

Factors related to job satisfaction among South Korean dentists

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Abstract – Objectives: The purposes of this study were to investigate the level and distribution of job satisfaction and to explore work environment factors associated with job satisfaction of South Korean dentists. **Methods:** A stratified systematic random sample of 1029 dentists was selected from the 10 357 registered dentists in the Korean Dental Association. They were surveyed via a self-administered mail questionnaire. Job satisfaction was measured by a modified version of the Dentist Satisfaction Survey. **Results:** The response rate was 62.2%. The mean score of overall job satisfaction among South Korean dentists was 3.2 out of 5. In terms of work environment factors, the most satisfying aspect was patient relations (3.7) and the least satisfying aspect was personal time (2.8). Multiple regression analysis identified a model including patient relations, perception of income, personal time, staff, and specialty training that accounted for 35% of variation in overall job satisfaction. The majority of the variance was explained by patient relations. **Conclusions:** This study suggests that patient relations, perception of income, personal time, staff, and specialty training are important work environment factors for job satisfaction among South Korean dentists. The findings of this study will be helpful to policy makers to design plans to increase the level of job satisfaction among South Korean dentists.

Key words: job satisfaction; South Korean dentists; work environment

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Dentists have been identified as one of the most stressful health professions (1–6). In order to encourage dentists to provide the best patient dental care in their practice, it is important to understand dentists' job satisfaction and how work environment factors impact it. Many earlier studies in Western countries have demonstrated, using well-structured questionnaires, that the job satisfaction of dentists was correlated with many work environment factors. One study reported that personal life, clinic location, and years in practice were positively associated with a high degree of job satisfaction among dentists (7). Another study reported an increase in dentists' job satisfaction in the US associated with the increase in average income (8). Patient relations and the number of years in practice were found to affect dentists' job satisfaction in other studies (9, 10). Knowledge of modifiable work environment factors related to job satisfaction could lead to a strategy and policy to

provide a better work environment for dentists. This environment improvement will aid in the improvement of patient care. As a result, the entire dental care system would benefit.

Demand for appropriate health care has gradually increased in South Korea since the national health insurance system was implemented in 1989. Major strengths of the South Korean healthcare system include universal and low-cost social health insurance, freedom of choice of providers, and a good network of public primary care facilities (11). Weaknesses include the high share of out-of-pocket payments without any kind of deductibles and lower premium rates. Cost containment mainly relies on the tight restriction of reimbursement (11).

Economical development, improvement in the quality of life, and the aging of the population has also propelled the demand for better dental health care. According to 1990 statistic, the number of dentists per 100 000 people was approximately 18

(in South Korea), 37 (in UK), 58 (in Japan), 59 (in USA), and 104 (in Sweden) (12). To answer these demands, the South Korean government has put an ongoing effort to increase the number of healthcare personnel including dentists. As a result, there were approximately 15 000 dentists in 2000. This reflects an increase in the dentists–population ratio to 32.1 per 100 000. The number of dentists is projected to further increase to 22 000 by 2010 (12). Despite rapid growth in number, however, little is known about South Korean dentists' job perception and characteristics related to job satisfaction with their dental practice.

The purposes of this study were to investigate the level and distribution of job satisfaction and to explore work environment factors associated with job satisfaction among South Korean dentists.

Methods

Subjects

The study population consisted of all practicing dentists in South Korea. A list of licensed dentists in South Korea was obtained from the Korean Dental Association. A total of 1029 subjects were randomly selected from 10 357 registered practicing dentists. In order to reduce the sampling error, the area was stratified into 16 strata consisting of seven metropolitan cities and nine provinces, and then 10% of all dentists in each stratum were systemically selected.

A questionnaire was mailed in April, 2001 to all selected subjects with an introduction letter and a postage-free return envelope. Each questionnaire was number coded to identify nonrespondents. Confidentiality and anonymity were maintained by separation. Forty questionnaires were returned immediately because the initial addresses were wrong. Therefore the total number of subjects in the sample with correct addresses was 989. A follow-up questionnaire was sent 2 months later to the dentists who had not replied to the initial mailing. In order to evaluate any nonresponse bias, we obtained personal and professional information from each local dental association on each of the 374 nonrespondents.

Survey instrument

The survey instrument, Korean Dentist Satisfaction Survey (KDSS), was developed based on the Dentist Satisfaction Survey (DSS) (13). Of the 11 work environment factors in DSS, five factors

were not directly applicable to South Korean dentists and were therefore deleted from the KDSS. A focus group of 10 practicing dentists in Daegu, a South Korea metropolitan city, evaluated an initial version of KDSS. Minor revisions were made based on their feedback. As a result, the KDSS consisted of 29 items: seven items to measure the overall job satisfaction and 22 items related to six work environment factors (see Appendix). The work environment factors included perception of income, personal time, professional time, staff, patient relations, and delivery of care. All items were measured by a 5-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The questionnaire also gathered information about the personal and professional characteristics of the subjects including gender, age, education, specialty training status, years in practice, hours per week, and number of employed auxiliaries.

Reliability and validity

In the actual study, we examined the validity and reliability (internal consistency) of the KDSS. The validity of KDSS was assessed by an explanatory factor analysis. Kaiser's measure of sampling adequacy was 0.88, indicating suitability of the data for factor analysis. Factor analysis identified seven underlying factors, which reflected identical factors concerning study protocol. This result demonstrated acceptable levels of the KDSS construct validity. Cronbach's alpha was used to assess the internal consistency of the KDSS. Cronbach's alpha coefficients of the seven factors ranged from 0.71 to 0.90, which indicated adequate internal consistency (Table 1).

Statistical analysis

The survey data were manually entered using Microsoft Excel 2000 (Microsoft, Redmond, WA, USA) and then the entry errors and outlier values were reviewed. Negatively worded responses were reverse-coded so that higher scores represented higher satisfaction or attainment. The score of items for each factor were averaged to determine the degree of satisfaction for each factor. Then they were classified into three categories based on the mean score in line with previous research (14): dissatisfied (1.0–2.5), neutral (>2.5 but <3.5), and satisfied (3.5–5.0).

All statistical analyses were performed using SAS 6.12 (SAS Institute Inc., Cary, NC, USA). To

Table 1. Factor analyses of the Dentists Satisfaction Survey in a sample of South Korean dentists

Factor name	Item number	Factor loading							Reliability (Cronbach's α)
		I	II	III	IV	V	VI	VII	
Overall job satisfaction	5	0.80	0.15	0.06	0.12	0.08	0.11	0.09	0.88
	17	0.77	0.12	0.13	0.06	0.15	0.18	0.09	
	12	0.75	0.13	0.03	0.07	-0.05	-0.03	0.08	
	14	0.73	0.06	-0.01	0.04	0.07	0.18	0.20	
	9	0.73	0.25	0.10	0.06	0.13	0.07	0.08	
	6	0.67	0.06	0.03	0.09	0.04	0.18	0.06	
	20	0.61	0.26	0.20	0.05	0.18	0.04	0.00	
Perception of income	25	0.18	0.83	0.01	-0.00	0.11	0.14	0.14	0.90
	10	0.13	0.82	-0.07	0.01	0.11	0.18	0.11	
	23	0.05	0.81	-0.08	0.02	0.10	0.20	0.17	
	2	0.21	0.78	0.02	0.05	0.05	-0.03	0.01	
	21	0.31	0.78	0.07	0.07	0.12	-0.02	0.03	
Personal time	15	0.14	-0.03	0.88	0.18	0.02	0.05	0.03	0.87
	7	0.17	-0.03	0.84	0.18	0.05	-0.02	0.05	
	29	0.03	0.01	0.80	0.27	0.05	0.08	0.06	
Professional time	26	0.09	0.08	0.02	0.78	-0.01	0.12	0.08	0.75
	22	0.11	-0.00	0.27	0.74	0.05	-0.08	0.11	
	1	0.04	0.04	0.14	0.71	0.06	0.18	-0.00	
	4	0.15	-0.01	0.32	0.61	0.07	0.04	0.10	
Staff	8	0.10	0.11	-0.03	0.08	0.85	0.04	0.06	0.82
	18	0.17	0.16	0.06	0.05	0.85	-0.01	0.12	
	19	0.12	0.14	0.12	0.02	0.76	0.24	0.10	
Patient relations	24	0.07	0.04	0.00	0.11	0.04	0.71	0.06	0.72
	11	0.11	0.25	0.16	0.01	0.07	0.64	0.24	
	27	0.33	0.07	-0.11	0.13	0.13	0.63	0.19	
	16	0.39	0.15	0.13	0.09	0.09	0.57	0.20	
Delivery of care	3	0.14	0.14	0.11	0.04	0.05	0.09	0.75	0.71
	28	0.19	0.07	0.05	0.09	0.09	0.21	0.75	
	13	0.11	0.14	-0.02	0.13	0.12	0.17	0.73	
Eigenvalue		7.85	3.25	2.11	1.88	1.69	1.24	1.04	
Proportion (%)		27.1	11.2	7.3	6.5	5.8	4.3	3.6	

Factor loadings (in bold) identify each Korean Dentist Satisfaction Survey question as an element of factors I–VII.

evaluate any biases associated with the nonrespondents, bivariate analyses were conducted using a contingency table and χ^2 test. Stepwise multiple regression analysis was used to verify the association between overall job satisfaction and its related factors including personal and professional characteristics, and work environment factors.

Results

Of the 989 sampled study subjects with correct addresses, 615 answered the questionnaire, resulting in an adjusted response rate of 62.2%. Eighty-two percent of the respondents were male and 18% female. The majority of respondents were aged 36–45 years (56%). About 47% of the respondents reported to have master's or doctor of philosophy degree, and over a third (36%) had finished a specialty training program. Twenty-five percent of respondents had <6 years experience, 32% with

6–10 years, 23% with 11–15 years, and 20% had 16 years of experience or more. The majority of dentists reported working 41–50 h per week (67%), and employed less than three dental auxiliaries (62%) (Table 2).

There were no significant differences regarding any of the background characteristics between respondents and nonrespondents. Descriptions of the respondents and nonrespondents are shown in Table 2. We also compared gender and age distribution of the respondents with data from Korean Dental Association, and there were no significant differences (data were not tabulated). Thus the respondents seemed to be representative for South Korean dentists.

Levels of job satisfaction

The mean score of overall job satisfaction of South Korean dentists was 3.2 (neutral) (Table 3). The majority (51%) showed neutral with their job satisfaction. Only 13% of dentists showed

Table 2. Personal and professional characteristics between respondents and nonrespondents

Characteristic	Respondents (N = 615) n (%)	Nonrespondents (N = 374) n (%)	P-value*
Gender			
Male	504 (82.0)	305 (81.6)	0.874
Female	111 (18.0)	69 (18.4)	
Age (years)			
≤35	124 (20.2)	85 (22.7)	0.765
36–45	346 (56.2)	199 (53.2)	
46–55	99 (16.1)	62 (16.6)	
≥56	46 (7.5)	28 (7.5)	
Education			
Bachelor (DDS)	324 (52.7)	202 (54.0)	0.785
Master's	109 (17.7)	69 (18.5)	
PhD	182 (29.6)	103 (27.5)	
Specialty training			
No	397 (64.5)	260 (69.5)	0.109
Yes	218 (35.5)	114 (30.5)	
Years of practice			
≤5	151 (24.6)	90 (24.1)	0.975
6–10	198 (32.2)	125 (33.4)	
11–15	144 (23.4)	88 (23.5)	
≥16	122 (19.8)	71 (19.0)	
Working hours (per week)			
≤40	102 (16.6)	–	–
41–51	411 (66.8)	–	
≥51	102 (16.6)	–	
Number of employed auxiliaries			
≤2	382 (62.1)	–	–
3–5	212 (34.5)	–	
≥6	21 (3.4)	–	

*Chi-square test; –, not available

Table 3. Satisfaction score and distribution of work environment factors and overall job satisfaction

Work environment factors	Satisfaction score ^a	Distribution ^b		
		Satisfied	Neutral	Dissatisfied
Patient relations	3.74 ± 0.02	479 (77.9)	124 (20.2)	12 (1.9)
Delivery of care	3.41 ± 0.03	270 (43.9)	305 (49.6)	40 (6.5)
Staff	3.15 ± 0.03	176 (28.6)	327 (53.2)	112 (18.2)
Perception of income	3.10 ± 0.03	181 (29.4)	300 (48.8)	134 (21.8)
Professional time	2.93 ± 0.03	161 (26.2)	240 (39.0)	214 (34.8)
Personal time	2.75 ± 0.03	123 (20.0)	235 (38.2)	257 (41.8)
Overall job satisfaction	3.24 ± 0.03	219 (35.6)	316 (51.4)	80 (13.0)

^aMean ± SE of 5-point Likert scales (maximum = 5, minimum = 1).

^bN (%), respondents (n = 615) were categorized as dissatisfied (1.0–2.5), neutral (>2.5 but <3.5), or satisfied (3.5–5.0).

dissatisfaction with their job, whereas about 36% showed satisfaction. For work environment factors, patient relations had the highest mean score (3.7) (satisfied); nearly 80% of the respondents were satisfied with their relationships with patients. By contrast, dentists showed the least satisfaction with time-related factors (personal time and professional time); personal time had the lowest mean score (2.8) (neutral). As for perception of income, the majority of dentists showed from neutral to

satisfaction, while about one in five dentists was not satisfied.

Factors related to job satisfaction

The effect of personal, professional characteristics and work environment factors on overall job satisfaction was evaluated by a stepwise multiple regression analysis (Table 4). Patient relations was the most important predictor of overall job satisfaction after adjusting for other variables in the

Table 4. Multiple regression model for factors related to overall job satisfaction

Variable ^a	Beta	Standard error	P-value	Standardized beta	Increments in R ²
Patient relations	0.46	0.05	<0.0001	0.34	0.24
Perception of income	0.26	0.03	<0.0001	0.25	0.06
Personal time	0.15	0.03	<0.0001	0.16	0.03
Staff	0.10	0.04	0.0072	0.10	0.01
Specialty training	0.11	0.05	0.0202	0.08	0.01
	<i>F</i> = 66.22		<i>P</i> < 0.0001	Adjusted R ² = 0.35	

^aGender, age, educational experience, years in practice, working hours per week, number of employed axillaries, professional time and delivery of care did not have a direct significant effect on overall job satisfaction.

regression model. Other significant predictors included perception of income, personal time, staff, and specialty training. The final regression model accounted for approximately 35% of the total variance in overall job satisfaction. The majority of the variance (24%) was explained by patient relations, and the rest of the variance (11%) was explained by all other four factors.

Discussion

The initial goal of the present study was to investigate the level and distribution of job satisfaction among South Korean dentists. The mean overall job satisfaction score of South Korean dentists was 3.2 out of 5. This is very similar to the mean score of overall job satisfaction, measured by the DSS method, reported from California general practitioners (mean = 63 of 100) (13), but it is much lower than that of Canadian orthodontists (mean = 4.0 of 5) (14). When respondents were classified into three categories (satisfied, neutral, and dissatisfied) based on the KDSS score, only 35.6% of South Korean dentists were satisfied with their job. This result is considerably lower than previous reports in other countries. Roth et al. (14) reported that 80% of Canadian orthodontists were satisfied. Logan et al. (15) showed that 60% of practicing Iowa dentists were satisfied, and Shugars et al. (16) found that 50% of California general dentists were satisfied.

Time-related factors may explain the relatively low level of overall job satisfaction among South Korean dentists. This survey found that the majority of South Korean dentists were discontented with the amount of personal and professional time (Table 3). This may result from the relatively longer working hours. South Korean dentists worked 48 h per week in their clinic, while general practitioners in California worked only 34 h per week (16). A

study of dentists in Kentucky reported a mean working time of 34.4 h per week (10).

The second goal of this study was to explore the key work environment factors associated with overall job satisfaction among South Korean dentists. The personal, professional characteristics and work environment factors were entered into a regression model in order to explain overall job satisfaction. Multiple regression analysis identified a model including patient relations, perception of income, personal time, staff, and specialty training.

The regression model suggested that South Korean dentists were more satisfied with their job when they have better relationship with their patients. To a lesser degree, dentists' job satisfaction level was higher when they were more satisfied with their income level, personal time issue and the staff. Dentist who had specialty training showed higher job satisfaction after controlling for other factors in the regression model.

Patient relations has also been reported as a major factor related to job satisfaction in dentistry (15, 16). It is interesting that age was not significant and thus not included in our final model, although there are some reports of a relationship between an increasing age and higher job satisfaction (17, 18).

Several limitations must be considered when interpreting the findings of this study. First, this survey was based on a cross-sectional design that did not allow the determination of causality for any identified association. Thus prospective and longitudinal studies are strongly needed to examine the change of work environment factors on job satisfaction in a future research. Secondly, as described in the Methods section, the KDSS was developed by translating the existing DSS into Korean language. Completeness of translation and clarity of meaning of the KDSS was checked, rather simply, by a focus group of 10 practicing dentists. Usually, translation procedures for survey instruments go through a series of complicated steps, including

backward translation and focus groups. Because of the simple translation process, comparability of the results of present study with that of other studies used the DSS might be imperfect. There is a need to implement well-defined translation procedures in a future replication study. Thirdly, the results only reflect the data collected with KDSS questionnaire. Our final model including five characteristics explained approximately one-third of the variation in overall job satisfaction. This means that remaining two-thirds of the variation would be explained by factors that are not captured with the KDSS questionnaire. Efforts to develop better measures of job satisfaction and more objective measures of work environment factors are needed. Finally, it is possible that satisfaction scores were overestimated. While there were no significant differences in demographic characteristics between respondents and nonrespondents, it is conceivable that nonrespondents might be those with low job satisfaction level. There is a need to confirm and replicate the findings of this study, through other research methods, and in other settings.

In conclusion, the present study suggests that South Korean dentists seem to experience less job satisfaction than their colleagues in other countries, although this was not directly tested. Patient relations, perception of income, personal time, staff, and specialty training were important work environment factors for job satisfaction among South Korean dentists. Of these factors, the patient relations was the strongest predictor of overall job satisfaction. Findings of this study will be helpful to policy makers to design plans to increase the level of job satisfaction among South Korean dentists. In addition, regarding the application of such data, various studies of job satisfaction would be necessary in order to improve the working environment of dentists in South Korea.

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Appendix

Korean Dentist Satisfaction Survey items by factors: items are cited from Shugars et al. (16)

Overall job satisfaction

- 5. Dentistry fulfills my current career aspiration.
- 6. I wish I could drop my job to do something else.
- 9. I appear more satisfied with my job than I really am.
- 12. Knowing what I know now, I would make the same decision to go into dentistry again.
- 14. Dentistry is the place where I can make my best contribution.
- 17. Overall, I am extremely satisfied with my career.
- 20. I feel trapped in my current position.

Perception of income

- 2. My income allows me to provide very well for my family.
- 10. Compared to other dentists my total earnings are much lower than I desired.
- 21. The income that I receive from my practice is most satisfactory for my needs.
- 23. My income is not nearly as high as that of other dentists.
- 25. My income compares favorably to that of other dentists.

Personal time

- 7. I have enough time available for my personal life.
- 15. I have sufficient time available for leisure activity.
- 29. I have too little time available for leisure.

Professional time

- 1. I have very little time to keep abreast of advances in the field of dentistry.
- 4. I have enough time to improve my clinical skills.
- 22. I have sufficient time for professional contracts with colleagues.
- 26. I have very limited opportunity difficult cases with colleagues.

Staff

- 8. The quality of my auxiliary personnel is lacking.
- 18. The work performance of my auxiliaries is outstanding.
- 19. The office staff works well together.

Patient relations

- 11. Relating to patients is very frustrating for me.
- 16. I do not enjoy interacting with my patients.
- 24. The quality of interpersonal care I provide is very high.
- 27. I enjoy helping patients.

Delivery of care

- 3. I am skilled at dealing with my patients' dental problems.
- 13. I lack opportunities to provide quality care.
- 28. I am extremely please with the technical quality of my work.

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