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Original Article

Quality of Life and Job Satisfaction among Female Dentists in Japan

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Keywords：quality of life, job satisfaction, female dentists, Japan

Abstract

Background: In the current social scene of Japan, there has been a steady growth of female dentists. Nevertheless, studies that delve into the female Japanese perceptions have been scarce.

Objectives: The purpose of this study was to determine the quality of life (QoL) and evaluate the factors affecting job satisfaction of female dentists in Japan.

Materials and Methods: Via a researcher-made questionnaire, a cross-sectional survey was done on a total of 156 Japanese female dentists.

Results: As per the outcome, 80.8% agreed that they have attained satisfaction with their QoL, while 30.8% strongly agreed. The job satisfaction factors were then listed in descending order of statistical significance as ownership type, having children, pursue PhD, marital status, and annual income. Multivariable logistic regression analysis showed significance in the participants' responses pertaining to ownership type (OR = 2.833, p = 0.013) and the pursuance of a post-graduate course immediately after attaining undergraduate education (OR = 0.425, p = 0.046).

Conclusion: Findings suggest that majority of the female dentists in Japan perceive to have attained satisfaction in their QoL. Actual ownership type and immediate pursuance of a post-graduate course were found to be the significant factors related to job satisfaction. This implies that Japanese universities and dental colleges should focus on promoting immediate post-graduate opportunities for female dental graduates.

Introduction

The global proportion of females in the dental profession is increasing over the years[1, 2)]. A similar trend is observed in dentistry in Japan as well. A nationwide survey by the Ministry of Health, Labor and Welfare in Japan reported the percentage of female dentists as 23%[3)]. The percentage of female students enrolled in dental schools is increasing every year. The latest survey reported an increase of up to 42%[4)]. The current percentage of female students in Tokushima University Faculty of Dentistry is 44%, showing the likely trend of more number of females opting for dentistry as a career option.

Nevertheless, there are very few studies reporting the quality of life (QoL) of female dentists working in private clinics and university hospital in Japan[5-8)]. QoL is similar to life satisfaction, including everything from physical health,

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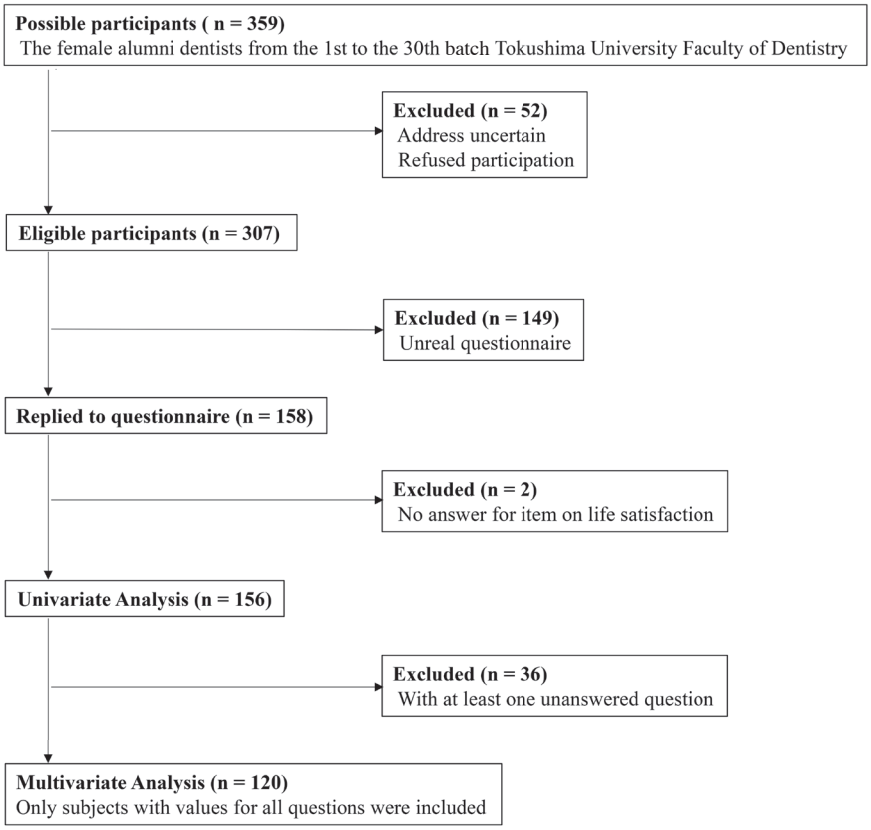

Fig. 1 Study flow chart

family, education, employment, wealth, religious beliefs, finance and the environment. In Japan, female and male dentists have different circumstances, and female dentists do not have many opportunities to select their choice of working place. Moreover, some female dentists quit working after having babies. Since there are not many opportunities for the female dental school students for mentoring and networking with senior colleagues, they feel ignorant and do not have a clear vision for their future. Opportunities to interact with their mentors will help female dental students make correct decisions in various aspects of life and profession-related issues. This may range from selecting proper dental profession options (private practice/ polyclinic), good life partner, or when the right time to have children is (before or after completing higher education).

In a study involving female orthodontists, the participants conveyed that becoming an associate early in their careers, helped to better integrate family and work particularly during child-bearing and maternity as opposed to owning a dental clinic[9].

Since the proportion of female dentists are increasing, there is a constant need to monitor and understand their QoL. Child-rearing situations and being a breadwinner in the family are important determinants of job satisfaction in female dentists[10]. However, there is no current documentation of QoL in relation to professional life and personal life of female dentists. This makes it vital to know the data pertaining to the aforementioned variables.

The purpose of this study was to determine the QoL and evaluate the factors affecting job satisfaction of female dentists in Japan.

Methods

Participants' selection criteria included all female dentists, aged 27-60 years old, who were in the 1st to the 30th alumni batch of Tokushima University Faculty of Dentistry (n = 359). Graduates whose address were inaccurate and those who refused participation (n = 52) were excluded, which rendered a total of 307 people eligible. The questionnaire was sent to the participants by postal mail. An informed consent containing details regarding the purpose of the study was also attached, along with the questionnaire. The identity of the participants was kept anonymous. There were 158 replies, including those without answers about life satisfaction (n = 2). Consequently, 156 replies were taken for analysis (Figure 1).

The questionnaire was designed to cover various aspects

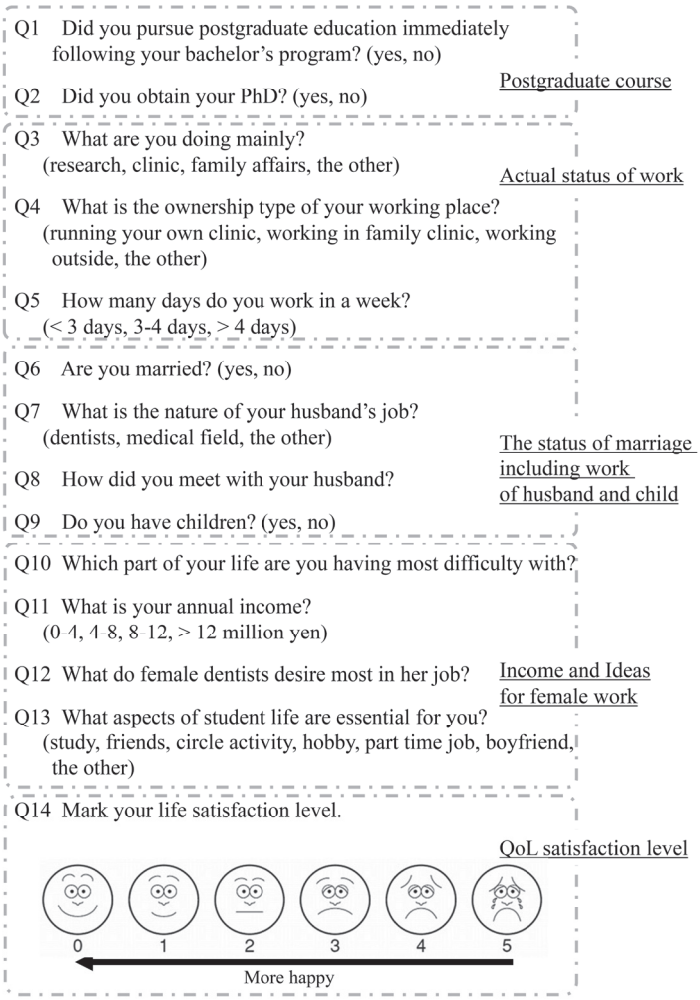

Fig. 2 Female Japanese dentists' quality of life and job satisfaction questionnaire

of female dentists' life; about postgraduate course (Q1 and Q2), actual status of work (Q3-5), the status of married-life including work of husband and child (Q6-9), income and ideas for women's work (Q10-13), QoL satisfaction level (Q14) (Figure 2). This questionnaire was designed to obtain information about their level of education, work satisfaction and personal life satisfaction.

A face scale was used to discern the QoL of the participants. Ease of use and evaluation accuracy were reasons for adopting the face scale as the data gathering tool. The face scale was designed as a method to express subjective pain objectively and subjective symptoms other than pain. In this study, it was used to gauge satisfaction of the QoL.

For descriptive statistic of analysis for the responses of each question, results were summed up and the percentage was calculated (Table 1-1 and 1-2). Data from questions requiring multiple answers (Q3, Q13) and free answers (Q8, Q10, Q12) were excluded from this analysis. The questionnaires' factor classification used Wilcoxon rank sum test to compare the job satisfaction scores for single-answer question. Most of the questions were dichotomized with the lowest score item to examine factors associated with job satisfaction (Table 1-1). The working days in a week (Q5) was dichotomized to < 5 days and ≥ 5, on the basis of a general 5-day weekly working days. The annual income (Q11) was categorized to < 8 and ≥ 8 (million yen) on the basis of a dentist's average annual income, as provided by the Ministry of Health, Labor and Welfare and National Personnel Authority in Japan.

Odds ratio (OR) and 95% confidence interval (CI) for QoL were assessed for each questionnaire's item, and the significance between QoL and each question pertaining to job satisfaction were evaluated using univariate analysis. Spearman's rank correlation was performed to assess the association between each question. Evaluations of confounding factors between each question were confirmed by pairwise correlation between each question (Table 2). Univariate logistic regression was performed to assess the relationship between satisfaction level (0 vs. 1-4) and each

Table 1-1 Summary of questionnaire response for single answers

	Questionnaire	Answers	Number of Respondents	Percentage (%)	Face Scale of Life Satisfaction (%)						Satisfaction Score		
					0	1	2	3	4	5	Mean±SD	p-value	
Q1	Did you pursue postgraduate education immediately after finishing your bachelor's program?	Yes	107	68.6	28	55	16	5	3	0	1.07±0.92	0.03	*
		No	49	31.4	20	23	5	1	0	0	0.73±0.73		
Q2	Did you obtain your PhD?	Yes	37	23.7	6	22	8	0	1	0	1.14±0.79	0.17	
		No	119	76.3	42	56	13	6	2	0	0.91±0.90		
Q4	What is the ownership type of your working place?	own clinic	24	15.4	10	11	1	2	0	0	0.80±0.88	0.06	
		family clinic	53	34.0	23	22	6	1	1	0	0.77±0.87		
		outside	69	44.2	13	38	13	3	2	0	1.17±0.89		
		other	9	5.8	1	7	1	0	0	0	1.00±0.50		
Q5	How many days do you work in a week?	< 3 days	10	6.4	1	7	0	1	1	0	1.40±1.17	0.27	
		3-4 days	21	13.5	6	12	3	0	0	0	0.86±0.65		
		> 4 days	114	73.1	38	52	17	5	2	0	0.96±0.91		
Q6	Are you married?	Yes	135	86.5	47	64	16	5	3	0	0.91±0.90	0.04	*
		No	21	13.5	1	14	5	1	0	0	1.29±0.64		
Q7	What is the nature of your husband's job?	dentists	81	51.9	33	39	6	1	2	0	0.77±0.84	0.10	
		medical field	21	13.5	6	9	3	2	1	0	1.19±1.12		
		other	32	20.5	8	16	7	1	0	0	1.03±0.78		
Q9	Do you have children?	Yes	118	75.6	42	55	13	5	3	0	0.92±0.93	0.40	
		No	35	22.4	6	21	8	0	0	0	1.06±0.64		
Q11	What is your annual income? (million yen)	0-4	38	24.4	9	20	5	2	2	0	1.16±1.03	0.05	
		4-8	53	34.0	14	28	8	2	1	0	1.02±0.87		
		8-12	30	19.2	9	16	4	1	0	0	0.90±0.76		
		>12	29	18.6	15	11	3	0	0	0	0.59±0.68		
Q14	Mark your life satisfaction level	0	48	30.8	-	-	-	-	-	-	-	-	
		1	78	50.0	-	-	-	-	-	-	-	-	
		2	21	13.5	-	-	-	-	-	-	-	-	
		3	6	3.8	-	-	-	-	-	-	-	-	
		4	3	1.9	-	-	-	-	-	-	-	-	
		5	0	0.0	-	-	-	-	-	-	-	-	

The p-value threshold to enter was set at *: 0.05.
Wilcoxon rank sum test was used to compare the satisfaction scores for single answer question.
The questions (Q4, 5, 7, 11) dichotomized with similar answers: --------

Table 1-2 Summary of questionnaire response for multiple and free answers

	Questionnaire	Answers	Number of Answers	Percentage (%)
Q3	What are you doing mainly? (multiple answers)	research	10	4.4
		clinic	140	62.2
		family affairs	75	33.3
Q8	How did you meet with your husband? (free answers)	university students	57	42.2
		university workers	25	18.5
		outside of University	10	7.4
		other	43	31.9
Q10	Which part of your life are you having most difficulty with? (free answers)	on the job	41	27.7
		childbirth	39	26.4
		human relationship	35	23.6
		childcare	29	19.6
		other	4	2.7
Q12	What do female dentists desire most in her job? (free answers)	consideration for others	57	40.7
		experience and ability	42	30.0
		skill and force	22	15.7
		balance job and family	13	9.3
		other	6	4.3
Q13	What aspects of student life are essential for you? (multiple answers)	friend	143	44.5
		study	130	40.5
		club activity	15	4.7
		hobby	6	1.9
		part time job	11	3.4
		boyfriend	12	3.7
		other	4	1.2

Table 2 Pairwise correlation between each questions

		Graduate	Pursue postgraduate education	Obtain PhD	Ownership type	Working days in a week	Marital status	Husband's job	Children	Annual income	Satisfaction level
Graduate	r		0.19 *	-0.02	0.35 **	-0.02	0.22 **	0.11	0.26 **	0.23 **	0.01
	n	−	158	158	157	147	158	135	158	151	156
Postgraduate education	r			0.34 **	0.03	-0.01	0.09	0	0.16	-0.09	0.15
	n		−	158	157	147	158	135	158	151	156
PhD obtain	r				-0.17 *	0.22 **	-0.26 **	-0.09	-0.2 *	0	0.18 *
	n			−	157	147	158	135	158	151	156
Ownership type	r					0.05	0.22 **	0.63 **	0.25 **	0.44 **	-0.27 **
	n				−	147	157	134	157	150	155
Working days in a	r						-0.1	0.08	-0.09	0.24 **	-0.1
	n					−	147	124	147	141	145
Marital status	r							.	0.65 **	0.11	-0.2 *
	n						−	135	158	151	156
Husband's job	r								0.09	0.26 **	-0.15
	n							−	135	130	134
Children	r									0.14	-0.18 *
	n								−	151	156
Annual income	r										-0.16 *
	n									−	150
Satisfaction level	r										
	n										−

Spearman correlation were applied between normality of variables has arrived, * $p < 0.05$, ** $p < 0.01$

Table 3 Univariate and multivariate logistic regression analysis

Factor	n	Satisfaction (0)		Univariate logistic regression models				
		n	%	OR	(95% CI)			p -value
Graduate								
≦ 30's	77	24	31.2	1				
≧ 40's	79	24	30.4	0.964	0.488	-	1.902	0.915
Postgraduate education pursue								
No	49	20	40.8	1				
Yes	107	28	26.2	0.514	0.252	-	1.050	0.068
PhD obtain								
No	119	42	35.3	1				
Yes	37	6	16.2	0.355	0.137	-	0.919	0.033 *
Ownership type								
Outside/the other	78	14	17.9	1				
Own clinic/Family clinic	77	33	42.9	3.429	1.646	-	7.140	0.001 **
Working days in a week								
< 5 days	31	7	22.6	1				
≧ 5 days	114	38	33.3	1.714	0.678	-	4.335	0.255
Marital status								
No	18	1	5.6	1				
Yes	138	47	34.1	8.780	1.133	-	68.019	0.038 *
Husband's job								
Medical field/others	53	14	26.4	1				
Dentists	81	33	40.7	1.915	0.901	-	4.073	0.091
Children								
No	38	6	15.8	1				
Yes	118	42	35.6	2.947	1.14	-	7.620	0.026 *
Annual income (million yen)								
< 8	91	23	25.3	1				
≧ 8	59	24	40.7	2.027	1.004	-	4.092	0.049 *

Total number of analyses were 156.
Odds ratios (ORs) were 0/1-4 of satisfaction level, and 1 of OR is reference value.
The p-value threshold to enter was set at *: 0.05, **: 0.01.

categorized question (Table 3). Multivariate logistic regression was performed to choose independent variables by stepwise backward elimination method using a significance level of < 0.05. Only subjects with values for all questions were included in the analysis. Multivariate logistic-regression models were prepared to estimate the female dentists' QoL associated with potential factors of job satisfaction, which includes age, academic background, degree, working place, marriage, husband's job, child, and annual income (Table 4). Statistical analyses were performed using SPSS 22.0 (IBM Corp.,

Table 4 Multivariate logistic regression analysis

		Satisfaction (0)		Multivariate logistic regression model Backward selection		
Factor	n	n	%	OR	(95% Cl)	p-value
Pursue postgraduate education						
No	34	17	50.0	1		
Yes	86	26	30.2	0.425	0.183 - 0.986	0.046 *
Ownership type						
Outside/the others	52	12	23.1	1		
Own clinic/Family clinic	68	31	45.6	2.833	1.251 - 6.415	0.013 **

Total number of analyses were 120 (only subjects with values for all questions were included in the analysis).
Odds ratios (ORs) were 0/1-4 of satisfaction level, and 1 of OR is reference value.
The p-value threshold to enter was set at *: 0.05, **: 0.01.

Chicago). p value < 0.05 was used for statistical significance. This study was conducted in 2016 and was approved by the Ethical Committee of Tokushima University Hospital (no. 2496).

Results

Out of the 307 eligible participants, 158 returned the questionnaires and 156 (50.8%) were used for analysis. Of these, 80.8% answered that they were satisfied with their QoL and 30.8% answered that they were very satisfied. Table 1-1 shows the summary of questionnaire response. The data conveys that majority of the participants immediately pursued a postgraduate program in a university (68.6%) and 23.7% of them eventually received a postgraduate degree. As per their employment status, most of them work in a clinic (93.6%), 44.2% of them work in an associate-owned clinic, while 49.4% work in a family-owned or their own personal clinic. Moreover, a preponderance of the participants work more than 4 days in a week, are married to somebody who's also a dentist, and it is also common among them to have a child or children. The annual income was varied and 34.0% of them earned 4-8 million yen/year. Table 1-2 shows that the concerns of female dentists affecting their job satisfaction were, consideration for workmates and lack of experience or proficiency as a dentist (40.7% and 30.0%, respectively)[11]. Moreover, they considered friends and studies as the most important factors in student life (44.5% and 40.5% respectively). These two results constituted nearly all of the answers in this question. Table 2 shows the pairwise correlation between each question, there were confounding between "Ownership type" and "Husband's job", "Marital status" and "Children". Table 3 and 4 show the univariate and logistic regression analysis made between QoL and each question pertaining to factors affecting job satisfaction. In the univariate analysis, these job satisfaction factors were then listed in descending order of statistical significance as "Ownership type" (OR = 3.429, p = 0.001), "Having children" (OR = 2.947, p = 0.026), "PhD obtain" (OR = 0.355, p = 0.033), "Marital status" (OR = 8.780, p = 0.038), and "Annual income" (OR = 2.027, p = 0.049). Further, logistic regression analysis showed significance in the participants' responses pertaining to the actual "Ownership type" (OR = 2.833, p = 0.013) and "Pursuance post-graduate education" (OR = 0.425, p = 0.046).

Discussion

The demographics related to female dentists across the world, published in the conference proceedings of the 5th American Dental Education Association (ADEA) International Women's Leadership, is interesting in the context of this study[12]. According to the findings, 21% of dental school deans, 47% of enrolled students, 27% of practicing dentist, and 34% of dental faculty in dental colleges in the United States of America are women.

In Finland, 75% of their practicing dentists are female, while in Russia, 48% of dental workforce are women. By 2020, more than 50% of the practicing dentists in the United Kingdom will be females. In ADEA's previous conference proceedings, the strategic plan of the National Institute of Health's Office of Research on Women's Health (ORWH) included measures to increase the life expectancy and reduce burdens of illness and disability in women[13]. High life expectancy may be related to good health, low stress level and high satisfaction in life. This is not only significant, but it can also be motivational. In this regard, a survey of the Japanese women dentists' satisfaction level with their profession will be enlightening and contributory in terms of needs of the female dentists globally.

To our knowledge, this is the first study reporting the QoL and job satisfaction among Japanese female dentists. Most of

the female dentists were satisfied with their current life.

There are three limitations in our survey. The first one was the low response rate of the questionnaire. However, a low response rate is common in such kinds of survey as noted in other studies[14, 15]. In our study, the questionnaires were mailed to the female dentists using the address list of the alumni association. If the address or information were not up-to-date, the questionnaire might not have reached the expected respondent. Although most of the female dentists answered that they were satisfied, it is also possible that female dentists who were either busy or having a hard time in life might not have responded to the questionnaire appropriately. There is a dearth of literature on this topic and we need to have more number of studies to give us more insight into the real-life challenges faced by female dentists and to enable us to handle these issues, which are essential and sensitive. Second, since the questionnaire was anonymous, we could not contact the non-responders. Qualitative questions in a free format were not included in this questionnaire. Third, the data were from female alumni of Tokushima University School of Dentistry and did not cover all over Japan. We may need to get data of female and male dentists from all over Japan, if it will be needed to know QoL and satisfaction of female dentists in Japan.

In our study, 80.8% of the female dentists answered that they were satisfied with their QoL and 30.8% answered that they were very satisfied with their QoL. The detailed analysis with logistic regression model showed that their satisfaction was related to the inability to pursue a postgraduate program immediately after graduation and being able to work in their own clinic or a family-owned clinic (Table 4). It revealed that the female dentists who worked in their family clinic or own clinic were the most satisfied with their QoL. In Japan, a woman's satisfaction in her QoL has been believed to rely on a good marriage. Husbands had their own clinics and the wives had enough time to enjoy their life, and this may be the reason why the female dentists answered very satisfied with their QoL. In addition, pursuing a postgraduate degree immediately after finishing an undergraduate training is a nonfactor in the satisfaction of QoL with these female dentists. Currently, all Japanese dental school students need to take the residency course and most of them need to stay in universities.

The percentage of dental school students who desire to get a postgraduate degree after graduation has increased. Ayers et al reported specialization could be one means to improve career satisfaction for female dentists[10]. Thus, higher education leads to higher professional and personal satisfaction. However, the percentage of students who actually joined the PhD program is still low in Tokushima University and female dental students should think about entering. In the univariate analysis, postgraduate degree acquisition was not a factor for job satisfaction. The rigors of daily grind in pursuing a postgraduate degree might have affected the perception of these female dentists.

Since female dentists need to take care of their children in Japan, some of them do not work in the clinic. Blasius et al reported, that women with children worked fewer days than women with no children, and that the common reasons women took leave of absences were child bearing and maternity[16]. In a survey on female dentists and dental specialists in New Zealand, Ayers et al found, that most women who were specialists have their children after postgraduate training (60.7%) or didn't have children at all (17.9%)[10]. In a survey on female Indian dentists, only 32.2% were found to be involved in full time work pattern. 70.1% informed that family duties affected their working hours. 82.2% agreed that mentorship is important for career progress and helped in resolving issues[14]. In a survey on female dentists based in South Africa, the working hours dropped drastically after having a family (from 86%, practicing more than 35 hours per week, to 34%) while the male dentists' hours remained unchanged (90%). In the same population, it was found that large number of females work for a salary in state clinics and at universities[15]. In the present survey, most of them met their husbands in the dental school and majority worked in family clinics. The findings in the study of Ayers et al (2008) showed that group or partnership practices offer flexibility and support to female dentists[10]. In addition, the results showed that friends and studies were perceived to be vital in recognizing job satisfaction. Their current thoughts which include “consideration for others” and “experience & ability” were of the same trend as their past ones in dental students[11].

Conclusion

There has been a lack of research regarding QoL and job satisfaction of female Japanese dentists. The findings from the present study implies, that majority of the female dentists in Japan perceive to have attained satisfaction in their QoL. Actual work status and immediate pursuance of a postgraduate course were found to be the significant factors related to job satisfaction. The implication is that, whilst QoL of the participants have been satisfactory, more studies that delve into this phenomenon should be made to support or dispute the current findings. Furthermore, an in-depth qualitative or thematic study is propositioned to better comprehend and illuminate these outcomes.

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