

Satisfaction of the Clinical Teachers on Standardized Residency Training Program (SRTP) in China

Boyan Chen

Zhejiang University

Xiaoyuan Jin

Zhejiang University

Jie Zhou

Zhejiang University

Ying Chen

Zhejiang University

Hongmei Wang (✉ rosa@zju.edu.cn)


Zhejiang University

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Abstract

Background: Standardized Residency Training Program (SRTP) is a significant initiative to deepen health systems and medical education in developed countries like China. Despite prompting the SRTP nationwide and implementing it with various improvements, Chinese continuous medical education is still in its infancy. Compared with the residents, little is known about clinical teachers under SRTP in China; but clinical teachers effectively determine the training quality as a critical disseminator of knowledge, skills, and values in medical practice. Thus, the study aims to analyze critical factors affecting their cognitive job satisfaction and provide continuous improvements for SRTP.

Methods: From December 1, 2018, to May 31, 2019, we conducted a self-design questionnaire from 13 SRTPs (including both training bases and professional bases) in Shaoxing city to evaluate participants' satisfaction. Altogether, 574 clinical teachers responded to the survey with generally high overall satisfaction. We adopted Chi-square Test and Fisher's Exact Test to evaluate the single impact factors affecting the satisfaction of clinical teachers. The multiple factors analysis applied the Logistic Regression model.

Results: The male clinical teachers had significant differences in satisfaction of teaching content (OR: 0.675, [95%CI: 0.477~0.953]), conflicts between study and work (OR: 0.542, [95%CI: 0.371~0.791]), the attention of leaders (OR: 0.403, [95%CI: 0.252~0.645]) and subsidies of teachers (OR: 0.527, [95%CI: 0.347~0.805]). Compared with internal medicine, clinical teachers from Surgery (OR: 2.396, [95%CI: 1.365-4.206]) and other departments (OR: 2.409, [95%CI: 1.406-4.129]) were more satisfied when considered residents have high motivation on training. Besides, compared with attending physician, deputy chief physician (OR: 0.493, [95%CI: 0.310- 0.783]) and chief physician (OR: 0.683, [95%CI: 0.471-0.991]) more disagreed that residents' wage is good enough.

Conclusion: Clinical teachers widely recognize the SRTP. However, teachers' satisfaction varied due to different genders, working clinical departments, and professional titles. The study also discussed possible reasons and strategy implications behind these findings, which combined unique Chinese society characteristics. Further, we believe the analysis and interpretations remind us of the applications of Western medical education methods, and theories also should consider the unique socio-cultural challenges.

Background

The international medical community recognizes the residency training is crucial for building a high-quality medical team, improving the overall medical services level, and ensuring the quality of care.^{1,2} In Europe and the United States, residency training has been standardized and formed as a relatively complete management system after hundreds of years of development; even already built complected training system to train medical doctors at all levels, including entry-level, postgraduate, and continuing medical education.³⁻⁶ Drawing from world experience, China also focused on developing residency training programs in the past few years.

Standardized Residency Training Program (SRTP)

Since 2014, the National Health and Family Planning Commission (NHFPC) in China has implemented Standardized Residency Training Program (SRTP) to require all graduated medical students to complete a 3-year training before starting their careers.⁷⁻⁹ Being different from the American type of residency program, which was launched in some University affiliated hospitals, SRTP implemented nationwide into both training bases (medical and health institutions, e.g., hospitals) and professional bases (professional clinical departments).^{7,10} In detail, the training bases chose to be professional enough without any criticism of medical safety incidents in the past 3 years, and train residents' basic clinical practices from rotating the significant departments of two-level disciplines. The professional bases set with rigorous requirements on faculty conditions (e.g., *the internal department has to set the total number of beds ≥ 200 , the bed utilization rate of $\geq 85\%$, the annual number of inpatient admissions ≥ 3800 , the annual outpatient volume $\geq 100,000$, and the annual emergency volume of $\geq 10,000$), to train residents' clinical skills in a particular department of three-level disciplines.^{7,8,10-12}*

Until 2020, the promotion of SRTP increased the cumulated number of residents nationwide to 332,000 (recoded as 480,000 if included the postgraduate specialties); 45,000 residents trained as general practitioners, and 20,000 residents worked as pediatrics after completed the training.⁹ Further, as a significant initiative to deepen health systems and medical education,¹ SRTP already trained qualified clinicians with various improvements from improving teaching quality, providing comfortable studying settings, and

enlarging clinical cases as teaching contents. According to the reports from National Medical Examination Center (NMEC), the pass rates of residents who participated in the SRTP in 2018 for the first time in the clinical practice qualification examination were 20% higher than those who did not receive pieces of training from SRTP.¹⁵ From 2017 to 2018, a total of 120,000 residents have successfully passed the complete examination and obtained training certificates.¹⁵

Clinical Teachers

Clinical teaching is the cornerstone for medical students' professional development; thus, clinical teachers effectively determine the training quality as a critical disseminator of knowledge, skills, and values in medical practice. SRTP involves clinical teachers with rigorous certification—only the physician with at least three years of experience as an attending physician or above can work as a clinical teacher. 10 The faculty training requires teachers to receive uniform qualifications, to be familiar with the standardized training regulations.^{10,13,14} Further, the SRTP limits the number of supervised residents from each clinical teacher who cannot train more than three simultaneously.^{9,10}

Despite prompting the SRTP nationwide and implementing it with various improvements, Chinese continuous medical education is still in its infancy. In the developed stage, the training to become resident doctors depends on the hospitals employed, leading to differential medical levels across regions. Moreover, the imbalance and inadequacy in its development have conflicted with increasing medical demand.¹⁶ Thus, the SRTP has increasingly attracted more attention from all walks of life, primarily academic studies. In the previous studies, many researchers sought to understand residents' perceptions about SRTP and observe their mental health.^{16–19} Moreover, many studies are mature to test residents' satisfaction and collect their evaluations regarding training organizations^{20,21,16}—training from the SRTP is beneficial. Approximately one-third of learning in the clinical setting comes from clinical teachers.¹

However, compared with our knowledge of residents, little is known about clinical teachers under SRTP in China. The limited studies discussed the clinical teachers have close relationships with their resident students to provide optimal teaching approaches, contribute a lot to the residents' studies, and even spend up to one-fourth of time supervising, instructing, and evaluating students.^{1,3} The positive teaching approach and perceived high-quality education for residents are undoubtedly associated with high overall satisfaction with SRTP.²⁰ Herein, this study aimed to investigate the status quo and affecting factors of clinical teachers' cognitive job satisfaction and provide proper advice and measures for the sustainable development of standardized training. Also, we believe in standing on another perspective of the clinical teachers. Analyzing their satisfaction with the SRTP is beneficial for recommending strategies for the national resident training.

Methods

Using a simple random sampling method, we set out to evaluate cognitive job satisfaction amongst clinical teachers of 13 residency standardization bases in Shaoxing, Zhejiang Province. The evaluated results were collected by asking all of the involved participants to answer a self-designed survey.

Sampling and participants

From December 1, 2018, to May 31, 2019, 600 questionnaires were distributed online in the study duration. Among 13 training bases, clinical teachers with over one year of teaching experience were approached for participation. Specifically, the recruitment provided a brief synopsis of the research aims and design and enrolled clinical teachers who were available, willing, and interested. Altogether, participants consisted of 574 senior faculty members who read and signed informed content and completed the survey independently, representing 95.7%.

Instruments

The questionnaire was designed by reviewing much relevant literature and consulting relevant experts for modification. The self-administered questionnaire had 19 items, respectively, which included three sections: (1) demographic information, (2) career information, and (3) perceived cognitive job satisfaction.

Measurements

Cognitive job satisfaction. The cognitive job satisfaction aimed to evaluate participants' cognitions about the job.²² The study divided satisfaction into positive attitude (PA) and negative attitude (NA), including ten items. The answers from participants were collected into "yes" and "no" for PA and NA, respectively. When evaluating teachers' satisfaction with the teaching subsidies and training base supplements, the original response options were "very satisfied," "satisfied," "a little satisfied," "dissatisfied," and "very dissatisfied." The five options were divided into "PA" ("very satisfied," "satisfied," and "a little satisfied") and "NA" ("dissatisfied" and "very dissatisfied").

Individual Covariates. Section 1 consisted of necessary socio-demographic information: gender, age, marital status (recoded into married and other [including unmarried, divorced, and widowed]), and education level (junior college or college, and postgraduate or above). The covariates about career information in Section 2 included working experience (10-year categories), professional titles (attending physician, deputy chief physician, and chief physician), hospital types (TCM hospital, specialized hospital, and general hospital), hospital levels (tertiary hospital, and non-tertiary hospital), and clinical departments (department of internal medicine, surgical department, and others).

Statistical analyses

The study calculated frequency, percentage, mean, and standard deviation (SD) to describe the demographic and career information. The study tested univariate analysis by applying the Chi-square test and Fisher's Exact test firstly. Significant variables (p-value of ≤ 0.05) from the univariate analysis were subjected to multivariate analysis. Moreover, the study employed Logistic Regression Analysis to explore the association between the covariates and satisfactions. All statistical analyses were performed using SPSS18.0 software, and a variable with a p-value ≤ 0.05 was considered statistically significant. The adjusted odds ratios (ORs) and their 95% confidence intervals (CIs) of independent variables were estimated.

Institutional ethics exemption

The study registered as an institutional ethics exemption, which involves the use of educational tests (cognitive, diagnostic, aptitude, or achievement tests).^{23,24} Considered minimizing the study's risks and to protect subjects' identities are protected, researchers provided informed content to all recruited participants and presented a brief description of the study before answering the questionnaires, including the purpose, time commitment, and any risks. All members of the research team completed the required online training module through the Collaborative Institutional Training Initiative (CITI) Program.²³

Results

Demographic and career information

In this study, 530 (92.3%) clinical teachers were under 50 years old. Around half of the participants were female (50.2%), and 97.6% of the instructors were married or cohabited. Of the 574 participants, 76% of clinical teachers graduated from junior college or college. Four-fifths (79.1%) of participants had been teaching for 1~10 years. Besides, two-thirds (66.4%) of participants worked in general hospitals, and 228 (39.7%) clinical teachers worked in tertiary hospitals. More than half (59.8%) of the teachers had deputy chief physician or chief physician titles. Participants were recruited from different hospital departments—67 (11.7%) teachers in the internal medicine department, 204 (35.5%) teachers work in the surgical department, and 52.8% in other departments.

Table 1
Demographic and Career-Related Characteristics for
Participants (n=574)

	n	%
Sex		
Male	286	49.8
Female	288	50.2
Marital status		
Married or cohabited	560	97.6
Others (i.e., unmarried, divorced& widowed)	14	2.4
Age (years)		
<=40	297	51.7
41~ 50	233	40.6
51~ 60	44	7.7
Education		
Junior college or college	437	76.3
Postgraduate or above	137	23.9
Title		
Attending physician	231	40.2
Deputy chief physician	225	39.2
Chief physician	118	20.6
Hospital level		
Tertiary class	228	39.7
Non- tertiary class	346	60.3
Types of hospital		
TCM hospital	112	19.5
Specialized hospital	81	14.1
General hospital	381	66.4
Teaching experience (years)		
1-10	454	79.1
11-20	96	16.7
21-30	22	3.8
Department		
Internal medicine	67	11.7
Surgery	204	35.5
Others	303	52.8

The satisfaction of clinical teachers towards SRTP

The study evaluated the clinical teachers' satisfaction according to the PA and NA prevalence from ten items (shown in Table 2). Lots of the items received a higher percentage of PA. In detail, 86.9% of clinical teachers responded positively to the program design, and 86.4% thought the training and promotion design was reasonable. Almost all teachers (96.3%) believed the provided contents met teaching requirements, and 94.6% of them evaluated the SRTP as helpful for students. Besides, 83.1% of teachers thought administrators had paid enough attention to training, and 60.8% of clinical teachers thought students were enthusiastic about studying in the SRTP. Also, 80.5% of teachers were satisfied with their subsidies. However, more than half of the clinical teachers (54.7%) believed that students' wages were insufficient. Around half of the participants (47.4%) felt the training period was too long. Nearly one-third (39.2%) of teachers thought students had conflicts between study and work.

Table 2
 □The satisfaction of clinical teachers towards SRTP

Items	Cognitive job satisfaction ^a	
	PA (%)	NA (%)
The SRTP provides enough supported content (e.g., number of diseases and cases) to meet teaching requirements.	553 (96.3)	21 (3.7)
The newly developed design of the SRTP is reasonable.	496 (86.4)	78 (13.6)
There is no problem with personnel policy by the SRTP.	499 (86.9)	75 (13.1)
The SRTP does not cause conflicts between residents' studies and work.	394 (68.6)	180 (31.4)
Leaders of medical institutions attach great importance to SRTP.	477 (83.1)	97 (16.9)
The SRTP helps improve residents' abilities.	543 (94.6)	31 (5.4)
The required training period for residents is not too long in the SRTP.	302 (52.6)	272 (47.4)
The residents have high motivations to attend daily training.	349 (60.8)	225 (39.2)
The residents' wage is good enough provided by SRTP.	260 (45.3)	314 (54.7)
Clinical teachers' subsidies supported by SRTP are good.	462 (80.5)	112 (19.5)

Note. ^a Cognitive job satisfaction: job satisfaction be measured in cognitive (evaluative).

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Factors affecting the teacher's cognitive job satisfaction

As shown in Table 3, gender, marital status, and educational level significantly affected clinical teachers' satisfaction. Significant differences existed between male and female clinical teachers' satisfaction regarding teaching subsidies ($p=0.003$), and when evaluating items of "There is no conflict between studies and work" ($p=0.006$) and "Leaders of medical institutions attach great importance to SRTP" ($p<0.001$). According to the item "The SRTP does not cause conflicts between residents' studies and work," clinical teachers who were married or cohabited reported higher agreement ($p=0.044$), and teachers who graduated from the junior college or college also reported the higher agreement ($p=0.003$).

Table 3
Univariate analysis of demographic and career variables clinical teachers' satisfaction (N= 574)

Items	Sex ^c	Marital Status ^c	Age	Education Level ^c	Title ^c	Hospital Level ^c	Types of Hospital ^c	Teaching experiences	Department ^c
P-value (χ^2) ^a									
The SRTP provides enough supported content (e.g., number of diseases and cases) to meet teaching requirements.	0.811 (0.057)	1.000 ^b	0.619 (0.958)	0.995 (<0.001)	0.967 (0.068)	0.227 (1.459)	0.308 (1.936)	0.394 (1.862)	0.067 (5.411)
The newly developed design of the SRTP is reasonable.	0.135 (2.234)	0.109 ^b	0.121 (4.231)	0.213 (0.644)	0.107 (4.463)	0.212 (1.560)	0.160 (3.670)	0.441 (1.639)	0.149 (3.802)
There is no problem with personnel policy by the SRTP. ^d	0.101 (2.697)	0.234 ^b	0.846 (0.334)	0.368 (0.811)	0.100 (4.602)	0.038* (4.317)	0.005** (10.571)	0.980 (0.041)	0.573 (1.115)
The SRTP does not cause conflicts between residents' studies and work. ^d	0.006** (7.592)	0.044*^b	0.981 (0.039)	0.003** (8.778)	0.135 (4.012)	0.408 (0.685)	0.025* (7.392)	0.421 (1.730)	0.046* (6.177)
Leaders of medical institutions attach great importance to SRTP. ^d	<0.001*** (12.183)	1.000 ^b	0.304 (2.385)	0.763 (0.091)	0.117 (4.296)	0.009** (6.817)	0.017* (8.139)	0.120 (4.245)	0.131 (4.070)
The SRTP helps improve residents' abilities.	0.869 (0.027)	0.545 ^b	0.249 (2.777)	0.863 (0.030)	0.245 (2.817)	0.383 (0.762)	0.848 (0.330)	0.670 (0.800)	0.933 (0.138)
The required training period for residents is not too long in the SRTP. ^d	0.360 (0.838)	0.459 (0.548)	0.099 (4.624)	0.246 (1.348)	0.148 (3.819)	0.017* (5.686)	0.019* (7.875)	0.547 (1.208)	0.562 (1.152)

Note. ^a Values were calculated from Chi-Square Test to examine effects from demographical information and career characteristic on the clinical teachers' satisfactions (significant at *p≤0.05; **p≤0.01; ***p≤0.001).

^b Values were calculated from Fisher- Exact Test to examine effects from demographical information and career characteristic on the clinical teachers' satisfactions (significant at *p≤0.05; **p≤0.01; ***p≤0.001).

^c Significant variables were calculated into the model when subsequent multivariable analyses.

^d Questionnaire items, which have significant factors from univariate analysis, can build the logistical model

Items	Sex ^c	Marital Status ^c	Age	Education Level ^c	Title ^c	Hospital Level ^c	Types of Hospital ^c	Teaching experiences	Department ^c
The residents have high motivations to attend daily training. ^d	0.239 (1.389)	0.787 (0.073)	0.545 (1.215)	0.143 (2.143)	0.063 (5.523)	0.093 (2.830)	0.420 (1.737)	0.144 (3.883)	0.003** (11.503)
The residents' wage is good enough provided by SRTP. ^d	0.206 (1.602)	0.720 (0.128)	0.181 (3.414)	0.425 (0.636)	0.008** (9.596)	0.035* (4.425)	0.035* (6.711)	0.737 (0.611)	0.220 (3.024)
Clinical teachers' subsidies supported by SRTP are good. ^d	0.003** (8.941)	0.742 ^b	0.295 (2.442)	0.669 (0.183)	0.691 (0.738)	0.745 (0.106)	0.643 (0.884)	0.698 (0.718)	0.076 (5.163)
<i>Note.</i> ^a Values were calculated from Chi-Square Test to examine effects from demographical information and career characteristic on the clinical teachers' satisfactions (significant at *p≤0.05; **p≤0.01; ***p≤0.001).									
^b Values were calculated from Fisher- Exact Test to examine effects from demographical information and career characteristic on the clinical teachers' satisfactions (significant at *p≤0.05; **p≤0.01; ***p≤0.001).									
^c Significant variables were calculated into the model when subsequent multivariable analyses.									
^d Questionnaire items, which have significant factors from univariate analysis, can build the logistical model									

Furthermore, titles, hospital levels, and working department types were significantly associated with teachers' satisfaction. Specifically, titles affected teachers' satisfaction with students' wages (p=0.008). Among different hospital levels, the significant differences of teachers' recognition were calculated from 4 items: "The SRTP does not cause conflicts between residents' studies and work" (p= 0.038); "Leaders of medical institutions attach great importance to SRTP" (p= 0.009); "The required training period for residents is not too long in the SRTP" (p=0.017); "The residents' wage is good enough provided by SRTP" (p=0.035). There had significant differences among teachers in different hospital types regarding whether training was too long (p=0.020), whether there was no problem with the training and promotion design(p=0.005), whether there was a conflict between study and work (p=0.025), and whether students' payments were good enough (p= 0.035). Also, different working departments influenced teachers' satisfaction about whether there were conflicts between study and work (p= 0.046) and whether students were highly motivated (p=0.003).

Univariate analysis of all variables was detailed in Supplementary File 1.

Logistic regression analysis of teachers' cognitive job satisfaction

In univariate analysis, variables with statistical significance to clinical teachers' satisfaction among demographic and career variables were obtained and applied in the logistic regression model. The logistic regression analysis showed that variables of gender, marital status, types of hospital, title, and working departments influenced clinical teachers' satisfaction significantly.

Notably, male (OR: 0.542, [95%CI: 0.371- 0.791]), graduated as postgraduate or above (OR: 0.612, [95%CI: 0.404-0.926]), unmarried, divorced& widowed (OR: 0.280, [95%CI:0.093- 0.849]), and TCM hospitals' teachers (OR: 0.466, [95%CI: 0.294- 0.739]) were more dissatisfied with "The SRTP does not cause conflicts between residents' studies and work". Male teachers (OR: 0.403, [95%CI: 0.252- 0.645]) reported lower agreement with "Leaders of medical institutions attach great importance to SRTP". Besides, male clinical teachers (OR: 0.527, [95%CI: 0.347- 0.805]) were less satisfied with teachers' subsidies. Compared with the department of internal medicine, clinical teachers from the department of surgery (OR: 2.396, [95%CI: 1.365- 4.206]) and other departments (OR: 2.409, [95%CI: 1.406- 4.129]) were more satisfied when considered "The residents have high motivations to attend daily training." Further, compared with attending physician, deputy chief physician (OR: 0.493, [95%CI: 0.310-0.783]) and chief physician (OR: 0.683, [95%CI: 0.471- 0.991]) more disagreed that student's wage is good enough. (Shown in Table 4).

Table 4
Logistic regression analysis of teachers' satisfaction

Model	Characteristic		OR (95%CI)	P value
There is no problem with personnel policy by the SRTP.	Hospital level	Tertiary class	Reference	
		Non- tertiary class	1.392 (0.548-3.539)	.487
	Types of hospital	General hospital	Reference	
		TCM hospital	0.575 (0.218-1.522)	.256
		Specialized hospital	1.512 (0.486-4.704)	.476
The SRTP does not cause conflicts between residents' study and work.	Gender	Female	Reference	
		Male	0.568 (0.391-0.826)	.003
	Marital status	Recorded married or cohabited	Reference	
		Others (i.e. unmarried, divorced& widowed)	0.276 (0.091-0.837)	.023
	Education	Junior college or college	Reference	
		Postgraduate or above	0.612 (0.404-0.926)	.020
	Types of hospital	General hospital	Reference	
		TCM hospital	0.514 (0.327-0.807)	.004
		Specialized hospital	1.053 (0.596-1.863)	.858
	Department	Internal medicine	Reference	
		Surgery	1.482 (0.823-2.668)	.190
		Others	1.692 (0.962-2.975)	.068
	Leaders of medical institutions attach great importance to SRTP.	Gender	Female	Reference
Male			0.403 (0.252-0.645)	<0.001
Hospital level		Tertiary class	Reference	
		Non- tertiary class	1.828 (0.810-4.126)	.147
Types of hospital		General hospital	Reference	
		TCM hospital	0.700 (0.294-1.668)	.421
		Specialized hospital	1.538 (0.586-4.038)	.382
The required training period for residents is not too long in the SRTP.	Hospital level	Tertiary class	Reference	

Model	Characteristic		OR (95%CI)	P value
	Types of hospital	Non- tertiary class	1.024 (0.536-1.958)	.943
		General hospital	Reference	
		TCM hospital	0.585 (0.287-1.193)	.140
		Specialized hospital	0.689 (0.326-1.459)	.331
The residents have high motivations to attend daily training.	Department	Internal medicine	Reference	
		Surgery	2.396 (1.365-4.206)	.002
		Others	2.409 (1.406-4.129)	.001
The residents' wage is good enough provided by SRTP.	Title	Attending physician	Reference	
		Deputy chief physician	0.493 (0.310-0.783)	.003
		Chief physician	0.683 (0.471-0.991)	.045
	Hospital level	Tertiary class	Reference	
		Non- tertiary class	0.939 (0.490-1.799)	.850
	Types of hospital	General hospital	Reference	
		TCM hospital	0.542 (0.263-1.115)	.096
		Specialized hospital	0.687 (0.322-1.470)	.334
Clinical teachers' subsidies supported by SRTP are good.	Gender	Female	Reference	
		Male	0.527 (0.347-0.805)	.003

Discussion

Most clinical teachers hold a positive attitude and have widely accepted the SRTP based on their evaluation of each item. However, teachers with different personality traits present different opinions after exploring the items in detail. The main findings indicated that most teachers with different genders, working departments, and professional titles have significant differences in satisfaction levels. While only evaluating the clinical teachers' overall satisfaction is inaccurate to find issues of SRTP,²⁵ the possible influential factors and caused reasons combined Chinese society characteristics might provide valued recommendations to develop SRTP in the future.

Initially, the results reported that the male clinical teachers' evaluations were low because of the unsatisfactory teaching content and caused conflicts between students' study and work. Also, comparing with the female counterparts, more male teachers evaluated the SRTP receive little attention from the leaders, and the provided subsidies to teachers are not good. Undoubtedly, job satisfaction is a function of individual differences, and some studies discussed that males and females relied on different cognitive-emotional regulation strategies, receiving different satisfaction degrees.²⁶⁻²⁹ For example, American women reported more meditation,

catastrophizing, refocusing actively,²⁷ refocusing on planning, and positive reappraisal. In contrast, American men scored higher in blaming others. Chinese culture's gendered social role expectations are another reason.^{20,30}

The cultural traditions and religious convictions shaped men's role, who receives society expected to be the chief breadwinner and responsible for supporting their families.^{31,32} On the contrary, the traditional community assumes women to do household work such as child-rearing and day-to-day life chores. Although some evidence stated that promoting gender equality of working already improved women's status, the traditional gender roles still appeared pervasively. Chinese female employees experienced more conflicts from their roles at home and the workplace. Because of the contradictory expectations from gender roles, men and women evaluated job satisfaction with different factors.³⁰ We believed that it was the primary explanation for the lower satisfaction of the male. According to the previous findings, male considered main determinants include income, responsibility, and professional development opportunities. In contrast, women considered job stability, the balance between work and family, and the professional status more critically. Also, some studies reported that Chinese men attached higher importance to challenging work and valued professional development opportunities than their female counterparts.²⁷ Recent research examined the incentives to help improve clinical teachers' motivation; it found that educators were highly motivated when they felt their leaders value the work of teaching.³³ Therefore, the study recommended that SRTP manage and spread diverse work types with different gender. Also, the management in the SRTP can develop more reward policies to increase the incentive mechanism and then improve clinical teachers' sense of responsibility and honor.¹⁷

The results also indicated that most clinical teachers believe that the residents' enthusiasm for studying in the SRTP is high. However, compared with the Surgery and other departments' clinical teachers, the clinical teachers who worked as the internal medicine physicians were less satisfied when considered "*The residents have high motivations to attend daily training.*" Almost all internal medicine departments work on geriatric chronic diseases and severe and complicated cases in China. The current situation leads the typical patients with milder conditions to be few, which causes clinical teachers to apply related diseases that cover differential diagnoses and treatments as teaching cases.^{34,35} However, the training period of the above studies are limited to residents. During the entire 33 months, residents must attend 29 months of rotation training in the various subspecialties (Cardiology, Nephrology, Gastroenterology, etc.) and 4 months of rotation training in the elective subjects under the internal medicine department.^{7,10,36} Except to participate in outpatient and emergency work and various teaching activities (teaching visits, case discussions, professional lectures, etc.), residents also have to complete the required number of diseases and basic skills. In short, excessive concentration of learning during the short-term rotation period burdens residents' pressure to make their residency training more challenging.

Communication between residents and patients during outpatient training may be another reason. Many internal medicine patients have to suffer long-term illnesses and repeated hospitalization.^{36,37} Thus, their minds and emotion are the most depressed. A previous study stated that many patients resent residents; they are reluctant to accept residents' consultation, body investigation and diagnosis, and treatment operations. That might be a barrier to affect the residents' studying to a certain extent.³⁷ Therefore, the study recommended that the SRTP strengthened communication with patients to obtain their cooperation and chose typical cases that were relatively mild and easy to communicate. Specifically, all clinical teachers can select patients to be involved in the clinical practice teaching. What is more, the educators can communicate with the patients before the class to explain the time, purpose, and time of teaching, obtaining the patients' and their families' understanding.

At least, the deputy chief physician and chief physician disagreed that students' wages are good enough compared with the attending physician. The caused reason may be that different professionals' roles are played in providing teaching quality in the SRTP. As the mild-level title, attending physicians are the main forces of clinical care in Chinese hospitals. However, most of them who work in the inpatient setting remain at this stage for the better part of their careers due to the vice chief physician requirements.³⁸ Under the system with high competitiveness, the contribution work to develop SRTP is an opportunity to attending physicians. Until now, many SRTP training bases already applied rewarding and punishing policies to evaluate teachers' performance, includes the number of teaching residents and the passing rate of the complete assessment. Most importantly, these results are often related to the reputation of the teachers, such as promotion, salary increase, evaluation, and dismissal.³⁶⁻⁴¹ Therefore, the final purpose of attending physicians to provide training in the SRTP is to earn rewards to be promoted as deputy chief physicians.

For many deputy and chief physicians, the promotion no longer has an incentive effect on them. Instead, broadening the academic field, mastering cutting-edge theories and methods, and seeking medical talents have become their potential needs. Also, many hospitals with SRTP maintain the appropriate proportion of chief physicians to deputy chief physicians to attending physicians to residents at the ratio of 1:2:4:8.³⁸ Under this distribution, except supervising interns and residents as an instructor in the SRTPs, the deputy chief and chief physicians also needed to act as administrative leaders in clinical departments. They are more concerned about residents' situations, besides their income. The study recommended that leaders incorporate resident physicians' performance appraisal as a reference basis for salary distribution and give resident physicians certain material rewards with excellent daily routines.^{42,44}

Study Limitations

Several limitations of this study still occurred and should be addressed in the future. Firstly, this study used a simple random sampling design to recruit clinical teachers within a single city in Zhejiang province. Thus, considering the bias from different regions, adding more areas in the future study to verify the current findings can be applied and interpreted nationwide. Secondly, the questionnaire in this study was self-designed. Although the literature research and the interviews with the first-lined managers of SRTP supported the primary evidence of the content validity of the scale items, the scale development and measurement of relevant concepts should be improved for further study. Furthermore, future research might take more contextual factors and curriculum planning in different clinical settings into consideration.^{34,35,38,43}

Conclusion

In summary, the broad implication of the present research leads to the following conclusions: the gender difference between the clinical teachers induced different satisfactions; the clinical teachers who worked in various departments presented different evaluations to the SRTP; the working titles of the clinical teachers also influenced their satisfaction with the SRTP. Therefore, several suggested strategies were provided: to increase the incentive mechanism to improve the sense of responsibility and honor of clinical teachers, enforce the education about communications between residents and patients, and provide more welfares to solve the issue of low payments to residents.

Abbreviations

SRTP: Standardized Residency Training Program

NHFPC: National Health and Family Planning Commission

NMEC: National Medical Examination Center

PA: Positive attitude

NA: Negative attitude

CITI: Collaborative Institutional Training Initiative Program

Declarations

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Authors' contributions

BYC, XYJ, JZ, YC, and HMW contributed the idea for the review. HMW and BYC designed the study. BYC, XYJ, JZ, and HMW were conducted to write the manuscript. BYC, XYJ, and JZ contributed equally to writing to this study. YC, BYC, and HMW collected

primary data, analyzed results, and designed exhibits. XYJ and HMW contributed to the critical review of the manuscript. All authors reviewed and approved the final version.

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Availability of data and materials

The online survey collected all data used via using Wenjuanxing Platform. (<https://www.wjx.cn/app/survey.aspx>). More detailed data used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

Since involving the use of educational tests (cognitive, diagnostic, aptitude, or achievement tests), this study was registered as an institutional ethics exemption and was waived the need for ethic approval by the Zhejiang Medical Ethics Committee (<https://lunli.wsjkw.zj.gov.cn/>). Goal to minimize the study's risks and protect subjects' identities, the study provided informed content to all recruited participants and presented a brief description of the study, including the purpose, time commitment, and any risks. All participants involved in the study analysis have read and signed the informed context before starting the survey. All research team members completed the required online training module through the Collaborative Institutional Training Initiative (CITI Program). Data were linked and analyzed only by authors who contributed to writing the article.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests. The authors are responsible for the content and writing of the article. All authors contributed to the critical revision of the manuscript. All approved the final manuscript for submission and have agreed to be accountable for the accuracy and integrity of the work.

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