

Occupational Stress Among Canadian Orthodontists

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Abstract: The occupational stress associated with many professions, including general dentistry, has been well researched. An anonymous, self-administered, mail-out survey was distributed to Canadian orthodontists. The survey included 67 potential stressors, an overall occupational stress score, an overall job satisfaction scale, and items addressing various characteristics of the respondents. The response rate was 51.2% (335/654). Pronounced differences were found between the respondents in the evaluation of potential stressors and the overall occupational stress score. The category of stressors with the highest mean severity of stress scores was time-related stressors. The stressors with high mean severity scores and high mean frequency scores were as follows: falling behind schedule, trying to keep to a schedule, constant time pressures, patients with broken appliances, and motivating patients with poor OH and/or decalcification. Stepwise multiple regression determined a model, involving overall job satisfaction, age, participation in a study group, hours worked per week, part-time academics, days of continuing education per year, and participation in stress management, to account for 35.9% of the variation in overall occupational stress scores. The results indicate the importance of time-management skills in reducing occupational stress, but other factors seem to have more effect on reported occupational stress than do the characteristics addressed by this survey. (*Angle Orthod* 2003;73:43–50.)

Key Words: Survey; Occupational stress; Time management

INTRODUCTION

The modern concept of stress has evolved since being introduced by Hans Selye in the 1930s.¹ Stress is defined as all that is unpleasant, noxious, or excessively demanding.² The field of occupational stress is the study of those aspects of work that either have or threaten to have bad effects.³

Dentistry is usually considered a stressful profession. The stressful aspects of dental practice have been well researched.^{4–11} Potential effects of high levels of occupational stress in dentistry have been reported. These include hypertension,¹² coronary artery disease,¹³ and suicide.^{14,15} Al-

most one-quarter of the dentists who chose to leave the profession reported stress or burnout as their main reason for changing careers.¹⁶

Occupational stress in orthodontics has not been well researched. Some studies describing stressful aspects of dentistry have reported a number of specialists responding to the survey, but none of these report a separate analysis of the specialists' responses.^{17–20} Only two occupational stress studies have been found that used an orthodontic cohort. In an early study of stress among dental professionals, it was found that coronary heart disease was significantly higher in the professions judged to have the highest stress (general practice and oral surgery) than in the profession judged to have the least stress (periodontics). An intermediate prevalence of coronary heart disease was found among the orthodontic respondents.¹³

Restorative dentists, orthodontists, and oral surgeons in a small sample of hospital dental specialists reported comparable levels of stress. But the orthodontic cohort demonstrated less burnout than did the oral surgery or restorative groups.²¹ Given the low number of respondents, their age, and the hospital-based nature of their practice, it is difficult to generalize these results to the majority of orthodontic practitioners.

The objectives of this study were:

- to determine the most stressful aspects of orthodontic practice;

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- to determine the most frequently occurring stressors in orthodontic practice;
- to determine the most concerning stressors in orthodontic practice, those with high severity and frequency;
- to evaluate how various personal and practice characteristics affect reports of occupational stress.

METHODS

Survey instrument

Occupational stress in orthodontic practice was evaluated using a list of potential stressors. Approximately half of these items had been reported as being stressful in general dental practice.^{5,6,17,22} The remaining items were identified as potential stressors during a focus group meeting with three practicing orthodontists. The focus group participants included both sexes and represented a range of practice types and years of experience. A total of 67 potential stressors were included in the survey and are shown in Table 1. The potential stressors were divided into six categories: income-, patient-, referral-, staff-, time-, and work-related stressors. These categories were based on the classification system introduced by Cooper et al,⁴ except for referral-related stressors, which was a new category. Respondents were asked how stressful each item was (severity) and how frequently it occurred (frequency). Severity was scored using a five-point Likert-type scale with the end points “not stressful” (1) and “very stressful” (5). Frequency was scored using a five-point scale as follows: N, never; R, rarely; M, monthly; W, weekly; D, daily.

Another item was included to obtain an overall evaluation of occupational stress in orthodontics. The question was worded “Overall, how stressful do you find the practice of orthodontics?” Respondents were asked to use a scale from 0 (not stressful) to 100 (very stressful). This variable was considered the overall occupational stress score.

Overall job satisfaction was measured using 10 items modified from the Dentist Satisfaction Survey.²³ The questions used in the overall job satisfaction survey are provided in Table 2.

Twenty-four personal and practice characteristics were addressed in the survey. Other studies had reported most of these items to affect reports of occupational stress or job satisfaction.^{3,9,17,24} The characteristics included were age, gender, marital status, parenthood, years of professional experience, general dental experience, other specialty training, previous occupational experiences, province of practice, population of community, type of practice (solo, partnership, etc), staffing, satellite offices, part-time academic involvement, hours worked per week, weeks of vacation per year, gross income, professional affiliations (membership in the Canadian Association of Orthodontists [CAO], Fellowship in the Royal College of Dentists of Canada

[FRCD(C)], diplomat status with the American Board of Orthodontists [ABO]), continuing education practices, and stress management practices.

Three practicing orthodontists acted as a test group to evaluate an initial version of the survey. Feedback from the test group was used to make minor revisions before the general distribution of the survey. This survey was part of a larger study examining occupational stress and job satisfaction among practicing orthodontists.²⁵

Survey distribution

In January 2001, provincial regulatory bodies were contacted for listings of the licensed orthodontists in each region. In total, 658 orthodontists were identified, with an additional eight orthodontists excluded because of their involvement in organizing the survey.

Each orthodontist was mailed a copy of the survey, an introduction letter, a postage-paid return envelope, and a stamped response card. The response card was used to identify the respondents while maintaining the anonymity of the surveys. Respondents were instructed to return the response card separately from the survey. As an incentive to their reply, orthodontists could request a copy of the results of the project using the response card.

Fifteen mail-outs were returned because of incorrect address. A current address could be found for 11 of these individuals, and the mail-outs were redistributed along with a note explaining the delay. A total of 654 orthodontists thereby received the survey. Reminder cards were sent approximately 6 weeks after the initial mailing to individuals who had not returned a response card.

Data analysis

The survey was coded, and the data were entered into Microsoft Excel 2000 (Microsoft Corp., Redmond, Wash). Data were analyzed using Excel 2000 and SPSS 10.0 for Windows (SPSS Inc., Chicago, Ill). A third party established the rate of data entry errors by manually checking 20% of the returned surveys. The surveys chosen for review were selected by a random number generation function. In keeping with the previously published articles,^{5,6,17,22,24,26,27} the ordinal data were analyzed with interval statistical methods.

Evaluation of potential stressors

“Mean severity scores” of each item were calculated to determine the most stressful aspects of orthodontic practice. Frequency scores were transformed to a numerical scale as follows: (1) never, (2) rarely, (3) monthly, (4) weekly, and (5) daily. The “mean frequency score” of each item was calculated to determine the most frequently occurring stressors in orthodontic practice. The most concerning stressors were those items with “mean severity” and “mean frequency scores” equal to or greater than 3.0.

The "mean category score" for each of the six stressor categories was calculated using the severity scale. Paired *t*-tests were used to determine significant differences between the categories.

Factors affecting occupational stress

The individual effect of personal and practice characteristics on the "overall occupational stress score" was determined. Independent sample *t*-tests were used for characteristics represented by nominal variables. One-way analysis of variance with Tukey post hoc comparisons was used for categorical variables, and two-tailed Pearson correlation coefficients were used for scalar variables.

In preparation for multiple regression analysis, categorical variables were either transformed to a linear scale (number of children, population of community, gross income) or assigned indicator variables (marital status, province, practice type).

The "overall occupational stress score" was used as the dependent variable in a stepwise multiple regression analysis. All personal and practice characteristics, as well as "overall job satisfaction," were included as independent variables.

RESULTS

A total of 335 responses were received for a final response rate of 51.2%. Respondents who indicated that they were not currently practicing orthodontics were excluded from the analysis. Because of this, the total number of usable responses were 319 (48.8%). The response rate from Quebec (57/129 or 44.2%) was mildly lower than the national average, despite the survey having not been translated into French. Therefore, it is reasonable to assume that the results from this sample are representative of orthodontists practicing in Canada. A summary of selected characteristics of the respondents is presented in Table 3.

Thirteen data entry errors were found in 14,656 data points for a rate of 0.089%. The remaining 80% of the surveys were not checked because of this low data entry error rate.

Evaluation of potential stressors

A wide range of responses to the potential stressors were found. Each of the 67 items had a range of severity scores from 1 to 5. The most stressful aspects of orthodontic practice, based on mean severity scores, are presented in Table 4. The most frequent stressors in orthodontic practice, based on mean frequency scores, are presented in Table 5. Most of the highly scored stressors received low frequency scores. The frequency score for the most stressful item, the patient shows dissatisfaction with the care received, was only 1.99 (SD = 0.41), ranking this item 62 out of 67 on the basis of frequency. Similarly, most of the frequent stressors had low severity scores. The most frequent stressor, managing adult

patients, had a mean severity score of 2.50 (SD = 0.96), ranking 47 out of 67. The stressor, patients being late for or missing adjustment appointments, had a mean severity score of 2.71 (SD = 1.09), ranking 34 out of 67.

Five items had mean severity and frequency scores equal to or greater than 3.0. These items were considered the most concerning stressors in orthodontic practice and are presented in Table 6.

Mean category scores for the six categories of stressors are presented in Table 7. The category with the highest mean score was "time-related" stressors. Paired *t*-tests showed this category score to be significantly higher ($P = .004$) than all other category scores. No statistically significant difference was found between the next highest categories: "staff-" and "patient-related" stressors. Also, no significant difference was found between the two categories with the lowest scores: "income-" and "referral-related" stressors. Differences between the categories were small compared with the variance within the categories.

Factors affecting occupational stress

"Overall occupational stress scores" ranged from 0 to 99 with a mean of 49.3 (SD = 25.5). The scores were relatively uniformly distributed across the range.

Individual analysis revealed seven characteristics with significant effects ($P < .05$) on overall occupational stress scores. Three of these characteristics were positively related to reports of occupational stress: part-time academics ($r = 0.12$), hours worked per week ($r = 0.18$), and participation in a study club ($r = 0.14$). The remaining characteristics were negatively associated with reported occupational stress: age ($r = -0.19$), years of practice ($r = -0.16$), weeks of vacation per year ($r = -0.19$), and reported overall job satisfaction ($r = -0.15$).

Stepwise multiple regression analysis revealed a seven-component model that predicted 35.9% of the variation in overall occupational stress scores (Table 8).

DISCUSSION

Over half of orthodontists in Canada responded to the survey. The descriptive data indicate that a broad spectrum of practice and personal characteristics were represented.

Analysis of the potential stressors revealed 24 items that received a mean severity score of 3.0 or greater. Many similarities are seen between our results and those reported for general dentistry.

The three most highly scored stressors, the patient shows dissatisfaction with the care received, performing clinical tasks on a difficult or uncooperative patient, and falling behind schedule, were almost identical to the three most highly scored stressors reported by Bourassa and Baylard,⁵ viz, the patient shows dissatisfaction with the care he has received, giving care to an uncooperative patient, and being behind schedule. These three issues are also among the

TABLE 1. Orthodontic Occupational Stress Survey

The following situations are potentially stressful in orthodontic practice. Please indicate how stressful you find the situation and how frequently you face the situation. Use the following scales:

How stressful is the situation?

Not Stressful..... Very Stressful

1 2 3 4 5

How often do you face the situation?

Never.....Rarely..... Monthly..... Weekly..... Daily

N R M W D

	How stressful?					How often?				
	1	2	3	4	5	N	R	M	W	D
1. Treating adult patients	1	2	3	4	5	N	R	M	W	D
2. Patients expressing that your fees are too high	1	2	3	4	5	N	R	M	W	D
3. The patient expresses dissatisfaction with the care received	1	2	3	4	5	N	R	M	W	D
4. Difficult physical working condition	1	2	3	4	5	N	R	M	W	D
5. Having to train new assistants	1	2	3	4	5	N	R	M	W	D
6. Trying to keep a schedule	1	2	3	4	5	N	R	M	W	D
7. Feeling inadequately trained to run a business	1	2	3	4	5	N	R	M	W	D
8. Patients being late or missing adjustment appointments	1	2	3	4	5	N	R	M	W	D
9. Maintaining good communication with other specialists	1	2	3	4	5	N	R	M	W	D
10. Having difficulty gaining in the confidence of patients	1	2	3	4	5	N	R	M	W	D
11. General practitioners questioning case management	1	2	3	4	5	N	R	M	W	D
12. Managing patients referred to you later than appropriate	1	2	3	4	5	N	R	M	W	D
13. High concentration levels	1	2	3	4	5	N	R	M	W	D
14. Managing disagreements with partners	1	2	3	4	5	N	R	M	W	D
15. Inability to meet my own expectations	1	2	3	4	5	N	R	M	W	D
16. Motivating patients with poor elastic and/or headgear compliance	1	2	3	4	5	N	R	M	W	D
17. Relapse in retention patients	1	2	3	4	5	N	R	M	W	D
18. Dealing with complaints from staff	1	2	3	4	5	N	R	M	W	D
19. Getting along with patients	1	2	3	4	5	N	R	M	W	D
20. Managing paperwork	1	2	3	4	5	N	R	M	W	D
21. Staff leaving the office for other employment	1	2	3	4	5	N	R	M	W	D
22. Patients or parents questioning expertise	1	2	3	4	5	N	R	M	W	D
23. Patients transferring to another office in your area	1	2	3	4	5	N	R	M	W	D
24. Managing staff illness	1	2	3	4	5	N	R	M	W	D
25. Pressure from patients and/or parents to remove appliances before treatment is completed to your satisfaction	1	2	3	4	5	N	R	M	W	D
26. Isolation from other orthodontists	1	2	3	4	5	N	R	M	W	D
27. Motivating patients with poor OH and/or decalcification	1	2	3	4	5	N	R	M	W	D
28. Realizing that your treatments are not permanent	1	2	3	4	5	N	R	M	W	D
29. Communication problems with the staff	1	2	3	4	5	N	R	M	W	D
30. Falling behind schedule	1	2	3	4	5	N	R	M	W	D
31. Maintaining good communication with general dentists	1	2	3	4	5	N	R	M	W	D
32. Assuming a heavy financial burden	1	2	3	4	5	N	R	M	W	D
33. Managing "burnt-out" patients	1	2	3	4	5	N	R	M	W	D
34. Managing relations with a poor referral source	1	2	3	4	5	N	R	M	W	D
35. Patient's missing fee payments	1	2	3	4	5	N	R	M	W	D
36. Problems getting along with staff	1	2	3	4	5	N	R	M	W	D
37. Administrative duties	1	2	3	4	5	N	R	M	W	D
38. Organizing and interacting with the staff	1	2	3	4	5	N	R	M	W	D
39. With time, feeling less intellectual stimulation	1	2	3	4	5	N	R	M	W	D
40. Constant time pressures	1	2	3	4	5	N	R	M	W	D
41. Patients transferring out of your office to another area	1	2	3	4	5	N	R	M	W	D
42. Too much work	1	2	3	4	5	N	R	M	W	D
43. Lack of patient appreciation	1	2	3	4	5	N	R	M	W	D
44. Patients transferring into your office	1	2	3	4	5	N	R	M	W	D
45. Maintaining good relations with good referral sources	1	2	3	4	5	N	R	M	W	D
46. Patients not accepting the preferred treatment	1	2	3	4	5	N	R	M	W	D
47. Dealing with unrealistic patient expectations	1	2	3	4	5	N	R	M	W	D

TABLE 1. Continued

48. Schedule being booked too far in advance	1	2	3	4	5	N	R	M	W	D
49. Frequent decision making	1	2	3	4	5	N	R	M	W	D
50. Treating a case with an unfavourable prognosis	1	2	3	4	5	N	R	M	W	D
51. Patient's perception with the clinician as an inflictor of pain	1	2	3	4	5	N	R	M	W	D
52. Patients with broken appliances	1	2	3	4	5	N	R	M	W	D
53. Performing clinical tasks on a difficult or uncooperative patient	1	2	3	4	5	N	R	M	W	D
54. Patients being late for or missing banding/bonding appointments	1	2	3	4	5	N	R	M	W	D
55. Competition from other orthodontists	1	2	3	4	5	N	R	M	W	D
56. Quoting and collecting fees	1	2	3	4	5	N	R	M	W	D
57. Medical-legal cases	1	2	3	4	5	N	R	M	W	D
58. Accepting compromised treatment results	1	2	3	4	5	N	R	M	W	D
59. Feeling, with years, that work is becoming more routine	1	2	3	4	5	N	R	M	W	D
60. Treating emergency cases from other offices	1	2	3	4	5	N	R	M	W	D
61. Emergency patients	1	2	3	4	5	N	R	M	W	D
62. Being overworked	1	2	3	4	5	N	R	M	W	D
63. Physical demands of the practice	1	2	3	4	5	N	R	M	W	D
64. Making enough money to cover overhead expenses	1	2	3	4	5	N	R	M	W	D
65. Long work hours	1	2	3	4	5	N	R	M	W	D
66. Repayment of business/student loans	1	2	3	4	5	N	R	M	W	D
67. Trying to earn a living suitable to my lifestyle	1	2	3	4	5	N	R	M	W	D
68. Overall, how stressful do you find the practice of orthodontics? Please use a scale from 0 (not stressful) to 100 (very stressful)										
_____ overall rating of orthodontic stress from 0 to 100										

most highly ranked in other studies.^{6,17} Other stressors that are similar in orthodontics and dentistry are staffing issues, idealism, patients missing appointments, financial burdens, and being overworked.

Some issues often reported as being stressful in general dentistry were not found to be highly stressful in an orthodontic population. These include "causing pain in patients" and "proceeding to a difficult, unexpected operation."

Many more issues, however, were scored as highly stressful in the orthodontic population, but these have not appeared frequently in dental studies. These include the following: dealing with unrealistic patient expectations, relapse in retention patients, pressure to debond from patient and/or parent, general practitioners questioning case management, managing "burnt-out" patients, and motivating patients with poor OH and/or decalcification. Thus, the orthodontists experience stress associated with their particular specialty as well as with general practice-related issues.

Only five items received mean severity and frequency scores of 3.0 or greater and were considered the most concerning stressors in orthodontic practice. This definition was chosen because these items should be considered stressful by most orthodontists and should occur more frequently than once a month. An issue considered as one of the most concerning aspects of orthodontic practice is "motivating patients with poor OH and/or decalcification." This issue emphasizes the importance of patients' cooperation during their treatment. Also, it shows the desire of the orthodontists to improve their patients' smiles rather than to accept the undesirable consequences of poor hygiene during treatment.

Four of the most concerning stressors are time-manage-

ment issues. Treating "patients with broken appliances" causes "time pressures" that interfere with "trying to keep to a schedule," causing clinicians to "fall behind schedule."

Mean category scores for the six classes of orthodontic stressors also show the importance of time management in orthodontics. Although the differences between the groups were small, stressors categorized as time related had higher mean severity scores. The results suggest that clinicians interested in decreasing occupational stress should first consider ways to improve their time-management skills.

An issue that must be considered when reviewing the results of this survey is the amount of variation in the responses. Pronounced differences were seen in response to the severity of the 67 potential stressors. Each item was scored as "very stressful" by at least one orthodontist and as "not stressful" by at least one other. In most cases the variance within responses to an item is smaller than the differences between items. On the basis of current stress research, this variance is to be expected. Personality and individual differences are known to have important influences on the stress response.² The severity score standard deviations in this study are similar to those reported in other studies on dental stressors.²² Perhaps the influence of personality and individual differences is most "evident in overall occupational stress scores." The range of responses nearly spanned the full 100-point scale of the question, and the standard deviation was over a quarter of the response scale.

Analysis of personal and practice characteristics attempted to explain some of the variation in "overall occupational stress scores." Individual analyses identified several factors

TABLE 2. Overall Job Satisfaction Survey

For the following statements please indicate your level of agreement. Use the following scales:					
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	
SD	D	N	A	SA	
1.	Orthodontics fulfills my earliest career aspirations				SD D N A SA
2.	Orthodontics fulfills my current career aspirations				SD D N A SA
3.	I wish I could drop my job to do something else				SD D N A SA
4.	If my child were interested in orthodontics, I would encourage him/her to pursue an orthodontic career				SD D N A SA
5.	I appear more satisfied with my job than I really am				SD D N A SA
6.	Knowing what I know now, I would make the same decision to go into orthodontics again				SD D N A SA
7.	I am very likely to change careers in the next 5 years				SD D N A SA
8.	Orthodontics is the place where I can make my best contribution				SD D N A SA
9.	Overall, I am extremely satisfied with my career				SD D N A SA
10.	I feel trapped in my current position				SD D N A SA

TABLE 3. Key Descriptive Data of Survey Respondents^a

Characteristic	n	
Age	313	Mean, 47.7 y SD, 10.4 y
Sex		
Male	269	84.3%
Female	49	15.4%
Total	318	
Years practicing orthodontics	318	Mean, 16.6 y SD, 10.4 y
Province of primary practice		
British Columbia	59	19.3%
Alberta	32	10.5%
Saskatchewan	9	2.9%
Manitoba	12	3.9%
Ontario	125	40.8%
Quebec	52	17.0%
New Brunswick	8	2.6%
Prince Edward Island	1	0.3%
Nova Scotia	6	2.0%
Newfoundland	2	0.7%
Total	306	
Primary type of practice		
Solo practice	206	65.0%
Associateship—associate	22	6.9%
Associateship—practice owner	22	6.9%
Partnership	41	12.9%
Group practice	18	5.7%
Academic	8	2.5%
Total	317	
Part-time academics		
No	231	74.3%
Yes	80	25.7%
Total	311	

^a Total n varies due to non responses. Maximum total n was 319.

with significant effects on overall occupational stress. Age, years of experience, and hours worked per week were significantly related to “overall occupational stress.” These characteristics have also been reported to affect reports of occupational stress in dentistry.^{5,17,24} The reported correlation coefficients between these characteristics and reports of occupational stress in dentistry are remarkably similar to those found in orthodontics. The strongest correlation was between “overall occupational stress” and “overall job satisfaction.” This correlation has also been previously reported in the dental literature.^{24,26,27} Two factors significantly related to “overall occupational stress scores” had not been previously reported, viz, part-time academics and participation in a study club. These items, however, were not included in the previous studies. Evidence of part-time academics and participation in a study club being related to the reported occupational stress is also found in the multiple regression analysis. Both these items, as well as age, hours worked per week, and “overall job satisfaction,” were included in the final regression model. Increased days of continuing education was also associated with a decreased report of occupational stress. Interestingly, participation in stress management was associated with increased reports of occupational stress. It is reasonable to assume that these individuals were more aware of stress and, therefore, more likely to be taking steps to manage stress.

Overall, the final regression model was only able to account for approximately one-third of the variation in the “overall occupational stress scores.” Therefore, “overall occupational stress” is influenced more by other factors, such as personality, than by the combined effects of the characteristics identified in this survey.

CONCLUSIONS

Large variation is found in the evaluation of potential stressors and overall occupational stress in orthodontics.

TABLE 4. Rank Order of Potential Stressors Based on Mean Severity Score^a

Ranking	Possible stressor	Mean severity score	SD ^b
1	The patient shows dissatisfaction with the care received	3.82	1.34
2	Performing clinical tasks on a difficult or uncooperative patient	3.75	1.04
3	Falling behind schedule	3.56	1.05
4	Dealing with unrealistic patient expectations	3.40	1.13
5	Medical-legal cases	3.37	1.47
6	Dealing with complaints from staff	3.35	1.21
7	Trying to keep to a schedule	3.33	1.09
8	Inability to meet my own expectations	3.32	1.17
9	Patients being late for or missing banding/bonding appointments	3.31	1.17
10	Constant time pressures	3.31	1.18
11	Relapse in retention patients	3.28	1.00
12	Treating a case with an unfavourable prognosis	3.26	1.14
13	Accepting compromised treatment results	3.21	1.02
14	Assuming a heavy financial burden	3.21	1.33
15	Being overworked	3.19	1.21
16	Pressure to debond from patient and/or parent	3.17	1.09
17	General practitioners questioning case management	3.11	1.21
18	Having to train new assistants	3.11	1.20
19	Managing "burnt-out" patients	3.08	1.01
20	Patients with broken appliances	3.05	1.03
21	Too much work	3.05	1.19
22	Motivating patients with poor oral hygiene and/or decalcification	3.04	0.99
23	Patients or parents questioning expertise	3.00	1.32
24	Managing disagreements with partners ^c	3.00	1.42

^a Scale from 1 (not stressful) to 5 (very stressful). Only those with mean severity score greater than or equal to 3.0 are presented.

^b SD, standard deviation.

^c Solo practitioners excluded, n = 95. Otherwise n = 293 to 318.

TABLE 5. Rank Order of Potential Stressors Based on Mean Frequency Score^a

Ranking	Possible Stressor	Mean frequency score	SD ^b
1	Managing adult patients	4.17	1.07
2	Patients being late for or missing adjustment appointments	4.09	1.07
3	Motivating patients with poor elastic and/or headgear compliance	4.09	0.99
4	Frequent decision making	4.05	1.34
5	Trying to keep to a schedule	4.00	1.23
6	Managing paperwork	3.88	1.34
7	Constant time pressures	3.84	1.33
8	Patients with broken appliances	3.79	0.97
9	Motivating patients with poor oral hygiene and/or decalcification	3.76	1.04
10	High concentration levels	3.53	1.43
11	Quoting and collecting fees	3.53	1.38
12	Falling behind schedule	3.36	1.14
13	Maintaining good communication with general dentists	3.26	1.14
14	Realizing that your treatments are not permanent	3.21	1.13
15	Emergency patients	3.20	1.18
16	Maintaining good communication with other specialists	3.15	1.18
17	Organizing and interacting with the staff	3.12	1.40
18	Administrative duties	3.09	1.30
19	Maintaining good relations with good referral sources	3.08	1.09
20	Physical demands of the practice	3.06	1.34

^a n = 289 to 318. Scale from 1 (never) to 5 (daily). Only those with mean frequency score greater than or equal to 3.0 are presented.

^b SD, standard deviation.

The most concerning stressors in orthodontics, based on high severity and frequency of occurrence, involve time management and cooperation of the patient.

The stressors in orthodontic practice are similar to those

in dentistry, but some stressors unique to the orthodontic profession do exist.

Multiple regression analysis identified a model, including overall job satisfaction, age, participation in a study group,

TABLE 6. Most Concerning Stressors in Orthodontics. Stressors with mean severity and mean frequency scores equal to or greater than 3.0^a

Possible stressor	Mean severity score	Mean frequency score
Falling behind schedule	3.56	3.36
Trying to keep to a schedule	3.33	4.00
Constant time pressures	3.31	3.84
Patients with broken appliances	3.05	3.79
Motivating patients with poor oral hygiene and/or decalcification	3.04	3.76

^a n = 305 to 310.

TABLE 7. Mean Category Scores for the Six Categories of Stressors^a

Stressor category	No of items in category	Mean severity score	SD ^b
Time related	7	3.08	0.86
Staff related	8	2.86	0.89
Patient related	17	2.80	0.67
Work related	19	2.74	0.66
Income related	10	2.56	0.78
Referral related	6	2.55	0.76

^a n = 319. Scale from 1 (not stressful) to 5 (very stressful).

^b SD, standard deviation.

TABLE 8. Stepwise Multiple Regression for overall occupational stress scores^a

Characteristic added to model	Nature of relation	P-value
Overall job satisfaction	–	0.000
Age	–	0.000
Participation in a study club	+	0.001
Hours worked per week	+	0.005
Part-time academics	+	0.008
Days of continuing education per year	–	0.007
Participation in stress management	+	0.027

^a Overall $R^2 = 0.359$.

hours worked per week, part-time academics, days of continuing education per year, and participation in stress management, to account for 35.9% of the variation in reported occupational stress.

Other factors seem to have a greater effect on reported occupational stress than do the characteristics evaluated by this survey.

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