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The influence of women's occupational status on access to infertility treatment in Japan



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Abstract

The number of fertility treatment procedures is increasing with the trend toward later marriages in Japan. Although the medical system for fertility treatment varies across countries, in many cases, the financial and temporal burdens for individuals are severe. Previous studies have examined the relationship between socioeconomic status and fertility treatment (especially Assisted Reproductive Technology such as IVF), and many studies have noted that socioeconomic status is associated with fertility treatment. Previous studies have defined socioeconomic status by income, educational level, or occupational status. Although income is positively related to fertility treatment, the influence of occupational status, especially women's status, has not been consistent. In Europe, women's employment has a positive influence on access to medical help for infertility, whereas women's employment is negatively associated with access to fertility treatment in Japan. Therefore, this paper analyzed an Internet-monitored survey of women who have contemplated infertility treatment to examine the influence of women's occupational status on access to fertility treatment in Japan. The analysis revealed that women with full-time employment and professional and technical work tended to respond that the reason they had not experienced fertility treatment was because they were busy with work.

Keywords

Assisted reproductive technology, infertility treatment, Occupational status, Employment of women, Japan

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1. INTRODUCTION

In Japan, approximately 450,000 cycles of Assisted Reproductive Technology (ART) have been performed annually in recent years, and approximately one in 14 births occurs through ART.

Globally, Japan has the second highest number of ART cycles per year after China.

Although the medical system for fertility treatment varies by country, the financial and temporal burdens of fertility treatment for couples, especially when ART such as IVF is used, are severe. Thus, previous studies have examined the relationship between access to ART and couples' socioeconomic status (Datta et al. 2016, etc.). However, the findings of studies on the association between women's occupational status and medical support for infertility are inconsistent.

Specifically, the association between women's occupational status and access to infertility treatment

in Japan differs from the associations in Europe. However, the reason why Japan and Europe tend to differ in this area remains unclear. Moreover, it has been noted that a number of women in Japan have resigned from their jobs because of infertility treatment (including ART such as IVF), and how companies and the government should support the balance between fertility treatment and work has become a policy issue in recent years. Thus, it can be inferred that women in Japan face difficulties when attempting to balance employment and fertility treatment. This paper focuses on the details of women's employment status and analyzes an Internet-monitored survey of women who have contemplated fertility treatment to examine the influence of women's occupational status on access to fertility treatment.

2. PREVIOUS STUDIES

Research on the association between socioeconomic status (SES) and infertility has been conducted in many developed countries. With regard to outcomes, there are three primary patterns: whether the individual is experiencing infertility, whether the individual is seeking medical intervention through fertility treatment, and the results achieved from fertility treatment. Many studies use all or part of annual income, educational level, and occupational status as SES measures, but there is a lack of consistency across these studies. This study focuses on the occupational status of women as (part of) SES and examines the relationship between women's occupational status and seeking medical support for infertility. Below, I summarize previous studies on this relationship.

Findings related to the association between women's occupational status and medical support for infertility are inconsistent depending on the region¹. In Europe, women's employment has been positively associated with access to fertility treatment. Datta et al. (2016) noted that compared to women with no job or routine occupations, women with managerial and professional occupations are more likely to seek medical help for infertility in the UK. Similarly, in Denmark, Louise et al. (2022) reported that employed women were more likely to receive ART than women outside the workforce. On the other hand, some studies have found no association between occupational status and seeking medical help for infertility (Morris et al. 2011).

A different trend has been examined in Japan with regard to the relationship between women's employment status and access to fertility treatment. Iba et al. (2021) analyzed The Fifteenth Japanese National Fertility Survey 2015 and found that women's unemployment was associated with 1.5 times greater odds of seeking medical help compared to women in full-time employment. Similarly, Terasawa (2023) analyzed an Internet monitoring survey and found that women's employment was associated with 0.7 times greater odds of accessing fertility treatment compared women who were unemployment.²

¹ Although not the focus of this paper, there is also an ongoing discussion about the inequality of access to ART due to race and ethnicity in the United States.

² Terazawa (2023) noted that women's employment is associated with a 0.5-time greater likelihood of access to ART (not fertility treatment in general) compared to women's unemployment. That is, women's employment reduces the probability of access to fertility treatment, especially in the case of ART.

3. METHOD

3.1. DATA

The data used in this paper come from an internet monitoring survey that was designed by the author. The administration of the survey was commissioned to Macromill, Inc., by the author. The sample consisted of women in their 30s who were “married,” “childless,” and “had thought about fertility treatment or fertility control” (“*Ninkatu*” in Japanese). The sample was selected according to the population sizes of eight areas of Japan (Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, and Kyushu). The survey was conducted from March 26, 2020, to March 27, 2020.

The main questions included employment status, educational background, annual household income, experience with fertility testing, artificial insemination, and in vitro fertilization, and reasons for not having sought each fertility treatment. There were 1,034 valid responses. The analysis in this paper is based on a sample of valid responses from participants who were currently employed.

3.2. VARIABLES

In the monitoring survey conducted by the author, the respondents were asked whether they had experienced IVF. Individuals who provided a negative response were asked why they had not experienced IVF in a 15-item questionnaire.³

The dependent variable was a dummy variable defined as 1 for cases in which respondents answered "very applicable" or "somewhat applicable" to the question about why they had not experienced IVF and 0 for "not applicable" or "not applicable at all." The explanatory variables were the respondents' employment status and job type. The control variables were firm size, a dummy for having a program to support fertility treatment, and educational background. The explanatory variables and control variables were defined as follows. Employment status was defined as "full-time employee" if the respondent's current employment status was "full-time employee/regular staff," "nonregular employee" if the current employment status was "temporary/contract employee," "part-time employee," and "other" if the current employment status was "day worker," "self-employed," "helping self-employed," "private contract work," "home occupation," or "other." Occupations were

³ The following 15 items were specifically included in the list: "I am unsure which medical institution to go to," "I am worried about the financial burden," "I am worried about the physical burden," "I am worried about the mental burden," "I am worried about the time burden," "I am busy at work," "My workplace and supervisor do not seem to understand it," "It is difficult to balance my work with pregnancy and child rearing," "I want to prioritize my work now," "I want to leave it to nature," "I cannot get understanding or cooperation from my spouse," "I cannot get understanding from my own or my spouse's parents," "No one around me has experienced it," "I am concerned about the safety of medical technology," and "I got pregnant before."

defined as administrative staff, management, professional or technical fields, sales, retail sector, service sector, or other. Company size was defined by the number of full-time employees for the entire company where the respondent worked, with three values: fewer than 50 employees, 50-999 employees, and more than 1,000 employees. A dummy with a system to support fertility treatment was defined as 1 if the respondent answered, "Yes, there is a system and I have used it" or "Yes, there is a system but I have never used it" to the question, "Does your workplace have a system to support employees undergoing fertility treatment?" It was defined as 0 if the respondent answered, "No, there is no system." Educational background was measured by the question, "Which of the following schools did you and your spouse last attend? Please treat dropouts and in-school enrollments the same as graduation." The response categories were 1) junior high school/high school graduate, 2) vocational school/junior college/technical college graduate, and 3) university (4-year degree), graduate school, or college (6-year degree).

4. RESULTS

The analysis was conducted in the following steps: (1) descriptive analysis was conducted through cross-tabulations of employment status and reasons for not having experienced IVF (Table 1) and cross-tabulations of job type and reasons for not having experienced IVF (Table 2); (2) multivariate analysis was conducted using binomial logistic regression analysis with reasons for not having experienced IVF: being busy with work as the dependent variable.

4.1. DESCRIPTIVE RESULTS

I will first discuss the results of the cross-tabulation of employment status and reasons for not having experienced IVF: being busy with work (Table 1). The overall percentage of respondents who answered that one of the reasons for not having experienced IVF was being busy with work was 39.2%.

With regard to employment status, the cross-tabulation shows that a higher percentage of respondents answered that their reason for not having experienced IVF was that they were busy with work" when their employment status was full-time compared to other types of employment. Among full-time employees, 51.1% of the respondents answered that this statement was applicable. In contrast, approximately 29% of nonregular employees and others answered that this statement was applicable. This result was significant at the 0.1% level.

Table 2 shows the association between job type and the reason for not having experienced IVF as being busy with work. A high percentage of respondents answered that their reason for not having experienced IVF was that they were busy with work were in professional or technical fields, sales, and the retail sector. For respondents in professional or technical fields, 52.6% responded that their reason for not having experienced IVF was being busy with work. Similarly, 50.0% of respondents in sales and 55.2% in the retail sector responded that this statement was applicable. This result was significant at the 5% level.

Table1: Cross Table of Employment status and Reasons for not having experienced IVF: Be busy one's work

	<i>Selected</i>	<i>Not selected</i>	<i>Total</i>
<i>Full-time employee</i>	51.1% 138	48.9% 132	100.0% 270
<i>Non-regular employee</i>	29.0% 83	71.0% 203	100.0% 286
<i>Other</i>	29.4% 10	70.6% 24	100.0% 34
<i>Total</i>	39.2% 231	60.8% 359	100.0% 590
<i>Pearson's $\chi^2 = 29.885$ $p < .001$</i>			

Table2: Cross Table of Job types and Reasons for not having experienced IVF: Be busy one's work

	<i>Selected</i>	<i>Not selected</i>	<i>Total</i>
<i>Management</i>	30.8%	69.2%	100.0%
	4	9	13
<i>Professional or technical fields</i>	52.6%	47.4%	100.0%
	51	46	97
<i>Administrative staff</i>	33.2%	66.8%	100.0%
	73	147	220
<i>Sales</i>	50.0%	50.0%	100.0%
	15	15	30
<i>Retail sector</i>	55.2%	44.8%	100.0%
	26	44	70
<i>Service sector</i>	38.2%	61.8%	100.0%
	34	55	89
<i>Other</i>	39.4%	60.6%	100.0%
	28	43	71
<i>Total</i>	39.2%	60.8%	100.0%
	231	359	590

Pearson's $\chi^2 = 12.650$ $p < .05$

4.2. MULTIVARIATE ANALYSIS

In this section, the results of the multivariate analysis are presented. Table 3 shows the descriptive statistics of the variables used in the multivariate analysis. Table 4 presents the estimation results of the binomial logistic regression analysis with the dummy variable for the reason for not having experienced IVF as being busy with work. Only explanatory variables were included in Model 1, while explanatory variables and control variables (company size, support system, educational background) were included in Model 2. As shown in Table 4, the -2Log-likelihood values were slightly lower and the Cox-Snell R^2 and Nagelkerke R^2 values were marginally higher for Model 2 than for Model 1. In other words, the explanatory power of the model was only slightly increased by the inclusion of control variables in Model 2.

Table3: Descriptive statistics of variables used in multivariate analysis

		Min	Max	Mean	S.D.
<i>Reasons for not having experienced IVF: Be busy one's work</i>		0.00	1.00	0.3915	0.48851
<i>Employment status</i>	<i>Full-time employee</i>	0.00	1.00	0.4576	0.49862
	<i>Non-regular employee</i>	0.00	1.00	0.4847	0.50019
	<i>Other</i>	0.00	1.00	0.0576	0.23323
<i>Type of occupation</i>	<i>Management</i>	0.00	1.00	0.0220	0.14692
	<i>Professional or technical fields</i>	0.00	1.00	0.1644	0.37096
	<i>Administrative staff</i>	0.00	1.00	0.3729	0.48398
	<i>Sales</i>	0.00	1.00	0.0508	0.21987
	<i>Retail sector</i>	0.00	1.00	0.1186	0.32364
	<i>Service sector</i>	0.00	1.00	0.1508	0.35820
	<i>Other</i>	0.00	1.00	0.1203	0.32563
<i>Company size</i>	<i>Number of full-time employees: Less than 50</i>	0.00	1.00	0.3966	0.48961
	<i>Number of full-time employees: 50 to 999</i>	0.00	1.00	0.3525	0.47817
	<i>Number of full-time employees: More than 1,000</i>	0.00	1.00	0.2508	0.43387
<i>Support system</i>	<i>Support system for fertility treatment</i>	0.00	1.00	0.0661	0.24867
<i>Educational background</i>	<i>High school education or less</i>	0.00	1.00	0.1814	0.38564
	<i>Vocational or junior college education</i>	0.00	1.00	0.3051	0.46083
	<i>University education or higher</i>	0.00	1.00	0.5136	0.50024

N=590

Table4: Binomial logistic regression analysis estimation results
[dependent variable: Reasons for not having experienced IVF: Be busy one's work]

	Model1			Model2		
	B	Exp (b)	S.E.	B	Exp (b)	S.E.
<i>(Intercept)</i>	-0.285 †	0.752	0.161	-0.254	0.776	0.226
<i>Full-time employee</i>	ref.			ref.		
<i>Non-regular employee</i>	-1.060 ***	0.347	0.197	-1.093 ***	0.335	0.202
<i>Other</i>	-1.189 **	0.305	0.410	-1.244 **	0.288	0.424
<i>Administrative staff</i>	ref.			ref.		
<i>Management</i>	-0.318	0.728	0.630	-0.315	0.730	0.632
<i>Professional or technical fields</i>	0.876 ***	2.400	0.260	0.894 ***	2.444	0.265
<i>Sales</i>	0.456	1.578	0.402	0.450	1.569	0.412
<i>Retail sector</i>	0.594 †	1.810	0.305	0.568 †	1.764	0.308
<i>Service sector</i>	0.572 *	1.772	0.278	0.560 *	1.751	0.282
<i>Other</i>	0.631 *	1.879	0.299	0.601 †	1.824	0.310
<i>Number of full-time employees: Less than 50</i>				ref.		
<i>Number of full-time employees: 50 to 999</i>				-0.130	0.878	0.212
<i>Number of full-time employees: More than 1,000</i>				0.016	1.017	0.240
<i>Support System for fertility treatment</i>				-0.258	0.773	0.356
<i>High school education or less</i>				ref.		
<i>Vocational or junior college education</i>				0.111	1.117	0.254
<i>University education or higher</i>				0.105	1.110	0.209
<i>N</i>		590			590	
<i>-2Log-Likelihood</i>		744.451			743.083	
<i>Cox-Snell R²</i>		0.074			0.076	
<i>Nagelkerke R²</i>		0.101			0.103	

†p< .10, *p<.05, **p<.01, ***p<.001

This section presents a review of the results with a focus on explanatory variables. First, focusing on employment status, the probability of responding “applicable” was approximately 0.3 times greater for non-regular employees than for full-time employees. Turning to the type of occupation, statistically significant differences were confirmed for professional or technical fields and service sectors, with administrative staff serving as the standard. Specifically, respondents in professional or technical fields were approximately 2.4 times more likely than administrative staff to respond “applicable” to the question. Similarly, respondents in the service sector were approximately 1.8 times more likely than administrative staff to respond “applicable” to the question.

5. DISCUSSION

This paper examined the relationship between women’s employment status and job type and their reasons for not experiencing IVF. This paper contributes new findings to two groups of studies. The first is the relationship between socioeconomic status and access to medical treatment for infertility. Previous studies in Japan have shown that women’s employment negatively impacts access to medical treatment for fertility. However, it has not been determined what features of women’s employment hinder this access. This paper revealed that (1) regular employees (employment status) and (2) employees in professional and technical fields (job types) tended to respond that they had not experienced IVF because they were busy with their work. The second is the issue of balancing fertility treatment and work. In Japan, the use of assisted reproductive technology is increasing with the trend of late marriages. At the same time, women’s workforce participation rate is increasing. This situation is connected to the difficulty of balancing work and infertility treatment. In some cases, women cannot continue to work because of fertility treatment, while in other cases, women cannot continue to receive

medical treatment for infertility because of work. This paper suggests that women with regular employment (employment status) and those in professional and technical fields (job types) tend to face difficulty in balancing work and infertility treatment. For these reasons, future research should find ways to support a balance between work and infertility treatment, especially for women with regular employment and those in professional and technical fields.

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