

Original Article**Elite Dental Students: a Cross-Sectional Study on Different Aspects of Their Life-Style**Abdolhamid Zafarmand¹, Maryam Asvar²¹ Dept. of Orthodontics & Dept. of Community Oral Health, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran.² General Dentist, Private Practice, Tehran, Iran.**KEY WORDS**Life Style;
Dental Student;
Spirituality;
Oral Health;
Interpersonal Relations;
Nutrition;
Physical Activity;
Health;
Stress;
Health Promotions;**ABSTRACT****Statement of the Problem:** Lifestyle has a key role in having a life with quality. This is much more critical in academic community. Elite students are the scientific capital of each community; therefore, improvement of their life-style is a very crucial issue and is a way of esteeming them.**Purpose:** This study was aimed to scrutinize the life-style of elite dental students to provide a guideline for healthy life-style for their own and for other students, as well.**Materials and Method:** This descriptive and cross-sectional study was carried out on 115 Elite dental students, from a list 175 students, based upon their interest. The HPLP-II questionnaire was used which focuses on 6 behavioral fields: Spiritual Growth, Interpersonal Relations, Nutrition, Physical Activity, Health Responsibility, and Stress Management. The results also compared genders and marital status within the study group. The elite dental students were categorized in 3 age groups as $19 \geq$ yrs (Group I), 20-22 yrs (Group II), and $23 \leq$ yrs. (Group III) for comparison. Data were analyzed using SPSS version 19, independent t-test, one-way ANOVA, and Tukey's test.**Results:** The mean score of the HPLP-II questionnaire was 2.51 ± 0.27 (out of score 4). Spiritual growth (2.85 ± 0.42) and physical activity (2.16 ± 0.58) were the highest and the lowest scores, respectively. Physical activity was the only subscale different between genders ($p = 0.000$). Marital status had not effect on life-style of students. Between the age groups, the physical activity was significantly different between group I and II (0.002).**Conclusion:** Elite dental students' life-style is most prominent in spiritual growth and interpersonal relationships dimensions, but is the weakest in physical activity and health responsibility behavioral attitudes. To improve the talent of all students, interventional workshops/courses aiming at modification and promotion of students' lifestyle is recommendable in the curriculum.**Corresponding Author:** Zafarmand AH., Evin, Tehran IR of Iran. 19839
Tel and Fax: +98-21-22421813 Email: zafarmand@alum.bu.eduReceived October 2016;
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Accepted February 2017;Cite this article as: Zafarmand AH., Asvar M. Elite Dental Students: a Cross-Sectional Study on Different Aspects of Their Life-Style. *J Dent Shiraz Univ Med Sci.*, 2017 December; 18(4): 251-258.**Introduction**

By definition, life-style is about a way of living of individuals, families (households), and societies, which they manifest in coping with their physical, psychological, social and economic environments on a day-to-day ba-

sis. [1-2] The quality of life-style has a great impact on the daily function of a person. Health experts believe that healthy life-style is fundamental for health promotion of communities. [2] Unbalanced life-style can predispose the individual to number of digestive and comp-

Table 1: A comparison between the results of national studies is reported according to age, gender, and marital status, whether positive or negative

Article	University	Total Life-Style Score	The highest Score (field)	The lowest Score (field)	Relation to Life-Style
1	Yazd	130.31±19.0	SG	PA	Gender - Age - MS -
2	Gorgan	-	-	-	-
3	Ilam	-	-	-	Gender - Age -
4	Kerman	139.84±20.3	SG	PA	Gender - Age - MS -
5	Sari	135.17±18.0	SG	PA	Gender + MS +
6	Isfahan	-	SG	PA	-
7	Kashan	2.43±.38	SG	PA	Gender - Age - MS -
8	Mashhad	125.88±20.04	SG	PA	Gender - Age - MS -
9	Welfare Sciences	116.29±17.59	HR	SM	Gender - Age - MS +
10	Tehran	119±20.3	SG	SM	Age + MS +
11	Shahid Beheshti	128.96±20.52	SG	PA	Age + MS -

SG (Spiritual Growth), IR (Interpersonal Relations), N (Nutrition), PA (Physical Activity), HR (Health Responsibility), SM (Stress Management) and MS (Marital Status)

licated nervous diseases. [3] Unfortunately, if ignored, unhealthy life-style may even advance to cancerous lesions. [4-5] In academic atmosphere, many social factors may evidently effect on the quality of education of students. [6] These are cultural collectivism, self-concept, and social adjustment.

There have been some national studies detecting the life-style of medical sciences university students of different programs. [2, 7-16] In almost all studies, spiritual growth was the prominent characteristic of the students. While students of Welfare University were the most capable of on health responsibility, they gained the least score for physical activity. [10] Students of Tehran University residing in dormitory expressed the least ability on stress management. [13] Even the comparison between medical and science students showed similarly the highest score in spiritual growth and the least score in physical activity. [16] (Table 1)

One of the approved tools for such studies is the HPLP (health promoting lifestyle profile) questionnaire that was first created by Walker *et al.* [17] in 1987, containing 48 queries. However, in 1996, they introduced the improved version of that, as HPLP-II with 52 queries. It generally concerns with six subscales as spiritual

growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. [18]

Using the HPLP-II questionnaire, many international studies investigated the life-style of different college communities. These studies relate to different countries in the world with various sampling methods. Nursing students in Kuwait earned the highest score in interpersonal relations but the lowest in physical activity. [19] The quality of life-style of Mexican students is highly related to the gender and age. [20] The Thai college students are very weak in stress management but showed good interpersonal skill. [21] Whereas others, Indian girl students are more tied to physical activity and take more responsibility for their health. [22] Differently, Turkish dental students presented in spiritual growth characteristics, with prominence. [23] A study on medical students of Turkey revealed that they are also concerned with spiritual growth and interpersonal relations. [24] It seems that spiritual growth was critical for Jordanian and Malaysian students, as well. [25-26] Unlike Malaysian students who were not regularly engaged with physical activity, Jordanian students were very much regarded to that. Finally, a study on Japanese college students showed the highest score for interpers-

Table 2: A comparison between the results of international studies is reported according to age, gender, and marital status, whether positive or negative

Article	Country	Total Life-Style Score	The highest Score (field)	The lowest Score (field)	Relation to Life-Style
1	Mexico	-	SG	PA	Gender + Age +
2	Thailand	2.9±.33	IR	SM	Gender - Age +
3	India	138.69±14.5	SG	PA	Gender - Age +
4	Turkey (Dental Students)	2.49±.32	SG	HR	Gender - Age -
5	Japan	2.50±.29	IR	HR	Gender - MS -
6	Turkey (Medical Students)	127.90±18.2	SG	PA	Gender - Age + MS +
7	Malaysia	2.58±.33	SG	PA	-
8	Jordan	2.4±.4	SG	PA	Gender - Age - MS -
9	Kuwait	2.6±0.5	IR	PA	Gender +

SG (Spiritual Growth), IR (Interpersonal Relations), N (Nutrition), PA (Physical Activity), HR (Health Responsibility), SM (Stress Management), and MS (Marital Status)

onal relations and the lowest score for health responsibility subscales. [27] (Table 2)

Based upon the above descriptions, it is of high importance to scrutinize the method of living of this talented group. The results of this study would be implementable for promotion of the life-style of elite students initially and would provide a more feasible and advisable guideline for the whole student community, in similar condition. It would also provide a road map for authorities for making promotional health policy.

Materials and Method

This study was designed as a cross-sectional and descriptive type of study Based upon rules and regulation, elite students are defined as a club of the top 500 ranked university candidates of participated in University Entrance Examination (UEE) (top 0.1%), the top 10 ranked examinees in the UEE, or students with GPA of $17 \leq$ (out of 20) during dental education. [28] The membership in this club would entitle them to some invaluable privileges.

The all one hundred twenty seven registered elite students were contacted for participation, based upon the list provided by the registrars' office. One hundred fifteen (90.55%) agreed to be interviewed for the study. These candidates thoroughly responded to all queries of the questionnaire. Students were also categorized in to three age groups including group I, group II, and group

III.

The HPLP-II questionnaire was employed for current study. It is comprised of 52 questions defined in six unique subscales. These fields have concentrated on spiritual growth (9 questions), interpersonal relations (9 questions), nutrition (9 questions), physical activity (8 questions), health responsibility (9 questions) and stress management (8 questions). The prominent feature of this questionnaire is the diversity in similar perceptive questions. A calibrated operator had face-to-face interview with candidates. The answer choices were the Likerts' scale. [29]

The scoring system ranged from one to four; meaning that if the score was higher, the more bound to the specific lifestyle behavior has been observed.

Results

The study candidates were 71 girls (61.7%) and 44 boys (38.3%). Most students were single (106 participants, 92.2%) and a few were married (9 participants, 7.8%). The average age of students was 21.3 ± 2.15 years. The number (percent) of elite students included 28 (24.3%) in group I, 50 (43.5%) in group II, and 37(32.2%) in group III of participants. Most students were girls (71, 61.7%) and the rest (44, 38.3%) were boys. The number of single students was 106 (92.2%) and the number of married was 9 (7.8%). (Table 3)

The analyzed data indicated that the highest beha-

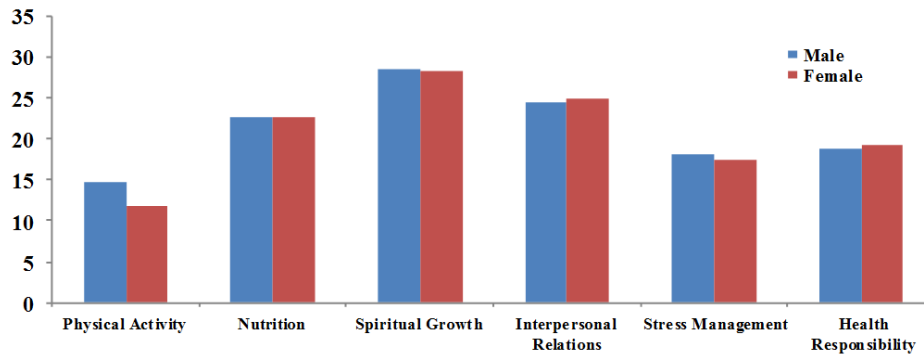


Figure 1: The diagram indicates that life style score of elite male/female students specified in the six HPLP II questionnaire domains

Table 3: The demographic features of elite students participated in the study

Variables	Status	N.	%	Total (%)	Mean	SD
Age Group	1 19≥	28	24.3	100	21.23	2.15
	2 20-22	50	43.5			
	3 23≤	37	32.2			
Gender	Girl	71	61.7	100		
	Boy	44	38.3			
Marital Status	Single	106	92.2	100		
	Married	9	7.8			

...vior score of participants related to spiritual growth subscale (2.848±.4227) and the lowest was related to physical activity (2.162±.5797). (Table 4) The spiritual growth and stress management indicators were only a bit higher in boys compared to girls (28.59±4.771 vs. 28.37±3.885) (18.05±3.235 vs. 17.41±2.544), but both were not significant ($p= 0.783$) ($p= 0.243$). Unlike boys, girls showed better attitude in nutrition (22.76±3.344 vs. 22.55±3.202), in interpersonal relations (24.99±3.404 vs. 24.55±3.605), and in health responsibility (19.18±3.150 vs. 18.91±4.424) indices but none were significant ($p= 0.734$) ($p= 0.511$) ($p= 0.699$). However, the independent samples t-test indicated that only the difference was evident in physical activity with statistically significant difference. ($T= 4.692$, $df=113$, $p= 0.000$) This comparison between boys and girls in physical activity index was quantitatively 14.75±3.441 vs. 11.87

±3.056, respectively (Figure 1) (Table 5).

The average life-style score of elite students, when were differentiated based upon their marital status, showed that with regard to spiritual growth, both married and single students were almost similar (28.44±2.351 vs. 28.45±4.365) ($p= 0.995$). However, married students showed higher score in interpersonal relations (25.56±1.740 vs. 24.75±3.580) ($p= 0.509$) and in health responsibility indicators (20.00±1.871 vs. 19.00±3.782) ($p= 0.435$). Reversely, single students showed higher score in physical activity (13.09±3.525 vs. 11.56±2.603) ($p= 0.204$), in nutrition (22.75±3.289 vs. 21.89±3.219) ($p= 0.454$), and in stress management (17.66±2.881 vs. 17.56±2.297) ($p= 0.916$). Nevertheless, independent samples t-test did not show any statistically significant different between married and unmarried students ($T= 0.152$, $df= 113$, $p= 0.880$) (Table 6) (Figure 2).

Scoring of the three defined age groups indicated that the age group I was ahead of the other two groups in physical activity (14.68±4.330). This was the only statistically significant attitude. ($p= 0.003$) The other means were nutrition (23.43±3.910) ($p= 0.381$), spiritual growth (28.75±5.667) ($p= 0.879$) and interpersonal relations (25.18±3.752) ($p= 0.777$). Nonetheless, the group II showed better skill in stress management

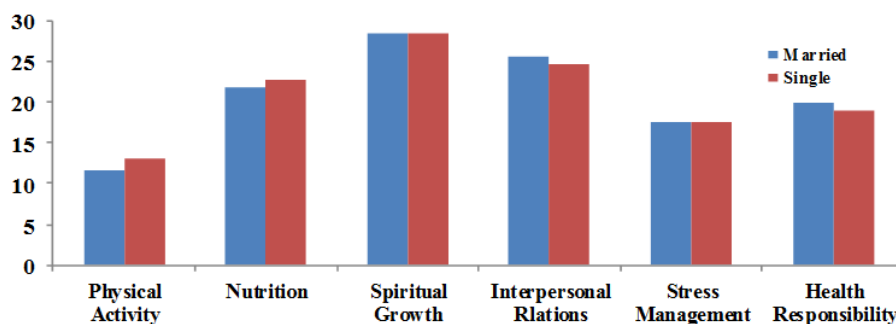


Figure 2: The diagram indicates that life style score of elite married/single students as defined in the six HPLP II questionnaire domains

Table 4: The mean value of total life style score of elite students based on the six specified HPLP II Questionnaire domains

Variables	Life-Style Score Range		Mean	±SD
	Standard	Observed		
1 Physical Activity ⁺	6-24	6-24	2.162 ⁺	.5797
2 Nutrition	9-36	15-31	2.520	.3642
3 Spiritual Growth*	10-40	13-38	2.848*	.4227
4 Interpersonal Relations	9-36	16-32	2.757	.3859
5 Stress Management	7-28	10-25	2.522	.4045
6 Health Responsibility	9-36	10-30	2.220	.4082
The Value of Total Life-Style Score	50-200	94-167	2.513	.2678

(⁺, the lowest score) (*, the highest score)

Table 5: The comparison between elite students (boys and girls) regarding the each 6 domains of life-style scores as well as the total life-style score, using the independent samples t-test

Variables	T-test for Equality of Means		
	T	df	Sig. (2-tailed)
Physical Activity*	4.692	113	.000*
Nutrition	-.341	113	.734
Spiritual Growth	.276	113	.783
Interpersonal Relations	-.659	113	.511
Stress Management	1.174	113	.243
Health Responsibility	-.387	113	.699
The Total Life-Style Score	1.094	113	.276

* Statistically Significant Variable

Table 6: The comparison between elite students (single and married) observed in each 6 domains of life-style scores as well as the total life-style score, using the independent samples t-test

Variables	t-test for Equality of Means		
	T	df	Sig. (2-tailed)
Physical Activity	-1.278	113	.204
Nutrition	-.751	113	.454
Spiritual Growth	-.006	113	.995
Interpersonal Relations	.662	113	.509
Stress Management	-.106	113	.916
Health Responsibility	.783	113	.435
The Total Life-Style Score	-.152	113	.880

(17.97±2.716) ($p= 0.553$) and the group III better attention in health responsibility (19.82±3.066) ($p= 0.107$). Accordingly, based upon the one-way ANOVA statistical analysis, the inter-groups evaluation did not prove any statistical difference in none of the recent five behavioral variables (Figure 3) (Table 7).

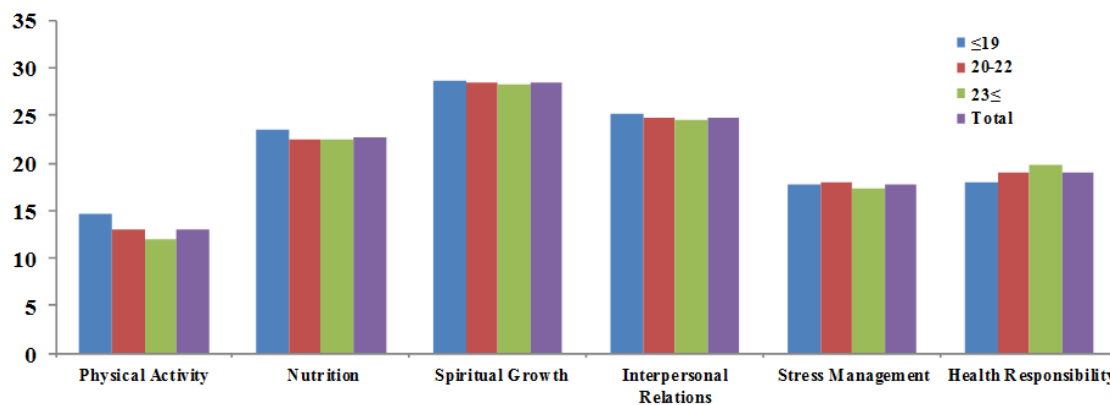


Figure 3: The diagram indicates that life style score of elite students as defined 3 age groups (19≥, 20-22, and 23≤ years) in the six HPLP II questionnaire domains.

Finally, according to the Post Hoc analysis (Tuk-ey’s test), it was notable that this variable was only statistically significant between age group one (19≥) and three (23≤) ($p =0.002$), specifically (Table 8).

Discussion

The elite college students are the national capital in the academic field. In accordance with the findings of the present study, the spiritual growth, the main lever for coping with daily life complications, gained the highest score in this sampling. This attitude was similarly observed in Turkish dental students. [23] Obviously, this is regardless of any religious or spiritual belief of the students’ community. In spite of that, physical activity was the lowest in this student group. This low score was likely observed in female Turkish dental students. [23] For variety of reasons, students may not be involved in physical activity. This can be related to the volume of courses, less sport facilities, or less attractive sport options. There is no doubt that physical activity has a determining role in health status of students. Kuwaiti students had similar weakness in their life-style. [19] In fact, the highest score of spiritual growth and the lowest score of physical activity was also evident in Mexican, [20] Indian, [22] Turkish medical Students, [24] Jordanian, [25] and Malaysian students. [26]

Table 7: The comparison of mean score of different life-style behavior in different 3 age groups (19 \geq , 20-22, and 23 \leq years), using the one-Way ANOVA statistical method

Variables	Groups	Sum. of Square	df	Mean of Square	F	Sig.
Physical Activity	Intergroup	134.104	2	67.052	6.033	.003*
	Intragroup	1244.818	112	11.114		
	Total	1378.922	114			
Nutrition	Intergroup	20.955	2	10.478	.975	.381
	Intragroup	1204.140	112	10.751		
	Total	1225.96	114			
Spiritual Growth	Intergroup	4.676	2	2.338	.129	.879
	Intragroup	2031.811	112	18.141		
	Total	2036.487	114			
Interpersonal Relations	Intergroup	6.169	2	3.084	.252	.777
	Intragroup	1368.997	112	12.223		
	Total	1375.165	114			
Stress Management	Intergroup	9.623	2	4.812	.596	.553
	Intragroup	904.463	112	8.076		
	Total	914.087	114			
Health Responsibility	Intergroup	60.186	2	30.093	2.280	.107
	Intragroup	1478.110	112	13.197		
	Total	1538.296	114			

* Statistically Significant Variable

Turkish dental students from high-income families were more attentive to their health responsibility duties. [23] The present sample earned the second lowest score on health responsibility attitude. Furthermore, the independent samples t-test did not show any difference between life-style of boys and girls. (0.276) The other three behavioral fields (interpersonal relations, nutrition, and stress management) are not well developed in the life-style standard of dental students.

It could be expected that male students be more eager to get involved in physical activity than females ($p= 0.000$). This gender difference was also significantly evident among Macedonians students ($p= 0.001$). [30] Yet, girls are very keen to their nutrition for staying in an ideal body shape. Accordingly, they much care about their health responsibility task. Girls were also expectedly more socialized in their academic home. [6] Nonetheless, the statistical analysis of this variable did not prove any difference between genders of the present investigation, but in physical activity subscale.

Based upon marital status, both groups showed si-

ilar interest in the spiritual growth behavior. This behavior was also notable among undefined group of students. [20, 22-26] Generally, marriage would obviously provide more social contacts. It also requires more management of financial sources, meaning more health responsibility for family. Reversely, being single commonly provides more time to hang with classmates, sometimes engaging in more physical activities. Concerning the financial sources, singles were perhaps more attentive to their nutrition. Single students could manage their stress, probably because of less family and/or financial involvements. However, none of the subscales of HPLP II was statistically significant related to the marital status.

The youngest student group (group I) were ahead of the oldest groups in physical activity ($p= 0.002$), but the difference of other variables did not reach to statistically significant level.

Conclusion

The students' life-style is remarkable most in spiritual

Table 8: An evaluation of physical activity within different 3 age groups (19 \geq , 20-22, and 23 \leq years) is presented in this table.

Dependent Variable	I (age)	J (age)	Mean Difference (I-J)	Sig.
Physical Activity	19 \geq	20-22	1.626	.127
		23 \leq	2.740	.002*
	20-22	19 \geq	-1.626	.127
		23 \leq	1.114	.274
	23 \leq	19 \geq	-2.740	.002*
		20-22	-1.114	.274

* Statistically Significant Variable

growth and interpersonal relationships subscales and least in physical activity and health responsibility. Designing interventional programs aiming at modification and promotion of students' lifestyle, especially in the aspect of less scored behavioral variables, is recommendable. This action has positive effect on elite students' life quality and subsequently on their performance. University administrators may introduce courses related to healthy life-style in curriculum not only for elite students but also for others.

Conflict of Interest

The authors disclose no potential conflicts of interest.

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