

Factors Affecting Job Satisfaction and Their Correlation with Educational Standards among Dental Assistants

Yousra H. AL JAZAIRY^{1,2*}, Hassan Suliman HALAWANY^{1,3}, Nawaf AL HUSSAINAN^{1,4},
Nassr AL MAFLEHI^{1,3}, Nimmi Biju ABRAHAM¹ and Vimal JACOB¹

¹Dental Caries Research Chair, College of Dentistry, King Saud University, Kingdom of Saudi Arabia

²Department of Restorative Dental Sciences, College of Dentistry, King Saud University, Kingdom of Saudi Arabia

³Department of Periodontics and Community Dentistry, College of Dentistry, King Saud University, Kingdom of Saudi Arabia

⁴Dental Health Department, Prince Sultan Military Medical City, Kingdom of Saudi Arabia

Received January 2, 2014 and accepted April 2, 2014

Published online in J-STAGE April 18, 2014

Abstract: A disparity exists in the educational qualifications of dental assistants working in various public and private institutions in Riyadh, Saudi Arabia. The aim of this study was to assess the influence of professional and personal characteristics on job satisfaction among dental assistants. A cross-sectional survey was performed among dental assistants using a 24-item self-administered questionnaire. Multinomial logistic regression was used to assess the relationship between overall job satisfaction and other variables. The overall response rate was 72.1%. Factor analysis suggested that five underlying factors were related to job satisfaction. The mean score for overall job satisfaction was 3.86 (satisfied) out of 5. Among the work environment factors, the highest mean score, 4.26 (satisfied), was obtained for quality of service, and the lowest mean score, 2.78 (neutral), was obtained for the perception of income. The income and general prospects of the profession was significantly associated with overall job satisfaction. This study suggests that for dental assistants, professional and personal life, quality of service, perception of income and prestige and self-respect are important factors for job satisfaction. Despite differences in professional formation standards, in general, the study participants were considerably satisfied with their jobs.

Key words: Job satisfaction, Dental assistants, Work environment, Professional education, Income, Self-respect

Introduction

The need and demand for health care have exceeded the capacity of the established professions to provide full,

comprehensive and appropriate services, while also taking into account the prevention of disease. This overwhelming situation emphasizes the importance of allied and complementary professionals in dentistry, as in any other health service¹⁾. Dental assistants are one of the most important members of the dental health care workforce and enhance the efficiency of the dentist in the delivery of dental care to patients. They form an integral part of the dentist's clini-

*To whom correspondence should be addressed.
E-mail: yousra.aljazairy@gmail.com

cal regime for a successful general practice²⁾. A variety of training programs in regions around the world prepare dental assistants for clinical practice. Some programs include a bachelor's degree in dental assisting, while others terminate with a registered diploma and certificate. The ongoing research linking oral health and general health will likely continue to amplify the demand for preventive dental services. Accordingly, dentists will continue to hire more dental assistants to complete their routine tasks, thus allowing the dentist to see more patients in their daily practice and spend their time on more complex procedures. Advances in the field of dentistry will also require more satisfied dental assistants in dental practices throughout the world.

The inherent nature of the profession in dentistry does not come without challenges. Dental assistants perform a wide range of patient care, office and laboratory duties. A brief description of the sort of work the dental assistants are eligible to perform in Saudi Arabia⁴⁾ is essential to contextualize our findings. Dental assistants often schedule and verify appointments, greet patients, take and record dental and medical histories and vital signs, keep treatment records updated, send bills, receive payments, complete insurance forms and order dental supplies and materials. They also sterilize and disinfect instruments and equipment, prepare tray setups for dental procedures and instruct patients on postoperative and general oral hygiene and plaque control measures. They may also work directly with the patients to make them as relaxed as possible in the dental chair and prepare them for treatment. They work alongside the dentist and hand instruments and materials to the dentist, and they keep the patients' mouth dry and clear using suction or other devices during examination and treatment procedures. Additional duties vary depending on the respective regulations of different countries and how involved the dentist requires the assistant to be. Under the dentist's direction, some dental assistants prepare materials for making impressions for study casts and restorations, expose dental diagnostic radiographs and process dental x-ray films. They may even remove sutures, apply anesthetics, take out excess filling cement, place rubber dams on teeth to isolate them for treatment and apply protective coatings of fluoride or desensitizing agents to teeth. Some assistants who are given laboratory duties also make the casts from impressions taken by the dentist, clean and polish removable appliances and prepare temporary crowns^{3, 4)}.

Job satisfaction has long been associated with work environment, productivity, quality of work and most

importantly, quality of life. In a recent study among dental assistants in Brazil, 81.5% expressed that they were satisfied with their job and for those who were dissatisfied, salary, dentist's personality, workplace, workload and standing position during work had negative influences on their satisfaction⁵⁾. Studies have also related job dissatisfaction to lack of control and being undervalued by the dentist or the perception of being taken for granted^{6, 7)}.

Research interest has increased regarding the relationship of working conditions and psychosocial factors to job satisfaction among dental healthcare workers, such as dentists^{8, 9)}, dental hygienists^{1, 10, 11)} and dental assistants^{2, 5, 12-16)}. However, no study has been conducted to explore job satisfaction among dental assistants working in Middle Eastern countries, where expatriate healthcare workers constitute an integral part of the healthcare workforce. Moreover, one area of continuing research is the correlation of educational standards and job satisfaction. In a meta-analysis exploring nurses' job satisfaction, educational level was negatively associated with satisfaction¹⁷⁾. However, a study conducted by Ingersoll *et al.*¹⁸⁾ reported that educational qualifications had a positive impact on the job satisfaction of the surveyed nurses. Glenn and Weaver¹⁹⁾ reasoned that education that does not lead to extrinsic rewards would lead to job dissatisfaction by producing unfulfilled expectations and aspirations. We assumed that the variations in the educational backgrounds among the dental assistants would be a key point and motivating factor for our study. Consequently, the aim of the present study was to assess the level and distribution of job satisfaction among dental assistants working in various private and public hospitals, clinics, polyclinics and dental schools in the Kingdom of Saudi Arabia.

Subjects and Methods

This study was registered at and approved by the ethics committee of the College of Dentistry Research Center (CDRC registration number FR 0035) and was undertaken with the understanding and written consent of each participant according to the ethical principles of the World Medical Association Declaration.

Survey instrument

The questionnaire used in this study was derived from a study conducted among Korean dental practitioners⁹⁾. The initial version of the survey instrument, the Korean Dentist Satisfaction Survey (KDSS), consisted of 29 items pertaining to overall job satisfaction and work environment

Table 1. Data reduction by factor analysis of the results from the Dental Assistant Satisfaction Survey (DASS) among dental assistants

Factor name	Item number	I	II	III	IV	V	Cronbach's alpha
Professional and personal life	9	0.670	0.145	0.191	-0.054	0.036	0.81
	10	0.832	0.072	0.076	0.006	0.059	
	11	0.816	0.121	-0.090	-0.048	0.051	
	12	0.773	0.169	-0.114	0.074	-0.058	
	13	0.559	0.165	0.218	0.279	-0.089	
General prospects	1	0.097	0.746	0.109	-0.102	-0.050	0.76
	3	0.132	0.763	0.264	-0.054	0.086	
	4	0.162	0.597	0.086	0.117	-0.116	
	5	0.204	0.769	0.091	0.114	0.106	
Quality of service	15	0.120	0.181	0.841	0.064	-0.032	0.66
	16	-0.023	0.243	0.759	-0.126	0.070	
Perception of income	6	-0.149	-0.177	0.079	0.779	0.107	0.51
	7	0.384	0.322	-0.235	0.527	-0.116	
	8	0.436	0.294	-0.178	0.550	0.071	
Prestige and self-respect	2	0.051	0.283	0.055	0.094	0.642	0.38
	14	-0.129	-0.087	-0.053	0.166	0.600	
	17	0.142	-0.145	0.054	-0.222	0.711	
Eigenvalue		4.35	2.07	1.41	1.36	1.02	
% of Variance		25.60	12.19	8.30	7.99	5.99	

The numbers in bold indicate each DASS question as an element of factors I to V.

factors. Only questions that were appropriate for dental assistants were selected. The questionnaire consisted of items on job satisfaction, as well as demographic and background information, including age, gender, nationality, educational qualification, country and year of graduation, years of experience and hours worked per day.

Pilot study and questionnaire development

To identify any obstacles to its comprehension, the questionnaire was pretested in a pilot study of 10 Saudi and non-Saudi dental assistants each. Minor modifications were made accordingly, and a few questions were either reformulated or excluded based on the outcome of the pilot survey. The results of the pilot survey questionnaires were not included in the main study. Our final survey instrument, the Dental Assistant Satisfaction Survey (DASS), consisted of 24 relevant items written in English, and included 7 items related to demographic details, 4 items to measure the general prospects of the profession indicating overall job satisfaction (Factor 2) and 13 items concerning 4 work environment factors (Factors 1, 3, 4 and 5; refer to Appendix). The work environment factors included professional and personal life, quality of service, percep-

tion of income, prestige and self-respect. The questions on job satisfaction were measured by a 5-point Likert scale, which ranged from 1 to 5 as follows: 1=strongly disagree, 2=disagree, 3=neutral/fair, 4=agree, and 5=strongly agree).

Study sample and implementation of the study

According to the 2013 statistics from the Saudi Commission for Health Specialties, the total number of registered dental assistants in the Kingdom of Saudi Arabia is 3,790, of which 1,364 are in Riyadh²⁰. All dental assistants working in public and private institutions who were able to understand the DASS questionnaire (in English) were included, whereas others not fluent in the English language were excluded. A total of 8 public and 6 private-funded institutions accepted our study proposal to conduct the survey. Each prospective participant from these 14 institutions was approached individually at his or her workplace by two of the co-investigators, who sought the participants' willingness to participate voluntarily in this paper-and-pencil survey by completing the anonymous questionnaire. Over a period of 5 months from February 2013 onwards, a total of 691 questionnaires were distributed. Participants were not asked to include their names or

Table 2. Background characteristics of the study population

Variables		Total N=498 n (%)
Sex	Male	81 (16.3)
	Female	417 (83.7)
Age (yr)	≤30	198 (41.9)
	31–40	154 (32.6)
	41–50	102 (21.6)
	51–60	18 (3.8)
Educational qualifications (highest degree attained)	Bachelor of Dental Assisting	51 (10.2)
	Diploma in Dental Assisting	67 (13.5)
	Dental degree	306 (61.4)
	BSc Nursing	53 (10.6)
	Others	21 (4.2)
Nationality	Saudi	111 (22.3)
	Non-Saudi	387 (77.7)
Current employment	Public	349 (70.1)
	Private	149 (29.9)
Years of experience (yr)	≤10	339 (69.5)
	>10	149 (30.5)
Working hours per day (h)	≤8	181 (36.6)
	>8	313 (63.4)

any other identifying information to ensure confidentiality. Those willing to participate were given the questionnaire, which was to be completed by expressing their level of agreement. The completed questionnaires were returned immediately after completion.

Validation of the survey instrument

The validity of the DASS questionnaire was assessed using an explanatory factor analysis. Factor analysis identified 5 underlying factors that were different in most aspects compared to the Korean study⁹⁾ but reflected identical factors concerning the study protocol. Cronbach's alpha was used to evaluate the internal consistency of the DASS. The Cronbach's alpha for the 17 items was 0.75; the corresponding value for each factor is given in Table 1. Only the first two factors demonstrated acceptable internal consistency, with Cronbach's alpha exceeding the minimum standard of 0.7.

Statistical analysis

The data obtained from the survey were manually entered into a Statistical Package for the Social Sciences database (IBM, SPSS version 20, IL, USA) and were ana-

lyzed using a χ^2 test with $p < 0.05$ set as the level of significance. Responses to negatively worded statements were reverse-coded so that higher scores represented higher satisfaction. A multinomial logistic regression analysis was performed to assess the likelihood of overall job satisfaction (Question number 5) when correlated with the other questions related to work environment and demographic variables. The association between the factors related to job satisfaction and the individual's background characteristics such as gender, age, nationality, years of experience, public or private institution, and working hours per day, were analyzed using analysis of covariance.

Determination of scoring system

The scores for each item in the 5 factors were averaged to determine the degree of satisfaction for each factor, which was then classified into three responses based on the mean score for each factor as follows: dissatisfied (1.0–2.5), neutral (>2.5 and <3.5), and satisfied (3.5–5.0). This is similar to the method used in the Korean study⁹⁾.

Results

Study population

The background characteristics of the study population are given in Table 2. Of the 691 questionnaires that were distributed, 498 were returned with completed data that was suitable for analysis. The overall response rate of this survey was 72.1%. Approximately 83.7% ($n=417$) of the respondents were female and 16.3% ($n=81$) were male. The mean age of the study population was 34.19 ± 8.70 yr and ranged from 20 to 58 yr. The majority of participants attained dental degrees from the Philippines (61.4%), and only 10.2% had a bachelor's degree in dental assisting. The other qualifications included a diploma in dental assisting (13.5%), a Bachelor of Science in nursing (10.6%), and others (4.2%) such as midwifery, bachelor of dental technology and general nursing. In our sample of dental assistants, the number of expatriates ($n=387$, 77.7%) exceeded the number of individuals of native origin ($n=111$, 22.3%).

Satisfaction scores

The mean scores and the distribution of the respondents for each factor related to job satisfaction are given in Table 3. The mean score for the overall job satisfaction was 3.86 (satisfied). Among the work environment factors, the highest mean score, 4.26 (satisfied), was obtained for quality of service, and the lowest mean score, 2.78 (neutral),

Table 3. The mean satisfaction score and the distribution of the five factors related to job satisfaction

Factors	Distribution ^a			Mean Satisfaction scores ^b
	Satisfaction n (%)	Neutral/fair n (%)	Dissatisfaction n (%)	
Professional and personal life	159 (31.9)	272 (54.6)	67 (13.5)	3.20 ± 0.68
General prospects of the profession	381 (76.5)	96 (19.3)	21 (4.2)	3.86 ± 0.73
Quality of service	454 (91.2)	38 (7.6)	6 (1.2)	4.26 ± 0.65
Perception of income	77 (15.5)	265 (53.4)	154 (31.0)	2.78 ± 0.76
Prestige and self-respect	177 (35.6)	237 (47.7)	83 (16.7)	3.17 ± 0.72

^a Respondents were classified as dissatisfied (1.0–2.5), neutral (>2.5 and <3.5), or satisfied (3.5–5.0). ^b Mean ± SD of the 5- point Likert scale, which ranged from 1 (minimum satisfaction) to 5 (maximum satisfaction).

Table 4. Multinomial logistic regression model for overall job satisfaction (Question number 5)

Variables*	B	SE	Wald	p-value	Odds ratio (OR)	95% CI for OR LB UB	
Q1. Knowing what I know now, I would make the same decision to go into dentistry again. (1)	−1.95	0.76	6.59	0.010	0.14	0.03	0.63
Q2. I wish I could drop my job to do something else. (1)	−0.97	0.42	5.36	0.021	0.38	0.17	0.86
Q2. I wish I could drop my job to do something else. (2)	−1.44	0.45	10.54	0.001	0.24	0.10	0.56
Q3. Dentistry is the place where I can make my best contribution. (2)	−1.82	0.43	17.91	0.000	0.16	0.07	0.38
Q4. If my child is interested in dentistry, I would encourage him/her to pursue a dental career. (1)	−1.74	0.65	7.18	0.007	0.18	0.05	0.63
Q7. The income that I receive from my job is most satisfactory for my needs. (2)	−1.55	0.52	8.86	0.003	0.21	0.08	0.59
Q8. I am satisfied with the benefits I receive from my job. (2)	0.95	0.48	3.94	0.047	2.58	1.01	6.56

* Gender, age, nationality, educational qualification, years of experience and working hours did not have any direct significant effects on overall job satisfaction (3). The numbers in parentheses denote the following responses: (1) Disagree; (2) Fair; and (3) Agree.

was obtained for perception of income. Only 4.2% of the dental assistants were dissatisfied with the general prospects of the job indicating overall job dissatisfaction, compared to 76.5% respondents who reported that they were satisfied. In terms of work environment factors, 31.9% were satisfied with their professional and personal life, whereas approximately 91% were satisfied with their quality of service towards the community and in assisting the dentists. On the other hand, nearly one third of the dental assistants (31%) were dissatisfied with their perception of income. Regarding prestige and self-respect, approximately 48% reported that they were neither satisfied nor dissatisfied.

Logistic regression

The effects of the work environment factors and the general prospects of the profession on the question which directly addressed overall job satisfaction were evaluated by a multinomial logistic regression analysis after adjusting for all the professional and personal characteristics. The regression analysis revealed 6 questions to be significantly associated with the overall job satisfaction (Table 4). The final logistic model had a Cox and Snell Pseudo R-square result of 57.8%, which explained the proportion of the total variability of the outcome that is accounted for by the model.

Table 5. Relationship of the individuals' professional and personal characteristics to the four work environment factors determined by analysis of covariance

Dependent variable	Source	Type III sum of squares	F	<i>p</i> value*
Professional and personal life	Nationality	2.16	4.82	0.029
	Nationality*Employment	6.05	13.85	0.000
Quality of care	Education	3.66	8.68	0.003
Perception of income	Gender	3.74	6.28	0.013
	Gender*Working hours	3.66	6.34	0.012
	Nationality*Employment	4.14	7.18	0.008
	Education*Employment	3.60	6.23	0.013
Prestige and self-respect	Nationality	2.87	6.30	0.012

**p* value<0.05 was considered statistically significant.

Covariates

Analysis of covariance was used to determine the relationship between background characteristics and the work environment factors, with the latter as the dependent variable (Table 5). There was a significant association with regard to nationality and the interaction between nationality and current employment for professional and personal life ($p<0.05$). The non-Saudi dental assistants were more satisfied with their professional and personal life than the Saudi dental assistants. The estimated marginal means indicated that Saudi respondents working in private institutions were more satisfied with their professional and personal life than the Saudi dental assistants working in public institutions.

Educational qualification and nationality were significantly associated with quality of service and the items related to prestige and self-respect, respectively ($p<0.05$). The non-Saudi dental assistants with a dental degree were significantly more satisfied with their quality of service towards the community and in assisting the dentists than the respondents with other qualifications. In addition, the majority of the non-Saudi dental assistants were more satisfied regarding prestige and self-respect, compared to the Saudi dental assistants.

Perception of income was significantly associated with gender and the interaction between nationality and employment, education and employment, as well as gender and working hours ($p<0.05$). The majority of the female dental assistants were more satisfied with their perception of income than the male dental assistants. The estimated marginal means indicated that the Saudi dental assistants working in private institutions were more satisfied with their perception of income than those working in public institutions. This was in contrast with the non-Saudi dental

assistants and their current employment. Additionally, males who worked more than 8 h per day were more dissatisfied with their income than males who worked fewer hours. Among the respondents who were working in private institutions, the respondents with a dental degree were more satisfied with their income than the respondents with other qualifications. In contrast, among the respondents who were working in public institutions, the respondents with other qualifications were more satisfied with their income than the respondents with a dental degree.

Discussion

The disparity in the educational qualifications of dental assistants working in various public and private institutions in Riyadh, Saudi Arabia, led us to investigate the levels and distribution of job satisfaction among them. Individuals who have a primary level of education and those who have been adequately trained to handle dental equipment and to give proper assistance to the dentist are given registration as dental assistants by the Saudi Commission for Health Specialties. Interestingly, no previous studies have explored such a diverse background characteristics of the dental assisting population as described in this survey. Our study sample consisted of a majority of non-Saudis, particularly from the Philippines. Moreover, all the participants with a dental degree were from the Philippines.

Unlike Brazilian dental assistants⁵⁾, they are allowed to do tasks such as taking radiographs, removing sutures, applying topical anesthetics to gingival tissues, and placing rubber dams. The intention of performing these activities is giving the best possible assistance to the dentist in order to save time, without compromising productivity in the dental office. This set up is in contrast to Jordan and many

Eastern Mediterranean countries, where dental assistants work on a full-time basis and are assigned various roles, such as receptionist, office manager, chair-side assistant or X-ray technician²).

In our study, the mean score for overall job satisfaction was 3.8 out of 5, which is higher than that of the combined mean score of general job satisfaction of dentists and dental auxiliaries (mean score of 2.44 out of 6) reported by Chapko *et al.*¹⁶). A comparison of the job satisfaction among three groups of dental healthcare professionals in the United Kingdom, New Zealand and Trinidad and Tobago reported high mean scores of 7.34, 7.13 and 5.21 out of 10, respectively¹²). In our survey, when the respondents were classified into three categories, namely, satisfied, neutral and dissatisfied, the majority of them (76.5%) were satisfied with their jobs. This result may be consistent with the level of job satisfaction in Brazilian dental assistants, which has also previously been reported to be high (81.5%)⁵). In contrast, only 36.1% of Canadian dental assistants were fully satisfied with their job, and they attributed the main sources of their dissatisfaction to low income, lack of opportunity for professional development and lack of recognition¹³). In a study conducted in Jordan among dental assistants, more than half of them reported that they were fairly well satisfied with their job, but only 12.8% were enthusiastic about their job. However, in that report, the authors only studied the job-related factors of dental assistants working in the private sector, and the study mainly focused on the validity and reliability of a work stress inventory for dental assistants in Jordan²).

The trend of more number of female dental assistants seen in this study is in accordance with the gender distribution of dental assisting populations in Brazil⁵) and Canada¹³). The large number of females in this professional field may be attributed to their liberation in the labor workforce and their affective traits in the caregiving process. The majority of our sample comprised dental assistants with a dental degree, which in the Philippines, is equivalent to a degree for a qualified dentist. Thus, the job satisfaction expressed by these expatriates may reflect a significant degree of role conflict and should thus be interpreted with caution. It has been reported that many allied health professionals may experience the lack of occupational prestige, limited opportunity for vertical mobility and occupational burnout as a result of intra-role conflict²¹). While non-response bias is always a concern in a questionnaire survey, this was minimal in the present study.

This survey found that the majority of the dental assistants in Riyadh were discontented with their perception of

income, and only 15.5% were fully satisfied. This finding is consistent with the Brazilian study, where salary was identified as the most frequent reason for job dissatisfaction⁵). In our survey, this dissatisfaction may have resulted from the variations in income among the dental assistants, regardless of their background qualifications. This finding is of serious concern because income is a main factor that may cause employees to quit the profession. At the same time, a good salary will motivate skilled professionals to perform their duties well²²). In this survey, quality of service was the item that scored the highest satisfaction. The study participants seemed to be satisfied with their skills in dental assisting, which are clearly based on their professional qualifications and the training they had acquired.

Logistic regression analysis identified six questions that had significant association with the participants' overall job satisfaction. In the regression model, the dental assistants who were neutral about the benefits they received from the job were 2.5 times more likely to indicate overall job satisfaction. Moreover, those who would not make the same decision to go into dentistry again and those who would not encourage their children to pursue a career in dentistry were less likely to indicate overall job satisfaction. The dental assistants who were neutral about or disagreed on "I wish I could drop my job to do something else" were less likely to indicate overall job satisfaction. In addition, dental assistants who were neutral about dentistry being the place where they could make their best contribution and regarding their income being satisfactory to their needs were also less likely to indicate overall job satisfaction.

Furthermore, the results suggested that non-Saudi dental assistants were more satisfied with their professional and personal life than their Saudi counterparts. This finding may be attributed to the larger social circles of non-Saudis working as dental assistants. The Saudi dental assistants in the private institutions were found to be more satisfied than those in the public institutions with regard to their professional and personal lives, which may be due to the flexibility in working hours in the private sector. Those dental assistants with a dental degree were more satisfied with their quality of service, which may be a reflection of their educational training. This in turn may have had a positive impact on their prestige and self-respect.

In our survey, the perception of income played a significant role in understanding job satisfaction, which is consistent with the findings of previous studies^{13, 16, 23}). Generally, female dental assistants were more satisfied with their income than male dental assistants. This finding

may be due to the content attitudes of females regarding their personal expenses, whereas males may have a higher burden of expenses in the household. Moreover, males who worked longer hours were less satisfied with their income than those who worked fewer hours, indicating the absence of any bonus or benefits for those working longer hours. The dental assistants with a dental degree who worked in private institutions were more satisfied with their income than those who worked in public institutions, which may be due to better salary incentives for dental assistants with a dental degree in the private sector than in the public sector. Moreover, in public institutions, there are no fixed salaries based on the individual's educational level or years of experience. The need for establishing certain criteria for pay, while avoiding creating inequality among dental assistants, should be the focus of policy makers and institutional directors.

Several limitations of this study need to be addressed. Because the study population only included dental assistants from Riyadh, Saudi Arabia, the findings obtained from these self-reported data can only be generalized within this population. It is possible that dental assistants from other geographical areas may respond differently to the survey instrument used in this study. The reliability of the scale used to measure the quality of service, the perceptions of income, prestige and self-respect were relatively low (Cronbach's alpha = 0.66, 0.58 and 0.31, respectively). Future questionnaires with larger numbers of questions or statements addressing this issue may produce higher-reliability coefficients. The cross-sectional design and non-respondent bias may be considered as other limitations of this study.

In conclusion, this study explored the influence of professional and personal characteristics on job satisfaction among dental assistants. Professional and personal life, quality of service, perception of income and prestige and self-respect were important work environment factors for job satisfaction among dental assistants working in Saudi Arabia. The findings of this study will be useful to policy makers in the dental profession and the healthcare system to devise plans to increase the level of job satisfaction among dental assistants in Saudi Arabia. Policy makers and professional leaders need to take cognizance of the findings of this survey in planning for the future if they are to attract and retain a motivated dental workforce. In addition, this study is intended to stimulate additional research on dental job satisfaction, specifically to address more varied populations of dental assistants and to explore additional factors that may correlate with dental job satis-

faction. Despite the differences in professional formation standards among the dental assistants in this study, they were, in general, considerably satisfied with their jobs.

Acknowledgements

The authors wish to thank the College of Dentistry Research Center at King Saud University, Saudi Arabia, for supporting this research project (research project # FR 0035). We would also like to extend our sincere gratitude to all the dental assistants who took part in this survey.

References

- 1) Turner S, Ross MK, Ibbetson RJ (2011) Job satisfaction among dually qualified dental hygienist-therapists in UK primary care: a structural model. *Br Dent J* **210**, E5. [Medline] [CrossRef]
- 2) Khader YS, Airan DM, Al-Faouri I (2009) Work stress inventory for dental assistants: development and psychometric evaluation. *J Public Health Dent* **69**, 56–61. [Medline] [CrossRef]
- 3) American Dental Education Association Dental Assistant: Overview. http://explorehealthcareers.org/en/Career/3/Dental_Assistant. Accessed March 1, 2013.
- 4) Bayt.com Dental Assistant, Dallah Hospital – Riyadh, Saudi Arabia: Job Description. www.bayt.com/en/job/dental-assistant-1652012/. Accessed March 10, 2013.
- 5) Loretto NR, Caldas AF Jr, Coelho Junior LG (2013) Job satisfaction among dental assistants in Brazil. *Braz Dent J* **24**, 53–8. [Medline] [CrossRef]
- 6) Craven RC, Blinkhorn AS, Roberts C (1995) A survey of job stress and job satisfaction among DSAs in the north-west of England. *Br Dent J* **178**, 101–4. [Medline] [CrossRef]
- 7) Humphris GM, Peacock L (1993) Occupational stress and job satisfaction in the community dental service of north Wales: a pilot study. *Community Dent Health* **10**, 73–82. [Medline]
- 8) Goetz K, Campbell SM, Broge B, Dörfer CE, Brodowski M, Szecsenyi J (2012) The impact of intrinsic and extrinsic factors on the job satisfaction of dentists. *Community Dent Oral Epidemiol* **40**, 474–80. [Medline] [CrossRef]
- 9) Jeong SH, Chung JK, Choi YH, Sohn W, Song KB (2006) Factors related to job satisfaction among South Korean dentists. *Community Dent Oral Epidemiol* **34**, 460–6. [Medline] [CrossRef]
- 10) Yavnai N, Bilder L, Sgan-Cohen H, Zini A (2012) Dental hygienists in Israel: employment evaluation, job satisfaction, and training implications. *J Dent Educ* **76**, 1371–6. [Medline]
- 11) Jerković-Ćosić K, van Offenbeek MA, van der Schans CP (2012) Job satisfaction and job content in Dutch dental

- hygienists. *Int J Dent Hyg* **10**, 155–62. [[Medline](#)]
- 12) Naidu R, Newton JT, Ayers K (2006) A comparison of career satisfaction amongst dental healthcare professionals across three health care systems: comparison of data from the United Kingdom, New Zealand and Trinidad & Tobago. *BMC Health Serv Res* **6**, 32. [[Medline](#)] [[CrossRef](#)]
 - 13) Locker D (1996) Work stress, job satisfaction and emotional well-being among Canadian dental assistants. *Community Dent Oral Epidemiol* **24**, 133–7. [[Medline](#)] [[CrossRef](#)]
 - 14) Ashton MA, Jones JH, Sarll DW (1994) Factors affecting dental surgery assistants' job satisfaction in general dental practice. *Br Dent Nurs J* **53**, 2–4. [[Medline](#)]
 - 15) Burman D, Locker D, Otchere D (1990) Ontario dental assistants' job satisfaction: relationship to work stress and intention to change jobs. *J Can Dent Assoc* **56**, 617–20. [[Medline](#)]
 - 16) Chapko MK, Bergner M, Beach B, Green K, Milgrom P, Skalabrin N (1986) Development of a measure of job satisfaction for dentists and dental auxiliaries. *Community Dent Oral Epidemiol* **14**, 76–9. [[Medline](#)] [[CrossRef](#)]
 - 17) Blegen MA (1993) Nurses' job satisfaction: a meta-analysis of related variables. *Nurs Res* **42**, 36–41. [[Medline](#)]
 - 18) Ingersoll GL, Olsan T, Drew-Cates J, DeVinney BC, Davies J (2002) Nurses' job satisfaction, organizational commitment, and career intent. *J Nurs Adm* **32**, 250–63. [[Medline](#)] [[CrossRef](#)]
 - 19) Glenn ND, Weaver CN (1982) Further evidence on education and job satisfaction. *Soc Forces* **61**, 46–55. [[Medline](#)] [[CrossRef](#)]
 - 20) Saudi Commission of Health Specialties (2013) Registered dental assistants and hygienists, Department Information Technology and Communication, Riyadh.
 - 21) Brutvan EL (1985) Intra-role conflict: a result of naive attempts toward professionalization. *J Allied Health* **14**, 3–11. [[Medline](#)]
 - 22) Dibble S (1999) Keeping your valuable employees: Retention strategies for your organization's most important resource, John Wiley & Sons, New York.
 - 23) Newton JT, Gibbons DE (2001) Levels of career satisfaction amongst dental healthcare professionals: comparison of dental therapists, dental hygienists and dental practitioners. *Community Dent Health* **18**, 172–6. [[Medline](#)]

Appendix

Factors related to the Dental Assistants Satisfaction Survey from Jeong *et al.*, 2006⁹⁾.

Factor 1: *Professional and personal life*

- Q.9. I have enough time to improve my clinical skills.
- Q.10. I have sufficient time for professional contacts with colleagues.
- Q.11. I have enough time available for my personal life.
- Q.12. I have sufficient time available for leisure activities.
- Q.13. The office staffs works well together.

Factor 2: *General prospects indicating overall job satisfaction*

- Q.1. Knowing what I know now, I would make the same decision to go into dentistry again.
- Q.3. Dentistry is the place where I can make my best contribution.
- Q.4. If my child is interested in dentistry, I would encourage him/her to pursue a dental career.
- Q.5. Overall, I am extremely satisfied with my career.

Factor 3: *Quality of service*

- Q.15. I feel I am helping the community through my profession.
- Q.16. I am skilled at giving the best possible assistance to a dentist.

Factor 4: *Perception of income*

- Q.6. Compared to other dental auxiliaries, my total earnings are much lower than I desire.
- Q.7. The income that I receive from my job is most satisfactory for my needs.
- Q.8. I am satisfied with the benefits I receive from my job. (e.g., Housing/travel allowances, paid vacations, health insurance, etc.)

Factor 5: *Prestige and self-respect*

- Q.2. I wish I could drop my job to do something else.
- Q.14. There is very little prestige associated with my work.
- Q.17. I lack opportunities to provide quality care.