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Attitudes and Motivation Toward Community-based Medical Education Among Students Enrolled in a Regional Quota Program at a Japanese Medical School

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Summary

In Japan, a regional quota system was introduced to ensure that a sufficient number of medical students enroll in regional quota programs throughout the country. The number has increased since 2010, reaching 9,330 students at 71 Japanese universities, comprising 18.0% of all new medical students in 2020. Since this system started, some students with scholarships requiring them to work in designated areas for 9 years opted to repay their scholarship fund and withdrew from the program. Thus, this study examined attitudes and motivation toward community medicine among students enrolled in a regional quota program.

Participants were 82 first- to fourth-year students enrolled in comprehensive community medicine practicums at Dokkyo Medical University in 2018. The survey was completed by 63 students (76.8%) who provided voluntary and anonymous answers to a questionnaire using a learning management system. Most had positive attitudes toward community medicine and practicums. Students in lower years tended to be more motivated to pursue community medicine in the future than students in higher years. Students without scholarships were significantly more motivated to pursue community medicine in the future than students with scholarships. The top lessons learned from practicums were the role of physicians in community medicine, the state of medical care in communities, and multidisciplinary and team health care.

All students stated that the community medicine program is important. In order to enhance motivation and to maintain positive attitudes toward community medicine among medical students, lectures and practicums need to be improved and adapted to each year of medical training.

Key Words: community medicine, motivation, professionalism, practicum

Introduction

To solve shortages and uneven distributions of physicians in some regions in Japan, there has been an increase in the maximum number of student enrollments in regional quota programs at medical schools throughout the country since April 2010¹⁾. Such enrollment is

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called regional admission and includes students admitted with or without a scholarship. The number of regional admissions has been growing, reaching 1,679 of all 9,330 students enrolled at 71 universities, consisting of 18.0% of all students in 2020¹⁻³.

Against this background, Dokkyo Medical University introduced regional admission in 2010, coinciding with the commencement of compulsory comprehensive community medicine practicums for first- to fourth-year students. Since 2013, 10 students of a total of 20 were admitted as recommended candidates without scholarship and the remaining 10 were admitted with scholarship and were obliged to work in Tochigi Prefecture for 9 years.

It is important to provide education that develops a community medicine mindset and motivates engagement in community medicine in the future among not only regional admission students, but among all medical students. The purpose of education in community medicine is to train “good doctors” devoted to the communities as they respond to medical needs in designated areas⁴. By having community medicine collaborate with universities and the community, medical students will be able to find community medicine attractive, acquire basic skills, and become motivated to contribute to the regional communities. Furthermore, the final goal is for students to become medical professionals, which requires them to learn about the relationship between physicians and society, sense of values, and professional ethics.

The medical curriculum at Dokkyo Medical University was developed based on a study by Takamura and Ban⁵, with the target of increasing student interest in medical services, public health, and community social welfare. However, there has been a problem where some students with scholarships withdraw from regional admission before and after graduation. By 2018, 10,262 students were enrolled as regional admission students, and 2.7% ($n = 281$) of them withdrew. In addition, 289 of 4,084 students who had passed the Japanese National Examination for Medical Practitioners suspended their participation in regional quota programs⁶.

Therefore, this study was conducted to investigate attitudes and motivation toward community medicine among students enrolled in regional quota programs at

Dokkyo Medical University. In addition, the results obtained were examined to determine whether differences exist between students in different years of medical school and between those with and without scholarships.

Methods

Participants were 82 regional admission students enrolled in comprehensive community medicine practicums at the Dokkyo Medical University School of Medicine in 2018. This group comprised 17 first-year students, 24 second-year students, 22 third-year students, and 19 fourth-year students. The practicums involved mainly training at local clinics for the first- and third-year students, training at home visit nursing stations for the second-year students, and training inside ambulances and at emergency and critical care centers for the fourth-year students, all of which took place during summer vacation. Thereafter, a survey on attitudes toward community-based medical education was conducted using a learning management system (LMS). An LMS is an operation system for e-learning that facilitates the management of courses, including scheduling classes, sharing course materials, checking attendance, creating customized tests, conducting surveys, and submitting reports and assignments online. Student responses to the online survey were voluntary and anonymous and were entered between September 24 and October 6, 2018. Non-responders were notified twice to encourage them to participate in the survey.

The survey consisted of 5 questions; 4 questions asked the students to rate their agreement (strongly agree, agree, disagree, and strongly disagree) with given statements regarding community medicine, and 1 question asked what the students had learned from the community medicine program.

Data were analyzed using IBM SPSS version 21. The students were divided by year and scholarship status. Answers were categorized into 2 groups, and the chi-squared test was used to compare the survey results.

Results

A total of 63 students responded to the survey (response rate = 76.8%). Response rates by year and by with or without scholarship are shown in Table 1. Of

Table 1 Survey response rates

Year of medical school	With scholarship	Without scholarship	Total
1st year	7 /7 (100.0%)	8/10 (80.0%)	15/17 (88.2%)
2nd year	6/10 (60.0%)	10/14 (71.4%)	16/24 (66.7%)
3rd year	10/12 (83.3%)	8/10 (80.0%)	18/22 (81.8%)
4th year	5 /8 (62.5%)	9/11 (81.8%)	14/19 (73.7%)
Total	28/37 (75.7%)	35/45 (77.8%)	63/82 (76.8%)

Table 2 Attitudes toward community medicine

	Strongly agree	Agree	Disagree	Strongly disagree
I will pursue community medicine in the future.	18 (28.6%)	36 (57.1%)	8 (12.7%)	1 (1.6%)
I understand what community medicine is.	15 (23.8%)	42 (66.7%)	6 (9.5%)	0 (0.0%)
I positively engage in the community medicine program.	15 (23.8%)	36 (57.1%)	11 (17.5%)	1 (1.6%)
The community medicine program (or curriculum) is very important for medical students.	35 (55.6%)	28 (44.4%)	0 (0.0%)	0 (0.0%)

the 63 students, 15 were first-year students (7 with scholarships and 8 without scholarships), 16 were second-year students (6 with scholarships and 10 without scholarships), 18 were third-year students (10 with scholarships and 8 without scholarships), and 14 were fourth-year students (5 with scholarships and 9 without scholarships).

Results of 4 questions regarding community medicine are shown in Table 2. Of all participants, 18 (28.6%) strongly thought that they will pursue community medicine in the future, 36 (57.1%) thought so, 8 (12.7%) did not think so, and 1 (1.6%) did not think so at all. In terms of understanding community medicine, 15 (23.8%) understood very much, 42 (66.7%) understood somewhat, and 6 (9.5%) had little understanding. As for attitude toward the community medicine program, 15 (23.8%) were positively engaged, 36 (57.1%) were somewhat positively engaged, 11 (17.5%) were negatively engaged, and 1 (1.6%) was reluctantly engaged. All students agreed that the community medicine program (or curriculum) is important for medical students, with 35 (55.6%) answering very important, and 28 (44.4%) answering somewhat important.

Comparisons of results between students in lower and higher years are presented in Table 3. Students in lower years tended to be more motivated to pursue

community medicine in the future than those in higher years ($p = 0.081$).

Results of analysis by scholarship status are shown in Table 4. There was a significant difference in answers to “I will pursue community medicine in the future”. Students without scholarships indicated intention to pursue community medicine in the future more frequently than students with scholarships ($p = 0.035$).

Lessons learned from the comprehensive community medicine practicums are presented in Fig. 1. The 3 most frequent answers were the role of physicians in community medicine ($n = 53$, 84.1%), followed by state of medical care in communities ($n = 52$, 82.5%), and multidisciplinary and team health care ($n = 45$, 71.4%).

Discussion

In this study, motivation to pursue community medicine in the future tended to be higher among first- and second-year students than among third- and fourth-year students. In addition, students without scholarships were significantly more motivated than students with scholarships. Thus, third- and fourth-year students with scholarships were the least likely to be motivated to pursue community medicine in the future.

We previously reported that attitudes toward self-evaluation of learning among freshmen was more posi-

Table 3 Comparisons of attitudes toward community medicine between students in lower and higher years of medical school

	Strongly agree/Agree	Disagree/Strongly disagree	χ^2 -value	p-value
I will pursue community medicine in the future.				
1st and 2nd year	29 (93.5%)	2 (6.5%)	3.059	0.081
3rd and 4th year	25 (78.1%)	7 (21.9%)		
I understand what community medicine is.				
1st and 2nd year	27 (87.1%)	4 (12.9%)	0.809	0.321
3rd and 4th year	30 (93.8%)	2 (6.2%)		
I positively engage in the community medicine program.				
1st and 2nd year	25 (80.6%)	6 (19.4%)	0.004	0.602
3rd and 4th year	26 (81.3%)	6 (18.7%)		
The community medicine program (or curriculum) is very important for medical students.				
	<u>Strongly agree</u>	<u>Agree</u>		
1st and 2nd year	16 (51.6%)	15 (48.4%)	0.384	0.357
3rd and 4th year	19 (59.4%)	13 (40.6%)		

Table 4 Comparisons of attitudes toward community medicine between students with and without scholarships

	Strongly agree/Agree	Disagree/Strongly disagree	χ^2 -value	p-value
I will pursue community medicine in the future.				
With scholarship	21 (75.0%)	7 (25.0%)	4.725	0.035
Without scholarship	33 (94.3%)	2 (5.7%)		
I understand what community medicine is.				
With scholarship	23 (82.1%)	5 (17.9%)	0.984	0.245
Without scholarship	25 (71.4%)	10 (28.6%)		
I positively engage in the community medicine program.				
With scholarship	21 (75.0%)	7 (25.0%)	1.158	0.225
Without scholarship	30 (85.7%)	5 (14.3%)		
The community medicine program (or curriculum) is very important for medical students.				
With scholarship	14 (50.0%)	14 (50.0%)	0.630	0.295
Without scholarship	21 (60.0%)	14 (40.0%)		

tive among students enrolled in comprehensive community medicine practicums than other students⁷. Another study reported that most freshman medical students declared a study-centered lifestyle henceforth. However, among those with a poor academic record, the frequency of this declaration had decreased by the time they reached their fourth year of medical school⁸. As students progress through medical school, they become less motivated toward lectures and practicums. This might be applicable to the finding in the present study that third- and fourth-year students were less interested in pursuing community medicine in the future than first- and second-year students.

In medical curriculum at the Dokkyo Medical University School of Medicine, students are taught to have

a patient-first perspective and to always extend kindness and consideration toward others. According to Hojat et al., empathy in medical students significantly declined during the third year of medical school and fell continuously until graduation. They described this phenomenon as “the devil is in the third year”⁹. It is unfortunate that empathy seems to erode when the curriculum shifts from basic medical sciences to clinical medicine and symptomatology. Likewise, the present study found that motivation toward pursuing community medicine in the future decreased among third- and fourth-year students. In summary, knowledge of clinical medicine makes medical students focus on diseases and symptoms rather than patients as human beings.

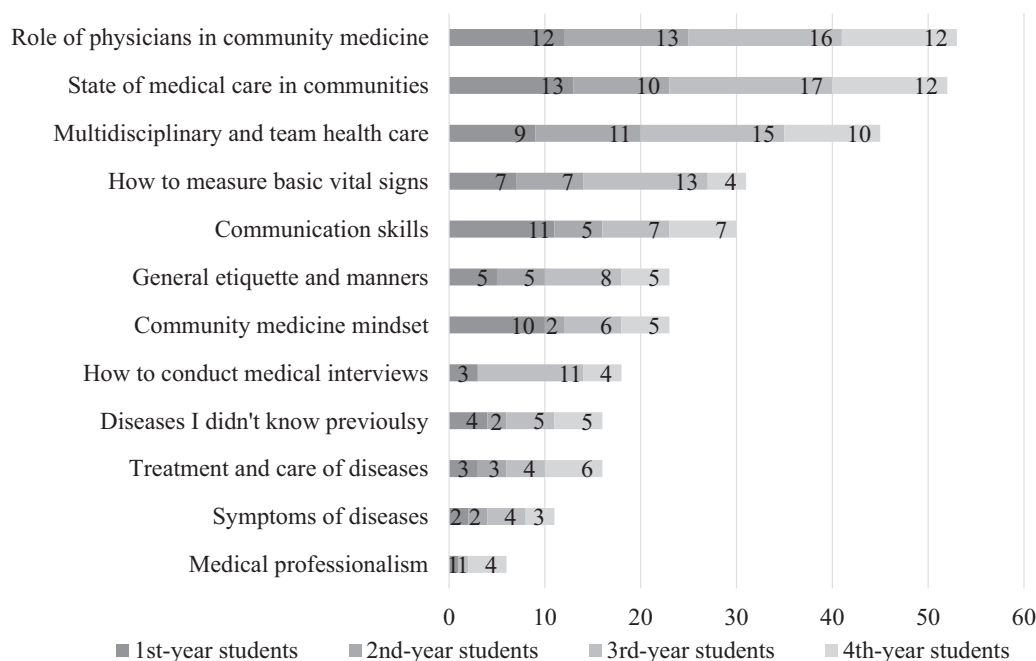


Figure 1 Lessons learned from the community medicine program (multiple answers allowed)

In a study that examined students enrolled in comprehensive community medicine practicums, there was no difference in awareness of future engagement in community medicine by scholarship status. However, the image of the ideal doctor in the future was significantly associated with awareness of pursuing community medicine among students¹⁰. This finding indicates the importance and possibility of providing community medicine education that includes teaching about the ideal doctor in order to prevent students from withdrawing from regional admission. Many medical universities have developed a unique curriculum for such students^{11,12}. Community medicine curricula and programs are now offered not only to students enrolled in regional quota programs, but to all students. These curricula include opportunities for students to receive training outside medical school, such as by physicians at community hospitals and clinics. Through these opportunities, students are able to enhance the image of the ideal doctor in community medicine¹³. In particular, a study at Jichi Medical University reported that fifth-year students who undertook a 2-week clinical clerkship in the community showed positive attitudes toward community health care¹⁴. Thus, motivation toward community medicine would be improved by programs held at facilities and hospitals outside medical school.

Another problem is students with scholarships withdrawing from regional admission and repaying their scholarship fund. Kataoka et al. (2017) examined factors associated with loan repayment and found that female students at private medical schools were most likely to repay their scholarship fund. In addition, of students with a high likelihood of repayment, 60.7% applied for regional admission because the acceptance rate into regional quota programs is higher than that into general entrance admission¹⁵. Therefore, it is important to improve the process of selecting students with scholarships as well as to enhance motivation toward community medicine.

There are some limitations in this study. The participants were 63 students at a single private university, so the results might not be generalizable. Moreover, evaluations of comprehensive community medicine practicums at medical schools need to include graduates in order to determine the long-term effects of these programs. Finally, the demographic data of the participants were quite limited, so there is a possibility that other factors may have affected the students' attitudes and motivation toward community medicine.

Because all the students in this study stated that the curriculum for community medicine is important, comprehensive community medicine practicums are considered to be somewhat meaningful for them in learn-

ing community health care. Therefore, lectures and practicums should be improved as needed in order to enhance motivation and maintain positive attitudes toward community medicine. Although training programs and practicums at medical facilities are difficult to implement under the current circumstance due to the coronavirus disease (COVID-19) pandemic, they are of great value to community medicine education. Thus, they need to be carried out with great precaution and maximum preventive measures against COVID-19.

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Conflict of interest

The authors declare no conflict of interests.

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