

Access this article online
Quick Response Code:

Website: www.jorthodsci.org
DOI: 10.4103/jos.JOS_77_17

An assessment of job satisfaction: A cross-sectional study among orthodontists of Saudi Arabia

Nasser D. Alqahtani, Khaled Alshehry¹, Saad Alateeq¹, Hammad Alturki¹, Sahar Albarakati, Moshabab A. Asiry and Muhammad S. Ahmedani²

Abstract:

AIM OF THE STUDY: The main objective of the present study was to investigate the level of job satisfaction among professional orthodontists in relation to some significant intrinsic and extrinsic factors that generally affect their performance.

MATERIALS AND METHODS: A cross-sectional study was conducted among orthodontists working in the Kingdom of Saudi Arabia using an online survey questionnaire through Survey Monkey. A total of 161 responses were received; among those, 57.8% of the respondents were Saudi and 42.2% were non-Saudi.

RESULTS: On an overall satisfaction basis, a majority of orthodontists (80.7%) were satisfied with orthodontics as their profession irrespective of their gender. Only 4.4% showed dissatisfaction, whereas the remaining 14.9% were moderately satisfied with orthodontics as a profession. In-depth analysis revealed that a majority of the respondents (56.2%) showed reservations over having ample time for their family life. 52.8% of the respondents strongly agreed that they are assigned significant paperwork. Likewise, 66.5% of the orthodontists showed moderate to dissatisfaction over time adherence by the patients.

CONCLUSION: The findings of the present investigations depicted a higher level of passion and commitment among the male and female respondents for the profession in spite of the fact that they do not have adequate time for their personal life. The working efficiency of orthodontists may be significantly enhanced by sparing them from too much paperwork and ensuring that their patients appear on time.

Keywords:

Adherence to appointment time, job satisfaction, orthodontist, quality of life, working environment

Introduction

Dentistry is one of the most prestigious and rewarding professions among the medical sciences. Advancement in this profession depends upon several occupational factors that contribute toward a successful dental practice.^[1-6] The significant factors influencing dental practice include the knowledge and attitudes of the practitioners, facilities and equipment, working environment, patient satisfaction,

personal development opportunities, and characteristics of the healthcare system.^[7,8] All these factors directly and indirectly influence the job satisfaction of the dentists as well as of the auxiliary staff. Thus, by measuring the job satisfaction of dental practitioners, one can easily predict the quality of the dental practice and credibility of the healthcare delivery system of any dental institution. Job satisfaction ensures the loyalty and commitment of the practitioners to their organization and leads to organizational excellence. Practitioners

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Alqahtani ND, Alshehry K, Alateeq S, Alturki H, Albarakati S, Asiry MA, *et al.* An assessment of job satisfaction: A cross-sectional study among orthodontists of Saudi Arabia. *J Orthodont Sci* 2018;7:4.

Departments of
Pediatric Dentistry and
Orthodontics, ¹Interns
in college of dentistry,
King Saud University
and ²Periodontics and
Community Dentistry
College of Dentistry, King
Saud University, Riyadh,
Kingdom of Saudi Arabia

Address for correspondence:

Dr. Nasser D. Alqahtani,
Pediatric Dentistry and
Orthodontics Department,
College of Dentistry, King
Saud University, Riyadh,
Kingdom of Saudi Arabia.
E-mail: nasserdm@ksu.
edu.sa

with lower job satisfaction generally exhibit a lack of dedication and are likely to quit their jobs, resulting in the poor performance of their organization.^[9] Measurement of job satisfaction is significant in the field of dentistry because it involves a one-to-one relationship between dentists and their patients; thus, a number of other factors such as tolerance level, psychological stability, patients' attitude, professional working environment, cooperation level and competency of the auxiliary staff, perception of income, and professional time also influence job satisfaction of the dentists.^[10] Studies have revealed that lowered job satisfaction among healthcare workers is directly linked to increased stress level as well as burnout^[11,12] and negatively affects patients' level of satisfaction^[13] as well as their trust in the dental care delivery system. That is why health organizations regularly conduct job satisfaction surveys and attribute significant importance to the results to identify areas for further improvement. As far as dentistry is concerned, job satisfaction surveys have mostly been conducted among general practitioners. Very few studies have employed job satisfaction surveys of different specialties within the dental field. However, the literature reveals that there are just two to three studies wherein surveys were conducted among orthodontists.^[10,14]

Job satisfaction studies among orthodontists are very important because most of their patients are children and teenagers who need highly focused orthodontic treatment to resolve their bite problems, speech impediments, protruding teeth, crowded front teeth, and ability to chew and digest foods properly, besides improving their facial symmetry and aesthetics. That is why the American Association of Orthodontists suggests that children should be examined and evaluated at the age of 7 to detect problems at an early age.^[15] The orthodontic treatment of children differentiates orthodontists from other specialties because the field generally involves long-term interaction with children, which requires special psychological treatment by orthodontists, wherein they must first eliminate children's fear of pain and dental treatment procedures and to prepare them for the orthodontic treatment procedures, including the use of a computer-controlled local anesthetic delivery system.^[16] The literature reveals that approximately 75% of patients with disability need orthodontic treatment to achieve optimal oral function, occlusal relationship, and esthetic appearance.^[17-19] Job satisfaction studies of orthodontics, therefore, require additional survey questions such as the age of the orthodontist, stress factors, length of experience in orthodontic practice, academic qualifications, convenient office location, staff compatibility, and advancement opportunities.^[20] These questions are in addition to those used in the most widely reported Dental Satisfaction Surveys,^[21-25] wherein more than 60 items have been used for the

assessment of job satisfaction. Studying job satisfaction is important because of its reported influence on a person's physical and mental well-being and its possible effects on job-related behaviors and performance.^[10] If the working conditions of orthodontists are improved, it is likely that both their quality of life and performance level will significantly improve.

Keeping in view the vital role of orthodontists in the dental healthcare delivery system, the present investigation was conducted to evaluate overall job satisfaction among orthodontists working in the Kingdom of Saudi Arabia (KSA). The results of the present investigation will not only highlight significant intrinsic and extrinsic factors that influence the performance of orthodontists but also help in improving overall performance in the field of orthodontics.

Materials and Methods

A formal approval of the research proposal was sought from the College of Dentistry Research Center (CDRC) with registration number IR 0159 for the execution and ethical approval of the study.

Survey instrument development

A systematic review of literature on job satisfaction among orthodontists and general practitioners was done, and the questions used in the previous studies were considered and selected for inclusion in the present investigation.^[1-8,10,17,21-26] The authors met with senior orthodontists from the Pediatric Dentistry and Orthodontics Department of the College of Dentistry, King Saud University and asked them to rate the selected questions on a scale of 1–10 using the Aiken V index. The questions scoring 70% weight by the orthodontists were selected for inclusion in the job satisfaction survey.^[26] The final job satisfaction survey comprised 20 questions, including significant intrinsic and extrinsic factors such as the age of the orthodontist, length of experience, academic qualifications, compatibility of supporting staff, patient relations, respect, delivery of care, professional relations, staff, professional environment, perception of income, professional time, practice management, personal time, etc. The survey form was made online using Survey Monkey instrument. A five-point Likert scale was employed to measure responses under five categories: "strongly disagree," "disagree," "fair," "agree," and "strongly agree," which were later coded as 1, 2, 3, 4, and 5, respectively. The Saudi Orthodontist Society was asked to email the survey link to all the orthodontists registered with the Society in the Kingdom.

Study population and the response rate

All orthodontists registered with the Saudi Orthodontist Society having work experience in the Kingdom were

considered the population of the study. The Survey Monkey link was forwarded to all respondents through their emails. Out of 1200 valid emails, responses were received from 161 orthodontists for a response rate of 13.4%, including 57.8% Saudi and 42.2% non-Saudi orthodontists.

Statistical analysis

The responses were decoded in accordance with the five-point Likert scale. Responses under “strongly disagree” were coded as 1, whereas those under “strongly agree” were coded as 5 and so on, respectively. The coded data were then subjected to descriptive analysis using the Statistical Package for the Social Sciences software version 21 (SPSS Inc., Chicago, IL, USA). Means, standard deviations, percentages, and t-tests were also employed to determine significant differences among the responses.

Results

The results of the present investigation revealed highly significant differences among responses to different questions at the $P < 0.05$ level of probability. Out of

the total population (1200) of this study, 161 male and female orthodontists responded to the survey for a percentage of 13.4%.

Sociodemographic characteristics, academic, and professional qualifications

The distribution of the respondents over demographic factors showed that 57.8% (93) of the respondents were Saudi national, whereas 42.2% (68) were non-Saudis. Gender analysis indicated that 107 respondents (66.5%) were males, whereas 54 (33.5%) were female orthodontists.

Regarding age, 22 respondents (13.7%) were below 30 years of age, whereas 139 respondents were above 30 years of age (86.3%) [Table 1].

Table 2 lists academic qualifications of the respondents; 89 (55.3%) were Saudi Board Qualified, 39 (24.2%) had an MSc qualification, and 33 (20.5%) had other qualifications, such as an MDS, PhD, and so on.

The results further revealed that, out of the total respondents, 71 (44.1%) completed their residency program within the KSA, whereas the remaining

Table 1: Sociodemographic characteristics of respondents

Sociodemographics	Frequency	Percent	Valid percent	Cumulative percent	Significance $P < 0.05$
Age of the respondents					
31-40 years	90	55.9	55.9	55.9	<0.001
41-50 years	40	24.8	24.8	80.7	
51-60 years	9	5.6	5.6	86.3	
<30 years	22	13.7	13.7	100.0	
Gender of the respondents					
Female	54	33.5	33.5	33.5	<0.001
Male	107	66.5	66.5	100.0	
Nationality of the respondents					
Non-Saudi	68	42.2	42.2	42.2	<0.001
Saudi	93	57.8	57.8	100.0	

Table 2: Academic qualifications and training of respondents

Education and Training	Frequency	Percent	Valid percent	Cumulative percent	Significance
Other qualifications of the respondents					
Board	89	55.3	55.4	55.3	<0.001
MSc	39	24.2	24.2	79.5	
Other	33	20.5	20.5	100.0	
Where did you attend a residency program?					
Saudi Arabia	71	44.1	44.1	44.1	<0.001
Arab countries	38	23.6	23.6	67.7	
Other countries	52	32.3	32.3	100.0	
Number of years in training residency programs					
1 year or less	12	7.5	7.5	7.5	<0.001
2 years	6	3.7	3.7	11.2	
3 years	40	24.8	24.8	36.0	
4 years	19	11.8	11.8	47.8	
5 years or more	84	52.2	52.2	100.0	

90 (55.9%) respondents completed their residency in other countries. Table 2 also shows that a majority of the respondents, 84 (52.2%) completed >5 years in a residency program, whereas 77 respondents spent <5 years in a residency training program.

Information about length of work experience and pace of work is given in Table 3, which indicates that a majority of the orthodontists fall in a group with 3–8 years of professional experience, followed by 41 respondents who possessed <3 years' experience, 30 respondents with 9–15 years of experience, and 27 in the very experienced group with 16–25 years of professional experience. It is also evident from Table 3 that out of the total 161 respondents, 90 (55.9%) orthodontists were engaged in private practice, followed by 50 respondents (31.1%) employed by the Ministry of Health and 21 (6.2%) employed in other organizations.

Motivation behind my choice of orthodontics as my specialty

As is evident from Table 4, a majority of the respondents, 71 (28.63%), reported "professional growth" as the main reason for choosing orthodontics as their profession. This

was followed by "challenging profession," "financial gains," "prestigious specialty," and "family influence."

Respondents' satisfaction with the orthodontics profession

The results presented in Table 5 revealed that a huge majority of the respondents, 142 (88.2%), stated that orthodontics as a specialty was their first choice. This was further obvious from the fact that 80.7% of the respondents were satisfied with their job as orthodontists. However, 60.9% of the respondents were not satisfied with the income from their orthodontic practice; likewise, 56.2% of the respondents did not have adequate time for their families.

Respondents' satisfaction with the workplace environment

Regarding the satisfaction of the respondents about their orthodontics practice and workplace environment, 83.2% of the respondents stated that their responsibilities are well defined. 80.7% of the respondents affirmed that their practice is recognized and appreciated by professional colleagues. Likewise, 72.7% of the respondents agreed that their professional colleagues are kind and enjoy working

Table 3: Respondents' work experience and related information

Work Experience	Frequency	Percent	Valid percent	Cumulative percent	Significance
Total length of experience					
16-25 years	27	16.8	16.8	16.8	<0.001
3-8 years	63	39.1	39.1	55.9	
9-15 years	30	18.6	18.6	74.5	
<3 years	41	25.5	25.5	100.0	
Where do you work?					
Private practice	90	55.9	55.9	55.9	<0.001
Ministry of Health	50	31.1	31.1	87.0	
Other	21	6.2	6.2	93.2	

Table 4: Respondents' motivation for choosing orthodontics

Reason for choosing orthodontics	Frequency	Percent	Valid percent	Cumulative percent	Significance
The motivation for choosing orthodontics					
Professional growth	71	28.63	28.63	28.63	<0.001
Prestigious specialty	46	18.55	18.55	47.18	<0.001
Challenging profession	65	26.20	26.20	73.38	<0.001
Family influence	15	6.05	6.05	79.44	<0.001
Financial gains	51	20.56	20.56	100.0	<0.001

Table 5: Satisfaction factors related to the orthodontic profession

Satisfaction factor	Strongly agree + agree	Fair	Strongly disagree + disagree	Significance
Orthodontic specialty was my first choice	88.2%	8.1%	3.7%	<0.001
I am generally satisfied with my income related to my orthodontic practice	60.9%	26.1%	13%	<0.001
Adequate time for personal and family life	43.8%	23%	33.2%	<0.001
Medical and dental treatment services provided to me as an orthodontist	67%	23.6%	9.4%	<0.001
Overall, I am satisfied with my job as an orthodontist	80.7%	14.9%	4.4%	<0.001

as team, though 52.8% of the respondents asserted that their professional capabilities are hampered by paperwork and administrative duties assigned to them [Table 6].

Respondents' satisfaction related to resources, facilities, and staff

The results presented in Table 7 show that 68.7% of the respondents were satisfied with the adequacy of the resources and facilities provided to them for the delivery of orthodontics treatment to their patients. This was followed by their satisfaction with the work quality of dental assistants and dental technicians.

Respondents' satisfaction with their relationship with their patients

Analysis of the results presented in Table 8 indicated that 85.1% of the orthodontists were of the view that prolonged orthodontic treatment is considered a major problem by their patients. Although 65.8% of the respondents were satisfied with the attitude and respect given to them by patients, 66.5% of the respondents

agreed that their patients were never on time and did not adhere to the appointment schedule. Likewise, 62.1% of the respondents agreed that the retention phase of the orthodontic treatment was a cause of stress to them. In contrast, significant number of their patients had unrealistic expectations regarding the outcome of their orthodontic treatment.

Discussion

Job satisfaction is an indication of a person's attitude toward his profession. This study was undertaken to measure professional satisfaction among orthodontists working in Saudi Arabia. In this cross-sectional study, a customized questionnaire was used to assess the professional satisfaction of the respondents. A total of 161 orthodontists out of a population of 1200 working orthodontists responded to the survey for a response rate of 13.4%. The low response rate may be attributed to their busy schedule in clinical settings, class workload, and other official engagements. The findings are consistent

Table 6: Respondents' satisfaction with the workplace environment

Satisfaction factor	Strongly agree + agree	Fair	Strongly disagree + disagree	Significance
I am satisfied with the working environment within the practice team in my workplace	68.9%	24.8%	6.3%	<0.001
Professional colleagues in my workplace are kind and enjoy working as a team	72.7%	25.5%	1.8%	<0.001
My orthodontic practice is recognized and appreciated by professional colleagues in my workplace	80.7%	14.9%	4.4%	<0.001
I feel no communication problem with staff	68.3%	27%	3.7%	<0.001
Significant paperwork and administrative duties assigned to me affect my professional capabilities	52.8%	34.2%	13%	<0.001
Job description and responsibilities are well defined	83.2%	14.9	1.9%	<0.001
My workplace supports my professional development to improve the efficiency and quality of work	62.1	29.2%	8.7%	<0.001

Table 7: Respondents' satisfaction with staff and facilities

Satisfaction factor	Strongly agree + agree	Fair	Strongly disagree + disagree	Significance
Facilities and resources in my workplace are adequate for delivery of orthodontic care to patients	68.7%	23.6%	7.7%	<0.001
Work quality of auxiliary staff, e.g., dental assistants, technicians	62.7%	27.3%	10%	<0.001

Table 8: Respondents' satisfaction about their relationship with patients

Satisfaction factor	Strongly agree + agree	Fair	Strongly disagree + disagree	Significance
Prolonged orthodontic treatment is considered a major problem by the patients	85.1%	12.4%	3.5%	<0.001
Retention phase of the orthodontic treatment often stresses me after treating the patients	62.1%	27.9%	10%	<0.001
I feel no communication problem with my patients	63.9%	29.8%	6.3%	<0.001
Patients are always on time and adhere to the appointment schedule	33.5%	31.7%	34.8%	<0.001
Significant numbers of my patients have unrealistic expectations regarding the outcome of orthodontic treatment	60.9%	26%	13.1%	<0.001
I am satisfied by the patients' attitude and the respect given to me	65.8%	26.7%	7.5%	<0.001

with those of Al-Jewair *et al.*,^[27] who also reported a 13.9% response rate while studying retention practices and factors affecting retainer choice among orthodontists in Saudi Arabia. Martins *et al.*^[28] received the same percentage of responses while studying the attitudes of Brazilian orthodontists toward the diagnosis and management of migraine. Walter *et al.*^[29] reported an extremely low response rate of 7.6%. All these findings prove that orthodontists are generally the busiest professionals in the dental healthcare community. Their tight schedules generally prohibit them from responding to electronic or manual surveys. The main strength of our study is that there has been little research on job satisfaction in Saudi Arabia. This is the first research on satisfaction among orthodontists in the Kingdom.

The survey questionnaires were comprehensive and varied. The questions were related to many factors, including patient relations, overall quality of life, respect, delivery of care, professional relations, staff, professional environment, perception of income, professional time, practice management, personal time, and so on. In addition, the survey was conducted online using a Survey Monkey link, which makes the results more accurate than a manual survey. The survey was not confined to one area of the KSA; it was emailed to and completed by orthodontists working in different regions of the Kingdom. However, our sample may not be 100% representative of the entire population of Saudi orthodontists because of the lack of completed survey forms; i.e., we had 161 (13.4%) respondents compared to a Canadian^[27] sample of 319 respondents (51.2%). The results of the present investigation focused on satisfaction levels among orthodontists in relation to supporting staff and facilities, income, professional relations, professional time, and overall professional satisfaction.

The categorization of the overall job satisfaction scale revealed that approximately 80.7% of the orthodontists are satisfied with their profession. This percentage of overall satisfaction is very close to the level of job satisfaction reported in a Canadian study.^[30] The higher level of overall job satisfaction might be attributed to the fact that 88.2% of the respondents had chosen orthodontics specialty as their first choice. The findings are in agreement with those of Sam,^[31] who reported that 85.1% of the undergraduate students in his study decided to choose orthodontics as their professional career before graduation. Gallagher and Resmi Nairn^[32] from the King's College London Dental Institute also reported orthodontics as the most popular career choice among dental specialties equivalent to restorative dentistry. Analysis of the motivational factors behind the choice of this discipline presented in Table 4 indicated that "professional growth" was considered the top motivational factor by many respondents, 71 (28.63%),

followed by "challenging profession" by 65 (26.2%) respondents. The findings are in contradiction to those of previous studies conducted by Al-Hamlan *et al.*^[33] in the KSA as well as by Keith in the USA^[34] and UK,^[35] wherein "prestige" and a "challenging nature" were considered the top motives for the choice of orthodontics as a future career.^[36] The findings therefore reflect a mature and advanced attitude of respondents in choosing their career path because professional growth as a factor is advanced as compared to the prestige and challenging nature of the job. Financial gain as a motivating factor was ranked third, as 51 (20.56%) respondents correlated their choice of specialty with this factor, which shows that the study respondents preferred professional development over financial gain, which is contrary to the earlier findings wherein 66% of dental residents in the USA cited financial benefits as the top reason for choosing the orthodontic specialty for their future career.^[37]

However, despite all this satisfaction with their chosen career, respondents in the present investigation revealed that they did not have adequate time for their family life. Table 5 indicates that 56.2% of the respondents were dissatisfied about adequacy of time for their family life. The results are in conformity with those of a study conducted in New Zealand by Soma *et al.*,^[38] wherein it was reported that orthodontists generally feel regret for not spending adequate time with their children and families because of work pressure. He concluded that, while performing their role as orthodontists, several practitioners must compromise on other important roles such as that of a father, spouse, or caretaker in family life. Female orthodontists have been reported to be more affected than their male counterparts. Although the respondents were satisfied with the workplace environment, including well-defined job descriptions, appreciation by seniors, cooperation by colleagues, and communication with staff, yet 52% of the respondents were of the view that administrative duties and paperwork assigned to them hampers their performance and professional capabilities. The findings are in agreement with those of Robert and Charmine, who reported office management as highly stressful factors for dentists.^[39] Likewise, 66.5% of the respondents opined that their patients generally do not adhere to the appointment schedule. Late arrival of patients had already been reported as a source of stress by orthodontists in earlier studies conducted worldwide.^[30,40] Similarly, other factors mentioned above also affected the job satisfaction of the respondents. Our findings are in line with those of Roth *et al.*,^[41] who reported that high job satisfaction is directly related to occupational stress. It is, therefore, suggested that an investigation be carried out to explore the relationship between job satisfaction and the occupational stress of orthodontists working in the KSA, as well as comparing the results of the orthodontic specialty with different dental specialties.

Conclusion

The findings of the present investigation indicated that orthodontics is a field where professionals have passion and ambitions for their professional growth and development. Furthermore, orthodontists rank this field as highly prestigious as well as high paying. At the same time, they feel that their profession engages them to an extent that they do not find ample time for their personal and family life. The main concerns of the orthodontists revealed in this investigation include too much paperwork as well as patients' poor adherence to their appointment times. It is, therefore, concluded that the working efficiency of orthodontists may be further improved by addressing these points. We hope that the present findings will help policymakers to take appropriate measures to improve the working conditions of orthodontists, which will definitely result in improved care for the patients.

Acknowledgements

We are thankful to the Female Campus Research Center, King Saud University for supporting this research project. The authors are also thankful to senior faculty of the Pediatric Dentistry and Orthodontics Department for their participation in reviewing questions and preparing the questionnaire. We are also thankful to the College of Dentistry Research Center (CDRC) for registration and approval of the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Myers HL, Myers LB. 'It's difficult being a dentist': Stress and health in the general dental practitioner. *Br Dent J* 2004;197:89-93.
- Szymanska J. Disorders of the musculoskeletal system among dentists from the aspect of ergonomics and prophylaxis. *Ann Agric Environ Med* 2002;9:169-73.
- Hjalms K, Soderfeldt B, Axtelius B. Psychosomatic symptoms among female unpromoted general practice dentists. *Swed Dent J* 2003;27:35-41.
- Shah SM, Bonauro D, Silverstein B, Foley M. Workers' compensation claims for needle stick injuries among healthcare workers in Washington State, 1996-2000. *Infect Control Hosp Epidemiol* 2005;26:775-81.
- Takahama AJ, Tatsch F, Tannus G, Lopes MA. Hepatitis C: Incidence and knowledge among Brazilian dentists. *Community Dent Health* 2005;22:184-7.
- Pandis N, Pandis BD, Pandis V, Eliades T. Occupational hazards in orthodontics: A review of risks and associated pathology. *Am J Orthod Dentofacial Orthop* 2007;132:280-92.
- Oxman A, Thomson M, Davis D, Haynes R. No magic bullets: A systematic review of 102 trials of interventions to improve professional practice. *Can Med J* 1995;153:1423-31.
- Haines A, Donald A. Making better use of research findings. *Br Med J* 1998;317:72-5.
- Ahmed I. Effects of motivational factors on employees' job satisfaction: A case study of University of the Punjab, Pakistan. *Int J Bus Manage* 2010;5:70-80.
- Roth SF, Heo G, Varnhagen C, Glover KE, Major PW. Job satisfaction among Canadian orthodontists. *Am J Orthod Dentofacial Orthop* 2003;123:695-700.
- Blegen M. Nurses' job satisfaction. A meta-analysis of related variables. *Nurs Res* 1993;42:36-41.
- Kalliath T, Morris R. Job satisfaction among nurses. A predictor of burn out levels. *JONA* 2002;32:648-54.
- Szecsényi J, Goetz K, Campbell S, Broge B, Reuschenbach B, Wensing M. Is the job satisfaction of primary care team members associated with patient satisfaction? *BMJ Qual Saf* 2011;20:508-14.
- Humphris G, Lilley J, Kaney S, Broomfield D. Burnout and stress-related factors among junior staff of three dental hospital specialties. *Br Dent J* 1997;183:15-21.
- Pietila I, Pietila T, Pirttiniemi P, Varrelä J, Alanen P. Orthodontists' views on indications for and timing of orthodontic treatment in Finnish public oral health care. *Eur J Orthod* 2008;30:46-51.
- Feda M, Al Amoudi N, Sharaf A, Hanno A, Farsi N, Masoud I, et al. A comparative study of children's pain reactions and perceptions to AMSA injection using CCLAD versus traditional injections. *J Clin Pediatr Dent* 2010;34:217-22.
- Chaushu S, Becker A. Behaviour management needs for orthodontic treatment of children with disabilities. *Eur J Orthod* 2000;22:143-9.
- Waldman HB, Perlman SP, Swerdloff M. Orthodontics and the population with special needs. *Am J Orthod Dentofacial Orthop* 2000;118:14-7.
- Hobson RS, Nunn JH, Cozman I. Orthodontic management of orofacial problems in young people with impairments: Review of the literature and case reports. *Int J Pediatr Dent* 2005;15:355-63.
- Keim RG, Gottlieb EL, Nelson AH, Vogels DS. JCO survey of orthodontic staff job satisfaction. *J Clin Orthod* 2005;39:145-51.
- Shugars DA, Hays RD, DiMatteo MR, Cretin S. Development of an instrument to measure job satisfaction among dentists. *Med Care* 1991;29:728-44.
- Shugars DA, Di Matteo MR, Hays RD, Cretin S, Johnson JD. Professional satisfaction among California general dentists. *J Dent Educ* 1990;54:661-9.
- DiMatteo MR, Shugars DA, Hays RD. Occupational stress, life stress and mental health among dentists. *J Occup Organ Psychol* 1993;66:153-62.
- Logan HL, Muller PJ, Berst MR, Yeane DW. Contributors to dentists' job satisfaction and quality of life. *J Am Coll Dent* 1997;64:39-43.
- Wells A, Winter PA. Influence of practice and personal characteristics on dental job satisfaction. *J Dent Educ* 1999;63:805-12.
- Aiken LR. Content validity and reliability of single items or questionnaires. *Educ Psychol Meas* 1980;40:955-9.
- Al-Jewair TS, Hamidaddin MA, Alotaibi HM, Alqahtani ND, Albarakati SF, Alkofide EA, et al. Retention practices and factors affecting retainer choice among orthodontists in Saudi Arabia. *Saudi Med J* 2016;37:895-901.
- Martins Junior RL, Kerber Fde C, Stuginski-Barbosa J. Attitudes of a group of Brazilian orthodontists towards the diagnosis and management of primary headache (migraine): An electronic-based survey. *J Appl Oral Sci* 2011;19:674-8.
- Walter R, Rinchuse DJ, Rinchuse DJ. Sleep apnea treatment: A survey investigating current orthodontic treatments and philosophies. *Ortho Pract* 2015;6:19-25.
- Roth SF, Heo G, Varnhagen C, Glover K, Major PW. Job satisfaction among Canadian Orthodontists. *Am J Orthod Dentofacial Orthop*

- 2003;123:695-700.
31. Sam G. Orthodontics as a prospective career choice among undergraduate dental students: A prospective study. *J Int Soc Prev Community Dent* 2015;5:290-5.
 32. Gallagher JE, Resmi Nairn HF. The emerging dental workforce: Long-term career expectations and influences. A quantitative study of final year dental students' views on their long-term career from one London Dental School. *BMC Oral Health* 2009;9:35.
 33. Al-Hamlan N, Al-Ruwaithi MM, Al-Shraim N, El-Metwaaly A. Motivations and future practice plans of orthodontic residents in Saudi Arabia. *J Orthod Sci* 2013;2:67-72.
 34. Keith O, Proffit WR. Orthodontic training: The residents' perspective. *Am J Orthod Dentofacial Orthop* 1994;106:649-53.
 35. Keith O, Stephens CD, Proffit WR, O'Brien KD. A survey of the opinions of orthodontic specialist trainees in the U.K. *Br J Orthod* 1997;24:163-7.
 36. Noble J, Hechter FJ, Karaiskos NE, Lekic N, Wiltshire WA. Future practice plans of orthodontic residents in the United States. *Am J Orthod Dentofacial Orthop* 2009;135:357-60.
 37. Noble J, Hechter FJ, Karaiskos N, Wiltshire WA. Motivational factors and future life plans of orthodontic residents in the United States. *Am J Orthod Dentofacial Orthop* 2010;137:623-30.
 38. Soma KJ, Thomson WM, Morgaine KC, Harding WJ. A qualitative investigation of specialist orthodontists in New Zealand: Part 2. Orthodontists' working lives and work-life balance. *Aust Orthod J* 2012;28:170-80.
 39. Rada RE, Johnson-Leong C. Stress, burnout, anxiety and depression among dentists. *J Am Dent Assoc* 2004;135:788-94.
 40. Ousehal L, Lazrak L, Hassani K. Evaluation of stress among 100 Moroccan orthodontists. *Op J of Stom* 2011;1:1-6.
 41. Roth SF, Heo G, Varnhagen C, Glover KE, Major PW. Occupational stress among Canadian orthodontists. *Angle Orthod* 2003;73:43-50.