

Occupational Stress and Coping Behaviours Among Dentists in Kerman, Iran

Shiva Pouradeli,¹ Arash Shahravan,² Ali Eskandarizdeh,^{3*} Forozan Rafie,¹ Maryam A. Hashemipour¹

الإجهاد المهني وسلوكيات التأقلم بين أطباء الأسنان في كرمان، إيران

شيفا بوراديلي، ارش شارافان، علي اسكندرزيده، فوروزان رفيع، مريم هاشميبور

ABSTRACT: Objectives: Recognising causes of stress can help prevent associated adverse effects. This study aimed to investigate causes of occupational stress and coping behaviours among general dentists in Iran. **Methods:** This cross-sectional study was carried out from April to December 2014. A modified version of the Occupational Stress Indicator questionnaire was used to assess causes of stress and coping behaviours among 142 general dentists in Kerman, Iran. **Results:** A total of 93 dentists participated in the study (response rate: 65.5%). Of these, 58.9% reported often being stressed. The mean general stress score was 63.33 ± 19.99 . The most common causes of stress were maintaining high levels of concentration while working (65.6%), time pressures (64.5%), concern over their ability to deliver dental services in future (60.2%) and rising costs (59.1%). No significant relationships between stress and gender, age, workplace or working hours per week were noted ($P > 0.05$). However, there was a significant correlation between general stress scores and years of job experience ($P = 0.05$) and number of patients treated daily ($P = 0.03$). The most common methods for coping with stress were resting (71.0%), sports (45.2%) and entertainment (43.0%). Most dentists felt that stress management courses could help to reduce stress (89.7%). **Conclusion:** General dentists in Kerman were subject to many sources of stress in their workplaces, with significant relationships between stress scores and years of work experience and number of patients treated daily. Dentists should be encouraged to participate in stress management courses to help alleviate stress.

Keywords: Psychological Stress; Dentists; Coping Behavior; Iran.

المخلص: أهداف: إن إدراك أسباب التوتر قد يساعد على منع الآثار السلبية المرتبطة به، وقد هدفت الدراسة إلى التحقيق في أسباب الإجهاد المهني وسلوكيات التأقلم بين أطباء الأسنان في إيران، منهجية: أجريت هذه الدراسة المسحية خلال الفترة من إبريل إلى ديسمبر عام 2014م، وقد استخدمت نسخة معدلة من استبيان مؤشر الإجهاد المهني لتقييم أسباب التوتر وسلوكيات التأقلم بين 142 من أطباء الأسنان العموميين في كرمان، إيران. نتائج: لقد شارك ما مجموعه 93 من أطباء الأسنان في الدراسة (معدل الاستجابة: 65.5%)، أكد 58.9% من هؤلاء تعرضهم للإجهاد المهني في كثير من الأحيان، وبلغ متوسط علامات مؤشر الإجهاد 63.33 ± 19.99 ، كانت الأسباب الأكثر شيوعاً للإجهاد هي الحفاظ على مستويات عالية من التركيز أثناء العمل (65.6%)، وضغوط الوقت (64.5%)، والقلق إزاء القدرة على تقديم خدمات طب الأسنان في المستقبل (60.2%) أو ارتفاع تكاليف العلاج (59.1%)، ولم يلاحظ وجود أي علاقة ذات دلالة إحصائية بين حدوث الإجهاد وكل من الجنس والعمر ومكان العمل أو عدد ساعات العمل الأسبوعية ($P > 0.05$). ومع ذلك، كان هناك ارتباط كبير بين علامات الإجهاد العامة وسنوات الخبرة في العمل ($P = 0.05$) وعدد المرضى المعالجين يوميا ($P = 0.03$). وكانت الأساليب الأكثر شيوعاً للتعامل مع الإجهاد هي الراحة (71.0%)، والرياضة (45.2%)، والترفيه (43.0%). ورأى معظم أطباء الأسنان المشاركين أن دورات إدارة الإجهاد يمكن أن تساعد على الحد من التوتر (89.7%). خاتمة: تعرض أطباء الأسنان العموميين في كرمان لمصادر كثيرة من الإجهاد في أماكن عملهم، هناك علاقة ذات دلالة إحصائية بين علامات الإجهاد وسنوات الخبرة في العمل وعدد المرضى المعالجين يوميا، وينبغي تشجيع أطباء الأسنان على المشاركة في دورات إدارة الإجهاد للمساعدة في تخفيف التوتر بينهم.

كلمات مفتاحية: الإجهاد النفسي: أطباء الأسنان: سلوكيات التأقلم: إيران.

ADVANCES IN KNOWLEDGE

- Previous research has shown that dentists lack awareness of stress management strategies. This is the first study from Iran to evaluate sources of job-related stress and coping strategies among general dentists.

APPLICATION TO PATIENT CARE

- Modern dentistry involves a number of occupational hazards, including high levels of stress. Prolonged stress can have harmful effects, including damage to interpersonal and professional relationships; diminished health and wellbeing; burnout and depression; lowered motivation to engage in work; and low self-esteem.

- Successful stress reduction requires that the causes of stress be identified. The results of this study could help researchers in the fields of occupational health, dentistry and psychiatry to develop future interventions to minimise workplace stress among general dentists in Iran.

¹Oral & Dental Diseases Research Centre and Departments of ²Endodontics and ³Operative Dentistry, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

*Corresponding Author e-mail: fr.rafie87@yahoo.com

LONG-TERM EXPOSURE TO STRESS CAN cause physical and psychological problems such as anxiety, depression, cardiovascular diseases, digestive problems, insomnia and headaches.¹⁻³ Individuals face occupational stress when there are inconsistencies between the professional requirements of their job and their own strengths, abilities or desires.⁴ Stress can have professional consequences which include absenteeism, reduced productivity and job dissatisfaction, leading in some cases to redundancy or early retirement.⁵ Modern dentistry involves numerous occupational health hazards, including stress, allergic reactions, high noise levels, radiation and musculoskeletal disorders.^{6,7}

Dentists face considerable stress at work from dental school onwards.⁸ The development of new and complex technologies, methods and treatment techniques can be an additional source of pressure. Several studies have reported high levels of stress among dentists and many researchers have classified dentistry as a stressful job.^{5,8,9} In a study conducted in the UK by Myers *et al.*, 60% of dentists reported being nervous, tense or depressed due to work stress.¹⁰ Cooper *et al.* indicated that causes of stress among dentists included too little work, administrative difficulties, attempts to establish a practice and dealing with different patients.⁸ In a similar study, Humphris *et al.* found that sources of occupational stress included treating a high volume of patients, dealing with nervous patients and collecting payment.¹¹

Prolonged experiences of stress among dentists can have detrimental effects on interpersonal and professional relationships, as well as on mental and physical health.⁸ For mental health, the consequences can include burnout, depressive disorders, decreased motivation and self-esteem; in contrast, the most commonly reported stress-related physical health issues are lower back pain, increased musculoskeletal complaints, headaches and gastrointestinal problems.^{12,13} Dentists at a higher risk for stress exhibit poorer health and a higher rate of unhealthy behaviours than their less stressed colleagues.⁹ Research has shown that dentists with high stress levels have low awareness of strategies to manage stress.¹⁴ Before preparing policies for the prevention and management of stress among dental practitioners, it is necessary to identify job-related stressors and available coping strategies.¹⁵ Recognising sources of stress is important for future prevention and intervention initiatives. Although various surveys have been undertaken to assess stress among general dentists in other regions, no such studies have yet been conducted in Iran. This study therefore aimed to investigate sources of occupational stress and coping strategies among general dentists in Kerman, Iran.

Methods

This cross-sectional study took place between April and December 2014 among general dentists working in Kerman, Iran. In order for the sample size to be large enough for the results to be statistically significant, all 142 general dentists working in Kerman were invited to participate in the study. General dentists with less than one year of work experience were excluded.

A modified version of the Occupational Stress Indicator questionnaire was used.⁸ The first section of the questionnaire collected demographic information, while the second section consisted of 33 items to assess causes of stress and coping behaviours. Participants rated stressors in terms of their frequency, using the following terms: 'never', 'seldom', 'sometimes', 'often', 'very often' and 'always'. General stress scores were calculated by summing the items. The original English questionnaire was translated into Persian and the internal consistency of the modified and revised questionnaire was assessed using Cronbach's alpha ($\alpha = 88\%$). Similar questionnaires have been used in different studies all over the world.^{9,11,16,17} The questionnaire was distributed to the participants for self assessment before being collected three days later.

Data were analysed using the Statistical Package for the Social Sciences (SPSS), Version 18 (IBM Corp., Chicago, Illinois, USA). Descriptive statistics were expressed as means, standard deviations and frequencies. A student's t-test was used to compare the effects of variables. The level of significance was defined at $P < 0.05$.

This study was approved by the Research Ethics Committee of the Kerman University of Medical Sciences. The aims of the study were explained to all subjects and informed consent was obtained before participation.

Results

Of the 142 general dentists invited to participate in the study, 93 responded (response rate: 65.5%). Of these, 58.9% reported often being stressed. The demographic characteristics of the participants and relationships with general stress scores are presented in Table 1. The mean general stress score was 63.33 ± 19.99 . There was no significant relationship between general stress scores and age, gender, workplace or working hours per week. However, general stress scores showed a significant correlation with years of experience ($P = 0.05$) and number of patients treated per day ($P = 0.03$). A *post hoc* analysis showed that general dentists with less than 10 years of experience exhibited higher stress scores than general dentists who had

Table 1: Demographic characteristics and general stress scores* among general dentists in Kerman, Iran (N = 93)

Variable	n (%)	Mean stress score ± SD	P value
Gender			0.77
Female	39 (41.9)	64.03 ± 21.5	
Male	54 (58.1)	62.83 ± 18.9	
Age in years			0.90
<38	49 (52.7)	65.31 ± 18.9	
38–52	39 (41.9)	63.21 ± 20.8	
>52	5 (5.4)	45.00 ± 17.6	
Place of employment			0.76
Private clinic	59 (63.4)	62.7 ± 20.5	
Government clinic	13 (14.0)	67.1 ± 20.0	
Both	21 (22.6)	62.5 ± 18.9	
Years of experience			0.05[†]
<10	50 (53.8)	65.98 ± 18.9	
10–20	34 (36.6)	63.35 ± 21.3	
> 20	9 (9.7)	48.56 ± 15.1	
Number of patients treated per day			0.03[†]
<12	72 (77.4)	61.49 ± 19.5	
>12	21 (22.6)	74.38 ± 18.4	
Working hours per week			0.87
<20	26 (28.0)	62.62 ± 19.8	
20–40	59 (63.4)	61.68 ± 20.0	
>40	8 (8.6)	57.83 ± 24.7	

SD = standard deviation.

*Assessed using a modified version of the Occupational Stress Indicator questionnaire.⁸ [†]Significant at $P < 0.05$.

more than 20 years of experience; the mean difference was statistically significant ($P = 0.05$). In addition, general dentists who treated fewer than 12 patients per day had lower stress scores compared with general dentists who treated more than 12 patients per day ($P = 0.03$).

Dentists working in the public sector were more stressed by a lack of patient appreciation while those working in the private sector identified undesirable auxiliary help as a source of stress. The most common sources of stress were maintaining high levels of concentration during working hours (65.6%), time pressures (64.5%), concern over their ability to provide dental services in future (60.2%) and rising costs (59.1%). Common stressors identified as occurring very often or always are presented in Table 2. The

Table 2: Common stressors* among general dentists in Kerman, Iran (N = 93)

Stressor	n (%)
Maintaining high levels of concentration during working hours	61 (65.6)
Time pressures	60 (64.5)
Concern over their ability to provide dental services in future	56 (60.2)
Rising costs	55 (59.1)
Earning enough money to meet lifestyle needs	49 (52.7)
Quoting fees/collecting payments	45 (48.4)
Supply of dentists	44 (47.3)
Unsatisfactory laboratory service from technicians	43 (46.2)
Coping with difficult patients	40 (43.0)
Repetitive nature of work	39 (41.9)
Conflict between profit and professional ethics	35 (37.6)
Cancellations/no-shows	33 (35.5)
Equipment breakdown/defective materials	33 (35.5)
Decisions about future career direction	31 (33.3)
Possible contraction of viral infections	31 (33.3)
Long working hours	31 (33.3)
Working with children	30 (32.3)
Finding time for family and friends	29 (31.2)
Causing pain	29 (31.2)
Treating extremely nervous patients	25 (26.9)
Lack of patient appreciation	24 (25.8)
Unsatisfactory auxiliary help	24 (25.8)
Staff-related problems	23 (24.7)
Inability to meet own expectations/standards	22 (23.7)
Seeing more patients for income-related reasons	21 (22.6)
Feeling isolated	20 (21.5)
Making mistakes	18 (19.4)
Medical emergencies during surgery	16 (17.2)
Possibility of making mistakes	15 (16.1)
Perceived problems with colleagues	14 (15.1)
Feeling underrated by patients	13 (14.0)

*Stressors identified as occurring 'very often' or 'always'.

most common coping strategies used were resting (71.0%) and playing sports (45.2%). The least common strategies were smoking (4.3%) and consumption of alcohol (1.1%) [Figure 1]. A total of 89.7% of participants felt that completing stress management

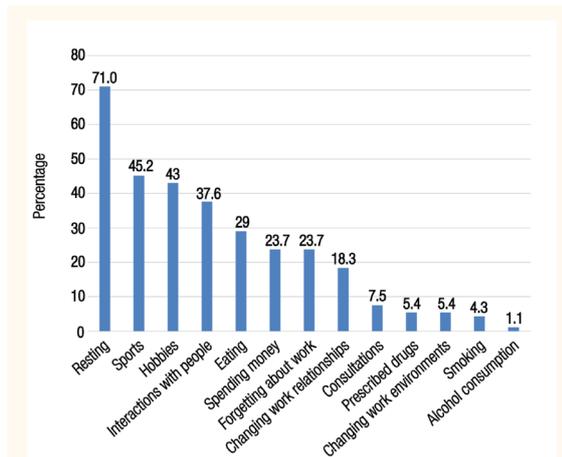


Figure 1: Strategies for coping with stress among general dentists in Kerman, Iran (N = 93).

courses during their graduate studies would have helped them to manage and reduce their stress.

Discussion

Stress has widely documented physical and psychological consequences, such as anxiety, burn-out and the development of cardiovascular diseases.^{5,10,18,19} Previous studies have shown that dentistry can be a stressful occupation;^{20,21} research on the sources of this stress may be able to assist early prevention and intervention initiatives. This study aimed to study sources of stress and strategies for managing stress among general dentists in Kerman. In the current study, 58.9% of the dentists surveyed suffered from stress. Similar results have been reported in studies of general dentists in the UK (68.4%), dentists in Denmark (59.7%) and orthodontists in Morocco (44%).^{10,17,20}

The most common stressors among general dentists in the current study were maintaining concentration, constant time pressures, concern over their ability to provide dental services in future and rising costs. Ayers *et al.* reported consistent findings, in which the second and third most common sources of stress among general dentists in New Zealand were time-related pressure (48%) and the need to maintain high levels of concentration at work (43%); however, the most common source of stress was treating uncooperative children (52%).²² Similarly, the most common sources of stress among general dentists in the UK involved treating difficult or uncooperative patients (64.8%), continuous time pressures (64.4%) and constraints imposed by the National Health Service (46.2%).⁵ Kay *et al.* also reported that the most common stressors at work among UK dental practitioners consisted of demands made by patients (75%), problems associated with practice management

and staff (56%) and fears relating to complaints and litigation (54%).¹² In a study of dentists in Islamabad, Pakistan, finding enough time for family and friends was reported as the most common source of stress.¹³ Cooper *et al.* indicated that time management problems were a common source of stress among dentists.⁸ In the current study, constant time pressures were also identified as a major source of stress; these pressures may lead to difficulties with time management and staying on schedule. This findings is consistent with previous research.^{1,5,11,14} Time constraints may be a cause of stress for dentists due to the pressure to schedule as many appointments as possible or perhaps because it impinges on time with family or on other non-work-related interests. However, in contrast to the population surveyed in the present study, dentists in other studies have shown less concern about their ability to work and provide dental services in future.^{11,22}

No significant differences were observed between males and females in the current study with regards to occupational stress. This finding mirrored a study in Yemen which reported no statistical differences in stress among men and women.³ However, Rogers *et al.* reported that female Irish dentists were more stressed than males.²³ In the present study, there was no statistically significant difference in stress scores between younger and older dentists. However, dentists with fewer than 10 years of experience exhibited higher stress scores than dentists with over 20 years of experience. Previous studies have similarly indicated that experience is a factor in controlling and managing stress.^{8,23} This could be attributed to reduced practical and clinical experience, a heightened fear of making mistakes and a lack of familiarity with patients.^{23,24} Additionally, dentists in the present study who treated fewer than 12 patients per day had lower stress scores compared to those who treated more than 12 patients per day. This could be because of the additional patient load resulting in longer working hours, the increased need for concentration, time pressures, tiredness and the repetitive nature of the work. This finding is consistent with those of Ayers *et al.*, in which time pressures had a significant impact on dentist stress levels.²² In the current study, dentists working in the public sector were more stressed by a lack of patient appreciation, while those working in the private sector identified undesirable auxiliary help as a source of stress. However, there was no significant relationship between stress scores and type of workplace, which may be due to the low ratio of public sector to private sector practitioners surveyed. In addition, general stress scores were not associated with hours worked per week. These results contrast with those reported by Ayers *et al.*²²

The most common techniques for managing stress identified in the current study were resting and engaging in sport activities, while the least commonly used were smoking and alcohol consumption. These findings are consistent with those reported by dentists in New Zealand, who use social interactions (77.3%), forgetting about work (58.6%) and engaging in sports (63.4%) to manage stress.²² Tobacco use as a coping mechanism is similarly low in the UK, with only 8.6% of dentists reporting that they smoke to manage stress.⁸ Similarly, smoking and drug use were not frequently reported as strategies used by Dutch dentists to manage stress.⁹ A major cause of stress among dentists is a lack of knowledge about managing stress.^{14,24} In the present study, most dentists felt that participation in a stress management course during their studies would have helped them to learn to manage their stress levels. Stress management and coping behaviours should therefore be included in the dental curriculum in order to avoid physical and psychological problems that may occur later as a result of occupational stress. Moreover, workshops, seminars and education programmes on occupational stress for clinical dental staff should be organised periodically.

To the best of the authors' knowledge, the present study is the first to evaluate stress among dentists in Iran. However, the study is limited by its cross-sectional nature. In addition, the study focused on the experiences of general dentists and, as a result, it was not possible to generalise conclusions to other branches of dentistry.²⁵ Additionally, the response rate of this study was not ideal. In future studies, a larger sample size is recommended as well as the inclusion of general dentists, specialists and other physicians. Psychological and personal characteristics may also have an impact on stress management.²⁶ These were not analysed in this study and should be considered in future research.

Conclusion

This study showed that many general dentists in Kerman face several sources of stress, including time pressures, maintaining high levels of concentration during work hours and rising costs. Therefore, it is recommended that workshops, seminars and education programmes on occupational stress be organised for clinical dental staff periodically. This may help general dentists to manage stress levels and improve their working conditions.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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