

FINDINGS

Japanese Infertility Patients' Attitudes towards Directed and Non-Directed Oocyte Donation: Analysis of a Questionnaire Survey and Implications for Public Policy

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I. Introduction

The increasing prevalence of involuntarily childless Japanese couples has been accompanied by a rapid acceptance of assisted reproductive technologies (ART) including in-vitro fertilisation (IVF). The number of IVF cycles performed annually in Japan tripled during the last decade, from 76,073 in 2001 to 242,017 in 2010. More than 600 registered infertility clinics now exist throughout Japan (JSOG 2012). Thus, Japan is among the “most advanced” countries in the world with respect to non-donor IVF (IVF using a couple’s gametes) (Nygren *et al.* 2011).

However, third-party reproduction, or collaborative reproduction, has been performed only sporadically in Japan. The increasing prevalence of infertility in Japan is associated with a tendency to marry late and a delay in the onset of procreative life, resulting in age-related declines in ovarian function and in ova quality as the major causes of infertility. Thus, the prevalence of infertility patients who may benefit from IVF using donor oocytes (referred to as donor-oocyte IVF hereafter) has been increasing. However, despite wider acceptance of ART, donor-oocyte IVF has been performed only sporadically.¹

Uncertainties in public policies regarding third-party reproduction in general and oocyte donation in particular have contributed to the reluctance of Japanese infertility clinics to establish donor-oocyte programmes. Although

medical, bioethical and legal experts have issued calls to legally regulate the practice of ART, no statute has been enacted thus far. In the absence of a legal infrastructure, the regulation of ART is left to medical practitioners' voluntary compliance with policy statements, guidelines and recommendations issued by professional bodies and governmental committees. However, these are not in complete agreement.

Issues regarding whether oocyte donation is allowed, who should donate oocytes, and whether and how oocyte donors are to be compensated remain controversial in Japan. The Japanese Society of Obstetrics and Gynecology (JSOG) has taken a restrictive approach to oocyte donation.² JSOG's 1983 statement recommended that members refrain from performing IVF using third-party gametes. Then, in 2001, JSOG's ethics committee recommended that donor-oocyte IVF be practised only under the appropriate legislation and that oocyte donation be anonymous, non-directed and non-commercial in principle.³ More recently, the Japanese Society for Reproductive Medicine (JSRM) issued a more relaxed set of guidelines, according to which egg donation by a sibling or close family member of a patient may be permitted under limited circumstances. Some clinics have also established their own guidelines and begun to practise donor-oocyte IVF, but the number of cycles actually performed has been very limited thus far.⁴ In this context, it is important to resolve uncertainties and to develop clear legal regulations.

The unavailability of donor-oocyte IVF in Japan has led an increasing number of Japanese patients to travel overseas. Although the exact number of couples doing so remains unknown, "reproductive tourism" — defined here as medical tourism in the field of reproductive medicine involving commercialised third-party reproductive services, such as gamete donation and surrogacy — is increasingly commonplace in Japan, as is the case in many other countries (Ferraretti *et al.* 2010; Heng 2006a, 2006b; Pennings *et al.* 2008; Shenfield 2011; Shenfield *et al.* 2010, 2011). Brokering agencies are reportedly arranging cross-border reproductive care in the United States or in Asian countries so that Japanese patients can receive donor oocytes from local or Japanese donors (Hibino *et al.* 2012; Shirai and Hibino 2012). Reproductive tourism is associated with various medical, ethical and legal issues, and its growth also signals an urgent need to reconsider Japan's national public policy on ART.⁵

In this context, we examined infertility patients' attitudes toward donor-oocyte IVF. Based on the analysis of data from a questionnaire survey on third-party reproduction and cross-border reproductive care, we investigated the actual and potential need for oocyte donation and patients' preferences for different kinds of oocyte donation. The public policy implications of our research findings are also discussed.

II. Materials and Methods

The present study was based on a self-administered, anonymous questionnaire addressing the attitudes of infertility patients towards third-party reproduction and cross-border reproductive care. The survey was conducted from November 2011 to March 2012. In total, 7,309 questionnaires were distributed to infertile patients via 65 accredited ART clinics located throughout Japan. By the end of the study period, 2,007 questionnaires were returned (response rate = 27.4%). The survey was approved by the Ethics of Committee of the Kanazawa Graduate School of Medical Sciences.

Data on demographic characteristics (age, marital status, education) and variables related to infertility treatments were obtained. To assess attitudes towards various assisted reproductive technologies, we asked respondents to choose from five categories: 1) "I have already undergone"; 2) "I plan to undergo"; 3) "I am considering undergoing"; 4) "I may consider undergoing in the future"; and 5) "I will never consider undergoing". As "I plan to undergo" and "I am considering undergo" were chosen by few respondents, these two items were combined into "planning or considering".

To understand attitudes towards different modalities of egg donation, participants were asked from whom they would like to receive oocytes should they undergo oocyte donation. Seven options were presented: oocytes donated from [a] a sister; [b] a relative other than a sister; [c] a friend or acquaintance; [d] an anonymous/unknown donor; [e] another infertility patient (i.e., egg sharing); or [f] an embryo donated from another IVF couple; they could also choose [g] "I do not want to undergo egg-donor IVF". The respondents were asked to indicate which type(s) of oocyte donation they would consider and to rank them according to preference.

To examine the data, the six categories of donor oocytes were divided into two groups: the directed donation group, consisting of [a] "sister"; [b] "relative"; and [c] "friend"; and the non-directed donation group, consisting of [d] "anonymous oocyte donor"; [e] "egg sharing"; and [f] "embryo donation." Answers that ranked [a], [b] and [c] as the top three preferences were considered to reflect a strong preference for directed oocyte donation. Likewise, responses that ranked [d], [e] and [f] as the top three preferences were considered to reflect a strong preference for non-directed donation. Respondents who listed both directed donation and non-directed options were categorised as "mixed preference" (Figure 1).

The questionnaire data were analysed with SPSS software (ver. 19.0 for Mac). *Chi-square* tests were used when appropriate, and *p*-values < 0.05 indicated statistical significance. Survey results relevant to the aim of this paper are presented below.

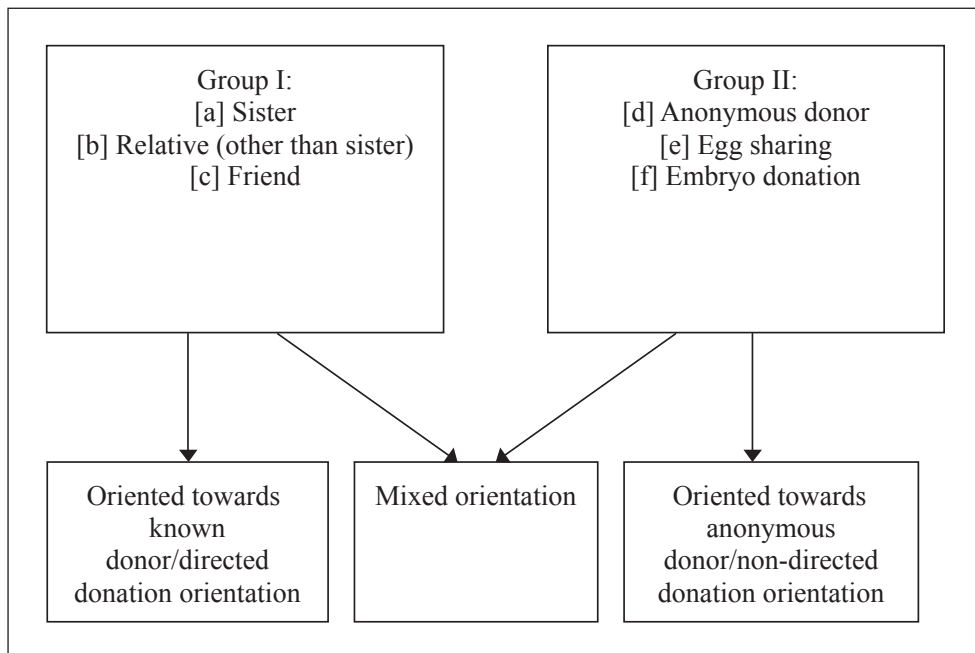


Figure I. Infertility patients' orientations towards oocyte donation

III. Results

(1) Participant Characteristics

The demographic characteristics and treatment histories of participants are presented in Table I. A total of 1,979 respondents (98.6%) were female and 28 (1.4%) were male; 1,917 (95.5%) were legally married. The average age ($\pm SD$) of participants was 36.3 (± 4.9).

The treatment histories of participants are summarised in Table II. The length of infertility treatment ranged from less than one month to 18 years, with an average ($\pm SD$) of 31.4 months (± 29.07). Participants were asked to choose the cause of infertility from seven categories (multiple answers were allowed); 771 (38.4%) reported "advanced age" (age-related decline in ovarian function and oocyte quality) as the major cause of infertility. "Premature menopause", a common medical indication for donor-oocyte IVF, was selected by 55 respondents (2.7%).

Regarding third-party reproduction, only 31 respondents (1.6%) reported that they had received artificial insemination with donor sperm (AID). Even fewer respondents stated that they had undergone donor-egg IVF ($n = 3$, 0.2%).

Table I. Participants' basic profile ($n = 2007$)

		<i>n (%)</i>
Gender	Female/Male	1978 (98.6)/15 (0.7)
	N/A	14 (0.7)
Age	mean	36.3
	<30	179 (8.9)
	30–39	1261 (62.8)
	40–49	548 (27.3)
	50 and above	3 (0.1)
	N/A	14 (0.8)
Marital status	Married/Unmarried	1917 (95.5)/37 (1.8)
	N/A	53 (2.6)
Employment	Employed/Unemployed	1218 (60.7)/731 (36.4)
	N/A	58 (2.9)

Table II. Participants' experience of infertility treatment ($n = 2007$)

		<i>n (%)</i>
Treatment history	31.4 (± 29.07) months	
	<1 year	438 (21.8)
	1–2 years	436 (21.7)
	2–3 years	322 (16.0)
	3–4 years	275 (13.7)
	4–5 years	163 (8.1)
	>5 years	279 (13.9)
	N/A	
Number of initiated IVF cycles	1–5 cycles	730 (36.4)
	6–10 cycles	127 (6.3)
	>11 cycles	61 (3.0)
	N/A	
Causes of infertility (multiple answers)	Advanced age	771 (38.4)
	Uterus/cervical canal related factor	669 (33.3)
	Fallopian factor	518 (25.8)
	Sperm factor	513 (25.6)
	Ovum/ovary related factor	505 (25.2)
	Sexual intercourse	237 (11.8)
	Repeated miscarriage	225 (11.2)
	Premature menopause	55 (2.7)
	Others	276 (13.8)
	N/A	64 (3.2)

(2) Attitudes towards Donor-Egg IVF

Respondents' attitudes towards IVF and third-party reproduction are summarised in Table III. Regarding non-donor IVF, 1,129 (56.3%) participants stated that they had already undergone the procedure. Additionally, 275 (13.8%) participants stated that they were planning or considering undergoing the procedure and 443 (22.3%) stated that they might undergo the procedure in the future. Only 141 (7.1%) participants indicated that they will never undergo IVF.

In contrast, most respondents expressed reluctance in using a third party's gametes for IVF. In terms of donor-oocyte IVF, 1,697 (84.6%) participants answered that they would never undergo donor-egg IVF, whereas 210 (10.5%) persons stated that they may consider this in the future and 20 (0.9%) stated that they were planning or considering undergoing donor-egg IVF. Overall, approximately one in 10 participants ($n = 233$, 11.6%) indicated a degree of willingness to undergo donor-egg IVF.

Respondents were also asked about their attitudes towards undergoing donor-oocyte IVF overseas. Of the three participants who had received donor-oocyte IVF, two stated they did so overseas. An additional 18 participants (0.9%) were planning or considering undergoing oocyte donation overseas and 133 (6.6%) stated that they may do so in the future. Overall, 153 participants (7.5%) indicated willingness to travel abroad for the purpose of donor-egg IVF; this constitutes 68.6% of the 233 participants who indicated a degree of willingness to undergo donor-egg IVF.

Infertility patients' willingness to receive donor-egg IVF varied significantly according to perceived cause of infertility. Those who were infertile due to early menopause were significantly more likely to express a degree of willingness to undergo donor-oocyte IVF; 22 of 55 (40.0%) respondents in this group indicated willingness to have this procedure ($p < .01$). Of the 771 participants who cited advanced age as a cause of infertility, 137 (17.8%) indicated willingness to undergo this procedure ($p < .01$).

Age was also an important contributor to participants' attitudes towards donor-oocyte IVF (Table V). Among the five age groups, participants 40–44 and older than 45 years of age were significantly more likely to express positive attitudes towards donor-egg IVF. Of the 473 participants aged 40–44 years, 74 (15.6%) indicated willingness to receive donor oocyte. 29 of 78 (37.2%) participants older than 45 years of age were willing to receive donor oocytes.

Cross-tabulation analysis indicated that the number of IVF cycles the respondents had experienced was strongly associated with their attitudes towards

Table III. Attitudes towards ART and third-party reproduction

	(a) 'I have already undergone'	(b) 'I am planning or considering'	(c) 'I may undergo in the future'	(a) + (b) + (c) = indication of willingness	(d) 'I will not undergo'	No Answer	Total
Non-donor IVF <i>n</i> (%)	1129 (56.3)	275 (13.7)	443 (22.1)	1847 (92.0)	141 (7.1)	19 (0.9)	2007 (100.0)
Sperm donation <i>n</i> (%)	31 (1.5)	31 (1.5)	31 (1.5)	31 (1.5)	31 (1.5)	31 (1.5)	2007 (100.0)
Oocyte donation <i>n</i> (%)	3 (0.2)	20 (0.9)	210 (10.5)	233 (11.6)	1697 (84.6)	77 (3.8)	2007 (100.0)
Surrogacy <i>n</i> (%)	0 (0.0)	5 (0.2)	171 (8.5)	176 (8.8)	1743 (86.8)	88 (4.4)	2007 (100.0)

Table IV. Attitude towards donor-oocyte IVF according to the cause of infertility

	(a) 'I have already undergone'	(b) 'I am planning or considering'	(c) 'I may undergo in the future'	(a) + (b) + (c) = indication of willingness	(d) 'I will not undergo'	No Answer	Total
Advanced age	2 (0.3)	18 (2.4)**	117 (15.2)**	137 (17.8)**	604 (78.3)**	30 (3.9)	771 (100.0)
Uterus/cervical canal related factor	1 (0.1)	8 (1.2)	63 (9.4)	72 (10.8)	571 (85.4)	26 (3.9)	669 (100.0)
Fallopian factor	1 (0.2)	7 (1.4)	53 (10.2)	61 (11.8)	441 (85.1)	16 (3.1)	518 (100.0)
Sperm factor	1 (0.2)	6 (1.2)	48 (9.4)	55 (10.7)	436 (85.0)	22 (4.3)	513 (100.0)
Ovum/ovary related factor	1 (0.2)	6 (1.2)	64 (12.7)	71 (14.4)	422 (83.6)	12 (2.4)	505 (100.0)
Sexual intercourse	1 (0.4)	3 (1.3)	29 (12.2)	33 (13.9)	197 (83.1)	7 (3.0)	237 (100.0)
Repeated miscarriage	1 (0.4)	5 (2.2)	23 (10.2)	29 (12.9)	192 (85.3)	4 (1.8)	225 (100.0)
Premature menopause	2 (3.6)**	3 (5.5)**	17 (30.9)**	22 (40.0)**	32 (58.2)**	1 (1.8)	55 (100.0)
Others	0 (0.0)	2 (0.7)	29 (10.5)	31 (11.2)	238 (86.2)	7 (2.5)	276 (100.0)

Table V. Attitude towards donor-oocyte IVF according to age groups

	(a) 'I have already undergone'	(b) 'I am planning or considering'	(c) 'I may undergo in the future'	(a) + (b) + (c) = indication of willingness	(d) 'I will not undergo'	No Answer	Total
<29	0 (0.0)	0 (0.0)	21 (11.7)	21 (11.7)	154 (80.6)	4 (2.2)	179 (100.0)
30–34	0 (0.0)	1 (0.2)	38 (6.9)**	39 (7.1)**	498 (90.5)**	13 (2.4)	550 (100.0)
35–39	1 (0.1)	4 (0.6)	62 (8.7)	67 (9.4)*	619 (87.1)*	25 (3.5)	711 (100.0)
40–44	0 (0.0)	9 (1.9)*	65 (13.7)**	74 (15.6)**	375 (79.3)**	24 (5.1)	473 (100.0)
45 and above	2 (2.6)**	6 (7.7)**	20 (26.9)**	29 (37.2)**	42 (53.8)**	7 (9.0)*	78 (100.0)

Table VI. Attitude towards donor-oocyte IVF according to IVF cycles

The number of IVF cycles	(a) 'I have already undergone'	(b) 'I am planning or considering'	(c) 'I may undergo in the future'	(a) + (b) + (c) = indication of willingness	(d) 'I will not undergo'	No Answer	Total
None	0 (0.0)	1 (0.4)	16 (6.8)**	17 (7.2)**	217 (92.3)**	1 (0.4)**	235 (100.0)
1–2 cycles	0 (0.0)	3 (0.6)	60 (12.3)	63 (13.0)	400 (82.3)	23 (4.7)	486 (100.0)
3–4 cycles	0 (0.0)	3 (1.6)	27 (0.5)	30 (15.7)	154 (80.6)	7 (3.7)	191 (100.0)
5–6 cycles	1 (1.0)	1 (1.0)	14 (14.0)	16 (16.0)	82 (82.0)	2 (2.0)	100 (100.0)
7–8 cycles	0 (0.0)	1 (2.2)	8 (17.4)	9 (19.6)	34 (73.9)	3 (6.5)	46 (100.0)
9–10 cycles	0 (0.0)	2 (5.9)*	10 (29.4)**	12 (35.3)**	19 (55.9)**	3 (8.8)	34 (100.0)
more than 11 cycles	1 (1.7)**	4 (6.7)**	16 (26.7)**	21 (35.0)**	35 (58.3)**	4 (6.7)	60 (100.0)

Table VII. Desirable types of oocyte donation

	1st <i>n</i> (%)	2nd <i>n</i> (%)	3rd <i>n</i> (%)	4–6 th <i>n</i> (%)
From sister	104 (50.2)	8 (3.9)	3 (1.4)	4 (1.9)
From a relatives (other than a sister, a cousin etc.)	7 (3.4)	48 (23.2)	5 (2.4)	7 (3.4)
From friends	3 (1.4)	9 (4.3)	11 (5.3)	7 (3.4)
From anonymous, unknown oocyte donor	58 (28.0)	38 (18.4)	31 (15.0)	9 (4.3)
From another IVF couple (i.e., egg sharing)	29 (14.0)	38 (18.4)	13 (6.3)	15 (7.2)
Embryo from another IVF couple	6 (2.9)	13 (6.3)	19 (9.2)	13 (6.3)
Total	207 (100.0)	154 (74.5)	82 (39.6)	55 (26.6)

donor-egg IVF (Table V). Of those who had undergone 9 to 10 IVF cycles ($n = 34$), 12 (35.3%) indicated willingness to receive donor oocytes, whereas 19 individuals (55.9%) stated that they would never undergo the donor-oocyte IVF procedure. Of those who had experienced more than 11 cycles of IVF ($n = 60$), one participant stated she has already undergone the procedure and 21 participants (35.0%) indicated their intention to receive donor oocytes. Respondents' willingness to undergo donor-egg IVF is clearly associated with repeated failures of IVF, suggesting that patients' attitudes towards egg donation may change over the course of infertility treatment.

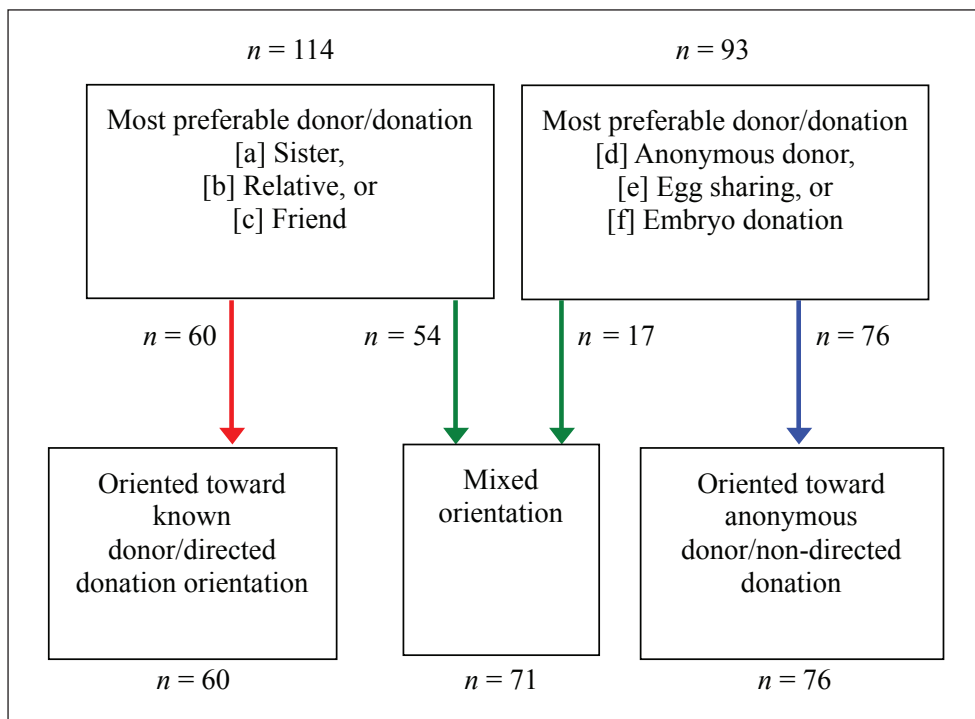


Figure II. Infertility patients' orientations toward oocyte donation

(3) Preferred Method of Oocyte Donation: Directed/Non-Directed Donation

We analysed respondents' choices regarding the three most desirable methods of oocyte donation. Among those who offered valid answers to this question and expressed an intention to receive donor-oocyte ($n = 207$), sisters were the most popular donors ($n = 104$, 50.2%), followed by anonymous/unknown donors ($n = 58$, 28.0%) and another IVF couple (egg sharing) ($n = 29$, 14.0%). As for the second most preferred method, relatives (other than sisters) were chosen by 48 patients (23.2%), followed by anonymous/unknown donors ($n = 38$, 18.4%) and egg sharing ($n = 38$, 18.4%).

Further examination of the data suggested the variety of infertility patients' preferences with respect to oocyte donation (Figure II). Among the 114 respondents who chose [a] sister, [b] a relative, or [c] a friend or acquaintance as the most preferable option, 60 (52.6%) listed [a], [b] and [c] as the three most preferred types of oocyte donation (strong preference for directed donation). The remaining 54 respondents (47.4%) had mixed preferences, choosing an anonymous/unknown oocyte donor, egg sharing, or embryo donation as the

second and third most desirable method of oocyte donation. For example, of the 104 participants who chose sisters as the most preferable oocyte donors, 57 (54.8%) listed only directed oocyte donation, and the remaining 47 (45.2%) listed a form of non-directed oocyte donation as the second or the third most preferable method.

A strong preference for a particular type of oocyte donation was more evident among the 93 participants who chose [d] an anonymous-unknown donor, [e] egg sharing, or [f] embryo donation as the most desirable form of oocyte donation. For example, of 58 respondents who chose an anonymous oocyte donor as most desirable, 49 (84.5%) listed no other options or listed only other types of non-directed oocyte donation. Similarly, of the 29 respondents who preferred egg sharing, 21 (72.4%) listed no other options or listed only other types of non-directed oocyte donation. Overall, 76 of the 93 respondents (81.7%) expressed a strong preference for non-directed oocyte donation, whereas 17 (18.3%) reported a mixed preference.

IV. Discussion

The tendency to marry late and the consequent delay of procreation in Japan have been associated with the increasing prevalence of unwanted childlessness due to age-related declines in ovarian function and oocyte quality. Accordingly, the demand for donor oocytes is growing in Japan.

In our survey, roughly one in 10 patients expressed some degree of willingness to receive donated oocytes. The proportion was higher among female patients who reported that premature menopause and age-related factors were causes of infertility. Patients over 40 years of age constituted the majority of those who indicated some intention to receive donor oocytes. It is noteworthy that 37.2% of participants aged over 45 years indicated a clear or vague intention to undergo donor-oocyte IVF.

In the context of the current reconsideration of public policies regarding oocyte donation in Japan, a few key findings of our survey should be noted. First, the unavailability of donor-egg IVF in Japan has compelled patients to undergo the procedure overseas. Donor-oocyte IVF had been considered by approximately 70% of those who indicated any intention to use donor oocytes for infertility treatment. This shows that the demand for oocyte donation among Japanese patients has been left largely unmet within the Japanese reproductive medicine community.

Second, the fact that a sibling was selected as the most desirable source of oocytes by the majority of Japanese infertility patients warrants attention given that the guidelines and recommendations issued by professional bodies

and governmental committees have been either opposed to or cautious about using a patient's sibling as an oocyte donor. This scepticism is typically predicated on: 1) concerns about coercion or pressure, which would compromise the voluntary nature of donation; and 2) concerns about potential confusion and complications in the relationship between parent and child. The extent to which these concerns are grounded in sound empirical evidence should be subject to critical re-examination (De Wert *et al.* n.d.; Greenfeld *et al.* 1998; Jadva *et al.* 2011; Lessor 1993; Okagaki, Ishihara and Deguchi 2007; van Berkell *et al.* 2007; Weil *et al.* 1994).

Finally, our survey highlights the different preferences and orientations with regard oocyte donation among Japanese infertility patients. Whereas the majority of infertility patients consider a sibling as the most desirable oocyte donor, a sizeable number of infertility patients seem to strongly prefer non-directed oocyte donation.

Efforts to foster discussion on public policy of egg donation should consider the views of infertility patients. It is noteworthy that previous studies conducted elsewhere have reported diverse needs and preferences related to donor oocytes. The desire to receive oocytes from a sibling may derive not simply from the wish for a genetically related child but also from various other considerations. Similarly, the wish to receive oocytes from an unknown donor may also be based on a variety of reasons, including the desire to protect the parent-child relationship from the interference of a third party (Greenfeld *et al.* 1998; van Berkell *et al.* 2007).

In conclusion, the growing, yet largely unmet, demand for oocyte donation calls for a reconsideration of the public policy surrounding oocyte donation in Japan. Although legislation to regulate the practice of oocyte donation is necessary, it should accommodate infertility patients' different preferences in this regard. In addition to other ethical considerations, the diverse needs and preferences related to donor oocytes should to be taken into account in public policies on oocyte donation. Given the importance of accommodating the multiplicity of patients' needs and preferences related to oocyte donation in relevant public policies, various measures to increase non-directed oocyte donation must be carefully considered. These would include egg sharing, which has not been practiced systematically in Japan.

This study has several limitations. Although distribution of a large number of questionnaires allowed us to collect a large number of responses, the response rate remained low. Therefore, we cannot easily generalise the results of our survey. Additionally, we gathered data through a general survey on third-party reproduction and cross-border reproductive care; a more thorough investigation is needed to understand infertility patients' perceptions and

attitudes towards donor-oocyte IVF. Despite these limitations, the findings presented above allow us to identify areas that require further empirical investigation and to underscore ethical and public policy issues that need more thorough discussion.

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Notes

1. Japanese Institute of Standardizing Assisted Reproductive Technology (JISART) established its own guidelines, and member clinics have begun to perform donor-egg IVF. However, only 25 procedures were performed between 2008 and 2011. Available at <http://www.jisart.jp/>.
2. Artificial insemination with donor sperm (AID) has been practised widely since 1949, and 2,264 cycles were performed in Japan in 2010 (JSOG, 2012).
3. A similar position has been adopted in a report issued by the Expert Committee for Assisted Reproductive Technology, Health Sciences Council of the Ministry of Health, Labour and Welfare in 2003 (see References).
4. See note 1 above.
5. For a more detailed analysis of the data concerning cross-border reproductive care, see Hibino *et al.* (2013).

References

- De Wert, G. *et al.* (2011) Intrafamilial Medically Assisted Reproduction, *Human Reproduction*, 26 (3), 504–9.
- Ferraretti, A.P. *et al.* (2010) Cross-Border Reproductive Care: A Phenomenon Expressing the Controversial Aspects of Reproductive Technologies, *Reproductive BioMedicine Online*, 20 (2), 261–6.
- Greenfeld, D.A. *et al.* (1998) Do Attitudes toward Disclosure in Donor Oocyte Recipients Predict the Use of Anonymous versus Directed Donation? *Fertility and Sterility*, 70 (6), 1009–14.
- Gunning, J. (1998) Oocyte Donation: The Legislative Framework in Western Europe, *Human Reproduction*, 13 (2), 98–102.
- Health Sciences Council of the Ministry of Health, Labour and Welfare (2003) Report on the Consolidation of Medical Systems for Reproductive Treatment

- by Donor Sperm, Eggs, and Embryos. Available at <http://www.mhlw.go.jp/shingi/2003/04/s0428-5.html> (in Japanese) [accessed 14 February 2013].
- Heng, B.C. (2006a) Reproductive Tourism: Should Locally Registered Fertility Doctors be Held Accountable for Channeling Patients to Foreign Medical Establishments? *Human Reproduction*, **21** (3), 840–2.
- (2006b) Legal and Ethical Issues in the International Transaction of Donor Sperm and Eggs, *BJOG: An International Journal of Obstetrics & Gynaecology*, **113** (11), 1225–7.
- Hibino, Y. *et al.* (2012) The Practice of Oocyte Donation and Physicians' and Patients' Attitudes in Japan, *Journal of Preventive Medicine [Yobo Igaku Zasshi]*, **7** (2), 49–58.
- Japan Society for Reproductive Medicine (2009) *Guidelines of Japanese Society of Obstetrics and Gynecology on ART using Third-Party Gametes*. Available at http://www.jsrm.or.jp/guideline-statem/guideline_2009_01.html (in Japanese) [accessed 14 February 2013].
- Japanese Society of Obstetrics and Gynecology (2012) ART Registry of Japan 2010, *Acta Obstetrica et Gynaecologica Japonica [Nissanpu-shi]*, **64** (9), 2110–40.
- Jones Jr., H.W. *et al.* (2011) International Federation of Fertility Societies Surveillance 2010: Preface, *Fertility and Sterility*, **95** (2), 491.
- Jadva, V. *et al.* (2011) A Longitudinal Study of Recipients' Views and Experiences of Intra-Family Egg Donation, *Human Reproduction*, **26** (10), 2777–82.
- Lessor, R. (1993) All in the Family: Social Processes in Ovarian Egg Donation between Sisters, *Sociology of Health and Illness*, **15** (3), 393–431.
- Nygren, K.G. *et al.* (2011) International Committee for Monitoring Assisted Reproductive Technology (ICMART) World Report: Assisted Reproductive Technology 2003, *Fertility and Sterility*, **95** (7), 2209–22.
- Okagaki, R., O. Ishihara and A. Deguchi (2007) Oocyte Donation, *Journal of Mammalian Ova Research*, **24** (4), 142–52.
- Pennings, G. *et al.* (2008) ESHRE Task Force on Ethics and Law 15: Cross-Border Reproductive Care, *Human Reproduction*, **23** (10), 2182–4.
- Shenfield, F. (2011) Implementing a Good Practice Guide for CBRC: Perspectives from the ESHRE Cross-Border Reproductive Care Taskforce, *Reproductive BioMedicine Online*, **23** (5), 657–64.
- Shenfield, F. *et al.* (2010) Cross-Border Reproductive Care in Six European Countries, **25** (6), *Human Reproduction*, 1361–8.
- (2011) ESHRE's Good Practice Guide for Cross-Border Reproductive Care for Centers and Practitioners, *Human Reproduction*, **26** (7), 1625–7.
- Shirai, C. and Y. Hibino (2012) Physicians' Attitude towards Oocyte Donation and Cross-Border Reproductive Care in Japan, *Clinical Gynecology and Obstetrics [Rinsho fujinka sanku]*, **66** (2), 186–92.
- van Berkel, D., A. Candido and W.H. Pijffers (2007) Becoming a Mother by Non-Anonymous Egg Donation: Secrecy and the Relationship between Egg Recipient, Egg Donor and Egg Donation Child, *Journal of Psychosomatic Obstetrics and Gynecology*, **28** (2), 97–104.
- Weil, E. *et al.* (1994) Psychology: Psychological Aspects in Anonymous and Non-Anonymous Oocyte Donation, *Human Reproduction*, **9** (7), 1344–7.