

# Factors influencing application to medical schools in Japan: High school guidance counselors' perception of the issue

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## Background

- Widening educational disparities in Japan make it imperative to verify the system and acceptance criteria for medical school entrance examinations, because most medical students will become doctors.
- Other countries have attempted to rectify these disparities using criteria additional to high school academic achievement. Such approaches must be effectively adopted in Japan.

## Objectives

- To verify the medical school entrance examinations, we investigated high school guidance counselors' perceptions of the issue.

## Methods

- Design:** Cross-sectional mail survey
- Applicants:** Guidance counselors working for 1,746 high schools which were listed in a weekly magazine (*Shukan Asahi* 2015) as schools focused on preparing students for university entry from 4,925 schools across Japan.
- Data collection:** Original questionnaire was sent with return envelope.
- Survey period:** June–July 2015.

### Analysis:

Descriptive statistics and Pearson's chi-squared test using JMP® Pro 12 (SAS Institute Inc., Cary, NC, USA).

### Ethical consideration:

Approval from Hokkaido University Ethical Committee was deemed unnecessary.

### Survey Items:

Extracted based on our research and findings for a related international symposium.

See Table1.

Table 1. Survey items

#### About respondent:

Sex, age, position, etc.

#### About school:

Public/private, address, number of students, total tuition for 3 years, post-graduation paths, etc.

#### Students' circumstances:

About what percentage of students attend preparatory and "cram" schools? What are their families' financial situations? About what percentage of students who are medical examination candidates have parents who are doctors? etc.

#### About students who will attend medical school:

Are they well-qualified to become doctors? What career path guidance are they actually receiving? etc.

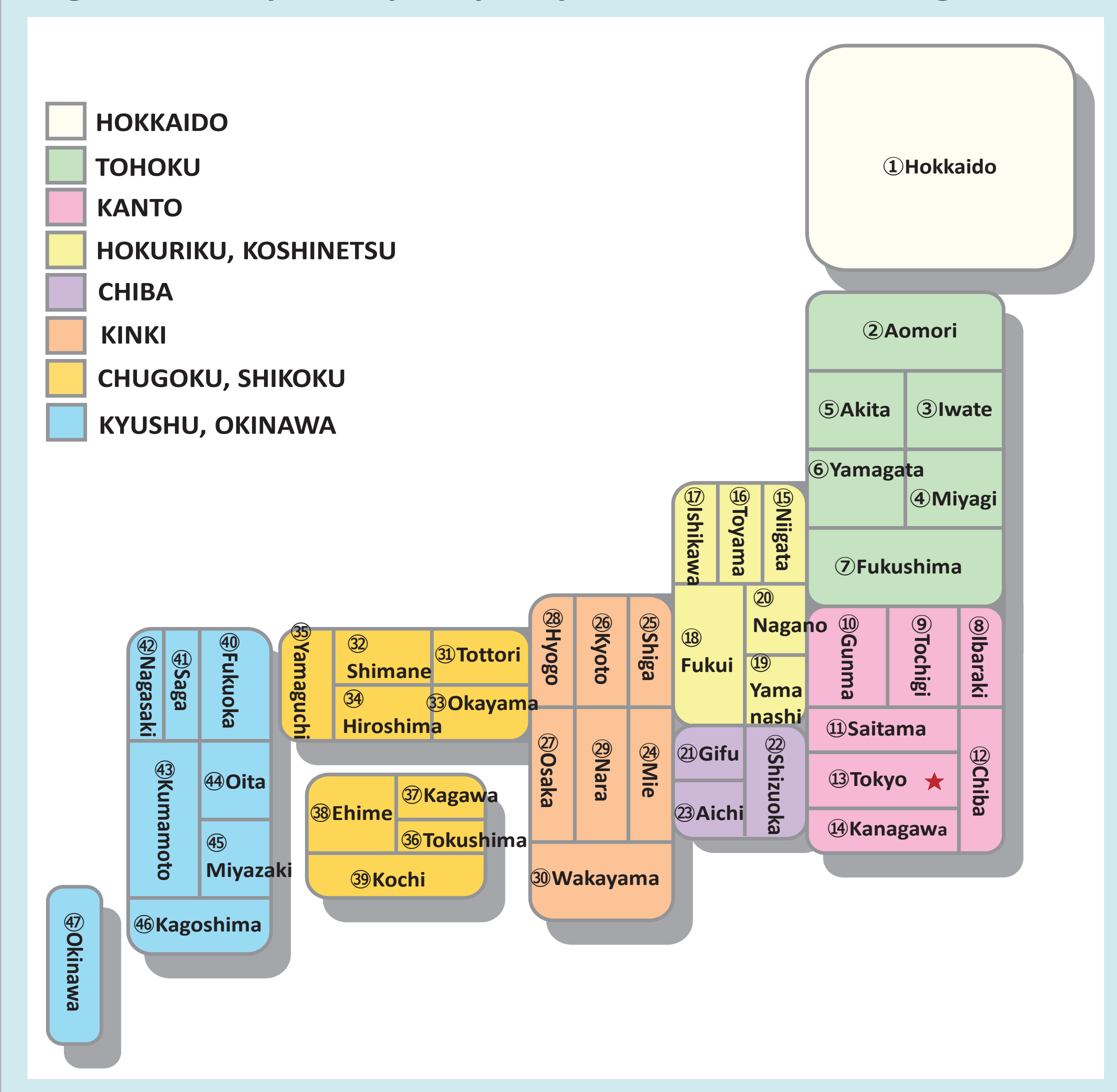
#### Disparity in test-taking opportunities:

What factors place students at an advantage in taking the test? Cases where students gave up on the test, etc.

#### Opinions about the medical school admission system:

What examination method is emphasized? Are there any influences with regard to regional reservations in a medical school? etc.

Figure 1. Map of Japan | 47 prefectures and 8 regions



## Results: Response were obtained from 1,094 guidance counselors (response rate: 62.7%)

### Result 1

- Response situation by region and prefecture in Japan  
Number of all high schools (n=4,925), sent questionnaires (n=1,746), and respondents (n=1,049) by prefecture

See Figure 1. & 2.

- Table 2. Background of high schools where respondents work

	Mean ± SD	Range
Number of senior students	267.8 ± 112.4	(20–1,026)
Types of high school		
National/Public	671	61.3
Private	423	38.7

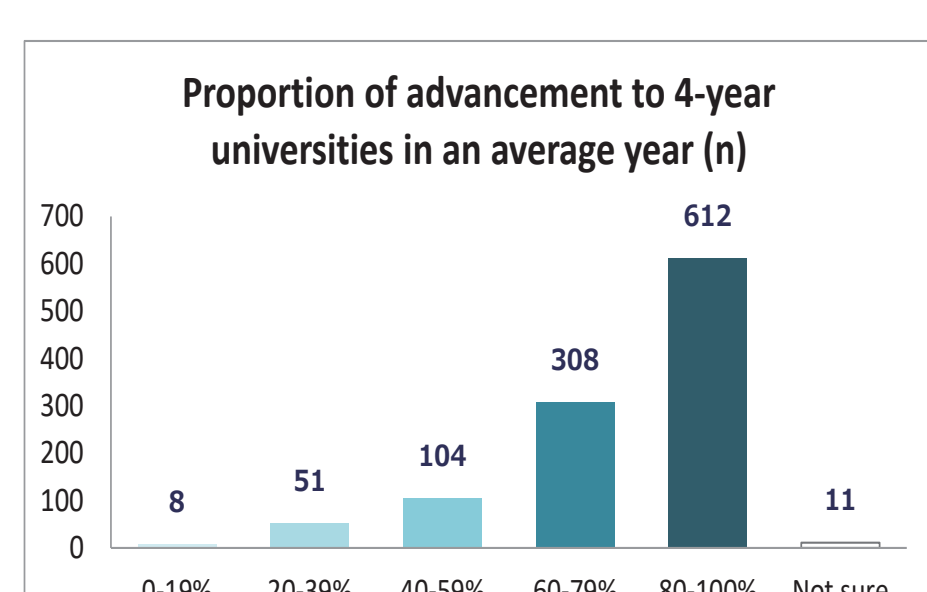


Figure 3.  
612 schools (58.3%) had rates of ≥80% for students entering 4-year universities

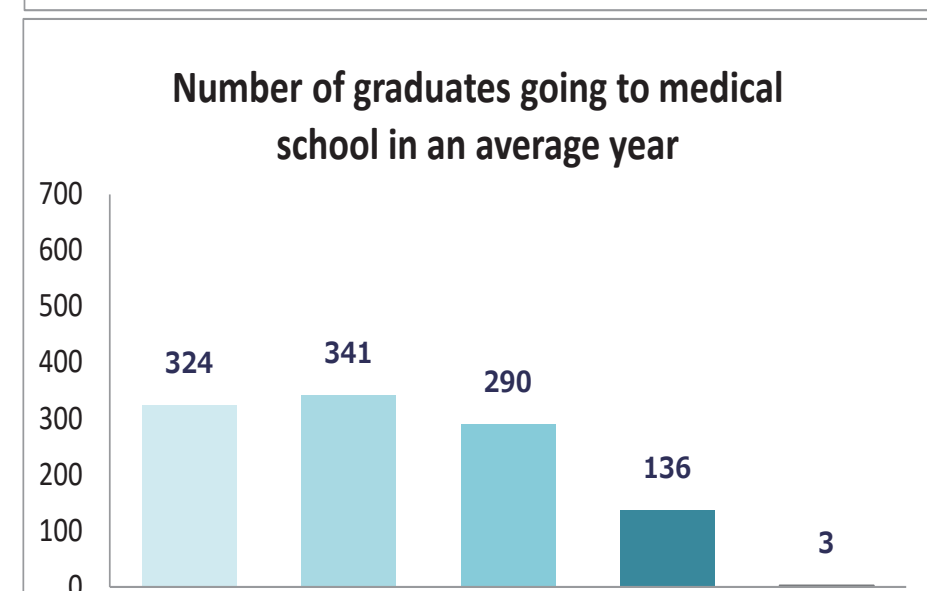


Figure 4.  
136 schools (12.5%) responded that ≥10 of their students entered medical school

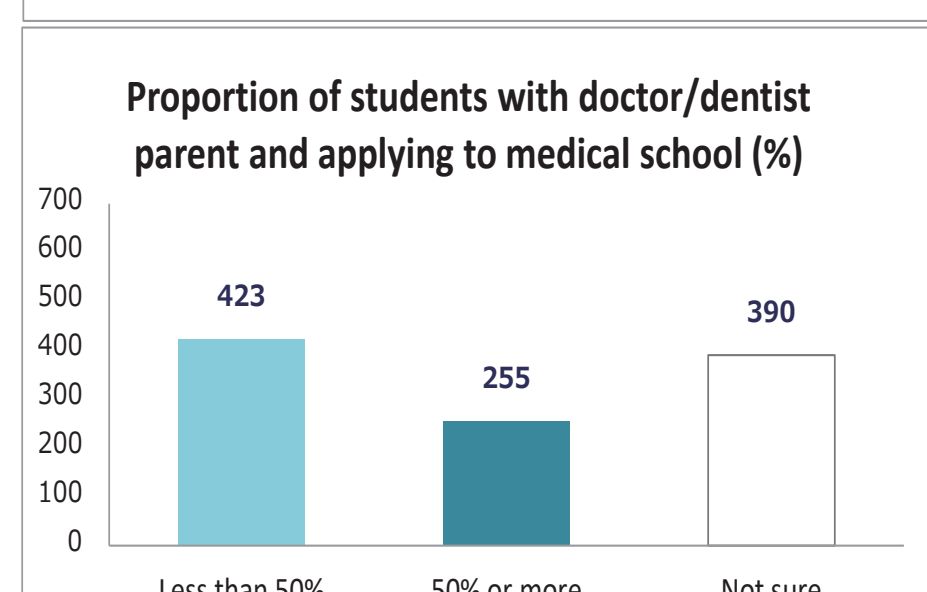


Figure 5.  
390 respondents (36.5%) indicated they did not know, 255 respondents (23.9%) reported "50% or more"

### Results 2

Respondents' opinions/perceptions regarding student's situation in entering medical school

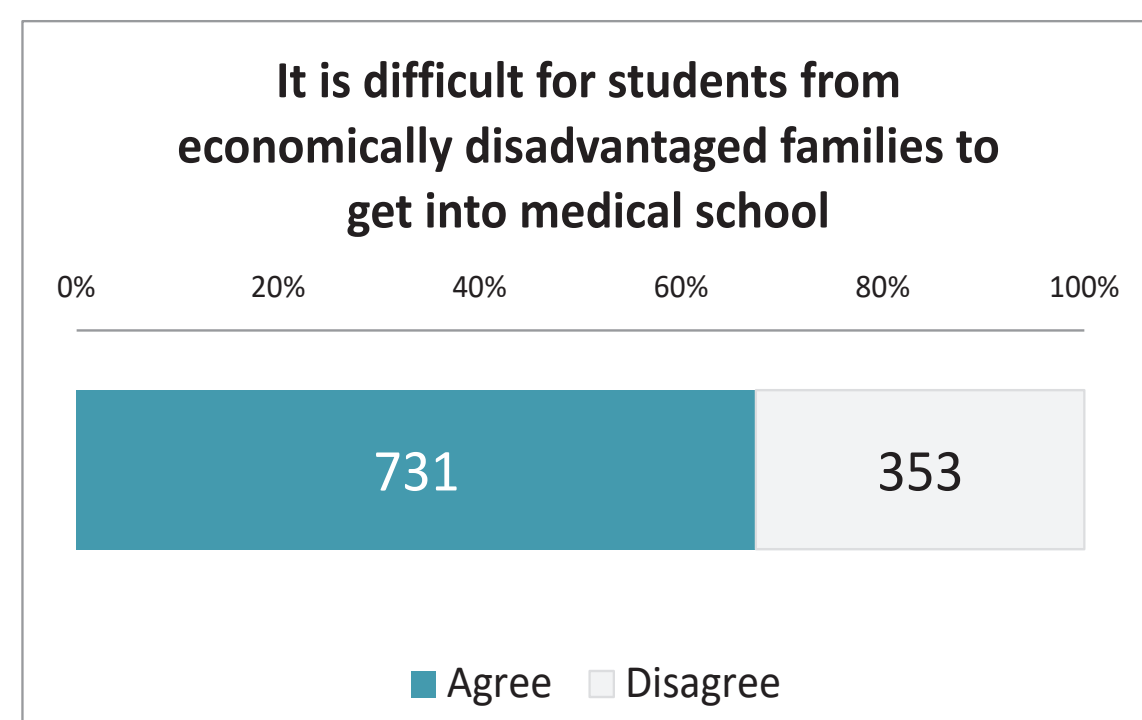


Figure 6.  
731 (67%) responded affirmatively

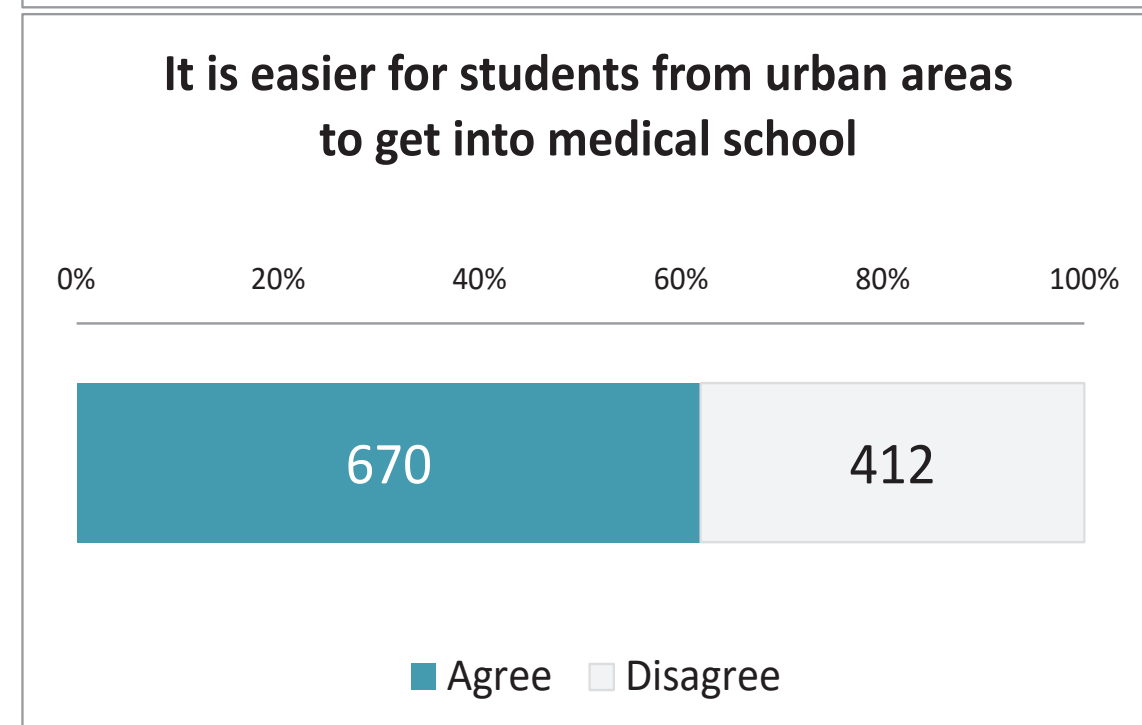


Figure 7.  
670 (64%) responded affirmatively

### Result 3

Table 3.

REGION	Number of medical schools			Response rate (%)	Given up on applying to medical school (%)	p-value	Figure 2. Number of all high schools, sent questionnaires, respondents by prefecture			
	National Public (n)	Private (n)	Respondents (n)				Respondents	Applicants for survey	Total number of high schools	
Prefecture	TOTAL	50	29	1094	488	41.0	<0.0001	n=1,049	n=1,746	n=4,925
<b>HOKKAIDO</b>	<b>3</b>	<b>29</b>	<b>72</b>	<b>15</b>	<b>20.8</b>			72	92	295
① Hokkaido	3	29	72	15	20.8			72	92	295
<b>TOHOKU</b>	<b>5</b>	<b>2</b>	<b>101</b>	<b>28</b>	<b>28.0</b>	ns		101	120	378
② Aomori	1	1	14	2	14.3			14	80	295
③ Iwate	1	1	15	7	46.7			15	78	295
④ Miyagi	1	1	23	3	13.0			23	31	90
⑤ Akita	1	1	10	2	20.0			10	57	295
⑥ Yamagata	1	1	13	3	23.1			13	59	295
⑦ Fukushima	1	1	26	11	44.0			26	30	107
<b>KANTO</b>	<b>6</b>	<b>17</b>	<b>305</b>	<b>180</b>	<b>60.0</b>	ns		305	422	121
⑧ Ibaraki	1	1	32	15	48.4			32	42	121
⑨ Tochigi	1	2	23	12	52.2			23	36	79
⑩ Gunma	1	1	18	8	47.1			18	27	84
⑪ Saitama	1	1	42	25	59.5			42	65	192
⑫ Chiba	1	1	28	18	66.7			28	45	187
⑬ Tokyo	2	11	107	70	66.0			107	174	446
⑭ Kanagawa	1	3	55	32	59.3			55	83	241
<b>HOKURIKU, KOSHINETSU</b>	<b>6</b>	<b>1</b>	<b>93</b>	<b>39</b>	<b>42.4</b>	ns		93	116	116
⑮ Niigata	1	1	25	6	25.0			25	35	116
⑯ Toyama	1	1	9	5	55.6			9	20	53
⑰ Ishikawa	1	1	12	7	58.3			12	20	50
⑱ Fukui	1	1	15	6	40.0			15	1737	44
⑲ Yamanashi	1	1	12	5	41.7			12	17	44
⑳ Nagano	1	1	20	10	50.0			20	28	101
<b>CHUBU</b>	<b>4</b>	<b>2</b>	<b>112</b>	<b>45</b>	<b>41.3</b>	ns		112	132	81
㉑ Gifu	1	1	19	6	31.6			19	32	81
㉒ Shizuoka	1	1	40	17	43.6			40	59	138
㉓ Aichi	2	2	53	22	43.1			53	89	222
<b>KINKI</b>	<b>9</b>	<b>4</b>	<b>175</b>	<b>66</b>	<b>38.2</b>	ns		175	24	75
㉔ Mie	1	1	18	6	33.3			18	24	75
㉕ Shiga	1	1	14	5	35.7			14	20	64
㉖ Kyoto	2	1	17	7	42.2			17	41	98
㉗ Osaka	2	3	46	21	47.7			46	112	251
㉘ Hyogo	1	1	52	21	40.4			52	95	198
㉙ Nara	1	1	16	5	31.3			16	24	53
㉚ Wakayama	1	1	12	1	8.3			12	14	45
<b>CHUGOKU, SHIKOKU</b>	<b>9</b>	<b>1</b>	<b>110</b>	<b>26</b>	<b>24.1</b>	ns		110	9	32
㉛ Tottori	1	1	7	2	28.6			7	15	49
㉜ Shimane	1	1	8	2	25.0			8	21	35
㉝ Okayama	1	1	21	5	25.0			21	35	74
㉞ Hiroshima	1	1	29	7	24.1			29	51	125
㉟ Yamaguchi	1	1	11	3	27.3			11	25	73
㊱ Tokushima	1	1	5	2	40.0			5	9	38
㊲ Kagawa	1	1	10	3	33.3			10	16	44
㊳ Ehime	1	1	13	2	15.4			13	21	70
㊴ Kochi	1	1	6	0	0.0			6	8	42
<b>KYUSHU, OKINAWA</b>	<b>8</b>	<b>3</b>	<b>126</b>	<b>49</b>	<b>40.2</b>	ns		126	41	78
㊵ Fukuoka	1	3	41	19	48.7			41	16	45
㊶ Saga	1	1	12	4	33.3			12	25	79
㊷ Nagasaki	1	1	15	4	26.7			15	14	79
㊸ Kumamoto	1	1	8	2	28.6			8	21	61
㊹ Oita	1	1	10	4	44.4			10	19	53
㊺ Miyazaki	1	1	13	5	38.5			13	19	53
㊻ Kagoshima	1	1	19	6	31.6			19	32	94
㊼ Okinawa	1	1	8	5	62.5			8	10	67

The rates of give up go on to medical school due to economically reason statistically differed among the eight defined regions: ( $\chi^2(7, N=1,076)=78.52, p<0.0001$ )

## Discussion

- The results suggest that many high school guidance counselors tended to believe economic and regional disparities among high school students in Japan influence students' decisions to enter medical schools. The majority of them also reported that wealthy, urban students had a clear advantage. Many high school guidance counselors reported that wealthy, urban students had a clear advantage.
  - The survey also revealed a significant number of students who gave up on medical school for financial reasons.
  - Through reports in weekly magazines, it is somewhat well-known in Japan that there is a rather limited number of high schools that produce large numbers of graduates who enter medical school, even among schools with otherwise high rates of students' university entry. Additionally, because tuition for private medical schools is higher than for other schools, and medical programs are a lengthy 6 years even at public and national schools, it is reasonable to conclude it is difficult for students from less well-off families to get into medical school. However, in our search we found almost no data that showed this situation in detail.
  - In our survey, 70% of respondents agreed it is difficult for such students to get into medical school, making it clear the family's financial situation affects a student's chances of entry.
  - We saw a statistically significant regional difference in the proportion of teachers who confirmed the presence of students who gave up on

medical school for financial reasons. The fact there are more private medical schools in Kanto, which had a higher proportion, and more public and national schools in Hokkaido, which had a lower proportion, may influence this.

- 60% of respondents agreed that it was easier for students from urban areas to get into medical school. This may be related to the fact that urban areas have more schools from which many graduates go on to medical school and more preparatory schools that offer medical school entrance exam coaching.
- The influence of educational disparities should be more effectively clarified.
    - Obviously, for them to be valid, medical school entrance examinations must confirm whether a student possesses suitable academic ability. However, there is a possibility that, rather than assessing necessary abilities for advancement to medical school, universities are administering overly specialized aptitude tests in order to rank students. The validity of this sort of selection method is actually rather low, if it relates to specialized exam coaching that only students from certain backgrounds can receive.
    - Japan's contracting population makes it all the more necessary to reconsider this system so that as few students as possible give up on applying to medical school and give up considering a career as a doctor for reasons other than their own abilities.

## COI

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