

## ORIGINAL RESEARCH

**Impact of Work Environment on Job Satisfaction among Interventional Radiologists in Japan: A Cross-sectional Study**

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**Abstract:**

**Purpose:** This study aims to measure job satisfaction among interventional radiology physicians in Japan and analyze the factors affecting job satisfaction.

**Material and Methods:** A web-based survey was conducted among the members of the Japanese Society of Interventional Radiology between October and December 2021. Participants were questioned regarding their job satisfaction, workplace, work status, and demographic information. Principal component analysis was applied to 15 reasons related to job satisfaction, and the factors affecting job satisfaction were analyzed.

**Results:** Valid responses were obtained from 901 (31.9%) of the 2,824 interventional radiology physicians invited to participate. Job satisfaction was reported as “very satisfied” in 79 (8.8%), “moderately satisfied” in 426 (47.3%), “neither satisfied nor dissatisfied” in 230 (25.5%), “moderately dissatisfied” in 133 (14.8%), and “very dissatisfied” in 33 (3.7%) respondents. Thus, there were 505 (56.0%) satisfied physicians. Three principal components were extracted from the reasons for job satisfaction. Job satisfaction tended to be higher among those who reported performing a higher number of interventional radiology procedures and was positively associated with a higher rate of work time dedicated to interventional radiology and the first principal component (the environment of clinical practice, research, and interventional radiology education). The third principal component (salary and work environment) and the absence of an “IkuBoss” [a boss who takes initiative in creating a work environment supportive of the work-life balance of colleagues] were associated with lower job satisfaction.

**Conclusions:** More than half the participants reported high job satisfaction. Job satisfaction of interventional radiology physicians in Japan was positively associated with a favorable clinical, research, and educational environment and negatively associated with the absence of an “IkuBoss,” noninterventional radiology work, overtime work, and salary.

**Keywords:**

job satisfaction, interventional radiology, work environment

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## Introduction

Interventional radiology (IR) has been increasingly used worldwide in recent years because of advances in technology and the demand for minimally invasive treatments [1, 2]. In Japan, there are 1,209 board-certified interventional radiologists [3] as of 2023, which may not be sufficient to meet the demand for IR. Thus, the recruitment and retention of IR physicians are urgent concerns for providing adequate access to IR for the benefit of the patients.

Job satisfaction may affect the workforce of IR physicians in several ways [4-6]. First, job satisfaction is an important factor in physicians' well-being [5]. Dissatisfied IR physicians are likely to discontinue their specialties. Second, job satisfaction may influence medical students' motivation to pursue their careers as IR physicians. Moreover, a previous study showed that physicians' job satisfaction was correlated with good quality patient care [6]. In a survey involving radiologists in Japan, including IR physicians, 67.7% of the respondents (n = 3,986) reported that they were very or moderately satisfied with their job [7]. However, the job satisfaction of IR physicians in Japan has not yet been fully clarified. This study aims to identify the job satisfaction of IR physicians in Japan and analyze its contributing factors.

## Material and Methods

### Study design

A cross-sectional web-based questionnaire survey of IR physicians in Japan was conducted. The study protocol and questionnaire were developed by the Diversity and Inclusion Working Group (D&I WG) of the Japanese Society of Interventional Radiology (JSIR) and were approved by the appropriate ethics committee.

### Study population and survey methods

A total of 2,824 JSIR physicians were invited to participate in the questionnaire survey. Electronic links to the questionnaire were emailed between October 2021 and December 2021. To avoid duplicate answers, membership numbers and email addresses were obtained when logging into the questionnaire website. Two electronic reminders were issued before the survey was completed. Participation was voluntary, and completion of the questionnaire implied consent to participate in this study. The survey responses were anonymous, and the respondents were assured of confidentiality. No incentives were provided to the respondents.

### Questionnaire items (Appendix)

The questionnaire included 19 questions on four domains: (i) the demographics of the workplace (practice location, practice type, number of IR procedures performed per year, and the type of the Added fee for Radiological Managements on Imaging-studies [ARMI]), (ii) workload and work environment (weekly number of interpretations [computed tomography, magnetic resonance imaging, and nuclear imag-

ing], weekly work time dedicated to IR, number of IR procedures performed as the first operator, number of IR procedures performed as the second operator, paid days-off, childcare/nursing care leave, and "IkuBoss" [a boss who takes initiative in creating a work environment supportive of the work-life balance of colleagues]), (iii) level of job satisfaction (classified as very satisfied, moderately satisfied, neither satisfied nor dissatisfied, moderately dissatisfied, and very dissatisfied) and its reasons, and (iv) the demographics of the participants (age, sex, working condition, experience in IR, affiliating department, partner, and children). Fourteen IR physicians (members of the D&I WG) underwent the pilot tests to assess the comprehensiveness, clarity, and accessibility of the questionnaire. The mean time required to complete the questionnaire was 7 min.

### Data analysis

A cross-tabulation table was constructed to show the distribution of the five-level job satisfaction for each respondent characteristic.

Principal component analysis was applied to the 15 items regarding reasons for job satisfaction, creating three comprehensive principal components. The eigenvalues and factor loadings of the three principal components are presented.

The five levels of job satisfaction were recategorized into the following binary variables: 1, "very satisfied" and "moderately satisfied," and 2, "neither satisfied nor dissatisfied," "moderately dissatisfied," and "very dissatisfied." A multivariate logistic regression analysis for binary job satisfaction was performed using the three principal components and other covariates as independent variables. Odds ratios, 95% confidence intervals, and p-values were shown for each independent variable. P-values less than 0.05 were considered statistically significant. All statistical analyses were performed using the Stata software (version 17.0; StataCorp LP, College Station, TX, USA).

## Results

Of the 2,824 IR physicians invited to participate in the questionnaire, 1,004 (35.6%) responded, and the valid responses (the respondents completed the questions regarding job satisfaction) were obtained from 901 (31.9%) respondents.

Job satisfaction was reported as "very satisfied" by 79 (8.8%), "moderately satisfied" by 426 (47.3%), "neither satisfied nor dissatisfied" by 230 (25.5%), "moderately dissatisfied" by 133 (14.8%), and "very dissatisfied" by 33 (3.7%) participants. Thus, satisfied physicians (including "very satisfied" and "moderately satisfied") accounted for 505 (56.0%) practitioners.

The participants' characteristics are listed in **Table 1**. Cross-tabulation of job satisfaction in IR related to the demographics is listed in **Table 2**. The variables related to "very satisfied" in more than 25% of the participants were the following: weekly number of interpretations (CT, MRI, and RI), <10 (28.8%); weekly work time dedicated to IR,

>75% (25.5%); weekly number of IR procedures performed as the first operator, >10 (27.2%); weekly number of IR procedures performed as the second operator, >10 (32.5%); and support system for childcare and nursing care (31.0%). The variables related to “very satisfied” and “moderately satisfied” in more than 70% of the participants were the following: annual number of IR procedures at the institution, >1000 (72.1%); weekly number of interpretations, <10 (75.6%); weekly work time dedicated to IR, 50%-74% (74.6%) or >75% (82.5%); weekly number of IR procedures performed as the first operator, >10 (76.3%); weekly number of IR procedures performed as the second operator, 5-9 (78.5%) or >10 (84.3%); opportunities of conference presentation and writing papers (77.3%); relationship with other departments (80.0%); ease to take paid days-off (75.1%); and interpersonal relationships at workplace (79.6%).

Three principal components were extracted from the 15 reasons for rating job satisfaction with eigenvalues of 2.409, 1.861, and 1.096 (**Table 3**). Component 1 mainly corresponded to “environment of clinical practice, research, and education of IR.” Component 2 was mainly associated with “environment for family care.” Component 3 was mainly related to “salary and work environment.”

The results of the logistic regression analysis are presented in **Table 4**. A higher number of IR procedures per year in the primary workplace were significantly associated with higher job satisfaction. The odds ratios (95% CI) of “50-199,” “200-499,” “500-999,” and “≥1000” with reference to “0-49” in the number of IR procedures were 2.30 (1.13-4.70), 2.09 (1.01-4.33), 3.81 (1.63-8.88), and 5.42 (2.07-14.21), respectively. A higher amount of work time dedicated to IR was associated with higher job satisfaction. The odds ratios (95% CI) of “50%-74%” and “≥75%” with reference to “<25%” were 2.14 (1.02-4.48) and 3.12 (1.22-8.01), respectively. The absence of “IkuBoss” in the workplace was significantly associated with lower job satisfaction compared to that with the presence of “IkuBoss” (odds ratio, 0.53; 95% CI, 0.33-0.85). Principal component 1 was significantly associated with higher job satisfaction (odds ratio, 1.80; 95% CI, 1.56-2.08). Principal component 2 (odds ratio, 0.65; 95% CI, 0.57-0.75) and principal component 3 (odds ratio, 0.65; 95% CI, 0.55-0.77) were significantly associated with lower job satisfaction.

## Discussion

This study demonstrated that 56.0% of the participants in the Japanese IR physicians’ survey were either “very satisfied” or “moderately satisfied” with their jobs. Several factors were associated with job satisfaction, including the number of IR procedures per year, the rate of work time dedicated to IR, and the absence of a supervisor called “IkuBoss.” Principal component analysis identified three factors associated with job satisfaction: the environment for clinical practice, research, and education in IR; environment for family care; and salary and work environment.

The job satisfaction of IR physicians in Japan in this

**Table 1.** Respondent Demographics and Practice Characteristics (N = 901).

Characteristic	No. (%)
Gender	
Male	820 (91.0)
Female	73 (8.1)
No answer	8 (0.9)
Age, years	
<30	24 (2.7)
30-39	263 (29.2)
40-49	301 (33.4)
50-59	219 (24.3)
60≤	94 (10.4)
Experience in IR	
Less than 5 years	88 (9.8)
5 years or more, board-certified	671 (74.5)
5 years or more, not board-certified	142 (15.8)
Affiliating department	
Radiology	818 (90.8)
Emergency medicine	39 (4.3)
Others	44 (4.9)
Work schedule	N = 900
Full-time	857 (95.2)
Part-time	43 (4.8)
Practice location	N = 899
Hokkaido, Tohoku	92 (10.2)
Kanto	274 (30.5)
Chubu	114 (12.7)
Kansai	212 (23.6)
Chugoku, Shikoku	103 (11.5)
Kyusyu, Okinawa	104 (11.6)
Practice type	
University hospital	368 (40.8)
General hospital	451 (50.1)
Others	82 (9.1)
The number of IR procedures per year	
0-49	83 (9.2)
50-199	214 (23.8)
200-499	308 (34.2)
500-999	185 (20.5)
1000≤	111 (12.3)

study was more than half of all valid responses, which was neither high nor low. In a previous study, the job satisfaction of radiologists in Japan in 2008 was 67.7% [7]. This study showed that the job satisfaction of diagnostic radiologists and radiation oncologists was significantly higher than that of IR physicians [7]. Previous studies on job satisfaction of surgeons showed varying results, ranging from 30% to 90% [8-10]. In the present study, 18.5% of the respondents answered that they were moderately dissatisfied or very dissatisfied with their jobs. Thus, measures are required to improve job satisfaction among Japanese IRs.

The factors associated with a high level of job satisfaction in this study included fewer reading duties, longer time engaged in IR, a greater number of IR procedures, research opportunities, support systems for child and nursing care, and relationships in the workplace. The absence of an

**Table 2.** Demographics of Participants and Cross-tabulation of Job Satisfaction in IR.

		Job satisfaction (%)					
		Total N = 901	Very satisfied n = 79	Moderately satisfied n = 426	Neither satisfied nor dissatisfied n = 230	Moderately dissatisfied n = 133	Very dissatisfied n = 33
Practice location	Hokkaido, Tohoku	92	3.2	49.1	28.3	16.3	3.3
	Kanto	274	10.4	43.8	25.5	14.9	5.1
	Chubu	114	5.2	49.0	23.6	19.3	2.6
	Kansai	212	13.0	43.4	26.9	13.2	3.8
	Chugoku, Shikoku	103	6.7	54.2	18.5	17.4	2.9
	Kyusyu, Okinawa	104	4.7	54.9	29.9	8.7	1.9
Practice type	University hospital	368	8.2	49.8	25.6	14.7	1.9
	General hospital	451	7.3	45.1	26.4	16.4	4.9
	Others	82	19.6	48.8	20.5	6.2	4.8
The number of IR procedures per year	0-49	83	1.2	24.1	44.6	20.5	9.6
	50-199	214	7.5	44.4	26.1	17.8	4.2
	200-499	308	4.9	48.4	28.9	14.3	3.6
	500-999	185	13.0	56.6	16.2	12.4	1.6
	1000≤	111	20.7	51.4	16.2	9.9	1.8
Type of ARMI* (Radiologists)	ARMI 3	202	9.4	48.9	27.7	13.4	0.5
	ARMI 2	459	9.4	47.7	25.9	13.1	3.9
	ARMI 1	131	6.1	48.1	22.1	21.4	2.3
	No claim of ARMI	45	11.1	36.0	29.1	11.2	13.4
The average number of image interpretations in a week (Radiologists)	<10	45	28.8	46.8	22.2	2.1	0.0
	10-99	232	12.9	52.5	23.7	9.9	0.9
	100-199	313	6.1	48.2	26.8	16.3	2.6
	200≤	247	5.3	41.6	27.5	18.2	7.3
The rate of work time dedicated to IR	<25%	510	5.7	38.6	31.6	19.4	4.7
	25-49%	203	7.4	57.7	22.2	10.8	2.0
	50-74%	102	12.8	61.8	15.8	7.8	2.0
	75%≤	86	25.5	57.0	9.4	4.6	3.5
The number of IR procedures as the first operator in a week	0	92	5.4	25.0	44.5	19.5	5.5
	1-4	628	7.0	48.4	25.0	15.4	4.1
	5-9	122	11.5	57.3	18.9	12.3	0.0
	10≤	59	27.2	49.1	15.2	5.2	3.4
The number of IR procedures as the second operator in a week	0	245	6.9	37.9	35.1	15.9	4.1
	1-4	522	6.9	48.3	24.9	16.1	3.8
	5-9	97	14.4	64.1	13.5	7.3	1.0
	10≤	37	32.5	51.8	2.5	8.3	5.4
The number of paid days-off in the last fiscal year	0	44	6.8	54.2	27.2	7.0	4.6
	1-4	190	5.3	48.0	24.2	17.9	4.7
	5-9	497	9.5	47.5	26.7	13.9	2.4
	10-19	155	11.0	45.1	23.3	15.4	5.2
	20≤	15	13.2	34.1	19.9	20.4	13.4
The mean overtime work hours in a month	0-9	127	8.6	40.9	28.4	15.7	6.3
	10-19	167	7.2	52.8	24.5	13.8	1.8
	20-39	270	10.4	50.0	22.2	14.4	3.0
	40-59	189	7.4	44.0	29.6	13.7	5.3
	60-79	89	5.6	49.3	26.9	14.6	3.4
	80≤	59	15.3	40.4	22.2	20.3	1.7
Taking childcare/nursing care leave in the work environment	Easy for both men and women	336	14.3	49.4	22.6	11.9	1.8
	Not easy for men but easy for women	349	5.2	50.2	25.2	16.6	2.9
	Not easy for women but easy for men	7	0.0	54.7	29.6	15.1	0.0
	Not easy for both women and men	209	6.2	38.7	30.6	16.3	8.1
Existence of IkuBoss in your department	Yes	385	14.0	48.8	20.0	14.5	2.6
	No	211	4.8	40.8	29.4	17.5	7.6
	Don't know	305	4.9	49.9	29.9	13.1	2.3
The reasons for the answer on job satisfaction (multiple selections allowed)	Number of IR cases at the institution	539	11.5	48.4	21.3	14.9	3.9
	Types and contents of IR procedures	594	11.8	55.7	18.0	12.4	2.0
	Number of IR cases performed as the first operator	424	10.6	56.4	15.8	13.7	3.5
	Educational environment of IR	290	16.6	48.3	16.2	15.5	3.4
	Opportunities for conference presentations and paper writings	168	18.4	58.8	12.5	7.1	3.0
	NonIR work	210	8.6	24.7	39.5	20.0	7.2
	Relationships with other departments	315	15.2	64.8	9.5	6.3	4.1
	Salary	126	7.2	33.5	33.4	21.4	4.8
	Overtime work and on-call duties	270	11.5	48.1	26.7	11.5	2.2
	Telework at home	17	11.6	47.6	29.8	11.8	0.0
	Paid day-offs	137	21.9	53.2	17.5	6.6	0.7
	Support system for maternity, childcare, and nursing care	42	31.0	35.5	21.4	9.5	2.4
	Interpersonal relationships at workplace	207	19.3	60.3	9.2	8.2	2.9
	Harassment	18	5.7	4.7	28.1	28.1	33.4
IR is not the job I wanted	21	0.0	10.1	47.1	28.5	14.3	
Age, years	<30	24	20.8	37.3	21.1	21.0	0.0
	30-39	263	9.9	43.7	24.0	19.0	3.4
	40-49	301	7.0	52.8	21.9	13.6	4.6
	50-59	219	8.2	46.1	30.1	12.8	2.7
	60≤	94	9.6	44.9	31.8	9.6	4.2
Gender	Male	820	8.8	48.4	24.3	15.1	3.4
	Female	73	8.2	35.6	38.4	10.9	6.9
	No answer	8	12.9	37.3	37.4	13.3	0.0
Work schedule	Full-time	857	8.9	47.7	25.2	14.4	3.9
	Part-time	43	7.0	39.6	32.6	21.0	0.0
Experience in IR	Less than 5 years	88	15.9	33.9	27.2	20.4	2.3
	5 years or more, board-certified	671	7.5	50.3	24.3	14.0	3.9
	5 years or more, not board-certified	142	10.6	40.8	30.3	14.8	3.5
Affiliating department	Radiology	818	8.9	47.2	25.9	14.6	3.4
	Emergency medicine	39	10.3	41.5	10.0	25.6	12.9
	Others	44	4.5	55.2	31.9	9.4	0.0
Partner and children	No partner, no children	99	10.1	47.3	24.2	16.1	2.0
	Have a partner, no children	101	7.9	37.5	31.7	17.8	5.0
	No partner, have children	24	4.3	49.7	12.5	21.0	12.5
	Have a partner, have children	677	8.9	48.6	25.2	13.9	3.4

ARMI: Added fee for Radiological Managements on Imaging-studies

**Table 3.** The Results of the Principal Component Analysis.

	Component 1	Component 2	Component 3
Eigenvalue	2.409	1.861	1.096
Factor loadings			
Number of IR cases at the institution	0.232	-0.386	0.165
Types and contents of IR procedures	0.293	-0.410	0.044
Number of IR cases performed as a first operator	0.267	-0.315	0.154
Educational environment of IR	0.358	-0.094	0.055
Opportunities for conference presentations and paper writing	0.394	-0.041	0.023
NonIR work, such as image interpretation and in-hospital meetings	0.083	0.276	0.264
Relationships with other departments	0.281	-0.085	-0.303
Salary	0.155	0.294	0.227
Overtime work hours and the number of on-call duties	0.199	0.315	0.378
Telework at home	0.166	0.130	0.120
Opportunities to take paid days-off	0.361	0.297	0.005
Support system for maternity, childcare, and nursing care	0.274	0.253	-0.107
Interpersonal relationships at workplace	0.326	0.208	-0.384
Harassment at the work place	0.024	0.158	-0.624
IR is not the job I wanted.	-0.130	0.258	0.156

“IkuBoss,” nonIR work, overtime work, and salary were associated with a low level of job satisfaction. These results indicate that the factors that enhance IR job satisfaction, namely, high number of IR procedures, opportunities of career advancement, and fewer reading duties, can be emphasized in IR facilities. However, given that 79.9% (720/901) of the respondents performed <5 procedures per week as the first operator and 29.5% (247/837) of radiology IRs performed more than 200 reading duties per week, achieving such a work environment may be difficult at this time. Increasing the number of IRs by raising awareness in the medical community and general public, and improving the work environment are important and urgent issues to address.

Principal component analysis clarified that factors such as opportunities for IR research and education, work-life balance, and salary were potential common factors that affect job satisfaction. These results suggest that job satisfaction is influenced not only by optimizing work-life integration but also by opportunities for career advancement. The absence of an “IkuBoss” was associated with lower job satisfaction, and the results indicate that leaders who understand and manage the diversity of individual work styles and work-life balance are needed.

In previous studies, the factors affecting job satisfaction have been diverse. In a survey of Japanese radiologists, job satisfaction was linked to a higher annual income and working in larger hospitals whereas dissatisfaction was associated with older age and night shifts [7]. A study evaluating career satisfaction among men and women cancer surgeons in the United States found that both sexes reported similar factors associated with career satisfaction, including stronger support from colleagues, balance in work and personal life, and increasing age [8]. This study also found that insufficient family time due to work and household chores is associated with lower satisfaction, especially for women [8]. In

another study on surgeons in the United States, job satisfaction was lower for women surgeons and surgeons under the age of 60 whereas most job-related characteristics (such as surgical specialty, years of experience, academic career, practice size, and payment model) did not significantly affect job satisfaction [10]. In our study, age and sex were not significant factors affecting job satisfaction. Nevertheless, career development and work-life balance are concerns for young and women IR physicians, and these issues need to be addressed if young physicians choose IR as a subspecialty.

Our study had several limitations. First, because this was a cross-sectional study, the results provided insight into only a single point of time. Second, the surveys carried an inherent risk of response bias. In addition, our cohort may not represent all IR specialists in Japan because of a nonresponse bias. The valid response was low at 31.9%, suggesting that highly motivated IRs may have been among the respondents, which may have led to the result that a higher number of IR procedures were associated with a higher level of satisfaction. Finally, we did not fully examine physicians’ wellness and burnout, which may have contributed to job satisfaction.

In conclusion, more than half of the participants reported high job satisfaction. Job satisfaction of IR physicians in Japan was positively associated with a favorable clinical, research, and educational environment and negatively associated with the absence of an “IkuBoss,” nonIR work, overtime work, and salary.

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**Table 4.** Logistic Regression Analysis of Variables Associated with Job Satisfaction.

		Odds ratio	95% confidence interval		P
Practice location	Hokkaido, Tohoku	1.00			
	Kanto	0.83	0.43	1.59	0.572
	Chubu	1.34	0.65	2.77	0.422
	Kansai	0.76	0.39	1.47	0.418
	Chugoku, Shikoku	1.19	0.57	2.50	0.645
	Kyusyu, Okinawa	1.56	0.74	3.30	0.244
Practice type	University hospital	1.00			
	General hospital	1.60	0.95	2.72	0.079
	Others	1.26	0.42	3.83	0.683
Number of IR procedures per year	0–49	1.00			
	50–199	2.30	1.13	4.70	0.022
	200–499	2.09	1.01	4.33	0.048
	500–999	3.81	1.63	8.88	0.002
	1000≤	5.42	2.07	14.21	0.001
Type of ARMI (Radiologists)	ARMI 3	1.00			
	ARMI 2	1.16	0.66	2.04	0.610
	ARMI 1	1.01	0.52	1.97	0.979
	No claim of ARMI	0.53	0.20	1.39	0.197
The average number of image interpretations in a week (Radiologists)	<10	1.00			
	10–99	0.87	0.32	2.33	0.775
	100–199	0.75	0.27	2.09	0.581
	200≤	0.74	0.26	2.14	0.582
The rate of total work time dedicated to IR	<25%	1.00			
	25–49%	1.59	1.00	2.52	0.051
	50–74%	2.14	1.02	4.48	0.044
	75%≤	3.12	1.22	8.01	0.018
The number of IR procedures as the first operator in a week	0	1.00			
	1–4	1.53	0.83	2.83	0.177
	5–9	1.10	0.48	2.51	0.829
	10≤	0.58	0.18	1.87	0.360
The number of IR procedures as the second operator in a week	0	1.00			
	1–4	0.92	0.60	1.41	0.698
	5–9	1.32	0.61	2.84	0.484
	10≤	2.05	0.54	7.75	0.291
Paid days-off in the last fiscal year	0	1.00			
	1–4	1.05	0.41	2.67	0.927
	5–9	0.97	0.40	2.37	0.951
	10–19	0.72	0.28	1.89	0.508
	20≤	0.52	0.10	2.62	0.427
The mean overtime work hours in a month	0–9	1.00			
	10–19	0.93	0.51	1.71	0.819
	20–39	0.92	0.52	1.62	0.767
	40–59	0.49	0.26	0.92	0.026
	60–79	0.77	0.36	1.66	0.506
	80≤	0.76	0.31	1.86	0.552
Taking childcare/nursing care leave in the work environment	Easy for both men and women	1.00			
	Not easy for men but easy for women	0.83	0.55	1.26	0.392
	Not easy for women but easy for men	1.36	0.07	27.16	0.840
	Not easy for both women and men	0.72	0.44	1.15	0.170
Existence of IkuBoss in your department	Yes	1.00			
	No	0.53	0.33	0.85	0.009
	Don't know	0.92	0.61	1.39	0.686
The reasons for job satisfaction	Principal component 1 (Clinical, research, and educational environment)	1.80	1.56	2.08	<0.001
	Principal component 2 (Environment of family care)	0.65	0.57	0.75	<0.001
	Principal component 3 (Salary and work environment)	0.65	0.55	0.77	<0.001
Age, years	<30	1.00			
	30–39	0.99	0.30	3.25	0.983
	40–49	0.98	0.27	3.60	0.977
	50–59	0.90	0.24	3.41	0.878
	60≤	0.85	0.21	3.45	0.825
	Gender	Male	1.00		
Female		0.64	0.33	1.24	0.188
No answer		0.90	0.10	8.42	0.926
Work schedule	Full-time	1.00			
	Part-time	0.94	0.41	2.13	0.879
Experience in IR	Less than 5 years	1.00			
	5 years or more, board-certified	1.20	0.55	2.63	0.653
	5 years or more, not board-certified	1.65	0.71	3.86	0.247
Affiliating department	Radiology	1.00			
	Emergency medicine	2.70	0.17	42.23	0.478
	Others	1.72	0.10	29.74	0.711
Partner and children	No partner, no children	1.00			
	Have a partner, no children	0.64	0.30	1.37	0.253
	No partner, have children	1.25	0.34	4.63	0.737
	Have a partner, have children	0.76	0.40	1.42	0.382

**Conflict of Interest:** None

**Author Contribution:** All authors contributed to the study design, development of the questionnaire, and acquisition of data. H.Y. performed analysis of data. M.S. and H.Y. prepared the draft of the manuscript. All authors participated in revising the manuscript.

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