

The Perception and Experience of Gender-Based Discrimination Related to Professional Advancement among Japanese Physicians

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Previous studies from the US have found that female physicians often experience gender-based discrimination related to professional advancement. In Japan, female physicians are underrepresented in leadership positions but little is known about the prevalence of gender discrimination. We investigated the perception and prevalence of gender-based career obstacles and discrimination among Japanese physicians. The study was based on surveys of alumnae from 13 medical schools and alumni from 3 medical schools. In total, 1,684 female and 808 male physicians completed a self-administered questionnaire (response rate 83% and 58%). More women than men had the perception of gender-based career obstacles for women (77% vs. 55%; $p < 0.0001$). Women with part-time positions were more likely to have the perception of gender-based career obstacles than women working full-time (OR 1.32, 95% CI: 1.01-1.73). More women than men reported experience of gender discrimination related to professional advancement (21% vs. 3%; $p < 0.0001$). Factors associated with experience of gender discrimination included age ($p < 0.0001$), marital status ($p < 0.0001$), academic positions ($p < 0.0001$), subspecialty board certification ($p = 0.0011$), and PhD status ($p < 0.0001$). Women older than 40 years were more likely to experience gender discrimination compared with younger women (OR 5.77, 95% CI: 1.83-18.24 for women above 50, and OR 3.2, 95% CI: 1.48-7.28 for women between 40 and 49) and women with PhD were more likely to experience gender discrimination (OR 4.23, 95% CI: 1.81-9.89). Our study demonstrated that a significant proportion of Japanese women experienced gender-based discrimination and perceived gender-based career obstacles compared with male physicians.

Keywords: female physicians; gender-based career obstacle; gender discrimination; professional advancement; women

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Introduction

The number of women entering the field of medicine has been increasing worldwide. Women now account for approximately half of medical students in a number of developed and developing countries, and women comprise 20 to 30% of all practicing physicians in countries such as US, Canada, and England (McMurray et al. 2002; Reichenbach and Brown 2004). However, studies have documented significant gender inequality in the field of medicine. Female physicians are less likely to be promoted or to serve in leadership positions than comparably credentialed men, and significant gender salary gap exists even after adjustment for factors such as seniority, specialty, hours worked, and academic productivity (Tesch et al. 1995; Wright et al. 2003; Ash et al. 2004).

Many factors have been implicated as contributing causes of gender inequality in the medical field, including

lack of support for research activities, lack of effective mentorship, and structural inflexibilities for women with children, and gender bias and discrimination (Tesch et al. 1995; Benz et al. 1998; Carnes et al. 2008). Studies in the US have demonstrated that gender discrimination is prevalent in both academic and non-academic settings (Benz et al. 1998; Carr et al. 2000, 2003). Carr et al. (2000) investigated 3,332 full-time faculty members at US medical schools, and found that 60% of female faculty reported experience of being left out of opportunities for professional advancement based on gender.

In Japan, significant gender inequality still exists throughout society. According to the Global Gender Gap Report, Japan was ranked 105th out of 135 countries in gender equality, mainly due to the underrepresentation of women in economic and political participations (World Economic Forum 2013). Such inequality is also observed in the medical field. Women now comprise 18.9% of all

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physicians and 35.9% of physicians under 30 years old in Japan (Ministry of Health, Labour and Welfare 2010). Despite an increasing number of female physicians, women remain underrepresented in leadership positions. In reviewing the faculty rosters of all Japanese medical schools, women constituted only 2.6% of all full-time professors and only two out of 80 deans (2.5%), and there were no women in full-time professors in approximately one third of medical schools (Yasukawa 2013). In Japanese academic societies, women comprise only 6.8% of all councilors; 55 out of 100 societies do not have any women in director position (Tomizawa et al. 2012). The proportion of women in leadership positions is substantially lower than expected from the physician gender ratio in the current leadership generation.

Although a few studies have evaluated experience of disparate treatment based on gender among medical students and residents (Nagata-Kobayashi et al. 2006, 2009), little is known about the prevalence of gender discrimination among Japanese physicians. In this study, we examined the perception of gender-based obstacles for women and the prevalence of experiences of gender discrimination among physicians in Japan.

Methods

Participants

This cross-sectional study is based on surveys of graduates from private medical schools in Japan, which were sequentially conducted between 1 June 2009 and 31 May 2011. Japan has 80 medical schools, 29 of which are private. The study was conducted in collaboration with the Council of Private Medical School Alumni Association. Of 18 schools in the Eastern region, 13 schools agreed to participate in this study. We recruited a total of 9,544 female physicians from 13 schools and 9,165 male physicians from 3 schools via postal mail. Of them, 2,029 women and 1,420 men agreed to participate in this study with written informed consent. We sent a questionnaire to those who agreed to participate, and 1,684 women and 808 men returned their questionnaires (response rate, 83% for women and 58% for men). All participants gave written informed consent. The study was approved by the institutional review board at Teikyo University School of Medicine (No. 08-107).

Measures

The questionnaire contained questions about baseline characteristics (age, marital status, presence and number of children), specialty (basic science/surgery/internal medicine/others), work status (full-time/part-time/unemployed), academic position (instructor and below/assistant/associate/full professor), subspecialty board (obtained/not obtained), PhD (obtained/not obtained), perceptions of gender-based career obstacles, and experiences of career-related discrimination based on gender.

To measure perception of gender-based career obstacles in women, we asked the participants to answer to the following statements on a five-point Likert scale per item, where 1 = strongly disagree and 5 = strongly agree: "Female physicians are less likely to be: 1) promoted to a management position in medicine; 2) promoted to board member of a medical society; 3) employed in a salaried position in a teaching hospital; 4) employed in a salaried position in aca-

demie medicine; and 5) promoted in academic medicine". As in the previous study by Carr et al., we conceptualized gender discrimination as behaviors, actions, policies, procedures, or interactions that adversely affect work by resulting in disparate treatment according to sex or creation of a hostile or intimidating environment (Lenhart and Evans 1991; Carr et al. 2000). To evaluate the experience of gender-based discrimination, we asked "In your professional career, have you ever been left out of opportunities for professional advancement based on gender?" (yes/unsure/no) (Carr et al. 2000). We also investigated offender's gender and relationship to the respondent (i.e., patient, non-physician co-worker, colleague, and boss) by asking "From whom have you experienced unpleasant or disadvantageous treatment based on your gender?" The respondents were asked to indicate the frequency of their experiences according to offender's gender and relationship by rating each on a 5-point Likert scale where 1 = "not at all" and 5 = "very frequently".

Data analyses

An experience of gender discrimination was categorized into binary variable (i.e., "yes" vs. "no" and "unsure") and perception of gender-based career obstacles for women was categorized into binary (i.e., "disagree or do not know" for 1-3 vs. "agree" for 4 or 5 on a Likert scale). Chi-square test was used to investigate a difference in response frequency of experience and perception between men and women. Logistic regression models were used to estimate unadjusted and adjusted odds ratios (ORs) for an effect of each explanatory variable on an experience or perception along with 95% confidence intervals (CI). Explanatory variables with a $p < 0.01$ in univariate regression analyses were further chosen in multivariate analyses.

All analyses were conducted using SAS software Version 9.12 (Cary, NC), and statistical significance was set at $p < 0.05$.

Results

Basic characteristics of respondents

Table 1 shows the characteristics of the respondents. Female respondents were on average 6 years younger than male respondents (mean age 42 ± 9 years vs. 48 ± 8 years). Among 1,684 women and 808 men who answered to the questionnaire, women were less likely than men to be married (72% vs. 90%) and were more likely to be divorced or widowed (9% vs. 2%). Men were more likely than women to be in the surgical field (45% vs. 39%) and work full time (97% vs. 69%). While 50% of male physicians in academic institutions had academic position higher than assistant professor, only 14% of female physicians in academic institutions had such positions. Men were more likely to hold subspecialty board and PhD compared with women.

Gender-based discrimination

Table 2 shows the prevalence of self-reported gender-based discrimination related to professional advancement. Female physicians were 7 times more likely to report experience of being left out of professional advancement based on gender compared with men (21% vs. 3%; $p < 0.0001$). In addition, women were more likely than men to mark "unsure" when asked about the experience of gender-based discrimination (24% vs. 14%).

Table 1. Basic characteristics of study subjects.

	Women (<i>n</i> = 1,684)		Men (<i>n</i> = 808)	
	<i>N</i>	%	<i>N</i>	%
Age				
-39	631	37	133	17
40-49	516	31	229	28
50-	537	32	446	55
Marital Status				
Never married	315	19	64	8
Married	1209	72	716	90
Divorced/widowed	145	9	16	2
Children				
No	308	22	134	17
Yes	1,146	78	652	83
# of Children				
1	387	34	156	24
2	521	45	282	43
3-	245	21	222	33
Specialty				
Basic science	22	1	12	1
Surgery	654	39	361	45
General medicine	727	44	327	41
Others	258	16	104	13
Work status				
Full-time	1,131	69	344	97
Part-time	471	29	8	2
Unemployed	37	2	2	1
Academic Position				
Instructor and below	281	86	33	50
Assistant/Associate/Full professor	47	14	33	50
Subspecialty Board				
Yes	905	59	579	84
No	623	41	112	16
PhD				
Yes	633	40	425	53
No	949	60	374	47

N in each category does not reach 100% when values are missing. Academic position was not asked at one school.

Table 2. Experience of gender-based discrimination related to professional advancement.

	Women (<i>n</i> = 1,684)		Men (<i>n</i> = 808)		<i>P</i>
	<i>N</i>	%	<i>N</i>	%	
Experience of gender discrimination					< 0.0001
Yes	332	21	21	3	
No	881	55	665	83	
Unsure	381	24	115	14	

Perception of gender-based career obstacles for women

Table 3 shows perception of gender-based obstacles for women. More women than men answered “agree” or “strongly agree” to all 5 statements (all $p < 0.0001$). Among the 5 statements, female physicians most frequently agreed to the statement “female physicians are less likely to be promoted to a management positions in medicine” (63%). Approximately half of women but a quarter of men agreed that women are less likely to be promoted to a board member of a medical society, promoted in academic medicine, and employed in a salaried position in academic medicine (all $p < 0.0001$). The majority of the women (77%) had a positive response to at least one of the 5 statements while 55% of men reported such perception.

Categories of offenders

More women than men physicians reported that they experienced unpleasant or disadvantageous treatments from all categories of offenders listed in the questionnaire (all $p < 0.05$). The most frequent offender reported was male patient (mean 2.79 ± 1.3 , on a 5-point Likert scale where 1 = “not at all” and 5 = “very frequently”) followed by male superior (mean 2.64 ± 1.4) (Fig. 1). Male physicians rarely experienced unpleasant or disadvantageous treatment based on their gender.

Table 3. Difference in perception of gender-based career obstacles for women (1,684 women vs. 808 men)*.

	Women		Men		P^\dagger
	<i>N</i>	%	<i>N</i>	%	
Women physicians are less likely to be:					
1) promoted to a management position in medicine.	1,014	63	330	41	< 0.0001
2) promoted to board member of a medical society.	815	51	225	28	< 0.0001
3) employed in a salaried position in a teaching hospital.	791	50	258	33	< 0.0001
4) employed in a salaried position in academic medicine.	707	44	195	25	< 0.0001
5) promoted in academic medicine.	810	51	210	27	< 0.0001
positive response to any of the 5 statements	1,224	77	436	55	< 0.0001

* Each question was rated on a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. Prevalence of perception was defined as those who answered “agree” for 4 or 5 on Likert scale. *N* does not reach total number if there are missing values.

† Based on Chi-square test.

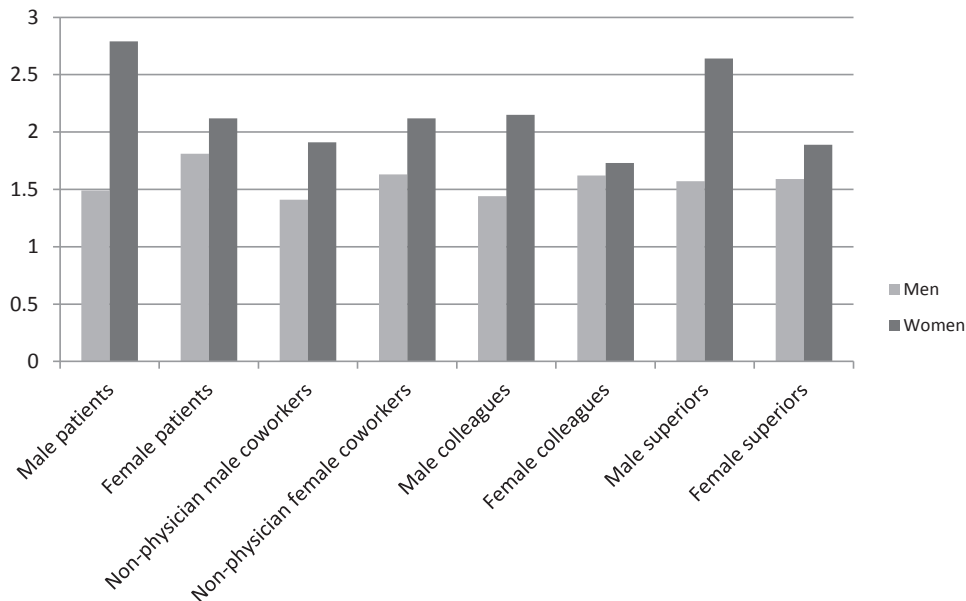


Fig. 1. Categories of offenders.

Based on Likert scale from “not at all (= 1)” to “Very frequent (= 5)”. There was a statistical difference between women and men in all offender categories.

Univariate and adjusted odds ratios for experience of gender based discrimination related to career opportunities and perception of gender-based career obstacles in women

Univariate logistic regression model showed that factors statistically associated with an experience of gender discrimination were older age compared to younger age (trend $p < 0.0001$), marital status (i.e., married or divorced/widowed compared to never married, $p < 0.0001$), being in a higher academic positions (assistant/associate/full professor) compared to instructor and below ($p < 0.0001$), hold-

ing a subspecialty board ($p = 0.0011$), and holding a PhD ($p < 0.0001$) (Table 4).

After adjusting for these variables, factors independently associated with an experience of gender-based discrimination were age and PhD status. Women over the age of 40 years were more likely to report an experience of gender discrimination compared with those who were younger than 40 years old (OR 5.77, 95% CI: 1.83-18.24 for women over the age of 50, OR 3.2, 95% CI: 1.48-7.28 for women with age between 40 and 49, trend $p = 0.004$). Women who

Table 4. Univariate and adjusted odds ratios for experience of gender based discrimination related to career advancement and perception of gender-based career obstacles in women.

Characteristics	Prevalence (%)	Logistic regression model		
		Univariate		Adjusted OR (95% CI)
		OR (95% CI)	<i>P</i>	
Age			< 0.0001*	
≥ 50	30	4.22 (95% CI: 3.01-5.92)		5.77 (95% CI: 1.83-18.24)
40-49	26	3.51 (95% CI: 2.50-4.94)		3.20 (95% CI: 1.41-7.28)
< 40	9	1		1
Marital Status			< 0.0001	
Divorced/widowed	35	3.65 (95% CI: 2.25-5.94)		2.81 (95% CI: 0.74-10.69)
Married	21	1.84 (95% CI: 1.28-2.65)		1.22 (95% CI: 0.54-2.72)
Never married	13	1		1
Children			0.50	–
≥ 3	27	1.40 (95% CI: 0.93-2.10)		
2	25	1.26 (95% CI: 0.89-1.80)		
1	17	0.81 (95% CI: 0.54-1.20)		
0	21	1		
Specialty			0.39	–
Basic science	26	0.61 (95% CI: 0.23-1.63)		
Surgery	23	0.91 (95% CI: 0.70-1.17)		
Others	18	0.98 (95% CI: 0.69-1.38)		
General Medicine	21	1		
Work status			0.49	–
Unemployed	29	1.50 (95% CI: 0.65-3.45)		
Part-time	20	0.92 (95% CI: 0.70-1.21)		
Full-time	21	1		
Academic position			< 0.0001	
Assistant/Associate/Full professor	33	3.14 (95% CI: 1.54-6.38)		2.49 (95% CI: 0.92-6.72)
Instructor and below	14	1		1
Subspecialty board			0.0011	
Yes	24	1.55 (95% CI: 1.19-2.03)		0.97 (95% CI: 0.45-2.12)
No	17	1		1
PhD			< 0.0001	
Yes	29	2.08 (95% CI: 1.62-2.68)		4.23 (95% CI: 1.81-9.89)
No	16	1		1

*trend *P*

Unadjusted and age-adjusted odds ratios (ORs) for an effect of gender on an experience (i.e., “yes” = 1 or “no and unsure” = 0) and perception of gender-based career obstacles in women (i.e., “disagree or do not know” for 1-3 vs. “agree” for 4 or 5 on Likert scale) were calculated along with 95% confidence intervals (CI). Responses of 4 or 5 on any of the 5 statements for perception were considered as a positive response.

hold PhD were also more likely to report an experience of gender discrimination compared to those without PhD (OR 4.23, 95% CI: 1.81-9.89).

For the prevalence of the perception of gender-based obstacles, responses of 4 (agree) or 5 (strongly agree) on Likert scale to any of the 5 statements were considered to be positive responses. Univariate logistic regression model showed that work status was the only significant variable. Compared to full-time workers, part-time workers were more likely to have a perception of gender-based obstacles in career (OR 1.32, 95% CI: 1.01-1.73, data not shown). Because of this single significant variable in unadjusted logistic regression models, multivariate logistic regression was not applied.

Discussion

Although gender-based bias and discrimination have been reported as important factors affecting female physicians' career in the US (Carr et al. 2000, 2003; Wright et al. 2003), there has been dearth of investigation on the prevalence of gender-based discrimination among Japanese physicians. Our study demonstrated that a significant proportion of Japanese female physicians perceived gender-based career obstacles and experienced gender-based discrimination related to professional advancement compared with male physicians.

In our study, factors associated with experience of gender discrimination related to professional advancement included age, marital status, academic positions, subspecialty board certification, and PhD status. Among these, age and PhD were independently associated with such experience. Women above 40 years of age were significantly more likely to have experienced gender discrimination. This is probably because younger female physicians have not been in the field long enough to have experienced career-related gender discrimination as promotion to higher ranks (ex. assistant professor to associate professor) generally do not happen until after age of mid 40's in Japan. It is also possible that there has been a decrease in the incidence of gender-based discrimination due to improving working environment for female physicians, although we are not aware of any effective institutional or policy measures in Japan that directly address gender discrimination related to professional advancement. Female physicians who hold PhD degrees were also more likely to experience gender based discrimination probably due to higher career aspirations. In addition, women in doctoral training may be vulnerable to gender discrimination. Previous studies have shown that a significant proportion of women in doctoral training experience sexual harassment and gender-related discrimination (Larsson et al. 2003), and women are more likely than men to be used by their mentors to promote the mentors' own career (Fried et al. 1996).

The prevalence of self-reported gender discrimination in our study was lower compared with that reported in the US (Carr et al. 2000). However, this may not mean that

there is less gender-based obstacles in the work environment for physicians in Japan. Female physicians in Japan are often faced with binary choice of family and career in the very early stages of their careers due to the double burden that stems from the long and erratic work hours, inadequate infrastructural child care support, and lack of spouses' participation in domestic work (Yasukawa and Nomura 2012; Izumi et al. 2013). In a nationwide survey by the Japan Medical Association, 64.1% of female physicians reported that the biggest concern regarding their career was the difficulty of balancing career and family responsibilities (Japan Medical Association 2009). The same survey demonstrated that at least a quarter of female physicians in Japan had to leave the workplace for over 6 months, mainly due to the burden of work and family responsibilities. Therefore, those who had to step off the career ladder early in their career in favor of child care may not have encountered obvious promotion-related discrimination. Also, in our study, participants from both academic and non-academic institutions were included, which might have contributed to the lower reports of discrimination because female physicians who are not interested in professional promotions are probably more likely to work in non-academic settings. In addition, only those who clearly experienced disparate treatment may have reported such experience as the choices of answer in our survey were "yes", "no", and "unsure" whereas the previous study by Carr et al. (2000) included "possibly", "probably", and "yes" as positive responses. As discrimination can be subtle, it is possible that some of the female physicians who responded "unsure" about experiencing gender-based discrimination may have been mistreated during their career.

The perception of gender-based career obstacles for women was significantly higher among female physicians compared with their counterparts. This suggests that men underestimate the gender obstacles women face during their professional careers. The perception of gender-based obstacles was higher among female physicians holding part-time positions, which is in accord with the previous report (Nomura and Gohchi 2012), indicating that perceived gender-based obstacles may discourage female physicians from working full-time.

Female physicians were more likely than men to report having experienced unpleasant or disadvantageous treatment based on gender from non-physician coworkers, male physicians, superiors, and most frequently from male patients. Our result supports the findings of previous studies on sexual harassment in the physician workplace: female physicians experience gender based harassment from colleagues, superiors, and patients (Komaromy et al. 1993; Phillips and Schneider 1993; Witte et al. 2006; Shrier et al. 2007). Previous studies on the prevalence of sexual harassment among Japanese medical students and residents showed that 54.1% of female students and 58.3% of female residents experienced sexual harassment during their education or clinical training (Nagata-Kobayashi et al. 2006,

2009). Our study, together with these findings, suggests that women experience gender-based mistreatment throughout their career.

Our study has limitations. First, discrimination experiences were self-reported and may not reflect actual discrimination. However, there was a striking difference in the proportion of physicians holding higher academic ranks between men and women even considering the age difference, which supports that women are more likely than men to encounter gender-based discrimination related to professional advancement. Second, our study did not include graduates of the national and public medical schools so a larger study with participants from private, national, and public schools is needed. Third, there is a possibility of response bias. However, the response rate for women was high, and because our questions were part of a larger survey consisting of more than 80 questions on the general work environment for female physicians, it seems unlikely that response bias would have hugely impacted our results. Finally, we investigated the prevalence and factors associated with gender-based discrimination and the perception of gender-based career obstacles but additional qualitative research is necessary.

Women in Japan have historically been underrepresented in leadership positions in the fields of economy and politics (World Economic Forum 2013). This underrepresentation is also observed in medical schools and medical societies (Yasukawa 2013). A national study of faculty members at US medical schools reported that women were much less likely than men to be promoted in academic medicine and this gender difference persisted even after controlling for work schedule, specialty, and academic productivity, suggesting the existence of gender discrimination (Tesch et al. 1995). The result of the present study revealed a strong perception of gender-based obstacles in female physicians and the higher prevalence of gender discrimination, which may be contributing to underrepresentation of female physicians in leadership positions. The higher prevalence of gender discrimination in female physicians with older age and PhD indicates that women, especially those with strong academic aspirations, may experience more discrimination as they attempt to move up the career ladder. Furthermore, our result suggests that perception of gender-based obstacles may affect working patterns of female physicians. Multiple strategies have been shown to mitigate gender bias in hiring (Isaac et al. 2009) and there are effective interventions to correct gender-based career obstacles and help develop women's careers (Fried et al. 1996; Benz et al. 1998). Gender-based discrimination must be recognized as a major problem in Japanese medical field and urgent measures are needed to ensure equal opportunities in professional advancement for both male and female physicians.

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Conflict of Interest

The authors declare no conflict of interest.

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