The Association between Annual Household Income and Total Monthly Amount of Out-of-Pocket Medical Expenses Patients Are Willing to Pay among Patients of Infertility in Japan: A Cross-Sectional Patient Survey

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INTRODUCTION

- ☐ To boost fertility rates, Japan began covering assisted reproductive technology (ART) under its universal health insurance program since April 2022.
- ☐ Maeda et al. (2022) [1] showed out-of-pocket payment to be a key determinant in patients' decision to undergo ART treatment.
- ☐ It is of interest to investigate what factors in addition to income may potentially influence out-of-pocket payment which a patient with infertility may be willing to pay in Japan.

OBJECTIVE

- ☐ We examine the association between annual household income (AHI) and total monthly out-of-pocket medical expenses (OOP) patients are willing to pay (WTP) among infertility patients in Japan using real-world cross-sectional survey data, and compare it with that for general persons without infertility.

METHODS

- ☐ Real-world data from the 2023 Patient Mindscape® survey was used. Patient Mindscape® is a Japanese nationwide patient-reported outcomes survey conducted annually among 500,000+ patients for 80 conditions.
- ☐ The sample included married female patients aged 25-42* who reported suffering from infertility only within the past one year.
- ☐ For comparison, a control sample of married females aged 25-42 who reported no infertility in the past one year was also analyzed.
- ☐ AHI categories were classified into 3 groups: low (< 5 million JPY), medium (5 - < 10 million JPY), high (≥ 10 million JPY).
- ☐ OOP categories were coded as a binary variable for ≥ 10,000 JPY per month. Binary variables for age 40-42 (for whom reimbursement for embryo transfer is restricted to only 3 courses instead of 6 courses for those aged 25-39), presence of child in cohabitation, and employment status were also considered.
- ☐ Chi-square tests were used to examine the association between AHI and demographic factors, and logistic regression models for the association between AHI and OOP WTP. A p value < 0.05 was considered statistically significant. Statistical analysis was performed with R version 4.4.3.

RESULTS

1. Participant Characteristics

- ☐ Participant characteristics in terms of key binary variables of interest classified by AHI categories are shown in Tables 1A and 1B.
- ☐ Employment and OOP WTP are positively associated with AHI.
- ☐ The infertility group has lower proportions of those aged 40-42, child in cohabitation, and higher OOP WTP than the general group.

Table 1A. Demographic Characteristics for Patients with Infertility

Characteristic	Overall N = 458	Annual Household Income (AHI)			p-value
		Low N = 119	Medium N = 276	High, N = 63	
Age: 40-42, n(%)	67 (14.6%)	17 (14.3%)	36 (13.0%)	14 (22.2%)	0.176
Employed, n(%)	315 (68.8%)	66 (55.5%)	195 (70.7%)	54 (85.7%)	<0.001
Child in Cohabitation, n(%)	162 (35.4%)	45 (37.8%)	97 (35.1%)	20 (31.7%)	0.712
Monthly OOP WTP ≥ 10,000 JPY, n(%)	182 (39.7%)	33 (27.7%)	113 (40.9%)	36 (57.1%)	<0.001

Table 1B. Demographic Characteristics for General Persons without Infertility

Characteristic	Overall, N = 18,866	Annual Household Income (AHI)			p-value
		Low N = 6,835	Medium N = 10,141	High N = 1,890	
Age: 40-42, n(%)	4,920 (26.1%)	1,682 (24.6%)	2,659 (26.2%)	579 (30.6%)	<0.001
Employed, n(%)	12,520 (66.4%)	3,876 (56.7%)	7,084 (69.9%)	1,560 (82.5%)	<0.001
Child in Cohabitation, n(%)	13,682 (72.5%)	4,981 (72.9%)	7,406 (73.0%)	1,295 (68.5%)	<0.001
Monthly OOP WTP ≥ 10,000 JPY, n(%)	3,925 (20.8%)	965 (14.1%)	2,282 (22.5%)	678 (35.9%)	<0.001

2. The Association Between OOT WTP and AHI / Patient Characteristics

- ☐ The details of the association are shown in Tables 2A and 2B.
- ☐ For the infertility group, income category was statistically significantly associated with OOP WTP.
- ☐ For the general group, odd ratio estimates are relatively similar in magnitude and trend to those for the infertility group, with the exception of age: 40-42; the restricted reimbursement for ART in this age category may account for the observed smaller odds ratio for the infertility group. Smaller p-values of the general group can be explained by the larger sample size.

Table 2A. Logistic Regression of Monthly OOP WTP ≥ 10,000 JPY for Patients with Infertility (N = 458)

Characteristic	OR[1]	95% CI[1]	p-value
Income Category (Reference: Medium)			
Low (< 5 million JPY)	0.58	0.36, 0.92	0.023
High (≥ 10 million JPY)	1.92	1.10, 3.41	0.023
Age: 40-42	0.67	0.38, 1.18	0.173
Employed	1.28	0.84, 1.98	0.256
Child in Cohabitation	0.87	0.58, 1.31	0.514

[1] OR = Odds Ratio, CI = Confidence Interval

Table 2B. Logistic Regression of Monthly OOP WTP ≥ 10,000 JPY for General Persons without Infertility (N = 18,866)

Characteristic	OR[1]	95% CI[1]	p-value
Income Category (Reference: Medium)			
Low (< 5 million JPY)	0.58	0.54, 0.63	<0.001
High (≥ 10 million JPY)	1.88	1.69, 2.09	<0.001
Age: 40-42	0.86	0.80, 0.94	<0.001
Employed	1.29	1.19, 1.40	<0.001
Child in Cohabitation	0.92	0.85, 1.00	0.053

[1] OR = Odds Ratio, CI = Confidence Interval

CONCLUSIONS

- ☐ Patients with infertility exhibit greater OOP WTP than general persons without infertility across all categories of AHI.
- ☐ For the infertility group, only AHI categories showed statistically significant association with OOP WTP.

REFERENCES

1. Maeda E, Jwa SC, Kumazawa Y, Saito K, Iba A, Yanagisawa-Sugita A, et al. Out-of-pocket payment and patients' treatment choice for assisted reproductive technology by household income: a conjoint analysis using an online social research panel in Japan. BMC Health Services Research (2022) 22:1093

* Note: target age range set in light of Maeda et al. (2022) and age limit of below 43 at the start of ART treatment to be eligible for public insurance coverage

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