


Job Satisfaction Among Faculty in Standardized Residency Training Programs in Heilongjiang Province, China: A Cross-Sectional Study

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Purpose: Job satisfaction among faculty in standardized residency training programs has been underexplored. The objective of this study is to investigate job satisfaction among these faculty members and identify associated determinants.

Methods: An online cross-sectional survey was conducted with 4581 teachers in Heilongjiang Province from 18 to 30 May 2022, using a census method. The survey collected demographic information and assessed satisfaction using the Minnesota Satisfaction Questionnaire-Short Form. Predictors of job satisfaction were identified using multiple linear regression analysis in SPSS 24.0.

Results: The survey achieved a 91.12% response rate (4174/4581). The average satisfaction score of the respondents teachers was 4.30 ± 0.70 . The top three items with the highest satisfaction scores were “the chance to work alone on the job” (4.46 ± 0.68), “the way my job provides for steady employment” (4.45 ± 0.68), and “the freedom to use my own judgment” (4.43 ± 0.69). The lowest-scoring items “the chances for advancement on this job” (4.02 ± 1.03), “my pay and the amount of work I do” (4.08 ± 0.96), and “the praise I get for doing a good job” (4.10 ± 0.93). Multiple linear regression analysis revealed that geographical area, registered general subjects, age, administrative position, monthly income, daily working hours, and overtime frequency were significant factors influencing job satisfaction ($P < 0.05$).

Conclusion: The level of job satisfaction among standardized residency training faculty in Heilongjiang Province was generally high. High satisfaction was associated with residing in economically developed areas, having registered general subjects, holding administrative positions, earning high income, working shorter few hours daily and having a low frequency of overtime.

Keywords: medical education, job burnout, job satisfaction, standardized residency training

Introduction

Standardized residency training is acknowledged by the international medical community as an effective way for developing qualified clinicians. Residency training educators play a crucial role in this training, thereby influencing its quality.

Job satisfaction is typically defined as an individual's overall feeling about their job.¹ It refers to the subjective satisfaction of employees with the work itself and working conditions.² Satisfaction with pay, autonomy, nature of work, promotion policy, co-workers relations, and opportunities to learn adequate knowledge and skills are all components of job satisfaction.³ It is an important predictor of employee absenteeism, job burnout and turnover, teaching quality, patient satisfaction and organizational efficiency.⁴ Previous research suggests that high job satisfaction strengthens staff's sense of belonging to the hospitals and improves their motivation. By contrast, low job satisfaction can weaken the feeling of belonging and enthusiasm of employees and increases their willingness to quit.⁵ Low job satisfaction is positively related to stress and intention to leave.⁶ A study on Mexican health care workers shows that those dissatisfied with their jobs

have reduced clinical job performance.⁷ In addition, the majority of doctors surveyed (76%) in Tbilisi (Georgia) rate their work/life balance low.⁸ Previous research also explores organizational factors (regional and medical equipment levels), professional factors (work content, work load, work environment, salary, promotion and learning opportunities) and personal characteristics (age, marriage, education and health).^{9–12} Therefore, job satisfaction is a key topic in the field of medical and health care.

Currently, numerous issues concern the distribution of standardized residency training faculty. China has a serious shortage of professional educators, with experienced teachers predominantly located in advanced provinces and university-affiliated training institutions. The standardized training teachers in less-developed provinces are responsible for a large amount of talent cultivation work whilst undertaking heavy medical work, thus affecting their job satisfaction.¹³ Researchers surveyed the job satisfaction of nurses, rural doctors and family doctors in general hospitals, psychiatric hospitals and emergency rooms and found that job satisfaction is low.^{9,14,15} Previous survey results indicate that the work satisfaction rate among medical staff in China is only 40%, with occupational burnout rates ranging from 66.5% to 87.8%, and a willingness to leave the profession reported at 50% to 70%.^{16–18} Chinese medical personnel face a series of critical challenges, including low job satisfaction, high turnover intentions, severe occupational burnout, inadequate salary satisfaction and strained doctor–patient relationships. Furthermore, Chinese standardized training teachers experience heightened mental pressure as they balance medical duties with teaching and training responsibilities, yet research focused on the job satisfaction of these standardized training teachers is lacking.

To address this gap, a cross-sectional study was conducted utilizing an online survey that included 4174 participants from Heilongjiang Province. The study aims to assess the job satisfaction of Chinese residency teachers in educational and medical contexts. Identifying the predictors of job satisfaction is crucial for developing recommendations to improve the working conditions of faculty and enhance the quality of standardized residency training.

Methods

Participants

From 18 to 30 May 2022, all training bases in Heilongjiang Province were categorized into five research areas based on the distribution of their administrative regions. A cross-sectional survey was conducted involving all residential training teachers in these areas, totaling 4581 participants, using a census method. Out of these, 4310 questionnaires returned, 136 were excluded because of issues such as data integrity, logical judgment and regularity. Thus, the final effective response rate was 91.12% (4174/4581).

Measures

After the questionnaire was entered into the “Questionnaire Star” platform in Chinese, an electronic two-dimensional code is generated. This electronic two-dimensional code was distributed to all residential training base managers in Heilongjiang Province via the residential training work group on WeChat. These managers subsequently forwarded the electronic two-dimensional code to all on-the-job residential training teachers at their respective bases, excluding those who provided only academic education or other types of training. Teachers participating in the survey completed the questionnaire online through the “Questionnaire Star” platform after scanning the electronic two-dimensional code.

The questionnaire has two parts. One is for basic characteristics with eleven questions and the other is about job satisfaction with the short Minnesota Satisfaction Questionnaire (MSQ) scale compiled by Weiss, Dawis, England and Lofquist in 1967.^{19,20} The MSQ has been widely utilized across various industries, including healthcare and education.^{21,22} The short MSQ based on 5-point Likert scale comprises 20 items with options of “very dissatisfied”, “unsatisfactory”, “uncertain”, “satisfied”, and “very satisfied” corresponding to numbers 1, 2, 3, 4, and 5, respectively. The respondents needed to score each question. The total points on the scale were 100 points if all 20 questions were given a response of “very satisfied”.^{23,24} The higher the points, the higher the job satisfaction of the respondents. The reliability of the MSQ scale was demonstrated by a Cronbach’s α value of 0.985, indicating excellent internal consistency for the job satisfaction scale and suggesting that reliable data can be utilized for subsequent research.^{25,26} Additionally,

the validity assessment through factor analysis revealed KMO values exceeding 0.766, and all data successfully passed the Bartlett's sphericity test ($P < 0.001$), confirming the validity of the job satisfaction scale and the sample data.²⁷

During the questionnaire survey, special personnel were responsible for the statistics of filling progress and feedback to each training base. After the survey, invalid questionnaires were deleted based on the following judgment criteria:

- (1) incomplete questionnaires
- (2) repeated answer sheets (ie the same user name and basic information with different scale scoring results)
- (3) logical errors (eg the difference between age and working years was less than 18 years)
- (4) either identical checked options or had regular options

Statistical Analyses

Data analysis was performed using SPSS 24.0 software. Enumeration data were expressed as relative numbers. Measurement data were expressed as ($\bar{x} \pm s$). Regarding the comparison between two groups, *T*-test was applied, but one-way analysis of variance (ANOVA) was used for multi-group comparison. The least significant difference (LSD) method was used for pairwise comparison if differences existed between groups. The influencing factors of job satisfaction was analyzed by applying multiple linear regression, with $P < 0.05$ as the criterion for statistical significance.

Results

Basic Characteristics

In this study, a total of 4581 questionnaires were distributed, of which 4310 were returned. However, 136 responses were excluded because of missing information, invalid options and logical errors (eg the difference between age and years of work was less than 18). Thus, the final sample comprised 4174 subjects, including 2444 (58.55%) female teachers and 1730 (41.45%) male teachers. Among them, most respondents (2166, 51.89%) were aged 35–44 years, and a large portion (3111, 74.53%) of them had a master's degree or above. About half of them (2108, 50.50%) had a monthly income of 5001–8000 yuan, and a few of them (1234, 29.56%) had a monthly income above 8000 yuan. More than half of them came from provincial capital cities with better economic development.

Satisfaction Analysis of Each Item

The average satisfaction score of the respondent teachers was 4.30 ± 0.70 . As shown in Table 1, the top three items were “the chance to work alone on the job”, “the way my job provides for steady employment” and “the freedom to use my own judgment”. The last three items were “the chances for advancement on this job”, “my pay and the amount of work I do” and “the praise I get for doing a good job”.

Predictors of Job Satisfaction

As shown in Table 2, the job satisfaction scores of standardized residency faculty were compared across the following categories: regions, ages, professional titles, educational backgrounds, administrative positions, working years, monthly incomes, daily working hours, overtime frequency and whether or not they were registered for general subjects. The results showed statistically significant differences ($P < 0.05$). One-way ANOVA and LSD analysis indicated that job satisfaction was higher among faculty in economically developed areas, those registered for general subjects, younger faculty, those junior or senior professional titles, those with undergraduate education, leaders or department heads, those with longer working years, monthly income above 8000 yuan, daily working hours below 9 hours and lower frequency of overtime.

Multiple linear regression analysis (Table 3) showed that region, registered general subjects, age, administrative position, monthly income, daily working hours and frequency of overtime significantly affected teachers' job satisfaction.

The regression model showed $F=17.264$, $P < 0.01$, which was statistically significant. The results of collinearity diagnosis indicated that all the independent variables in the regression model had no collinearity, with tolerances > 0.25 and variance inflation coefficient (VIF) < 5 .²⁷

Table 1 Teacher Satisfaction Analysis for Each Project on MSQ ($\bar{x} \pm s$)

Items	Scores
Being able to keep busy all the time	4.42±0.71
The chance to work alone on the job	4.46±0.68
The chance to do different things from time to time	4.16±0.89
The chance to be “somebody” in the community	4.39±0.72
The way my boss handles his/her workers	4.41±0.75
The competence of my supervisor in making decisions	4.38±0.77
Being able to do things that do not go against my conscience	4.42±0.74
The way my job provides for steady employment	4.45±0.68
The chance to do things for other people	4.39±0.78
The chance to tell people what to do	4.12±0.94
The chance to do something that makes use of my abilities	4.37±0.75
The way company policies are put into practice	4.37±0.78
My pay and the amount of work I do	4.08±0.96
The chances for advancement on this job	4.02±1.03
The freedom to use my own judgment	4.43±0.69
The chance to try my own methods of doing the job	4.41±0.71
The working conditions	4.12±0.93
The way my co-workers get along with each other	4.26±0.83
The praise I get for doing a good job	4.10±0.93
The feeling of accomplishment I get from the job	4.24±0.83

Abbreviation: MSQ, Minnesota Satisfaction Questionnaire.

Table 2 Comparison of Job Satisfaction Scores of Standardized Residency Faculty with Different Characteristics

Variable	Grouping	Participants [n (%)]	Scores ($\bar{x} \pm s$)	t (F) value	P value
Region	Harbin	2249(53.88)	4.27±0.72	7.483	<0.001
	Qiqihar	653(15.65)	4.30±0.69		
	Mudanjiang	214(5.13)	4.18±0.68		
	Jiamusi	529(12.67)	4.40±0.67		
	Daqing	529(12.67)	4.38±0.65		
Registered general subject	T	2003(47.99)	4.33±0.70	2.354	0.019
	F	2171(52.01)	4.27±0.70		
Gender	Male	1730(41.45)	4.30±0.73	-0.250	0.802
	Female	2444(58.55)	4.30±0.68		
Age(years)	≤25	16(0.38)	4.40±0.79	2.840	0.023
	26–34	397(9.51)	4.39±0.73		
	35–44	2166(51.89)	4.29±0.70		
	45–54	1287(30.83)	4.28±0.70		
	≥55	308(7.39)	4.36±0.65		
Professional titles	Junior or below	123(2.95)	4.55±0.72	11.984	<0.001
	Intermediate	1235(29.59)	4.27±0.70		
	Deputy senior	1608(38.52)	4.26±0.72		
	Senior	1208(28.94)	4.37±0.66		
Education	Specialist	12(0.29)	4.22±0.75	3.052	0.027
	Undergraduate	1051(25.18)	4.35±0.65		
	Master	1997(47.84)	4.27±0.72		
	PhD and above	1114(26.69)	4.31±0.71		

(Continued)

Table 2 (Continued).

Variable	Grouping	Participants [n (%)]	Scores ($\bar{x} \pm s$)	t (F) value	P value
Administrative positions	Leadership in Hospital	5(0.12)	4.58±0.51	11.277	<0.001
	Head of Department	394(9.44)	4.48±0.60		
	Director of Teaching	313(7.50)	4.43±0.62		
	Secretary of Teaching	531(12.72)	4.28±0.68		
	No position	2931(70.22)	4.26±0.72		
Working years	<10	692(16.58)	4.34±0.73	2.632	0.049
	10–20	2042(48.92)	4.28±0.70		
	21–30	1031(24.70)	4.28±0.70		
	>30	409(9.80)	4.36±0.63		
Monthly incomes(yuan)	<5000	832(19.93)	4.28±0.74	8.122	<0.001
	5001–8000	2108(50.50)	4.26±0.70		
	8001–10,000	749(17.94)	4.35±0.68		
	>10,000	485(11.63)	4.42±0.62		
Daily working time(h)	1–6	89(2.13)	4.32±0.70	15.882	<0.001
	7–9	2956(70.82)	4.34±0.67		
	≥10	1129(27.05)	4.20±0.76		
Overtime frequency	Never	169(4.05)	4.56±0.58	36.637	<0.001
	Sometimes	1994(47.78)	4.36±0.65		
	Often	2011(48.17)	4.21±0.74		

Notes: T, registered general subject; F, not registered general subject.

Table 3 Multiple Linear Regression Analysis of Job Satisfaction

Independent Variable	β	SE	t	Tolerance	VIF
Region	0.030	0.008	3.801	0.792	1.262
Registered general subject	−0.045	0.021	−2.101	0.982	1.018
Age	−0.062	0.028	−2.230	0.345	4.081
Administrative positions	−0.071	0.012	−6.054	0.844	1.185
Monthly incomes	0.057	0.014	4.187	0.757	1.322
Daily working time	−0.055	0.025	−2.240	0.811	1.233
Overtime frequency	−0.148	0.021	−7.166	0.811	1.233
Constant	5.193	0.121	42.947	–	–

Abbreviation: VIF, Variance Inflation Factor.

Discussion

The subjects were drawn from hospitals across the five administrative regions of Heilongjiang Province, achieving an effective response rate exceeding 90%. This rate is considered reasonable for the questionnaire,²⁸ providing a robust representation of our study population and enhancing the generalizability of our findings.

The overall job satisfaction score of faculty in standardized residency training in Heilongjiang Province is (4.30 ±0.70), which is higher than that of Turkish primary care,²⁹ Polish teachers²¹ and Chinese doctors.^{23,28} The comparative results indicated the faculty were very satisfied with their job. The present study found that the main factors influencing job satisfaction were geographical location, whether to register for general practice, age, administrative position, monthly income, daily working hours and frequency of overtime. Gender did not appear to influence job satisfaction, aligning with findings from previous studies.^{23,30}

Among the 20 satisfaction items assessed, the top three ones were “the chance to work alone on the job”, “the way my job provides for steady employment” and “the freedom to use my own judgment”. Conversely, the last three items,

namely, “the chances for advancement on this job”, “my pay and the amount of work I do” and “the praise I get for doing a good job”, were not quite the same as the results in other previous studies on healthcare workers.^{22,23,30} Residential training teachers possess the ability to operate autonomously within their respective fields and exhibit a robust sense of job security. Nevertheless, policies regarding professional title advancement, salary enhancement and appropriate recognition for their contributions are lacking.^{30,31} Consequently, factors beyond monetary compensation, such as acknowledgment, autonomy, a sense of accomplishment and opportunities for professional growth and development, significantly influence job satisfaction.³² Therefore, provincial standardized residency training management departments and training institutions must further refine relevant policies, augment teaching salaries and provide policy support for professional title advancement and associated rewards. Doing so fosters increased job satisfaction and a heightened sense of responsibility among medical educators.

The present study found more bases in the economically developed areas, which indicated that medical resources were concentrated in such regions. Additionally, teachers in these areas tend to have relatively high incomes and educational backgrounds. The research indicated that higher income correlated with greater job satisfaction, a finding that aligns with the results of previous studies.³¹ A possible reason is that a high income effectively meets teachers’ basic physiological and safety needs, thus enhancing their enthusiasm for teaching.³³ However, international studies present a contrasting perspective, suggesting that non-financial factors may exert a more significant influence on job and performance satisfaction among medical workers than financial ones.³⁴ Therefore, salaries and benefits should be tailored to teachers’ actual working conditions. These working conditions should include consideration of their workload, professional qualifications and a rationalized social security system.³⁵ By addressing these factors comprehensively, job satisfaction can be improved through various channels and measures. The study indicated that high levels of registration, professional titles, and positions were associated with increased job satisfaction. This finding is consistent with Maslow’s Hierarchy of Needs, which posits that respect stems from higher-level pursuits, primarily reflected in aspects such as social status, industry reputation, work achievements, promotions and career development.³⁶ Specifically, obtaining general practice registration opens up more employment opportunities, high professional titles confer industry reputation and prospects for advancement and holding senior executive positions enhances one’s social status. By continuously enhancing the capabilities in medical education and scientific research, as well as increasing opportunities for professional advancement and promotions, implications for improving job satisfaction among medical educators are significant.

With respect to age and education, we found that younger teachers were more satisfied with their work than older ones and teachers with a bachelor’s degree are more satisfied than those with a master’s degree. These findings concur with the results of previous studies.³⁷ A possible reason is that teachers with a high degree of education exhibit high expectations and requirements on their work.³⁸ In addition, teachers with a high degree of education may undertake more heavy work on teaching, medical care and scientific research. By contrast, teachers with a bachelor’s degree possess a relatively low starting point, low personal expectations and narrow job selectivity; thus, they exhibited a high satisfactory evaluation on training, teaching and medical work.³⁹ Our study showed that teachers who have worked for 10–30 years were significantly more satisfied than those who have worked for less than 10 years. Some studies find that working years affect staff satisfaction.^{40,41} The reason could be that the latter lost their competitive power during career development, especially in terms of scientific research and professional title, because of the short entry time and lack of experience, which then reduced their job satisfaction. Staff with a long duration of working experience were equipped with adequate medical skills and were responsible for more work, resulting in higher salary and social status. Regarding daily working hours, the present study found that increased daily working hours and frequency of overtime corresponded with lower levels of job satisfaction. This finding suggests that work pressure and intensity have a direct effect on job satisfaction. Zhou⁴² proposed that measures should be implemented to promote ongoing education and personal health, balance workload with income and rebuild trust and respect for medical staff to enhance job satisfaction. Consequently, improving job satisfaction and faculty retention may be achieved by optimizing workflows and appropriately allocating resources. These include increasing the time dedicated to education and research, expanding the core faculty contingent, tracking non-

clinical efforts⁴³ and introducing both full-time and part-time teaching assistants to alleviate the workload on educators.

This study conducted targeted surveys in an underdeveloped province in China, using extensive data on different human resources to comprehensively examine the association between job satisfaction and its influencing factors. The study has limitations in representativeness because it does not involve developed provinces. The results of this study cannot be directly compared with doctors or teachers in other provinces and other countries, where different scales are used to measure job satisfaction.^{44–46}

Conclusion

The job satisfaction level of standardized residency training teachers in Heilongjiang Province is generally high. Factors such as residing in economically developed areas, registering for general subjects, holding administrative positions, earning high income, working few daily working hours, and low overtime frequency are related to high job satisfaction. This study recommends improving policies in these aspects to improve the job satisfaction, thereby enhancing the quality of training.

Abbreviations

MSQ, Minnesota Satisfaction Questionnaire; ANOVA, analysis of variance; LSD, least significant difference; VIF, variance inflation factor.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Informed Consent

This study was approved by the School of General Medicine and Continuing Education Ethics Committee for Qiqihar Medical University (ref:202201). This study adheres to the Helsinki declaration and the relevant guidelines and regulations. Participants were fully informed of the study's purpose before providing consent. Those who read and selected "Agree" at the interviewee's informed consent were considered to have consented to participate in our investigation. All participants provided written informed consent.

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Author Contributions

All authors have made significant contributions to the study's concept and design, data access, analysis and interpretation; participated in drafting or critically revising the article for intellectual content; agreed to submit to *Risk Management and Healthcare Policy*, approved the version to be published and accepted responsibility for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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