		Mode	1.00	.00	.00	.00	.00	.00	.00	.00
		Std.De v	1.11	.93	.75	1.02	.74	.22	.66	1.12
		Min	.00	.00	.00	.00	.00	.00	.00	.00
		Max	3.00	3.00	2.00	3.00	2.00	1.00	2.00	3.00
	(Females)	Mean	1.00	.81	.095	.81	.57	.19	.95	1.43
		Median	1.00	.00	.00	.00	.00	.00	1.00	1.00
		Mode	.00	.00	.00	.00	.00	.00	.00	2.00
		Std.De v	1.14	1.08	.44	1.08	.81	.60	1.12	1.12
		Min	.00	.00	.00	.00	.00	.00	.00	.00
		Max	3.00	3.00	2.00	3.00	2.00	2.00	3.00	4.00
	P value (fifth year)		.587 ns	.815 ns	.025*	.593 ns	.362 ns	.517 ns	.043*	.473 ns

Significance level $P \leq 0.05$, *significant, ns=non-significant

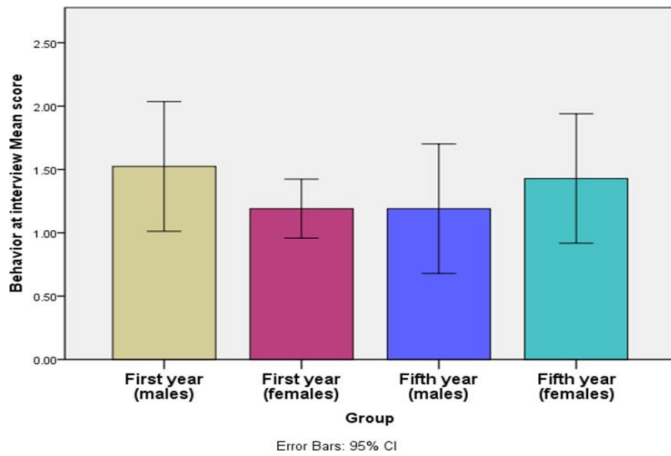


Fig.(1) Bar chart illustrating mean value of anxiety scores in males and female students in the first and fifth year

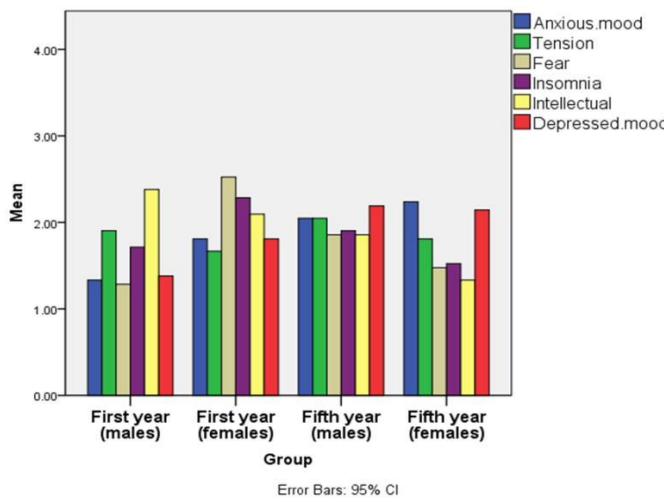


Fig. (2) Bar chart illustrating mean value of somatic and systemic symptoms in male and female student

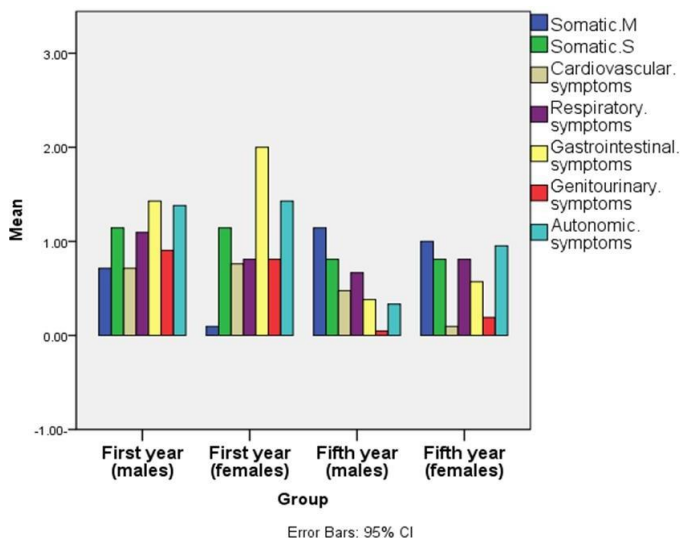


Fig.(3) Bar chart illustrating mean value of behavior in interview in males and female students in the first and fifth years.

Parafunctional habits: in the first year, there was no significant difference in both genders, except for a significantly higher value of bruxism for males ($p=0.038$). In the fifth year, there was no significant difference in both genders (Fig.4)

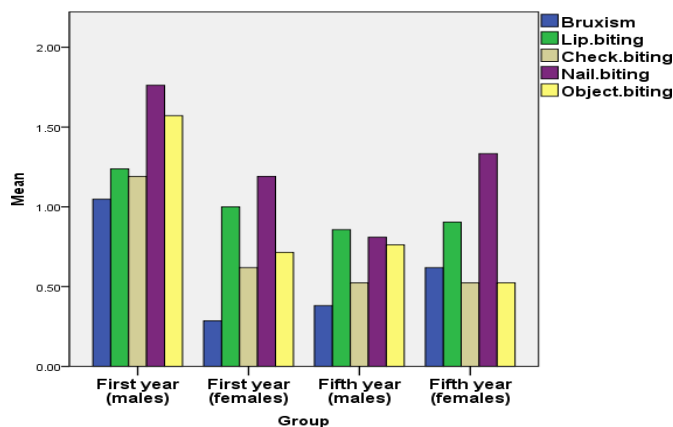


Fig. (4) Bar chart illustrating mean value of parafunctional habits score in males and females students in the first and fifth years.

Comparison of same gender in different levels

Among males, A significantly higher value of depressive mood was recorded fifth year in comparison to first year ($p=0.023$). There was no statistically significant difference between both levels regarding anxious mood, tension fear, intellectual and insomnia (Fig.1). A significantly higher value for gastrointestinal, genitourinary and autonomic symptoms was recorded first year in comparison to fifth year ($p=0.004$, $p=0.00$, $p=0.001$ respectively). There

was no statistically significant difference between both levels regarding somatic, cardiovascular and respiratory symptoms and behavior in interview (Fig.2, 3). Among females, A significantly higher value of fear was recorded first year in comparison to fifth year ($p=0.022$). There was no statistically significant difference between both levels regarding anxious mood, tension, intellectual, depressed mode and insomnia (Fig.1). A significantly higher value for somatic muscular was recorded in fifth year ($p=0.002$). However, cardiovascular, gastrointestinal, and genitourinary symptoms was significantly higher in first year in comparison to fifth year ($p=0.003$, $p=0.008$, $p=0.011$ respectively). There was no statistically significant difference between both levels regarding somatic sensory, respiratory, autonomic symptoms and behavior in interview (Fig.2,3).

Parafunctional habits: In males, there was no significant difference between first and fifth year, except for a significantly higher value of nail biting in first year ($p=0.035$). In females, there was no significant difference between both levels

Correlation between anxiety and parafunctional habits

a- The whole sample: Results of Correlation between anxiety and parafunctional habits are

presented in table (3)

Bruxism showed a significant weak positive correlation with tension and fear ($p=0.036$; $p=0.042$ respectively), moderate positive correlation with somatic muscular & sensory, respiratory symptoms and behavior at interview ($p=0.00$).

Lip biting showed a significant weak positive correlation with anxious mood ($p=0.03$), a moderate positive correlation with tension and fear ($p=0.00$; $p=0.001$ respectively), a weak positive correlation with somatic muscular ($=0.025$); in addition to a moderate positive correlation with somatic sensory ($p=0.003$), respiratory symptoms ($p=0.000$), autonomic system ($p=0.002$) and behavior at interview ($p=0.003$)

Check biting showed a significant moderate positive correlation with respiratory system ($p=0.002$), and weak positive correlation with genitourinary symptoms ($p=0.014$)

Nail biting showed a significant moderate positive correlation with genitourinary symptoms ($p=0$)

Object biting showed a significant weak positive correlation with fear ($p=0.036$), somatic muscular & sensory ($p=0.015$ and $p=0.025$ respectively), cardiovascular symptoms ($p=0.031$) and gastrointestinal

symptoms ($p=0.017$).

b- First year (males)

Results of Correlation between anxiety and parafunctional habits are presented in table

Bruxism showed a significant moderate positive correlation with somatic muscular & sensory ($p=0.002$, $p=0.007$ respectively), and strong positive correlation with respiratory symptoms ($p=0.00$)

Lip biting showed moderate positive correlation with fear ($p=0.003$), somatic muscular ($=0.014$); somatic sensory ($p=0.005$) and respiratory symptoms ($p=0.047$)

Check biting showed a significant moderate positive correlation with fear and somatic muscular ($p=0.048$, $p=0.016$), a strong positive correlation with somatic sensory ($p=0.00$) and moderate correlation with respiratory system ($p=0.002$)

Nail biting showed a significant moderate positive correlation with intellectual ($p=0.004$), somatic muscular ($p=0.033$), gastrointestinal symptoms ($p=0.023$)

Object biting showed a significant moderate positive correlation with fear and depressed mood ($p=0.002$) and cardiovascular symptoms ($p=0.005$).

c- First year (females):

Results of Correlation between anxiety and parafunctional habits are

Bruxism showed no significant correlation with anxiety

Lip biting showed moderate positive correlation with anxious mood ($p=0.024$), depressed mood ($p=0.010$) and gastrointestinal symptoms ($p=0.015$)

Check biting showed a significant moderate positive correlation with tension ($p=0.041$); fear ($p=0.002$) and somatic muscular ($p=0.048$, $p=0.016$)

Nail biting showed a significant moderate positive correlation with depressed mood ($p=0.024$), cardiovascular ($p=0.048$) and respiratory symptoms ($p=0.014$)

Object biting showed a significant moderate positive correlation with anxious mood and ($p=0.008$) and behavior at interview ($p=0.008$).

Hamilton (HAM_A) score Results of (HAM_A) score re summarized in Table (4) and Table (5)

Comparison between genders: In the first year, females recorded a higher HAM_A score with no statistically significant difference ($p=0.605$). In the first year, males recorded a higher HAM_A score with no statistically significant difference ($p=0.623$).

Comparison between levels: Among males, first year recorded a higher HAM_A score with no statistically significant difference ($p=0.371$). Among females, first year recorded a higher HAM_A score with no statistically significant difference ($p=0.115$).

In first year males students, (HAM_A) score showed statistically significant moderate positive correlation with bruxism ($p=0.038$), lip biting ($p=0.020$), check biting ($p=0.008$) and nail biting ($p=0.011$)

In first year females students, (HAM_A) score showed statistically significant moderate negative correlation with check biting ($p=0.029$)

In fifth year males students, (HAM_A) score showed statistically significant moderate positive correlation with bruxism ($p=0.048$)

In fifth year females students, (HAM_A) score showed statistically significant moderate positive correlation with bruxism ($p=0.001$), and strong positive correlation with lip biting ($p=0.000$)

Overall (All subgroups), (HAM_A) score showed statistically significant moderate positive correlation with bruxism ($p=0.00$), lip biting ($p=0.00$) and object biting ($p=0.038$)

Table 3 Correlation between anxiety and para-functional habits in the whole study sample (Spearman's rho)		Bruxism	Lip biting	Check biting	Nail biting ACDJ	Object biting 2023
Anxious mood	R	.110	.237*	-.114	-.173	-.127
	P	.321	.030	.304	.116	.250
	Interp.	WP	WP	WN	WN	WN
Tension	R	.229*	.414*	.060	.004	-.025
	P	.036	.000	.590	.973	.819
	Interp.	WP	MP	WP	WP	WN
Fear	R	.222*	.370**	-.062	.100	.262*
	P	.042	.001	.575	.364	.016
	Interp.	WP	MP	WN	WP	WP
Insomnia	R	.106	.124	.032	-.148	.146
	P	.337	.261	.770	.178	.184
	Interp.	WP	WP	WP	WN	WP
Intellectual	R	.139	.129	.024	.146	.099
	P	.207	.242	.825	.185	.369
	Interp.	WP	WP	WP	WP	WP
Depressed mood	R	-.057	.055	.136	-.087	.098
	P	.604	.622	.217	.430	.375
	Interp.	WN	WP	WP	WN	WP
Somatic Muscular	R	.450*	.244*	.090	.026	.265*
	P	.000	.025	.414	.816	.015
	Interp.	MP	WP	WP	WP	WP
Somatic Sensory	R	.386*	.319**	.175	.059	.244*
	P	.000	.003	.112	.595	.025
	Interp.	MP	MP	WP	WP	WP
Cardiovascular symptoms	R	.133	.096	.155	-.086	.236*
	P	.228	.386	.158	.438	.031
	Interp.	WP	WP	WP	WN	WP
Respiratory symptoms	R	.471*	.388*	.336*	.024	.014
	P	.000	.000	.002	.827	.898
	Interp.	MP	MP	MP	WP	WP
Gastrointestinal symptoms	R	.162	.113	.183	.304*	.259*
	P	.142	.307	.095	.005	.017
	P	.850	.278	.014	.361	.438
	Interp.	WN	WP	WP	WP	WP
Autonomic symptoms	R	.084	.328*	.210	.149	.064
	P	.446	.002	.055	.175	.560
	Interp.	WP	MP	WP	WP	WP
Behavior at interview	R	.393*	.318*	.051	.160	.067
	P	.000	.003	.647	.147	.547
	Interp.	MP	MP	WP	WP	WP

Significance level $p \leq 0.05$, * significant, Interp.=interpretation, W=weak, M=moderate, b- First year (males)

Table (4) Descriptive statistics of HAM_A score and comparison between genders and between levels (independent t test)

Group	Males	Females	P value (between gender)	
First year	Mean	18.90	20.43	0.605 ns
	Median	17.00	23.00	
	Mode	15.00	25.00	
	Std. Dev	8.55	5.84	
	Min	5.00	10.00	
	Max	37.00	27.00	
Fifth year	Mean	16.95	16.38	0.623 ns
	Median	16.00	14.00	
	Mode	13.00	5.00 ^a	
	Std. Dev	6.49	10.48	
	Min	9.00	3.00	
	Max	35.00	34.00	
P value (between level)		0.371 ns	0.115 ns	

Table (5) Correlation between Hamilton anxiety rating scale (HAM-A) and para-functional habits in each subgroup (Spearman's rho)

Correlation with HAM-A score		Bruxism	Lip biting	Check biting	Nail biting	Object biting
First year (males)	R	.456*	.505*	.564*	.542*	.286
	P	.038	.020	.008	.011	.209
	Interp.	MP	MP	MP	MP	WP
First year (females)	R	-.133	-.060	-.475*	-.328	-.251
	P	.564	.796	.029	.147	.273
	Interp.	WN	WN	MN	MN	WN
Fifth year (males)	R	.436*	.203	.378	.282	.379
	P	.048	.378	.091	.216	.090
	Interp.	MP	WP	MP	WP	MP
Fifth year (females)	R	.671*	.774*	-.007	-.123	.421
	P	.001	.000	.976	.597	.057
	Interp.	MP	SP	WN	WN	MP
All subgroups	R	.401*	.470*	.183	.120	.226*
	P	.000	.000	.096	.275	.038
	Interp.	MP	MP	WP	WP	WP

Significance level $p \leq 0.05$, * significant

Interp.=interpretation, W=weak, M=moderate, S=strong, P=positive, N=negative

Discussion:

Dental education in Egypt is 6 years; they are divided into 3 years as pre-clinical, 2 years clinical and 1 year as intern. In this study, students from Dental School Ahram Canadian University, were randomly selected from the first year and fifth year with a total number of 84 students, a cross sectional study was used. Another study was conducted in the Faculty of Dentistry in Plovdiv by selecting 585 students from all years. SPSS v17 and parametric and non-parametric methods were used⁽¹⁵⁾. Another study was done in the college of dentistry of KSU in Riyadh city in Saudi Arabia with using 1263 students in the sample size⁽¹⁶⁾. it was done also by using the cross-sectional study as well⁽¹⁷⁾. The relatively small number of students examined in the current study using cross sectional study was due to the restricted time used for finishing the study. In the current research, according to the cross sectional study ,it was found that students in level 5 showed a higher depressed mode ,tension (higher scores for males) anxious mode and somatic muscular (higher scores for females) than those of level one .While students of level one showed higher fear (higher scores for females) ,insomnia , intellectual(higher scores for males) , cardiovascular symptoms , respiratory symptoms ,

autonomic symptoms (nearly equal between genders) and gastrointestinal symptoms (higher scores for females).While according to HAM _A scale (Hamilton anxiety scale) , it was found that level one (both males and females) showed higher score than level 5. These results were consistent with other studies that found that first year students score is much greater than the students in other levels which indicate that the young dentists have greater fear than that the senior students have^(15,18,19). This can be explained because of the more education, clinical experience and professional development that the senior students obtained from their previous years of study. Regarding the frequency of anxiety among dental students, the current research score was high. This is inconsistent with the other studies results performed in different countries^(17,23,24,25,26). This high level of anxiety can be due to the pressure that applied on the students, the workload, multiple exams, fear of grades and restricted time for requirements. Other studies showed that medical students applied to medical school exhibit higher depression levels in comparison to those of the general population, however their levels of depression increase significantly during studying in medical school⁽²⁷⁾. In fact, dental students reported psychological problems and depression three times higher than medical students⁽²⁴⁾⁽²³⁾. Regarding the parafunctional habits, our study showed higher nail biting (significant higher value),

lip biting, object biting and bruxism (significant higher value) in the first-year students (higher scores for males) than fifth year students respectively. Nail biting is the most common habit found among ACU dental students. Same results were supported in the study performed by Motta L.J et al ⁽²⁸⁾. In the current work, data revealed that: Bruxism showed a significant weak positive correlation with tension and fear ($p=0.036$; $p=0.042$ respectively), moderate positive correlation with somatic muscular & sensory, respiratory symptoms and behavior at interview ($p=0.00$). Definition of bruxism is a parafunctional habit that often occurs while sleeping but can also be a subconscious habit during waking hours. Awake bruxism (AB) consists of jaw clenching and bracing with tooth contact. It is related to occlusal disorders, stress conditions, and allergies ⁽²⁹⁾. AB affects female more than males ⁽³⁰⁾, with a prevalence range from (22.1%: 31%) in the general population ⁽³¹⁾. There are indications that bruxism decreases with age ⁽³⁰⁾. On the other hand, Sleep bruxism (SB) means an abnormal forceful movement disability that involves grinding and tooth clenching while sleeping. Respectively SB affects 14% of children and decreases to 8% and 3% in adults ⁽³²⁾. Many studies have reported several complications of bruxism, such as headaches, dental attrition, soreness of the masticatory muscles and temporomandibular joint dysfunction (TMD).⁽³³⁾

Concerning Lip biting among ACU dental students, results revealed a significant weak positive correlation with anxious mood ($p=0.03$), a moderate positive correlation with tension and fear ($p=0.00$; $p=0.001$ respectively), a weak positive correlation with somatic muscular ($=0.025$); in addition to a moderate positive correlation with somatic sensory ($p=0.003$), respiratory symptoms ($p=0.000$), autonomic system ($p=0.002$) and behavior at interview ($p=0.003$).

In India, lip biting is thought to be a common problem with a prevalence of 37% that affect the children aged 10 to 19 years old ⁽³⁵⁾. Correspondingly, a study was conducted in Saudi Arabia and emphasized that the prevalence of lip/cheek biting was 41% in children aged 12 to 16 years ⁽³⁶⁾. The problem of lip/cheek biting is aggravated with repetitive biting, causing chronic trauma and cause hyperkeratosis of soft tissue, scarring, erosions, edema and ulceration ⁽³⁷⁾.

In the present survey, cheek biting showed a significant moderate positive correlation with respiratory system ($p=0.002$), and weak positive correlation with genitourinary symptoms ($p=0.014$). Oral mucosal biting is more prevalent in females and estimated to occur in 750 of every million people ⁽³⁸⁾. In a Mexican study with 23,785 patients, the prevalence of cheek-biting lesions was reported as 21.7 cases per 1000 patients⁽³⁹⁾

It was revealed in this study that nail biting

showed a significant moderate positive correlation with genitourinary symptoms. Nail biting is identified as frequent in many societies ⁽⁴⁰⁾. The expected prevalence of nail-biting ranges from 20% to 33% in children, and 45% in teenagers, this prevalence tends to decrease after 18 years old, it may also persist into adulthood ⁽⁴¹⁾. In Saudi Arabia, especially Riyadh the prevalence of nail biting in preschool children and children in the 12-to-16-year age group, is 27% and 29%, respectively ^(36,37). The prevalence is comparable to Iran is (22.3%) ⁽⁴²⁾. Nail biting may be associated with multiple psychological factors, including anxiety disorders, obsessive compulsive disorder (OCD) and emotional disturbance, ⁽⁴³⁾. Nail biting can cause injury to the tissues surrounding the nail, disappearance of nail bed and infection ⁽⁴⁴⁾. Nail biting also may lead to dental complications, as the nail-biting force could be transferred to the root of the tooth and cause root resorption, malocclusion, temporomandibular joint problems and alveolar bone destruction ⁽⁴⁵⁾. In addition, the consequences of nail biting could have a negative impact on the psychological health and social well-being of children and their parents, as it can increase the person's concerns about the evaluation of others and decrease self- evaluation ⁽⁴⁴⁾ ($p=0$).

In this research, object biting found to have a significant weak positive correlation with fear ($p=0.036$), somatic muscular & sensory

($p=0.015$ and $p=0.025$ respectively), cardiovascular symptoms ($p=0.031$) and gastrointestinal symptoms ($p=0.017$). According to HAM_A scale there was a positive correlation between anxiety and parafunctional habits. This finding is supported by a study made in Saudi Arabia ⁽⁴⁶⁾. Alkan, A et al ⁽⁸⁾, concluded in their study that students with have higher anxiety and depression scores than others that don't have parafunctional habits.

In another study ⁽¹²⁾, It was revealed that children and teenagers who were subjected to stressful life events are more likely to show oral parafunctionalactivities.

From the current study, it was concluded that:

- 1- Anxiety and parafunctional habits are common among ACU dental students.
- 2- Students of level 5 showed a higher depressed mode, tension, anxious mode and somatic muscular than those of level one.
- 3- Students of level one showed higher fear, insomnia and respiratory symptoms than level those of 5.
- 4- Higher incidence of nail biting, lip biting, object biting and bruxism in the first year dental students than those of the fifth year.
- 5- According to HAM_A scale there was a positive correlation with parafunctional habits.

Finally, it is recommended that study should be performed on larger scales of students, with a follow up of students from the first year till they finish their program. Stress can be reduced among dental students by decreasing number of exams and requirements. Finally, involving students in social activities and habits that they would like to do.

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