

Analysis of Influencing Factors of Community Internship of Students Who Received Free Medical Training

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Abstract: *Objective:* To understand the profession, the purpose of community internship, the mastery of general medicine theory, and the factors affecting community internship among students receiving free medical training (hereinafter referred to as the free medical students). *Methods:* Taking medical students of a particular school in 2012, 2013, and 2014 as the survey subjects, electronic questionnaires were issued using the "Star Questionnaire" platform. *Results:* A total of 225 electronic questionnaires were collected. Univariate and linear regression analyses were conducted on the basic understanding of the profession and community internship. Pearson correlation coefficient analysis was also conducted to analyze the factors affecting community internships of free medical students. In terms of mastery of general medicine theory, 35.56% of the students mastered medical history collection and case writing skills. The understanding and mastery of clinical diagnosis and treatment methods, basic principles of general medicine, service models, and family-based management are relatively low, with percentages of 14.67%, 13.78%, and 12.89%, respectively. *Conclusion:* In the training of general medical students, it is important to provide strong guidance for their career planning. This will help them gain a better understanding and appreciation of the field of general medicine. Additionally, increasing their awareness of the role of general practitioners in the community is crucial. The focus of their training should be on developing clinical diagnosis and treatment skills, as well as fostering a patient-centered approach to healthcare.

Keywords: Free medical training; General medicine; Community internship; Influencing factors; General medicine education and teaching model

Online publication: November 29, 2023

1. Introduction

The state has been implementing free medical training programs for rural medical students since 2010. In addition to completing the credit hours specified in the five-year program, courses such as general medicine and

diagnosis and treatment technology of common rural diseases are also included. General medicine knowledge is a crucial part of medical training. General medicine students should fully understand the core knowledge and skills taught, improve their interest in learning general medicine, and identify with the work of general practitioners. This survey explores the factors affecting the community internship of medical students through comparative analysis. Then the teaching model of general medicine will be further explored on this basis.

2. Methodology

2.1. Survey objects and methods

An electronic questionnaire was distributed to general medicine students in the 2012, 2013, and 2014 batches. The survey contents include (1) General information about the research subjects: gender, year of study; (2) Cognition and attitude: awareness of general medicine knowledge, attitude towards community internship, willingness, and necessity of community internship; (3) extent of general medicine knowledge.

2.2. Statistical analysis

SPSS23.0 was used for statistical analysis. Descriptive statistical analysis, one-way ANOVA test, and linear regression analysis were carried out to analyze the factors affecting community internships, with $P < 0.05$ indicating statistical significance. The Pearson's correlation coefficient was calculated. Charts were plotted using Excel to describe the degree of mastery of theories related to community internship.

3. Results

3.1. Basic situation

225 electronic questionnaires were collected. (1) Among the participants involved in this study, there were 72 students (32%) from the 2014 batch, 92 from the 2013 batch (40.89%), and 61 from the 2012 batch (27.11%). (2) 88 of them were males (39.11%) and 137 were females (60.89%).

3.2. Cognition of community internship

(1) Willingness to do community internship: 17 people (7.56%) were very willing, 103 (45.78%) were willing, 48 people were somewhat willing (21.33%), and 57 people (25.33%) were not willing. (2) The appropriate length of community internship: 73 people said 1–3 weeks (32.44%), 60 said 3–5 weeks (26.67%), 29 said 5–7 weeks (12.89%), 36 said 7–9 weeks (16%), and 27 said more than nine weeks (12%). (3) Usefulness of community internship in gaining knowledge: 90 people said it was useful (40%), 80 said they were unsure (35.56%), and 55 thought that the internship program did not help them gain more knowledge (24.44%). (4) Degree of recognition towards the general medicine profession: 7 people strongly identified with the profession (3.11%), 82 people (36.44%) somewhat identified with the profession, 24 people were neutral (10.67%), while 92 people did not identify with the profession. (40.89%), and 20 people (8.89%) did not agree at all. (5) The necessity of free medical students undergoing community internships: 28 people thought that it was necessary (12.44%), 152 thought that it was somewhat necessary (67.56%), and 45 students thought that it was unnecessary (20%).

3.3. Influencing factors

3.3.1. Factors affecting the professional identity of general undergraduates

A *P-value* of less than 0.05 indicates statistical significance, meaning a significant correlation was observed. In other words, factors such as the initial reasons for applying for the program for free general medicine training, Awareness

of the terms and conditions of the free medical training, learning objectives, willingness to participate in community internships, and the ability to gain more knowledge of general medicine through community internships were all significantly correlated with professional identity. Please refer to **Table 1** below for more details.

Table 1. Factors affecting the professional identity of general undergraduates

	Item	Number of people	<i>F</i>	<i>P</i>
Batch	Class of 2014	72	0.121	0.975
	Class of 2013	92		
	Class of 2012	61		
Gender	Male	88	1.670	0.158
	Female	137		
The reason for applying for free general medicine training	No financial pressure	52	2.919	0.022
	Voluntary	8		
	No work pressure	14		
	Opportunities for career development in general medicine	8		
	Recommendations from family or friends	81		
	College entrance examination incorrectly filled in and approved in advance	53		
	Others	9		
Were you aware of the policies of the general medicine training?	Very knowledgeable	5	12.849	0.000
	Knowledgeable	101		
	Little knowledge	75		
	No knowledge	44		
What were your learning objectives?	To improve medical technology	112	11.399	0.000
	Improve knowledge and skills in medicine to increase competitiveness	67		
	To pass the exams	11		
	To meet their parents' expectations	14		
	No objectives	21		
Were you willing to do a community internship?	Very willing	17	10.765	0.000
	Willing	103		
	Somewhat willing	48		
	Unwilling	57		
Did you learn more about general medicine through community internships?	Yes	90	10.564	0.000
	Not sure	80		
	No	55		
What was the focus of your internship program?	Administrative work	16	3.763	0.006
	Clinical work	66		
	Public health management	143		
The percentage of clinical placements in your ideal community placement	10–30%	129	0.922	0.452
	30–50%	37		
	50–70%	36		
	70–90%	23		

3.3.2. Linear regression analysis of influencing factors affecting the professional identity of general medicine undergraduate

A significant correlation is indicated by $P < 0.05$. When the coefficient (B) is positive, it implies a positive correlation, whereas if it is negative, it indicates a negative correlation. Specifically, factors such as understanding the policy for free orientation to become a general practitioner, willingness to participate in community internships, the ability to gain more knowledge of general medicine through community internships, and the willingness to engage in a lifelong career in community-based general medicine were all positively correlated with the degree of professional identity towards general practice. In other words, the more individuals understand the policy, the more willing they are to participate in community internships, gain additional knowledge, and commit to a lifelong career in community-based general medicine, the higher their professional identity. Please refer to **Table 2** for further details.

Table 2. Linear regression analysis of factors influencing the professional identity of general undergraduates

	Unstandardized coefficient		Standardized coefficient	<i>t</i>	<i>P</i>
	<i>B</i>	Standard error	<i>Beta</i>		
(Constant variables)	-1.191	0.660		-1.805	0.073
The reason for applying for free general medicine training	0.025	0.030	0.044	0.823	0.411
Were you aware of the policies of the general medicine training?	0.314	0.077	0.228	4.090	0.000
What were your learning objectives?	0.050	0.048	0.057	1.022	0.308
Were you willing to do a community internship?	0.205	0.068	0.174	3.008	0.003
Did you learn more about general medicine through community internships?	0.246	0.082	0.175	3.000	0.003
What was the focus of your internship program?	0.025	0.101	0.014	0.243	0.808
Will you commit to a lifelong career in community-based general medicine	0.697	0.122	0.326	5.715	0.000

Note: Dependent variable: Identification of the general undergraduate profession

3.3.3. Univariate analysis of factors affecting the necessity of community internships

The results of the univariate analysis demonstrated that there is a significant correlation ($P < 0.05$). In other words, understanding the policy for free orientation to become a general practitioner, the ability to gain more knowledge of general medicine through community internships, and the willingness to participate in community internships are significantly associated with whether general medical students must undergo community internships. Please refer to **Table 3** for further details.

Table 3. Factors affecting whether free orientation students in general subjects need to conduct community internships

	Item	Number of people	<i>F</i>	<i>P</i>
Batch	Class of 2014	72	7.163	0.001
	Class of 2013	92		
	Class of 2012	61		
Gender	Male	88	3.381	0.036
	Female	137		

Table 3. (Continued)

	Item	Number of people	<i>F</i>	<i>P</i>
The reason for applying for free general medicine training	No financial pressure	52	1.97	0.142
	Voluntary	8		
	No work pressure	14		
	Opportunities for career development in general medicine	8		
	Recommendations from family or friends	81		
	College entrance examination incorrectly filled in and approved in advance	53		
	other	9		
Were you aware of the policies of the general medicine training	Very knowledgeable	5	3.35	0.037
	Knowledgeable	101		
	Little knowledge	75		
	No knowledge	44		
What were your learning objectives?	To improve medical technology	112	2.399	0.093
	Improve knowledge and skills in medicine to increase competitiveness	67		
	To pass the exams	11		
	To meet their parents' expectations	14		
	No objectives	21		
Did you learn more about general medicine through community internships?	Yes	90	54.807	0
	Not sure	80		
	No	55		
What was the focus of your internship program?	Administrative work	16	1.778	0.171
	Clinical work	66		
	Public health management	143		
	10–30%	129	0.351	0.704
	30–50%	37		
	50–70%	36		
	70–90%	23		
Were you willing to do a community internship?	Very willing	17	49.994	0
	Willing	103		
	Somewhat willing	48		
	Unwilling	57		

3.3.4. Linear regression analysis of factors affecting the necessity of community internships

The results of the multifactor analysis demonstrated statistical significance with a *P*-value less than 0.05, indicating a correlation. When the coefficient (*B*) is positive, it signifies a positive correlation, while a negative coefficient represents a negative correlation. The willingness to participate in community internships, the ability to acquire more knowledge in general medicine through such internships, and the readiness to pursue a lifelong career in general medicine within the community were all positively associated with the necessity of

free medical students to undergo community internships. In other words, a stronger willingness to engage in community practice was linked to increased knowledge acquisition during such practice, a higher inclination towards a lifelong career in general medicine in the community, and a stronger belief in the necessity of community internships for free medical students. Further details are shown in **Table 4**.

Table 4. Linear regression analysis of factors affecting the necessity of community internship

	Unstandardized coefficient		Standardized coefficient	<i>t</i>	<i>P</i>
	<i>B</i>	Standard error	<i>Beta</i>		
(Constant variables)	0.864	0.325		2.659	0.008
The reason for applying for free general medicine training	0.031	0.040	0.042	0.770	0.442
Were you aware of the policies of the general medicine training?	0.038	0.059	0.033	0.647	0.519
What were your learning objectives?	0.008	0.038	0.011	0.199	0.843
Were you willing to do a community internship?	0.226	0.034	0.378	6.746	0.000
Did you learn more about general medicine through community internships?	0.274	0.040	0.382	6.779	0.000
What was the focus of your internship program?	0.124	0.060	0.113	2.056	0.041

Note: Dependent variable: Necessity of community internships

3.3.5. Pearson correlation coefficients between the degree of professional identity and the necessity of community internships

A correlation analysis was conducted to assess the relationship between the level of recognition of general undergraduate occupations and the necessity for free orientation students in general subjects to undergo community internships. The analysis resulted in Pearson correlation coefficient values ranging from 0.300 to 0.9550. Subsequently, a *t*-test was applied to these Pearson correlation coefficients within the interval. At the significance level of $P = 0.05$ (two-sided), all the *P*-values were found to be less than 0.01, indicating that each Pearson correlation coefficient was statistically significant. Therefore, the results demonstrate a significant correlation between these variables. Please refer to **Table 5** for detailed information.

Table 5. Pearson correlation coefficients between the degree of professional identity and the necessity of community internships

Recognition of undergraduate professions			The necessity of undergoing community internships
Professional identity	Pearson correlation	1	0.421**
	Significance (two-tailed)		0.000
Necessity of community internships for free medical students.	Pearson correlation	0.421**	1
	Significance (two-tailed)	0.000	

Note: **Significant correlation at the 0.01 level (two-tailed).

3.4. Mastery of general medicine knowledge

The survey results regarding the mastery of general medicine theory showed that the highest proportion, at 35.56%, had a clear understanding and proficiency in medical history collection and case note writing skills. In contrast, a lower percentage, 13.78%, had a clear understanding and proficiency in the basic principles of

general medicine service models, while 14.67% had the same proficiency in general practitioners' clinical diagnostic thinking and the family-based management model (**Figure 1**).

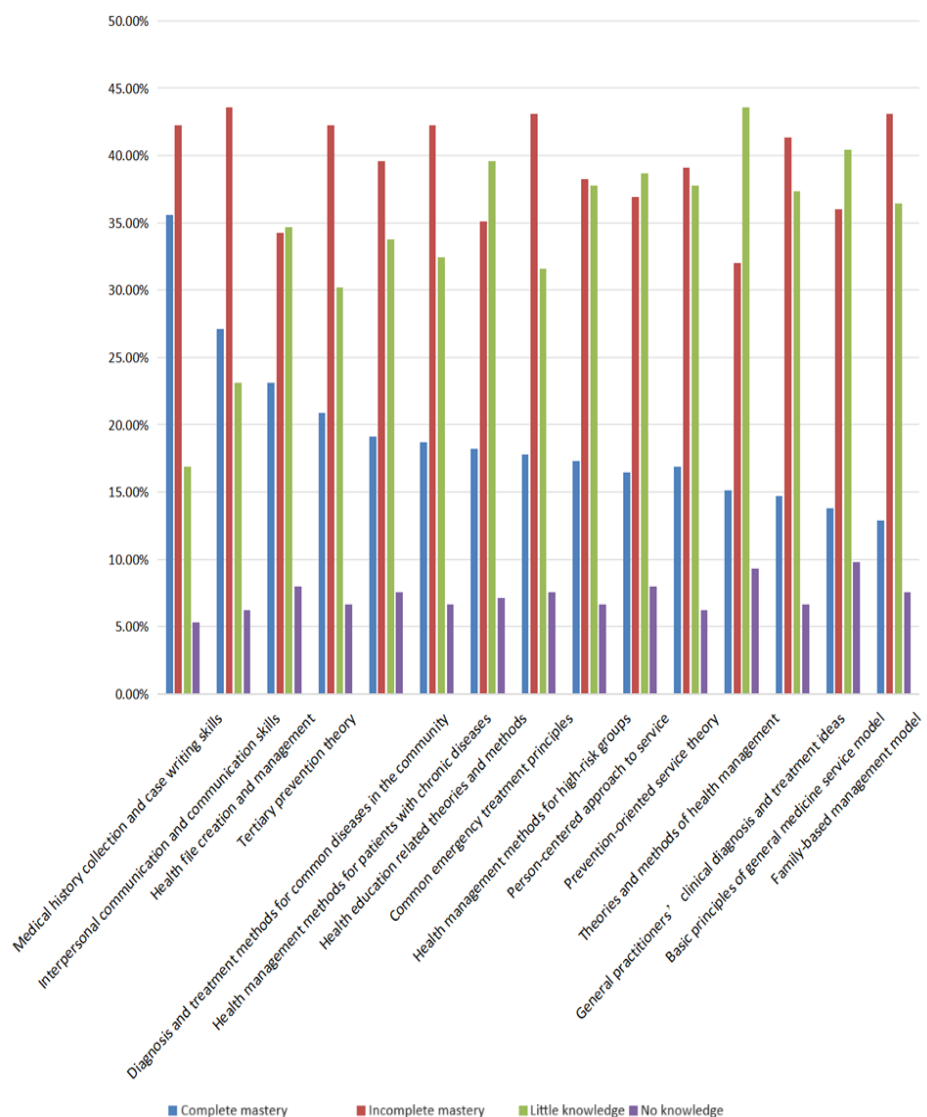


Figure 1. Mastery of 15 fundamental theories

4. Discussion

The development of rural health care requires the efforts and dedication of many grassroots medical workers. With the continuous reform of the health care system, it is crucial to improve the capabilities and service levels of grassroots medical and health care institutions. To achieve that, the health care system and the quality of health care staff need to be improved. As China is in a critical period of health care reform, providing free medical training for rural medical students is a crucial way to nurture more health care professionals ^[1]. Free medical students will need to provide integrated services such as general health care, preventive health care, and chronic disease management at the grassroots. Therefore, it is necessary to strengthen community internships to cultivate the capabilities of these students ^[2]. Community internship is the most critical link for students to connect their medical knowledge with practical skills ^[3]. The aim of directional training programs is to develop highly skilled senior general clinical medicine professionals for township health centers. These professionals

are expected to be capable of immediately contributing to their work, providing valuable services, remaining committed, and creating a meaningful impact in their communities.

4.1. Improving the professional identity of general medicine students

The survey results reveal that only a mere 3.11% of respondents exhibit a strong sense of identification with the general medicine profession. This conclusion is based on a comprehensive analysis, considering both univariate and linear regression perspectives regarding the recognition of the general medicine profession. Essentially, this indicates that the higher the level of understanding of related policies, the willingness to engage in community internships, and the ability to acquire additional knowledge through such internships, the stronger the sense of identity with the general practice profession. Therefore, to improve the awareness of general medicine, it is necessary to strengthen policy comprehension and ensure that the students understand their rights and obligations, so that they will be more committed to community internships. Above all, it is essential to enhance their sense of belonging and mission within the profession ^[4]. To enhance the career planning for students in general medicine, it is advisable to offer specialized courses that focus on career planning tailored for these students. This approach should emphasize the reinforcement of professional identity education and the establishment of a comprehensive professional identity education system. Additionally, it is essential to guide students accurately to foster a positive professional mindset ^[5]. To help students better understand general medicine during their theoretical studies, it's important to consistently introduce and emphasize the concept of general medicine. This will involve increasing their awareness of the importance of general medicine, making the subject more interesting, and helping them develop an intuitive understanding of its principles ^[6]. These efforts will encourage students to be more motivated and proactive in their learning, ultimately improving their professional competence. Since these students are primarily focused on serving local communities, it is essential to enhance their training in practical general practitioner skills to better serve the needs of local populations ^[7].

4.2. Raising awareness of the importance of community internships

A linear regression analysis was conducted to investigate whether general practice free orientation students must undertake community internships. The results revealed a significant relationship between these students' willingness to engage in community internships, their ability to acquire more knowledge about general medicine through such internships, and their willingness to pursue lifelong careers in general medicine. This underscores the importance of their initial understanding of the significance of community internships in an ideological sense. Community internships can only be improved by first understanding the importance of it. Lobbying work needs to be done so the community internships can be well known by people and early community internships can be implemented. Moreover, a popular diversified teaching model is applied during community internships, allowing students to participate in the entire diagnosis and treatment process and actively communicate with teachers. In addition to teaching, typical general medicine cases can also be incorporated into the teaching manual. This approach improves the effectiveness of community internships to increase their enthusiasm and initiative to participate in general medicine practice ^[6,8]. With good internship programs, students will feel a sense of accomplishment when they complete the program, making them more interested in general medicine ^[9].

4.3. Strengthening theoretical education in general medicine and linking theory to practice

In this study, general medical students have undergone training in the course "Introduction to General Medicine." The survey results indicate that there are still unclear aspects in their understanding and mastery of the theoretical content of general medicine. Specifically, their grasp of knowledge related to the basic principles

of general medicine service models, clinical diagnostic thinking of general practitioners, and theories and methods of health management is relatively low. On the other hand, they have a higher level of understanding and mastery when it comes to skills related to patient history collection and medical record writing. This indicates that medical students have a limited understanding and acceptance of general community healthcare. They lack the experience of specialized clinical internships, and their perception of health care service models still revolves around a disease-centered approach. There is a significant need for medical students to improve their understanding and mastery of relevant knowledge, especially in the areas related to the work of general practitioners^[10]. It is crucial to enhance students' understanding and appreciation of general medicine. Practical training plays a vital in community-based general medicine. To achieve this, we need to develop a collaborative education system involving various stakeholders and focus on reinforcing community-based learning. This approach aims to foster a patient-centered mindset in students, improve their diagnostic and treatment skills, enhance their family assessment abilities, boost their community service competencies, and strengthen their fundamental public health service skills^[11-13]. The ultimate goal is to help students translate their theoretical knowledge into practical clinical skills, preparing them to become competent general medicine professionals.

5. Conclusion

In summary, developing general medicine education and cultivating high-quality general medicine professionals are inevitable requirements for developing the health care industry and constructing a healthy China. It is also an urgent and long-term task for medical colleges and universities^[14]. In general medical education and teaching, it is important to pay attention to students learning progress and their acquisition of knowledge. At the current stage of general medicine development, community internships that align with the developmental characteristics of general medical students should be continuously explored. This involves refining the internship model and establishing a more comprehensive application-oriented general medicine talent training model^[15]. The goal is to adapt to the unique features of general medical student groups, enhance the quality of general medical talent training, and cultivate a greater number of general practitioners.

Disclosure statement

The authors declare no conflict of interest.

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