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Occupational Stress Among Faculty Members at Dental Universities in Tehran

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Abstract

Objectives: Determining the job (occupational or work-related) stress of dental school faculty members is necessary for planning to improve the quality of dental education and the health and oral health status of people in society. This study aimed to determine the job stress of dental school faculty members in Tehran. **Methods:** In this descriptive cross-sectional study, 167 faculty members of Islamic Azad, Tehran, Shahed, and Shahid Beheshti dental schools were selected by convenience sampling, and using Osipow's Occupational Stress Inventory, their job stress in six fields was evaluated. Osipow's Occupational Stress Inventory was scored on a 5-point Likert scale from 1 to 5. Each phrase was rated on a scale from 1 to 5, with 1 indicating 'never' and 5 indicating 'most of the time.' The data were analyzed using t-test, Kruskal-Wallis, and ANOVA. **Results:** Most faculty members of dental schools in Tehran experienced low to moderate job stress across various fields. 60% had low-moderate job stress in the role workload, 75.3% in the role inadequacy,42.6% had low-moderate job stress in the role dichotomy, 59.4% had low-moderate job stress in the range of the job,73.2% had low-moderate job stress in the responsibility and 45% ad low-moderate job stress in all fields. A significant difference was between the age of faculty members and job stress in the range of jobs; with increasing age, job stress in this field was reduced. No significant difference was found in job stress scores according to gender and marital status, academic rank, or department of activity among faculty members of dental schools in Tehran. **Conclusion:** Most faculty members of dental schools in Tehran reported low-moderate job stress in most fields. The highest job stress was observed in the role workload, and the lowest was in the physical environment.

Keywords: Occupational Stress; Faculty, Dental; Schools, Dental

Introduction

Stressors in the workplace cause job stress[1], and the type of work plays an important role in the stress.[2] Healthcare professionals are exposed to higher levels of stress than others.[3] Dentists consider their profession more stressful than other healthcare professionals.[4,5] It has been reported that the prevalence of stress in dentists is more than three times that of ordinary people in society[6], which is related to the nature of work and the type of working conditions of dentistry. Dentists are exposed to various social, professional, and financial issues due to the clinical nature of their job and personality traits, which may lead to clinical disorders such as burnout, anxiety, and depression.[7]

According to the report of the World Dental Congress, education in dentistry is considered complex and often stressful. The practice of dentistry requires clinical skills and patient management. Dentists experience high work-related stress that starts with dental education. Factors causing stress in dentistry include time and planning pressures, management of uncooperative patients, and the highly technical and heavy nature of work. The origin of stress may be personal, interpersonal, academic, or environmental.[8]

Burnout is a state of mental and physical fatigue caused by high and chronic stress.

There is evidence that general dentists and oral surgeons experience the highest levels of burnout, while orthodontic specialists experience the lowest levels.[9]

In one study on job stress among clinical dental students, Keikavusi Arani and Seyed Soumae[10] found that clinical dental students suffer from moderate-severe job stress. Older learners were more stressed than younger learners, and the stress of male and female learners was similar. In a study by Samkhanian and Eftekhari[11], stress, anxiety, and depression were common among dental professionals, and some were not satisfied with their jobs.

Today, dentists are increasingly exposed to severe stress[9], which reduces performance, increases errors, and affects their mental health.[12] Stress among faculty members at dental schools can negatively impact educational and clinical competence. This study aimed to

assess job stress among faculty members of dental schools in Tehran.

Methods

This cross-sectional descriptive study was conducted during the academic year 2018-2019, and 167 of 520 faculty members of four dental schools in Tehran (Islamic Azad, Tehran, Shahed, and Shahid Beheshti) completed the questionnaires. 44 faculty members (26.3%) worked at Shahid Beheshti Dental School, 42 faculty members (25.1%) worked at Shahed Dental School, 43 faculty members (25.7%) worked at Tehran Dental School, and 38 faculty members (22.8%) worked at Islamic Azad dental school.

Before the start of the study, the participants were informed about the subject and method of conducting it and assured that their personal information would be confidential. They could know the results if they wished. In the event of any disturbances, the volunteers were given necessary follow-up instructions.

Osipow's Occupational Stress Inventory was used for data collection, including demographic information of people in the form of seven questions (age, gender, educational level, marital status, employment status, work experience, and average monthly income). Osipow's Occupational Stress Inventory uses a 5-point Likert scale, scored from 1 to 5. This questionnaire comprises six occupational stress dimensions, each containing ten questions. The first dimension of workload (lack of necessary support in heavier job duties) is related to how a person responds to the demands of the workplace. The second dimension of the inefficiency of the job (mismatch between skills and what the job expects from a person) is related to matching the skill, education, and educational and experience characteristics of a person regarding the needs of the workplace. The third dimension of dichotomy (uncertainty about the duties that a person is expected to perform and how to evaluate) is related to a person's awareness of the priorities and expectations of the workplace and evaluation criteria. The fourth dimension of the range of jobs (doubt and hesitancy in expressing the demands and not being transparent about the limits of the power) is related to the contradictions of the person in terms of his work conscience and the expected role. The fifth dimension of responsibility (pressure caused by working with colleagues who cause problems) is related to the responsibility of a person in terms of the efficiency and well-being of others in the workplace. The sixth dimension of the physical environment (noise, humidity, dust, cold and heat, etc.) is related to the undesired conditions of the physical environment to which a person is exposed.[13]

This questionnaire has 60 questions on a Likert scale that measures job stress in six dimensions. Osipow's Occupational Stress Inventory is scored on a 5-point Likert scale from one to five. Five points are considered for each phrase, from never[1] to most of the time.[5] The range of scores of this questionnaire varies between 60 and 300, and the higher scores of the subject indicate his higher stress level. The score of each field of the questionnaire was obtained from the total scores of the questions in that field (Table 1).

Table 1 - Scoring different degrees of job stress by job fields

	Mild	Moderate	High	Sever
Work load	10-19	20-29	39-30	50-40
Inefficiency of the job	10-19	20-29	39-30	50-40
Dichotomy	10-19	20-29	39-30	50-40
Range of job	10-19	20-29	39-30	50-40
Responsibility	10-19	20-29	39-30	50-40
Physical environment	10-19	20-29	39-30	50-40

The Occupational Stress Inventory was used for the first time by Osipow et al.[13] as a job stress measurement tool and has been used repeatedly by different researchers in the country through test-retest methods. Its validity and reliability test has been confirmed at a desired level.[14-18]

In this study, the validity of the questionnaire was confirmed by asking professionals and faculty members, its reliability was calculated at a satisfactory level by retesting, and its Cronbach's alpha coefficient was reported to be 0.89.[19]

We used the Kolmogorov-Smirnov test to ensure the normal distribution of data. The obtained data were analyzed by t-test, Kruskal-Wallis test, ANOVA, and SPSS 21, and the significance level was considered 0.05.

Results

Of the total 167 faculty members studied in the research, 44 faculty members (26.3%) worked at Shahid Beheshti Dental School, 42 (25.1%) faculty members worked at Shahed Dental School, 43 faculty members (25.7%) worked at Tehran Dental School, and 38 faculty members (22.8%) worked at Islamic Azad Dental School. Ninety-nine faculty members (59.3%) were women, and 68 (40.7%) were men; 28 faculty members (16.8%) were single, and 133 (79.6%) were married.

The average work experience of the studied faculty members was 9.0 years, and the average age of the samples was 41.5 years.

According to the results of the Kruskal-Wallis test regarding the frequency distribution of different fields of the Occupational Stress Inventory, most of the faculty members showed normal-moderate stress in various job stress fields. In all four dental schools of Tehran, the highest job stress was observed in the role workload, and the lowest was in the physical environment (Table 2).

Table2 - The frequency distribution of different fields of Occupational Stress Inventory

	Mild	Moderate	High	Sever
	N (%)	N (%)	N (%)	N (%)
Work load	2(1.2)	100(60)	62(37)	3(1.8)
Inefficiency of the job	6 (3.6)	125(75.3)	34(20.4)	1(0.6)
Dichotomy	32(19.2)	71(42.6)	64(38.4)	0(0)
Range of job	24(14)	99(59.4)	43(25.8)	1(0.6)
Responsibility	4(2.4)	122(73.2)	40(24)	0(0)
Physical environment	49(26.4)	104(60)	14(8.4)	0(0)

According to the random-effect ANOVA test, regarding the mean job stress, no significant difference was observed between the different levels of job stress of faculty members in different fields of job stress at various dental schools in Tehran (Table 3).

Table 3 - The mean job stress of faculty members of dental schools in Tehran, no significant difference

fields	Collage	Mean	SD	Pvalue
Work load	Shahid beheshti	27.93	5.04	0.77
	Shahed	28.54	4.99	
	Tehran	27.93	5.34	
	Azad	27.55	5.41	
Inefficiency of the job	Shahid beheshti	25.65	4.33	0.37
	Shahed	26.78	5.21	
	Tehran	25.23	3.96	
	Azad	26.51	4.40	
Dichotomy	Shahid beheshti	26.31	5.71	0.96
	Shahed	25.76	6.61	
	Tehran	26.34	5.18	
	Azad	26.65	6.08	
Range of job	Shahid beheshti	24.84	5.23	0.57
	Shahed	25.83	6.33	
	Tehran	26.23	5.41	
	Azad	25.97	6.82	
Responsibility	Shahid beheshti	27.61	2.58	0.37
	Shahed	26.31	4.18	
	Tehran	26.79	3.35	
	Azad	27.02	3.70	
Physical environment	Shahid beheshti	21.52	4.36	0.17
	Shahed	21.14	5.79	
	Tehran	22.00	5.54	
	Azad	22.68	5.19	

According to the mean job stress of faculty members of dental schools in Tehran by the departments, no significant difference was observed in terms of different levels of job stress of faculty members in different fields of job stress (Table 4).

Table 4 - The mean job stress of faculty members of dental schools in Tehran by the departments

	Work load		Inefficiency of the job		Dichotomy		Range of job		Responsibility		Physical environment	
	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd
Oral disease	28.92	5.13	25.61	3.79	23.07	7.12	23.92	6.07	27.46	4.37	21.46	5.72
Periodontology	26.68	5.5	25.84	4.19	25.73	5.98	26.00	5.09	27.15	3.27	21.52	5.21
Oral surgery	25.60	4.37	23.90	3.44	26.60	3.92	26.0	5.43	12.70	4.13	20.90	5.46
Operative dentistry	28.68	6.24	26.89	4.43	25.68	6.12	26.36	6.91	27.94	2.83	20.47	5.08
endodontics	28.13	4.25	26.90	5.0	26.63	5.92	26.22	6.99	27.14	3.32	23.04	4.71
Pediatric dentistry	28.60	5.57	24.94	3.27	25.05	6.27	23.85	5.23	25.90	3.17	22.05	5.92
orthodontics	27.92	5.05	27.69	5.66	30.15	4.45	27.15	4.54	26.53	4.21	20.15	4.68
Oral patholog	27.45	4.65	24.36	3.38	28.09	5.57	26.81	5.43	28.00	2.93	25.54	5.02
Dental materials	25.66	4.00	24.33	5.09	23.66	5.38	23.22	5.42	25.66	3.50	21.00	2.5
Community dentistry	28.28	4.68	24.71	4.82	23.57	5.38	22.42	6.60	27.14	2.60	25.71	4.11
Prosthetic dentistry	29.66	5.6	27.16	5.28	28.75	4.97	28.00	6.57	26.75	4.15	21.16	5.04
Oral radiology	29.25	5.61	27.83	4.78	27.66	5.34	26.91	5.58	26.58	3.89	22.41	4.94
p-Value	0.69		0.30		0.75		0.46		0.85		0.19	

The results of the Pearson correlation test, which examined the relationship between age and job stress across various fields, found no significant correlation between the age of faculty members and their job stress scores. This was true for role workload, role inadequacy, role dichotomy, responsibility, physical environment, and all fields studied. However, a significant relationship was observed between the age of faculty members and job stress scores in the range of jobs (p=0.045), and by increasing age, job stress was reduced (Table 5).

Table 5 - the relationship between age and job stress in different fields	
fields	**Age**
Work load	p=0.37
Inefficiency of the job	P=0.89
Dichotomy	P=0.66
Range of job	P=0.045 r=-0.173
Responsibility	P=0.48
Physical environment	P=0.86

No significant difference was observed in job stress among dental school faculty members regarding marital status, academic rank, and activity sectors in different fields.

Discussion

According to the results of the present study, most of the faculty members of dental schools in Tehran had low-moderate stress in most fields of job stress, which is consistent with the results of other studies.[20-22] In a study by Basirat et al. [23], burnout was high in general dentists in Semnan Province. Torabi Parisi et al.[24] also reported high burnout in Kerman dentists, which was higher than in the present study.

There is evidence that dentists' stress is higher than that of physicians, and the prevalence of stress in dentists is more than three times that of ordinary people in society.[3] This can be attributed to the nature of the work and dental working conditions. This heightened stress can lead to decreased performance, more errors, and poor mental health.[12]

Teixeira et al.[25] studied the main contributing factors of job stress among dental academics. They reported that the main reasons for job stress among dental professionals and students were job prospects, limited time at work, work overload, and managerial demands. No significant relationship was found between specific sources of stress, limited time at work, role workload and responsibility, job dissatisfaction, and low social support. Still, these dental academics' uncertain career futures were inversely related to well-being.

According to the results of the present study, in all four dental schools of Tehran, the highest stress was observed in the role workload, and the lowest job stress was observed in the physical environment. Regarding the physical environment, according to the study results, 26.4% of faculty members had low stress, 60% had low-moderate stress, 4.8% had moderate-severe stress, and none had severe stress. In a study by Zamanian et al.[22], workplace noise and job stress were directly related, but no relationship was observed between workplace lighting and job stress. On the other hand, Gorter et al.[26] considered workplace conditions ineffective in causing stress in dentists, which is consistent with the present study. Osborne et al.[27] compared the stress of dentists who worked in the British public system with private dentists and concluded that patient interaction increases job stress.

Regarding role workload, 1.2% of faculty members had low stress, 60% had low-moderate stress, 37% had moderate-severe stress, and 1.8% had severe stress. Therefore, in this field, the job stress of faculty members of dental schools in Tehran was evaluated to be low-moderate, and both high and low role workloads caused stress. Increasing the role workload requires a person to do much work during a specific period. The qualitative role workload usually increases when a person feels he lacks the skill and ability to do the job. Quantitative role workload reduction means that the person does minimal work, which reduces efficiency. Qualitative role workload reduction means asking the person to do routine, boring, and repetitive tasks, i.e., tasks that do not simulate a person's mind.

As for role inadequacy, 3.6% of faculty members had low stress, 75.3% had low-moderate stress, 20.4% had moderate-severe stress, and 0.6% had severe stress. Therefore, in this field, the job stress of faculty members of dental schools in Tehran was low-moderate. Role inadequacy means there is no match between the person's skills, education, and experience and what the job expects from the person, and the person is distrustful of his career future.

In the field of role dichotomy, 19.2% had low stress, 42.6% had low-moderate stress, 38.4% had moderate-severe stress, and none had severe stress. Therefore, in this field, the job stress of faculty members of dental schools in Tehran was low-moderate. The dimension of role dichotomy evaluates a person's awareness of priorities, expectations of the workplace, and evaluation criteria.

The study results indicated that 14% of faculty members had low stress, 59.4% had low-moderate stress, 25.8% had moderate-severe stress, and 0.6% had severe stress. Therefore, in this field, the job stress of faculty members of dental schools in Tehran was low-moderate. The dimension of the job range evaluates the conflicts a person has in terms of work conscience and the expected role.

Regarding responsibility, according to the results of the present study, 2.4% of faculty members had low stress,

73.2% had low-moderate stress, 24% had moderate-severe stress, and 0% had severe stress. Therefore, in this field, the job stress of faculty members of dental schools in Tehran was low-moderate. Job responsibility is one of the specific causes of stress, and people with heavier job responsibilities suffer from more stress. In the meantime, jobs that involve responsibility for the life and well-being of others cause more stress. Many studies have shown that doctors, airline control personnel, and people who make decisions related to other people's lives are more prone to suffer from stomach ulcers, heart attacks, and hypertension.

Since educational activities increase self-confidence, reduce loneliness, improve a person's sense of independence, and reduce the harmful effects of this profession, dentists with academic and managerial responsibilities and clinical work suffer less from job pressure.[28]

According to the study results, job stress was more common among women than men, consistent with Rezaei et al.[29] and Hosseini et al.[30] However, in a study by Islamipour et al.[22], women had less burnout. In a study by Te Brake et al.[31], male dentists experienced more job stress than female dentists, directly related to working hours. In a study by Torabi Parisi [24], women complained of more work pressure than men, which is consistent with the results of the present study. In a study by Keikavusi Arani and Seyed Soumae[10], male and female learners' stress levels were similar.

In a study by Shadman et al.[32], the highest average scores of stressors were in the departments of surgery, endodontics, and children's dentistry and the field of patient treatment. A significant difference was noted in all fields, which is inconsistent with the results of the present study.

In our study, marital status had no significant effect on job stress, which is consistent with the results of other studies.[24,30]

Regarding the age of the faculty members and job stress in terms of the range of jobs, results showed that job stress was reduced by increasing age. However, this relationship between the age of the faculty members and job stress scores in the role workload, role inadequacy, role dichotomy, responsibility, physical environment, and all fields was not significant.

Work experience did not affect job stress. However, there is evidence that the increase in work pressure-related problems is greater in young dentists, leading to job dissatisfaction and health issues such as anxiety and depression.[33,34]

Conclusion

Most faculty members of Tehran's dental schools had low-moderate job stress in most fields. The highest job stress was observed in the role workload, and the lowest was in the physical environment.

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