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How does students' motivation for their future images as physician change during their undergraduate medical education.

A cross-sectional study of students' primary care medicine orientation at one medical school.

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Key words; primary care, career choice, clerkship, humanitarian, psychosocial.

【Abstract】

[Object]

We conducted this study to learn what motivated medical students to think about their career choice during medical school.

[Method]

We distributed questionnaires to 1st, 4th, 5th and 6th year students at Sapporo Medical University. The questions included (1) What kind of a physician do you want to become? (2) What influenced your image of yourself as a physician? We counted the themes extracted from each question for 1st year students and compared them to the themes for the 4th, 5th and 6th year students.

[Result]

Primary care medicine as the specific images of themselves as physician was 18.6, 11.5, 2.1 ($p < 0.01$) and 9.5% in each year students. The average number of themes of abstract (humanitarian) image per student was 0.92 ($p < 0.01$), 0.56, 0.44, and 0.46. 1st year students' images of themselves as physician were influenced by the media, medical experiences of their own or their family members and the attitudes of a family member who works in a medical service. On the contrary, among 6th year students 53% of specialty career orientation students were influenced by their specialty medicine clerkship. However, only 33% of primary care medicine orientation students were influenced by a primary care medicine clerkship.

[Conclusion]

To increase the number of the students who choose primary care medicine for their career, we need to strengthen their primary care medicine clerkship experiences to include opportunities to work with primary care physicians. We also need to emphasize the humanitarian and psychosocial aspects of their medical education.

【Introduction】

The importance of primary care physicians has been growing during the current upheaval in medical care worldwide. This is true in Japan. In response to this situation the Ministry of Health, Labour and Welfare decided to initiate a two-year compulsory primary care, postgraduate rotation training in April 2004. The selection of a career as a primary care physician is said to be increasing in Japan. However there are still no studies to support this belief and what if any impact the compulsory postgraduate rotation training may have had on this increase. The only available data is from 1992 and it showed that primary care medicine as a career choice among Japanese medical students was 5.7% ⁽¹⁾. Although there is no clear explanation for the low selection rate for primary care medicine among Japanese medical students, we can assume the influence of undergraduate medical education. Since no department had taught primary care medicine in most Japanese medical universities, Japanese medical students could not know what primary care medicine is all about. Consequently few students considered primary care as a viable career choice. However, Japanese undergraduate medical education has been changing dramatically, and information about primary medicine provided by faculty and mass media has been increasing. We think that these changes might lead to the result of Japanese medical students' orientation in primary care medicine. We did this study to learn about medical students' motivation for choosing primary care medicine and to identify the factors influencing their career choice.

【Method】

Setting and Subject

We conducted our study at the Sapporo Medical University in 2002. We enrolled 102 first year students; 98 fourth year students; 96 fifth year students; and 97 sixth year students. The first year students had been in medical school for two days; the fourth year students were in the middle of their clinical medicine lecture courses; the fifth year students were taking their Objective Structured Clinical Examination (OSCE) day and were about to begin their clinical clerkships; and the sixth year students had completed their clinical clerkships.

Data collection and data analysis

After obtaining verbal consents from the students to participate in our study, we distributed questionnaires in the classroom and asked them to complete them and return them to us as they left. The questions included (1) What kind of a physician do you want to become? (2) What influenced your image of yourself as a physician?

We read the comments from the students' questionnaires and identified the shared concepts which became *themes*. We counted the themes for first year students and compared them to the themes for the fourth, fifth and sixth year students. To understand the trend of the students' thought, we used chi square tests using Dr. SPSS II for Windows (Japanese version) for our statistical analyses.

【Result】

We received 102 completed questionnaires from the first year students; 95 from the fourth year students; 59 from the fifth year students;

and 95 from the sixth year students. Response rate was 100%, 96.9%, 61.5% and 97.9% respectively

(1) What kind of a physician do you want to become?

Although 49.2% of the first year students had specific images of themselves as physicians, this per cent was significantly lower for the fourth and fifth year students. It was very low in fifth year students (25.4%, $p=0.04$) [Table. 1]. However, the percent rose to 52.6% for the sixth year students. Among specific images, community medicine and primary care medicine was 18.6% in the first year students. However, the number was significantly lower in other areas of medicine. Among sixth year students 9.5% of them considered primary care medicine as their career path. Among fifth year students, primary care medicine was lowest (2.1%, $p<0.01$). Students considering careers in overseas medical service and as researchers were low among fourth, fifth and sixth year students compared to the first year students.

Besides specific images, students had several abstract images of themselves as future physician [Table. 2]. The average number of themes per student was significantly high in the first year students ($p<0.01$). These numbers tended to decrease as the students advanced in their medical education (0.92, 0.56, 0.44, 0.46). Students' themes included understanding patients, earning patients' trust, having specific medical skills, being human and being familiar were identified. Listening to patients' history and having solid medical knowledge tended to be low in fifth and sixth year students. On the contrary, satisfying patients tended to be high in fifth and sixth year students.

(2) What influenced your image of yourself as a physician?

Among first year students, the mass media, medical experiences of their own or their family members and the attitude of a family member who worked in a medical service were factors that influenced their images of themselves as physicians. However, these influences were less important for the fourth, fifth and sixth year students. At the same time lectures and clinical clerkships were important for fourth and fifth year students and a clinical clerkship was extremely important for sixth year students [Table 3]. In both primary care medicine orientation and specialty orientation, the clinical clerkship was the most frequent influencing factor for their self images as physicians [Table 4] [Table 5]. The influence of the clinical clerkship was especially strong in the specialty orientation of sixth year students. However, whereas among first, fourth and fifth year students, there were several reasons for specialty orientation, among sixth year students who finished their clinical clerkship, 53% (23/43) of the specialty orientation was significantly influenced by the clinical clerkship. On the contrary, only 33% (3/9) of primary care medicine orientation students were influenced by the clinical clerkship.

【Discussion】

Our study revealed that nearly half of the first year and sixth year students had specific images of themselves as a physician. However, the contents of the images between two students groups were quite different. Although primary care medicine was the most frequent image of the first year students (18.5%), this

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declined to 9.5% and an interest in a specialty other than primary care medicine increased in sixth year students. The number of sixth year students interested in primary care medicine may be higher than that of the 1992 study⁽¹⁾. However definite statistical evaluation can not be done. It is important to note that the number of students interested in primary care medicine declined as the students progressed through a medical university. Although there is no Japanese study about analyzing the decline,

this trend has been frequently pointed out in studies done in the United States. One study revealed that medical students' interest in family practice declined as they progressed through a medical school⁽²⁾. And, sometimes it was said that negative attitudes among specialists toward primary care physicians probably meant that students did not value primary care as a career choice⁽³⁾. There might be a hidden agenda similar to this in Japanese medical universities, because general medicine departments estab-

[Table 1] Students' image as a physician that students want to become

(**; p<0.01, *p<0.05)

Theme \ Student grade	1st year (%)	4th year	5th year	6th year
Community medicine, primary care medicine	19(18.6)	11(11.5)	1(2.1**)	9(9.5)
Oversea medical service	10(9.8)	0(0.0)	2(3.4)	1(1.1)
Research	10(9.8)	6(8.3)	1(2.1)	1(1.1)
Surgery	6(5.9)	3(1.0)	2(3.4)	10(10.5)
Pediatrics	3(2.9)	0(0.0)	1(2.1)	4(4.2)
Psychiatry	3(2.9)	0(0.0)	0(0.0)	1(1.1)
Emergency medicine	3(2.9)	2(2.1)	0(0.0)	4(4.2)
Specialty overall	1(1.0)	3(3.1)	5(8.5)	13(13.7)
Palliative care medicine	0(0.0)	0(0.0)	0(0.0)	2(2.1)
Other specialty areas	8(7.8)	2(2.1)	3(5.1)	3(3.2)
Subtotal	50(49.2)	28(29.2)	15(25.4*)	50(56.2)
No specific description	52(51.0)	68(70.8)	44(74.6)	45(47.4)
TOTAL	102	96	59	95

[Table 2] Abstract theme of students' image as a physician

(*; p<0.01)

Theme \ Student grade	1st year	4th year	5th year	6th year
Understanding patients	19	14	5	7
Earning patients' trust	17	8	6	13
Having definite skills	13	7	4	5
Being human	10	3	3	4
Caring patients' mind	10	0	0	6
Listening patients' story	10	9	3	0
Being familiar	9	8	3	5
Having rich knowledge	4	4	0	1
Satisfying patients	2	1	2	3
Total comments	94	54	26	44
Average numbers of comments per one student	0.92**	0.56	0.44	0.46

[Table 3] Influencing factor for students' image as a physician

Theme	Student grade			
	1st year	4th year	5th year	6th year
News paper, TV, Books	32	9	4	4
Uncomfortable medical experience of their own	17	12	5	4
Diseases of their own of a family members'	14	9	2	9
A family member as a medical provider	11	9	1	1
Favorable medical experiences of their own	9	3	1	3
Their daily living overall	7	7	3	4
Reflection on current medical condition	4	6	7	4
Lectures	1	10	4	0
Clinical clerkship	1	9	3	40
Others	5	2	0	4
No specific description	1	25	29	25
Total description	102	101	59	98

[Table 4] Influencing factor for students' primary care medicine orientation

Theme	Student grade			
	1st year	4th year	5th year	6th year
News paper, TV, Books	9	2	0	0
Uncomfortable medical experience of their own	1	0	0	3
Diseases of their own of a family members'	2	1	0	0
A family member as a medical provider	1	1	0	1
Favorable medical experiences of their own	1	0	0	1
Their daily living overall	2	3	0	0
Reflection on current medical condition	2	0	1	1
Lectures	0	1	0	0
Clinical clerkship	0	1	0	3
Others	0	0	0	0
No specific description	1	2	0	3
Total description	19	11	1	9

[Table 5] Influencing factor for students' specialty medicine orientation

Theme	Student grade			
	1st year	4th year	5th year	6th year
News paper, TV, Books	11	0	1	0
Uncomfortable medical experience of their own	3	0	0	0
Diseases of their own of a family members'	23	1	2	3
A family member as a medical provider	2	2	0	0
Favorable medical experiences of their own	4	0	0	1
Their daily living overall	5	1	0	2
Reflection on current medical condition	3	0	2	1
Lectures	0	1	1	0
Clinical Clerkship	0	0	1	23
Others	0	0	0	0
No specific description	4	10	5	13
Total description	19	15	12	43

lished in many Japanese medical universities to teach primary care medicine have not been successful⁽⁴⁾. As a direct result, the poor performance of the general medicine departments might lead to specialists' biased attitude toward primary care medicine.

However, another study showed that although physician's attitude toward primary care was not negative, there was still a decline in students' orientation to primary care medicine as they progressed through a medical school. This trend was mirrored in the students' lack of interest in the psychological and socioemotional aspect of medical care. As the students advanced through medical school, their attitudes toward social issues in medicine declined. This trend had already been seen during preclinical years and as well as during the clerkship period⁽⁵⁾. It may be that the decline is related to the loss of idealism combined with an increasingly critical view of medicine and an awareness of hidden agendas⁽⁶⁾. Students who chose primary care medicine were said to be more humanistic⁽⁷⁾, and they were interested in social problems⁽⁸⁾. Judging from previous studies the humanitarian and psychosocial aspects of medicine are very important factors for a primary care career orientation. In our study, the number of students' themes based on their abstract images as physicians declined as they progressed through medical school. First year students commented a lot about the humanistic and psychosocial aspects of medicine. They valued understanding patient needs, earning patients' trust, being humane, and listening to patients' history. However, the average number of these comments per first year student declined by 50%

compared to those of the fourth, fifth and sixth year students. In other words, students' interest in the humanitarian, psychological and socioemotional aspects of medicine apparently declines as they continue their medical education. It is critical that faculty take account of these facts and make every effort to maintain the first year students' interest in the humanitarian and psychosocial issues in order to foster a primary care orientation throughout their medical education.

First year students' images of themselves as physicians were influenced by the media, medical experiences of their own or their family members and the attitudes of a family member who works in a medical service. Since first year students do not have any clinical experiences, it is easy to understand the influence of mass media which is less likely as they advance through medical school⁽⁹⁾. Recently, there has been a lot of information about medicine in the mass media including the internet. This information could be encouraging or harmful as medical students establish their career images. Nonetheless, faculty could use the mass media to foster students' humanitarian or psychosocial concerns⁽¹⁰⁾. We should not disregard the important effect the mass media has on students before they enter medical school. In addition we should carefully evaluate the students' personal medical experiences and the influence of a family member who is a medical provider. Clearly these impact students' motivation to choose a career in primary care medicine. After entering into a medical university, the effect of mass media, students' medical experiences and family member's influence seemed to decline as progressed through medical school. Although

those factors were still influencing factors until the fourth year, medical university experiences were more influential for their career orientation for fifth and sixth year students⁽¹¹⁾. The clinical clerkship experience was the most influential factor for the students' image as a physician. During the clinical clerkship students could encounter a role model whom they wanted to emulate. This is one of the important educational effects of the clinical clerkships. In our study, students could not see the primary care medicine in "real life" as they did their clinical clerkship at the university hospital. The importance of a role model for medical students' primary care medicine career orientation has been referred to repeatedly^{(12) (13)}. The lack of contact with a primary care medicine role model might lead to low rate of primary care medicine career orientation in sixth year students. We need to revise the clinical clerkship so that medical students can interact with primary care physicians thereby providing them with an impressive image of a primary care physician.

However, some studies suggest that the clerkship experience is not the primary driver of career choice and we need to take account of external factors⁽¹⁴⁾. Negative aspects of internal medicine included scope of required knowledge, lifestyle, income, prestige, negative role models and the changing culture of medical practice⁽¹⁵⁾. Fourth year students in the U.S. were likely to agree with the assertions that a primary care physician was not adequately compensated, doesn't have prestige, and lacks control over working hours⁽¹⁶⁾. These external factors are critical. Although we did not examine these issues in our study, faculty need to talk about

these issues with medical students and communicate to the students the value of primary care medicine thereby offering a counter point to the primary care medicine's poor image.

【Limitation of this study】

First, this study was a cross-sectional study and as a consequence the true change of students' self images during their medical university days could not be detected. We need to conduct a study where we follow one cohort for 6 years. Second, since we conducted this study at one medical school with a small sample size, our results are not generalizable. We should involve several medical universities and have large samples in any future studies. Third, as the response rate of fifth year students was significantly low, the data might have some bias.

【Conclusion】

Primary care medicine orientation decreased as the students advanced through medical school. At the same time, for sixth year students' specialty medicine orientation was significant. This trend seemed to be the result of few primary care clerkship experiences and significant exposure to specialty medicine clerkships. And, it seemed to be influenced by the students' diminishing interest in humanitarian and psychosocial issues. To increase the number of the students who choose primary care medicine for their career, we need to strengthen their primary care medicine clerkship experiences and make it possible for them to spend time with a primary care medicine role model. At the same time we need to encourage the medical students' interest in humanitarian and psychosocial issues. As well, we should take account of exter-

nal factors that work against primary care medicine.

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