

# A Survey on the Satisfaction of Standardized Residency Training in Chongqing

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## Abstract

**Objective:** To investigate the satisfaction and improvement demand of standardized residency training, and thus provide a basis for its strategy development and efficiency promotion. **Methods:** During 2017-2018, a survey was performed using a self-designed questionnaire and cluster sampling, involving 1050 standardized residency trainees from some tertiary comprehensive hospitals in Chongqing. The differential effects of various factors on the improvement demand were analyzed with  $\chi^2$  test. **Results:** Totally 980 (93.3%) eligible questionnaires were collected. As shown by the analysis in four aspects of residency training management, security and satisfaction, as well as post-training employment plan, the majority of trainees (87.14%) felt satisfactory about the training; the trainees at different educational levels gave high satisfaction to residency training management and clinical skills training, but significantly differential satisfaction to non-clinical skills training, clinical work pressure and salary ( $P < 0.05$ ). **Conclusion:** The standardized residency trainees in Chongqing have high overall satisfaction, and present an obvious demand for the improvement of standardized residency training. And the education level of trainees is one of the main influential factors.

## Keywords

Resident, Standardized Residency Training, Satisfaction, Employment Plan

## 1. Introduction

In accordance with the Guidance for the Establishment of Standardized Residency Training System issued by 7 national departments (including National Health and Family Planning Commission) in 2013 (Feng, Yang, Du, et al., 2016),

the standardized residency training has been successively implemented nationwide to cultivate the practicing physicians with excellent skills and comprehensive development in the clinical practice, which is a sign indicating that the continuous education of Chinese medical graduates enters into a new historical stage (Li, Wu, Yu, et al., 2016; Liu, Bai, Chen, et al., 2018). New training objectives and patterns are accompanied by many new problems of standardized residency training that are urgent to be resolved, e.g., how to cultivate the homogenized residence trainees, how to timely know the residency training situation, how to provide the feedback of residency training effect, and so on (Cheng, Zhang, Li, et al., 2018). The current studies have shown that there are a variety of prominent problems, such as insufficient importance of residency training bases and trainees to the residency training, insufficient software and hardware training conditions of bases, poor salary of trainees, and no individualized training measures (Dai & Zhu, 2017; Zhang, Ni, Jia, et al., 2010). This study aimed to analyze residency training in four aspects of residency training management, security and satisfaction, as well as post-training employment plan, with the final purpose of finding out the problems in the training and providing a new idea for standardizing and completing the residency training system, comprehending the post-training employment plan of residency trainees and improving the quality of residency training. In this study, a cluster sampling questionnaire survey was performed on 1,050 standardized residency trainees from some tertiary comprehensive hospitals in Chongqing during 2017-2018. And the study results are reported below.

## **2. Study Objects and Methods**

### **2.1. Study Objects**

In this survey study, the study objects were the trainees from some tertiary comprehensive hospitals in Chongqing who completed the standardized residency training during 2017-2018.

### **2.2. Methods**

A self-designed questionnaire was used. The survey of residency trainees was based on an anonymous and self-filling mode, and mainly involved the followed questionnaire contents: general data, training satisfaction and post-training employment plan of trainees.

#### **2.2.1. General Data**

The general data of trainees included sex, age, education, marriage, training base type, place of graduation university, household register place, fresh/previous graduate, physician practice license, weekly work time (during residency training).

#### **2.2.2. Residency Training Satisfaction**

Referring to Minnesota Satisfaction Questionnaire (MSQ) and work description

variables and combining the actual management of residency trainees, our survey was conducted in four aspects of residency training management, security and satisfaction, as well as post-training employment plan, involving management improvement, problems of residency training teachers, clinical teaching and training assessment.

### **2.2.3. Post-Training Employment Plan**

Based on the actual employment situation of residency training graduates and the employment characteristics of medical students in Chongqing, the descriptive analysis was performed on the employer selection, the selection of employment areas, and the demand for specialist training.

### **2.2.4. Questionnaires**

In the questionnaire, Likert 5-point scale was adopted, i.e., very satisfactory (5 scores), satisfactory (4 scores), nearly satisfactory (3 scores), unsatisfactory (2 scores), very unsatisfactory (1 score).

## **2.3. Statistical Analysis**

SPSS21.0 software was used for data processing and statistical analysis of questionnaires. The descriptive analysis and  $\chi^2$  test were adopted.  $P < 0.05$  suggested that a difference was statistically significant.

## **3. Results**

### **3.1. General Data**

Totally 1050 trainees were selected by cluster sampling in this study. And 1050 (100%) answered questionnaires were collected, including 980 (93.3%) eligible questionnaires from 785 trainees with Bachelor education, 139 trainees with Master education and 34 trainees with Doctor education. Other general data of trainees are shown in **Table 1**.

### **3.2. Overall Satisfaction**

The statistical analysis in three aspects of residency training management, security and satisfaction involved daily management, theoretical training in **Table 2**, clinical teaching, scientific research skills training, training assessment, and salary. In respect of the future occupational career, the standardized residency training demonstrated a positive impact in totally 87.14% (854/980) trainees but a negative effect in 5.31% (52/980) trainees, and an unknown influence in 7.55% (74/980) trainees. The questionnaire score of 980 trainees was 14 - 28 scores, specifically 24 - 28 scores in 62.45% trainees, 18 - 24 scores in 20.20% trainees and 14 - 18 scores in 17.35% trainees; the overall satisfaction of residency training was high.

### **3.3. Residency Training Management**

As shown by the analysis of questionnaire data in **Table 3**, the insufficiency in

the disease type and the number of cases at partial professional bases was the most prominent problem (reported by 59.81% (580/980) trainees), followed by unreasonable rotation arrangement (41.22% (404/980) trainees), insufficient

**Table 1.** General data of trainees.

Item	Variable	N	%
Sex	Male	396	40.1
	Female	584	59.59
Age (year)	20 - 25	111	11.33
	26 - 30	697	71.12
	>30	172	17.55
Education	Doctor student	34	3.47
	Master student	139	14.18
	Bachelor student	785	80.1
	Other educations	22	2.24
Marriage	Married	486	49.59
	Unmarried	494	50.41
Training base type	National	771	78.67
	Non-national	209	21.33
Place of graduation university	Chongqing	639	65.2
	Non-Chongqing	341	34.8
Household register place	Chongqing	777	79.29
	Non-Chongqing	203	20.71
Fresh/previous graduate	Fresh graduate	580	59.18
	Previous graduate	400	40.82
Physician practice license	Yes	898	91.63
	No	82	8.37
Weekly work time (hour)	<40	32	3.27
	40 - 60	624	63.67
	>60	324	33.06

**Table 2.** Overall satisfaction of residency training.

Item	N	%
Positive effect of residency training on the vocational career	854	87.14
Negative effect of residency training on the vocational career	52	5.31
Unknown effect of residency training on the vocational career	74	7.55
Satisfaction: 24 - 28 scores	612	62.45
Satisfaction: 18 - 24 scores	198	20.20
Satisfaction: 14 - 18 scores	170	17.35

**Table 3.** Satisfaction of residency training management.

Item	N	%
Insufficiency in the disease type and the number of cases	580	59.81
Unreasonable rotation arrangement	404	41.22
Insufficient clinical skills training	305	31.12
Differential treatment of training links and salary	193	19.69
Random selection of teachers	199	20.31
Low importance of residency training bases to the training management	110	11.22
No standard training assessment	78	7.96

clinical skills training (31.12% (305/980) trainees), differential treatment of training links and salary from the training bases to the trainees in the current units and from other units (19.69% (193/980) trainees), random selection of teachers by the residency training bases (20.31% (199/980) trainees), low importance of residency training bases to the training management (11.22% (110/980) trainees) and no standard training assessment (7.96% (78/980) trainees).

### 3.4. Residency Training Satisfaction

The analysis revealed that over a half of trainees thought that the teachers paid low importance to the residency training teaching work and it was a popular phenomenon to focus on the clinical teaching but lack the comprehensive skills training, meanwhile a part of teachers were junior physicians or refresher physicians in the hospitals who had no teaching qualification specified in the national regulations. The following problems were prominent: the teachers were unfamiliar with the contents and requirements of residency training during training; the number of residency trainees exceeded the proportion specified in the national regulations; and the teachers had no sufficient teaching experience. In the view of 8.88% - 43.57% trainees, it was urgent for teachers to improve the clinical skills teaching level, ward round teaching level, course teaching level, PPT document making level, and medical document writing teaching skills. In the arrangement of public courses at the residency training bases, only 1/3 trainees felt very satisfactory about the public training courses arranged by the hospitals. Other outstanding problems included inflexible course teaching time and pattern, no content stratification of public courses according to the education level of trainees, as well as repeated and crossed contents of public courses. In general, compared with the students who did not participate in the residency training, over 50% trainees completing the residency training of nearly 3 years demonstrated significant improvement in the clinical skills, doctor-patient communication skills, disease diagnosis and differential diagnosis skills, disease treatment plan making, ward round skills, critical patient salvage skills, and test result interpretation, while no obvious improvement in the scientific research quality and medical English. The residency training satisfaction and the relevant problems are shown in **Table 4**.

**Table 4.** Residency training satisfaction.

Item	N	%
Focusing on clinical teaching, without cultivation of comprehensive skills	428	43.67
Low initiative of clinical teachers	273	27.86
Unfamiliarity with the contents and requirements of specialist training	162	16.53
Low importance of teachers to residency training	555	56.3
Insufficient clinical level and teaching methods for teachers	153	15.61
No teaching qualification specified in the national regulations for teachers	198	20.2
A number of teachers exceeding the proportion specified in the national regulations	154	15.71
Insufficient ward round teaching skills of teachers	210	21.43
Insufficient clinical teaching skills of teachers	427	43.57
Insufficient medical document writing teaching skills of teachers	87	8.88
Insufficient course teaching skills of teachers	166	16.94
Insufficient PPT document making of teachers	90	9.18
Satisfaction of trainees to public course training	331	33.78
Repeated and crossed contents of public courses	194	19.8
No content stratification of public courses according to the education level of trainees	275	28.06
No importance of the training base to the training of public courses	197	20.1
Inflexible course teaching time and pattern	308	33.78

### 3.5. Residency Training Security

The survey showed that the trainees had low satisfaction to the residency training salary, holidays and accommodation, of which 55.41% (543/980) complained about low salary unaffordable to daily expenses, 30.20% (296/980) reflected no additional catering and transportation allowance from the residency training bases, 32.96% (323/980) and 42.24% (414/980) had a complaint of too short holidays and poor accommodation of residency training, respectively.

### 3.6. Correlation between Education Level and Residency Training Satisfaction

The trainees at different education levels showed high satisfaction to the residency training management and clinical skills training in **Table 5**; however, the satisfaction of doctor-patient communication skills training and scientific research skills training was lower in Bachelor students than in Master and Doctor students ( $P < 0.05$ ), and the satisfaction of clinical work pressure and training salary in Doctor students was significantly lower than that in other trainees ( $P < 0.05$ ). There was no statistically significant difference in the residency training security (e.g., training time and accommodation) among the trainees at different education levels ( $P > 0.05$ ).

### 3.7. Correlation between Education Level and Employment Plan

Based on **Table 6**, the trainees at different education levels demonstrated a significant difference in the employment plan. Compared with Bachelor students who had stronger intention to work in the units at different levels (including secondary hospitals, community health service centers and township hospitals), Master and Doctor students were more prone to choose the tertiary hospitals and had larger intention to continuously participate in the standardized specialist training after the completion of residency training, and the difference was statistically significant ( $P < 0.05$ ). The Master and Doctor students demonstrated a higher desire of employment in the urban areas of Chongqing ( $P < 0.05$ ), while most Bachelor students were more willing to get a job from the medical institutions in the outer suburbs and counties of Chongqing ( $P < 0.05$ ). An optimistic

**Table 5.** Satisfaction of residency trainees at different education levels to residency training [N, %].

Satisfaction	Bachelor student		Master student		Doctor student		$\chi^2$ value	P value
	N	%	N	%	N	%		
<b>Management</b> Residency training management system	625	79.62	122	87.77	30	88.24	6.290	0.043
Daily management	682	86.88	125	89.93	31	91.18	1.443	0.486
Residency training assessment	640	81.53	119	85.61	29	85.29	1.572	0.456
<b>Training</b> Clinical skills training	735	93.63	129	92.81	31	91.18	0.421	0.810
Doctor-patient communication skills training	615	78.34	124	89.21	33	97.06	34.014	0.000
Scientific research skills training	330	42.04	97	69.78	33	97.06	70.388	0.000
<b>Security</b> Clinical work pressure	315	40.13	70	50.36	19	55.88	7.787	0.020
Training time	471	60.00	84	60.43	27	79.41	5.157	0.076
Training salary	400	50.95	58	41.73	12	36.29	6.698	0.035
Accommodation	610	77.71	100	71.94	22	64.71	4.856	0.088

**Table 6.** Employment plan of residency trainees at different education levels [N, %].

Employment plan	Bachelor student		Master student		Doctor student		$\chi^2$ value	P value
	N	%	N	%	N	%		
Tertiary hospitals	268	34.14	101	72.66	28	82.35	96.525	0.000
Secondary hospitals	317	40.38	10	7.19	0	0	76.121	0.000
Community health service centers	59	7.52	0	0	0	0	13.856	0.001
Township hospitals	91	11.59	0	0	0	0	22.160	0.000
Private hospitals	9	1.14	20	14.39	0	0	71.641	0.000
Other occupations	33	4.20	8	5.76	2	5.88	0.823	0.663
Participation in the standardized specialist training	8	1.02	10	7.19	4	11.76	35.346	0.000
Urban areas of Chongqing	290	36.94	94	67.63	26	76.47	61.740	0.000
Outer suburbs and counties of Chongqing	383	48.79	25	17.99	1	2.94	68.778	0.000
Beijing, Shanghai, Guangdong and Shenzhen	1	0.13	2	5.88	6	17.65	45.277	0.000
Other areas out of Chongqing	114	14.52	15	44.12	1	2.94	4.797	0.091

attitude to post-training employment was observed in 81.94% (803/980) trainees, and 86.84% (851/980) trainees wished the governments and residency training bases could issue a series of measures to help their better employment.

## 4. Discussion

The standardized residency training is an important reform measure of new medical system reform and occupies a critical position in cultivating the medical talents and strengthening the construction of national medical team. How to improve the residency training quality and cultivate the qualified residents is a great challenge for the management departments in the hospitals (Liu, Han, Du, et al., 2016; Sun, Xia, Wang, et al., 2015). In this study, the following conclusions are drawn after the analysis on the residency training satisfaction and post-training employment plan of trainees and the problems found during training in Chongqing.

### 4.1. The Management Mode shall be People-Oriented and Humanistic Care-Emphasized

In this study, most trainees participating in the standardized residency training were 22 - 30 years old and bore multiple pressures of living, learning, family, marriage and employment (Tang, Chen, Liu, et al., 2012). The hospital managers shall understand the actual situations of trainees and help them to successfully complete the residency training from the prospective of service providers. Firstly, the management institutions shall pay importance to the residency training management, strictly control the residency training quality, carry out the systematic training of teachers, make the performance assessment of teaching achievements, and practically improve the overall teaching level of the teacher team. Secondly, they shall avoid the repeated training and differential treatment in the training courses and rotation arrangement and make the individualized rotation arrangement for trainees with difficulties through possible coordination. Finally, they shall standardize various assessment procedures and keep the assessment process and results open and transparent, guarantee the supply of training devices and places to enable the practical application of knowledge learned by the trainees, provide timely feedback about the training satisfaction of trainees, and actively hear the suggestions and comments of residency training management from the trainees, thus truly realizing the people-oriented and humanistic care-emphasized management (Zhang, Ouyang, Xu, et al., 2015; Zheng, Wang, Chen, et al., 2011).

### 4.2. The Construction and Optimized Management of the Teacher Team Shall Be Enhanced to Practically Improve the Teaching Level

This survey showed that a part of residency trainees felt unsatisfactory and had worries about the teaching qualification, teaching awareness, clinical level, teaching methods, and course teaching capability. The reasons may be as fol-



lows: 1) the overall level of the teacher team at various training bases is varying; 2) the State and various training bases have less input to the construction of the residency training teacher team; 3) it is popular that the junior physicians take charge of teaching tasks, thus failing to guarantee the residency training quality; 4) there is no practical and feasible residency training teacher performance assessment system, thus resulting in low teaching initiative of teachers and a decline of residency training quality; 5) there is a rigid institutional system for residency training management and the unreasonable arrangement of teaching time and courses, which causes a decrease of residency training satisfaction. It is suggested to continuously strengthen and complete the construction of the residency training teacher team from the perspective of top-down design. For example, various training bases shall establish a practical and feasible performance assessment system, so that the residency training teaching work is included into the teacher performance assessment, thus improving the teaching initiative of teachers and the quality of residency training; the management department shall positively transform their functions, consider the actual difficulties of residency trainees, and replace management with service, so as to improve the satisfaction and acquisition of residency trainees.

#### **4.3. The Clinical Skills Training Effect Is Remarkable in the Residency Training Process, Yet without Non-Clinical Skills Training**

After residency training, most trainees demonstrated great improvement in the clinical skills, critical patient salvage skills, test result interpretation and doctor-patient communication skills, but unremarkable improvement in the scientific research skills and medical English, which may be associated with such factors as heavy clinical tasks of trainees during training, no importance of teachers to the scientific research skills and medical English training, and even no scientific research skills training qualification of teachers because of their insufficient scientific research skills (Lin, Deng Yan, et al., 2005; Qu, 2016). After analyzing the residency training satisfaction of trainees at different education levels, we found larger improvement of scientific research skills and higher satisfaction in Doctor students than in Master and Bachelor students. The possible reason may be as follows: Doctor students finished the systematic scientific research skills training in their previous doctoral study and the senior physicians will actively invite Doctor students with excellent scientific research skills to participate in the research groups for certain scientific research work, while Master and even Bachelor students with poor scientific research skills are unable to take charge of complicated and high-intensity scientific research work and thus have few chances to contact the scientific research; as a result, the scientific research skills and medical English training have no significant effect. It is suggested that various bases, management departments and teachers pay enough importance to the non-clinical skills training in the future training work, and carry out the literature read and sharing, subject design discussion and various scientific research

lectures and activities to improve the scientific research skills and medical English of trainees and promote the comprehensive development of residents (Chen, 2008; WANG Chan, MA Xiao-jing, JIAO Qing-shi, et al., 2017).

#### **4.4. The Employment Guidance after the Completion of Standardized Residency Training Shall Be Intensified**

Post-training employment is a long-standing focus problem concerned by residency trainees and the society. As for how to improve the employment satisfaction and resolve the employment difficulty of residency trainees, it is an important topic faced jointly by the State, governments and residency training bases. Our survey showed that over 80% trainees had an optimistic attitude to post-training employment. As shown by the further analysis, the majority of standardized residency training participants in Chongqing were prone to work for medical institutions in the urban areas or outer suburbs and counties of Chongqing. After analyzing the correlation between education level and employment plan, we found that the trainees at a higher education level were more prone to get a job from the tertiary hospitals in the urban areas of Chongqing; the employment in the community health service centers and township hospitals was not considered by Master and Doctor students, and that of medical institutions in the outer suburbs and counties of Chongqing was rarely considered by these students. This is associated with the fact that compared with other medical graduates, the medical talents at higher education level possess better comprehensive skills and thus have more job options and more chances to be employed by the high-level comprehensive hospitals (Wei, Yin, Liu, et al., 2017). However, the residency training bases and management departments shall properly guide the residency trainees at different education levels by policy and employment knowledge education to seek for their occupational development in the medical institutions at different levels and in different areas, and the governments also shall issue the corresponding measures, e.g., promoting the salary and resolving the housing and children enrollment to facilitate the flow of excellent medical talents to the grass-root medical units. When releasing the employment pressure of residency training graduates, the residency training units shall do a good job in the psychological counseling and employment guidance of trainees by live recruitment fairs, real-time online publication of employment information and other methods, and provide assistance for the successful employment of trainees, thus practically improving the employment satisfaction (Zhang, Fang, & Zhao, 2014).

This study has the following shortcomings: firstly, there are too many questions and the overlapping of partial questions and contents in respect to the questionnaire design; secondly, the trainees included in the questionnaire survey were mainly from the residency training bases in the urban areas of Chongqing, and there was an insufficient number of trainees from the residency bases in various outer suburbs and counties, thus the conclusions may have a certain bias. In conclusion, the standardized residency training is an important strategic

measure for the clinical construction in China. There are many problems urgently to be resolved which exist in the residency training work. Only by continuously enhancing the people-oriented training management and security, improving the training contents, promoting the training quality and increasing the employment satisfaction, more medical talents with excellent skills and comprehensive development can be cultivated.

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### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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