

## Assessment of Stress in General Dentists in Tehran City

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### Abstract

**Objectives:** This study sought to assess the level of stress in general dentists in the 2<sup>nd</sup> district of Tehran city in 2014 to find out the stressors and suggest strategies to overcome them.

**Methods:** This descriptive, analytical, cross-sectional study was conducted on 130 general dentists from the 2<sup>nd</sup> district of Tehran city selected via weighted randomization. Level of stress was assessed using Coudron stress questionnaire. Data were analyzed using SPSS version 20.0 and Spearman's correlation coefficient, Chi square test and ordinal logistic regression tests.  $P < 0.05$  was considered statistically significant.

**Results:** All types of stress (occupational, life health, personal life and personality) were significantly correlated. Normal life health stress (compared to high stress) decreased occupational stress to approximately one third. Level of occupational stress was 2.5 times lower in subjects with normal level of stress in their personal life and 2 times lower in subjects with normal personality stress. Most dentists, irrespective of gender and marital status had high levels of occupational stress. Only 11.27% of those with a work experience of less than 10 years had normal life health stress. Personal life stress was significantly correlated with age, work place, and work experience ( $P < 0.05$ ).

**Conclusion:** Most dentists, irrespective of gender (male: 67.3%, female: 73%) and marital status (married: 66.3%, single: 74.2%) had high levels of occupational stress. The effects of age, gender, marital status, work place and work experience were variable on occupational, life health, personal life and personality stresses and depended on the type of stress assessed.

**Key Words:** Dentists; Dentistry; Stress, Psychological

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## Introduction

Stress is a common problem affecting all aspects of life. It can have significant effects on personal and occupational life of individuals. Stress is defined as a reaction to cope with physical or mental stressors and can significantly compromise occupational performance of individuals (1). Also, stressed people can stress out their companions as well (2).

Dentistry is a highly stressful profession and can even lead to anxiety and depression (3,4). Evidence shows that too much stress can adversely affect the physical and mental health and occupational future of dentists (5-8). Personality of dentists plays an important role in this regard and can alleviate or aggravate the situation. Due to different personality traits, people may have different perceptions of the same event. Several personality tests are available that can, to

some extent, reveal different aspects of personality (9).

In today's world, dentists are under different kinds of stress such as occupational, life health and personal life stresses (10-12). High stress lowers the quality of work, increases errors and adversely affects mental health (13). It can even decrease personal and occupational relations and negatively impact the wellbeing of clinicians. Dunlap and Stewart (14) concluded that 38% of dentists were anxious or agitated. Roth *et al.* (15) concluded that stress and burn out are among the main causes of job change by dentists (15). Key and Lowe (16) in their study in the United States revealed that 86% of dentists had a highly stressful life and more than half believed too much physical activity to be responsible for that. They stated that dentists must be in complete physical and mental health state to minimize the impact of stress on their work. They added that professional and personal life of dentists are correlated and mutually affect one another. Romeo *et al.* (17) in their study in the Netherlands showed that male dentists had higher occupational stress than females mainly due to the higher work hours of men. In contrast, Alexander (18) reported that rate of suicide was higher among female dentists compared to males.

Stress can be evaluated in occupational, life health, personal life and personality aspects. Occupational stress refers to stress from work environment and individual's work-related problems. Life health stress is often related to factors such as the amount and quality of sleep, regular exercising and physical activities, tobacco use, nutrition and living environment. Personal life stress is

related to emotional issues, communication with family members, marital status, relationship with the spouse, children and parents, and social and cultural activities. Personality stress relates to the type of personality, reaction to emotions, anxieties, critics and life difficulties and life satisfaction (4).

As it seems that no published studies have evaluated level of stress in dentists in Iran and since stress-related disorders can adversely affect the personal, occupational, health and wellbeing of dentists, this study aimed to assess the stress level of dentists in Tehran to recognize the stressors and confront them.

## Methods

In this descriptive, analytical, cross-sectional study, Coudron's standard stress questionnaire was administered among 130 general dentists (104 males, 26 females, 95 married, 35 single) practicing in the 2<sup>nd</sup> district of Tehran. For the purpose of sample selection, list of names of all dentists working in the respective district was obtained from the Medical Council of Iran. Dentists were chosen from both public and private sectors using random sampling method from the respective district until the sample size was reached. Sample size was calculated using power and sample size calculation software version 3.0.43. Considering  $P < 0.05$  level of significance, minimum study power of 80% (maximum false negative error of 20%), and assuming the prevalence of stress to be 40% in an understudy group, 122 dentists were required to detect a minimum of 25%

prevalence of stress as compared to foreign studies (i.e. 65%). Considering the possible dropouts and to increase the power of study, 10-15% was added to the sample size and a total of 140 dentists were evaluated. The questionnaire used in this study was Coudron's stress questionnaire, which assesses individuals' stress levels in occupational, life health, personal life and personality domains (9). Responses to questions are positive or negative but each question, depending on its importance, is allocated a score. Total scores of all four tests are separately calculated and divided into three groups of normal, higher than normal (moderate) and high. If the total score in each test is less than 30, the stress level would be normal. If the total score is between 30-60, the level of stress would be moderate and if the total score is over 60, the level of stress would be high; which cannot be easily tolerated and there would be a risk for mental disorders. The reliability and validity of this questionnaire have been confirmed in previous studies (19-22). The reliability of Coudron's stress questionnaire by re-test was over 70%. In terms of validity, a correlation coefficient of almost 80% was obtained (20-22). It should be noted that questionnaires were hand distributed among dentists by the researcher and after completion, they were collected the same day in their offices. Data were analyzed with SPSS version 20.0 (SPSS Inc., IL, USA) using Chi square test, ordinal logistic regression model and Spearman's correlation coefficient.  $P < 0.05$  was considered statistically significant.

## Results

The results showed that life health stress decreased by aging. As seen in Table 1, level of occupational stress was significantly lower in older subjects. Also, most dentists had high occupational stress irrespective of gender (males: 67.3%, females: 73%), marital status (married: 66.3%, single: 74.2%) and work place. Also, 100% of dentists working both in their private office and a public clinic had high occupational stress. Age, marital status, work place and work experience were significantly correlated with occupational stress ( $P < 0.05$ ). However, the correlation of gender with this type of stress was not significant ( $P > 0.05$ ). The mean, standard deviation, minimum and maximum scores acquired for each type of stress are shown in Table 2.

Age, gender and work experience were significantly correlated with life health stress ( $P < 0.05$ ). But, this type of stress was not correlated with marital status or work place ( $P > 0.05$ ). Most women had higher than normal (moderate) life health stress, while men had equal distribution in the three groups. Moreover, only 11.3% of those with less than 10 years of work experience had normal level of life health stress. Personal life stress was significantly correlated with age, work place and work experience ( $P < 0.05$ ) while it was independent of gender and marital status ( $P > 0.05$ ).

In other words, personal life stress decreased by increased age or work experience. None of the dentists with work experience over 20 years had high personality stress. The mean stress values and their standard deviations based on the understudy variables are shown in Table 3.

**Table 1- Demographic information of patients and different types of stress for age and gender**

		Age (years)			Gender	
		25-35(%)	36-45 (%)	46-56 (%)	Male (%)	Female (%)
Occupational stress	Normal	28.6 (4)	28.6 (4)	42.9 (6)	71.4 (10)	28.6 (4)
	Moderate	18.5 (5)	51.9 (14)	29.6 (8)	88.9 (24)	11.1 (3)
	High	61.8 (55)	18 (16)	20.2 (18)	78.7 (70)	21.3 (19)
Life health stress	Normal	20.5 (8)	30.8 (12)	48.7 (19)	89.7 (35)	10.3 (4)
	Moderate	62.5 (35)	19.6 (11)	17.9 (10)	60.7 (34)	39.3 (22)
	High	60.0 (21)	31.4 (11)	8.6 (3)	100 (35)	0.0 (0)
Personal life stress	Normal	40.5 (17)	19.0 (8)	40.5 (17)	83.3 (35)	16.7 (7)
	Moderate	36.4 (16)	36.4 (16)	27.3 (12)	81.8 (36)	18.2 (8)
	High	70.5 (31)	22.7 (10)	6.8 (3)	75.0 (33)	25.0 (11)
Personality stress	Normal	22.5 (9)	20.0 (8)	57.5 (23)	100.0 (40)	0.0 (0)
	Moderate	50.9 (28)	34.5 (19)	14.5 (8)	78.2 (43)	21.8 (12)
	High	77.1 (27)	20.0 (7)	2.9 (1)	60.0 (21)	40.0 (14)

**Table 2- Demographic information based on work**

		Marital status		Work place			Work experience (years)		
		Married (%)	Single (%)	Office (%)	Clinic (%)	Both (%)	1-10 (%)	11-20 (%)	21-30 (%)
Occupational stress	Normal	57.1(8)	42.9(6)	78.6 (11)	21.4 (3)	0 (0)	4% (28.6)	4% (28.6)	42.9 (6)
	Moderate	88.9(24)	11.1(3)	85.2 (23)	14.8 (4)	0 (0)	5% (18.5)	19% (70.4)	11.1 (3)
	High	70.8(63)	29.2(26)	51.7 (46)	31.5 (28)	16.9 (15)	62% (69.7)	67% (19.1)	11.2 (10)
Life health stress	Normal	76.9(30)	23.1(9)	69.2(27)	20.5 (8)	10.3 (4)	8% (20.5)	20% (51.3)	28.2 (11)
	Moderate	67.9(38)	32.1(18)	66.1 (37)	28.6 (16)	5.4 (3)	35% (62.5)	16% (28.6)	8.9 (5)
	High	77.1(27)	22.9(8)	45.7 (16)	31.4 (11)	22.9 (8)	28% (80.0)	4% (11.4)	8.6 (3)
Personal life stress	Normal	71.4(30)	28.6(12)	66.7 (28)	33.3 (14)	0 (0)	17% (40.5)	10% (23.8)	35.7 (15)
	Moderate	63.6(28)	36.4(16)	40.9 (18)	25.0 (11)	34.1 (15)	20% (45.5)	23% (52.3)	2.3 (1)
	High	84.1(37)	15.9(7)	77.3 (34)	22.7 (10)	0 (0)	34% (77.3)	7% (15.9)	6.8 (3)
Personality stress	Normal	92.5(37)	7.5(3)	80.0 (32)	10.0 (4)	10.0 (4)	22.5 (9)	60.0 (24)	17.5 (7)
	Moderate	67.3(37)	32.7(18)	58.2 (32)	29.1 (16)	12.7 (7)	63.6 (35)	14.5 (8)	21.8 (12)
	High	60.0 (21)	40.0(14)	45.7 (16)	42.9 (15)	11.4 (4)	77.1 (27)	22.9 (8)	0.0 (0)

**Table 3- The mean scores acquired for each type of stress**

	Number	Mean	Standard deviation
Occupational stress	124	89.19	40.971
Life health stress	130	47.31	24.982
Personal life stress	130	41.31	36.091
Personality stress	130	8.62	4.776

**Table 4- The mean stress values based on age and gender**

	Age (years)			P. value <sup>1</sup>	Gender		P. value <sup>2</sup>
	25-35	36-45	46-56		Male	Female	
Occupational stress	102.83 (±32.61)	82.75 (±52.90)	69.23 (±30.4)	0.001	87.25 (±37.62)	96.52 (±51.92)	0.30
Life health stress	53.98 (±19.88)	48.82 (±30.60)	32.34 (±21.7)	0.001	48.17 (±26.63)	43.85 (±16.81)	0.43
Personal life stress	47.73 (±35.54)	45.44 (±40.92)	24.06 (±25.66)	0.007	41.01 (±35.11)	42.50 (±40.47)	0.85
Personality stress	11.09 (±4.08)	8.00 (±4.14)	4.31 (±3.23)	0.001	7.81 (±4.73)	11.85 (±3.44)	0.001

P value<sup>1</sup>: ANOVA      P value<sup>2</sup>: Independent t-test

**Table 5- The mean stress values based on work criterias**

	Marital status		P. value <sup>2</sup>	Work place			P. value <sup>1</sup>	Work experience (years)			P. value <sup>1</sup>
	Married	Single		Office	Clinic	Both		1-10	11-20	21-30	
Occupational stress	87.80 (±40.09)	93.03 (±43.70)	0.53	79.87 (±42.35)	99.16 (±33.08)	115.80 (±33.52)	0.002	106.21 (±32.45)	71.89 (±42.14)	62.85 (±39.13)	0.001
Life health stress	45.84 (±24.72)	51.29 (±25.59)	0.27	44.13 (±24.42)	52.57 (±25.09)	52.00 (±26.51)	0.18	57.61 (±21.90)	34.50 (±23.36)	35.79 (±22.37)	0.001
Personal life stress	46.74 (±39.61)	26.57 (±17.22)	0.004	43.56 (±37.65)	41.00 (±39.44)	30.00 (±7.55)	0.41	48.94 (±35.64)	38.25 (±34.67)	19.21 (±31.98)	0.004
Personality stress	7.82 (±4.99)	10.00 (±3.33)	0.002	7.50 (±4.52)	11.80 (±3.96)	7.13 (±4.65)	0.001	10.86 (±3.97)	5.68 (±4.96)	6.42 (±2.11)	0.001

The mean personality stress was significantly higher in females (11.85 in females versus 7.81 in males,  $P < 0.001$ ). The mean personal life stress in married individuals was significantly higher than that in singles (46.74 versus 26.57,  $P < 0.001$ ). The mean personality stress in married dentists (7.82) was significantly lower than that in singles (10.77) (mean difference of 2.9,  $P < 0.001$ ).

To assess the correlation among these types of stress, the Spearman's correlation coefficient was used considering the non-normal distribution of variables. The results showed that all types of stress were significantly correlated with one another except for the occupational stress and personality.

## Discussion

The results of this study showed that age of dentists was significantly correlated with occupational, health life, personality and personal life stresses. The highest level of stress in dentists was seen among 25 to 36 year-olds and by increased age, level of stress significantly decreased among dentists. Studies in other countries have shown that younger dentists have higher levels of stress than older ones (23-26). Divaris *et al*, (27) in their study in Switzerland on stressors in dental residents concluded that younger and female residents had higher occupational stress. Our obtained results in terms of age were similar to those of Divaris *et al* (27). Our findings regarding the correlation of gender with occupational stress was similar to that reported by other

studies showing that gender had no effect on development of occupational stress in dentists (28-30).

Work experience was significantly correlated with all types of stress in our study. This is important from two aspects. First, work experience and age are two dependent variables and older dentists have greater work experience as well and vice versa. Second, by increased work experience, dentists become more expert in their field of work and as they age, they also become more financially and occupationally independent. Thus, their occupational and personality stresses decrease. Work place of dentists also plays a significant role in development of occupational stress. In the current study, dentists were evaluated in terms of working in their private office or public clinic and the results showed the highest levels of all types of stresses in dentists working in private offices; those working in clinics were more relaxed. This difference was statistically significant. This difference is probably attributed to difficulties related to managing a private office. In a private office, the dentist is responsible for all issues related to communication with the staff and providing materials and equipment. Thus, higher levels of stress among these dentists are expected. A dentist working in a clinic is only concerned with the dental work and thus, has lower stress levels. Gorter *et al*. (31) evaluated the effect of different factors on the level of stress in dentists in the Netherlands and concluded that work place conditions had no significant effect on the level of stress in dentists. However, in another study, Osborne and Croucher (32) in

the UK compared the level of stress in dentists working in the National Health Service and private offices in the UK and reported that the higher the interaction of dentists with patients, the higher the occupational stress in them; this finding supports our findings.

The effect of marital status of dentists on their level of stress was also evaluated in the current study. The correlation between marital status and occupational and personality stress levels was found to be significant while this correlation was not significant for other types of stress. This study showed that number of married dentists with high level of occupational stress was twice the number of singles experiencing the same level of stress. This may be explained by the fact that married dentists are in charge of their family and married life in addition to their occupation and these types of stress may even aggravate each other. Moreover, the personality of the dentist's spouse also plays a role in this regard. If the dentist's spouse has a stressful personality, this, as a confounding factor, can aggravate the level of stress in dentists. Other studies, such as the one by Nevin and Sampson (33) showed that family stability and stresses applied from the spouse of dentists affected their professional work. They showed that dentists with stable lives also experienced some levels of stress. The correlation of all four types of stresses with one another was also investigated in the

current study and it was revealed that life health and private life stresses were significantly correlated with other types of stresses. This can be explained by the fact that dentists' living conditions such as sleep quality, exercise, nutrition and family concerns caught their attention more than occupational issues and resulted in their lack of precision at work and subsequent problems and higher than normal levels of stress (34). One limitation of this study is the inability to generalize the results to the entire city of Tehran due to the method of sampling used.

## Conclusion

Most dentists, irrespective of gender and marital status, had high levels of occupational stress. The effects of age, gender, marital status, work place and work experience were variable on occupational, life health, personal life and personality stresses and depended on the type of stress assessed.

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