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Sperm and oocyte donors' experiences of anonymous donation and subsequent contact with their donor offspring

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BACKGROUND: This study examined the motivations and experiences of anonymous donors who decide to make themselves open to contact with their donor offspring.

METHODS: Online questionnaires were completed by 63 sperm donors and 11 oocyte donors recruited via the Donor Sibling Registry (http://www.donorsiblingregistry.com/), a US-based international registry that facilitates contact between donor-conceived offspring and their donors.

RESULTS: Donors' main reasons for donating were financial payment and wanting to help others. Sperm donors had donated between 1 and 950 times (median = 100) and oocyte donors had donated between 1 and 5 times (median = 2). The majority of sperm donors and more than one-third of oocyte donors expressed concerns about having donated. These concerns were mainly about the well-being of any children conceived using their gametes and not being able to make contact with them. Most sperm and oocyte donors felt that it was important to know how many offspring had been born using their donation, and 51% of sperm donors and 46% of oocyte donors wanted identifying information. All of the donors who had contact with their donor offspring reported positive experiences and the majority continued to have regular contact.

CONCLUSIONS: Although the sample may not be representative of all anonymous donors, this study highlights the importance of donors having access to information about their donor offspring and the positive consequences that may arise when contact is made.

Key words: donor conception / oocyte donation / sperm donation / donors / Donor Sibling Registry

Introduction

Legislation on gamete donation has changed in recent years with some countries, including the UK, Norway and The Netherlands, removing donor anonymity and enabling individuals conceived using donated gametes to obtain identifying information about their donor when they reach adulthood. In the USA, anonymous gamete donation still takes place, although clinics offering open-identity donations are on the rise (Scheib and Cushing, 2007). This move towards open-identity donation has, in part, resulted from the recognition that access to the donor's identity may be important for offspring (Scheib and Cushing, 2007). In the past, donor records were often destroyed to guarantee the anonymity of donors (Curie-Cohen *et al.*, 1979), which in turn ensured that donors could not be sued for parental responsibilities such as child support or inheritance (Annas, 1979). Many individuals born during this time had no way of finding out about their donor, which—for some—led to feelings of anger or frustration about not having access to medical or genetic information (e.g. Turner and Coyle, 2000; Kirkman, 2004).

While offspring conceived using open-identity donors may request the identity of their donor, there remain large groups of individuals, conceived with the help of anonymous donors, who do not have access to any identifying (or non-identifying) information about their donor. It is possible that donors who donate anonymously may later choose to make their identity known to any offspring conceived as a result of their donation (Daniels *et al.*, 2005; Crawshaw *et al.*, 2007). Donors in Germany who had donated anonymously were surveyed about their views on openness and anonymity. One-third of those surveyed were in favour of openness by parents, and 43% were willing to be

identifiable (Thorn et al., 2008). In the UK, 32 sperm donors who had donated prior to the removal of donor anonymity were asked if they would donate gametes if offspring could have identifying information after the age of 18, and 72% stated that they would (Robinson et al., 1991). However, a study of 144 sperm donors in the UK found that while 48% wished to know if any children had been born as a result of their donation, <15% would want contact with their offspring and 63% would not donate if anonymity was removed (Cook and Golombok, 1995). Anonymous oocyte donors have also been found to want information on the outcome of their donation and a substantial proportion would consider making contact with the offspring (see Purewal and van den Akker, 2009, for a review of studies on oocyte donors' experiences of donation). Thus, the act of participating in anonymous gamete donation does not necessarily mean that donors are unwilling to make their identity known at a later time. In the UK, donors who donated prior to the removal of anonymity in 2005 can ask for their status of anonymity to be removed by re-registering as an identifiable donor.

Contact between anonymous donors and their offspring has increased in recent years. In the USA, this contact has been facilitated through a website called the Donor Sibling Registry (DSR; http://www.donorsiblingregistry.com/), which currently has over 29 000 members. Data from donor-conceived individuals and from parents who have children conceived using donated gametes show that contact with half-siblings and donors can be a positive experience (Freeman et al., 2009; Jadva et al., 2010). However, the studies also revealed that in some cases, large numbers of sibling groups had been formed, which may have a negative psychological effect on parents, offspring and donors. Indeed, it has been suggested that limits should be placed on the multiple use of open-identity sperm donors to minimize the potential risks of contact by large numbers of offspring (Sawyer, 2010).

Open-identity donors may have different motivations for donating compared with anonymous donors. Janssens et al. (2006) suggest that open-identity sperm donors can be motivated by procreation as they are more likely to want contact with any resulting children, whereas anonymous sperm donors are primarily motivated by financial payment (Sauer et al., 1989; Schover et al., 1992; Cook and Golombok, 1995) and altruism (Fielding et al., 1998). For oocyte donors, women from countries where payment is prohibited tend to state altruistic reasons, while those from other places (such as the USA), where payment is allowed tend to be motivated by both altruism and financial payment (Kenney and McGowan, 2010). A UK study carried out prior to the removal of donor anonymity suggested that oocyte donors were more likely to donate for altruistic reasons and were more interested in the outcome of their donation compared with sperm donors (Fielding et al., 1998).

Little is known about the reasons why donors who donate anonymously choose to become identifiable. The aim of the present investigation was to assess the motivations and donation experiences of anonymous donors who later decide to make themselves open to contact with their donor offspring and to examine their experiences once contact has been made. Participants were recruited through the DSR website, and thus included donors who had taken an active step to search for, or make information about themselves known to, their donor offspring.

Materials and Methods

Invitations were sent via email to all members of the DSR. Members were required to use their login details in order to access the survey. Details of the study were also available on the DSR website on an open-access webpage. The survey was online for 11 weeks from April to June 2007. Ethical approval for this study was obtained from the Cambridge University Psychology Research Ethics Committee and procedures were put in place to ensure that consent was obtained from participants, prior to their taking part. Data from other members of the DSR—that is, parents of children conceived using donor gametes and individuals conceived by donor insemination—are presented elsewhere (Freeman et al., 2009; Jadva et al., 2009, 2010).

Response rates for donors were calculated using the active membership of the DSR at the start of the study, which included 250 sperm donors and 48 oocyte donors. There were 63 sperm donors and 11 oocyte donors who completed the survey, giving a response rate of 25 and 23%, respectively. While these response rates may appear relatively low, they are consistent with studies that use online survey methods and need to be considered alongside the advantages of carrying out online surveys, which include the ability to target large samples and to access difficult-to-reach populations (Couper, 2000; Wright, 2005; Freeman et al., 2009).

Participants

The participants in the study were 63 sperm donors and 11 oocyte donors. Sperm donors ranged in age from 20 to 72 years [mean = 47 years, standard deviation (SD) = 10] and oocyte donors ranged in age from 28 to 47 years (mean = 38 years, SD = 6). Those with children of their own comprised 64% (40) of sperm donors and 55% (6) of oocyte donors. Sperm donors had between 1 and 5 children, and oocyte donors had between 2 and 4 children. Table I provides additional demographic details.

Measures

The questionnaire consisted of two main sections and included both multiple choice and open-ended questions. The questionnaire was piloted with DSR members to ensure face and content validity. The first section asked donors about their experiences of donating gametes, and the second asked about their experiences of searching for their donor offspring.

Experiences of donation

Donors were asked to state the age at which they had first donated and the total number of times they had done so. Multiple choice questions obtained data on their motivations for donating, whom they had told about being a donor, how comfortable they felt discussing their donation with others, how important it was for them to know how many offspring were born as a result of their donation, what type of information they would like about any offspring, how they viewed their relationship to offspring, whether they had any concerns over being a donor and, if so, what these concerns were. Open-ended questions were asked to give donors the opportunity to provide additional comments on their donation experiences.

Experiences of contact with donor offspring

Those donors who were in contact with their donor offspring were asked about the frequency of contact and how contact was made. Donors were also asked whether they noticed any similarities between themselves and their donor child in relation to appearance, personal interests, personality and behaviour/mannerisms. They were asked to state how they rated

Table I Demographic information.

	Sperm donors		Oocyte donors	
	n	%	*n*	%
Country of current residence				
US	50	79	9	82
UK	3	5	–	–
Australia	2	3	–	–
Canada	2	3	1	9
China	1	1.6	–	–
Denmark	1	1.6	–	–
New Zealand	1	1.6	–	–
The Netherlands	1	1.6	–	–
Russia	1	1.6	–	–
Not specified	1	1.6	1	9
Racial origins				
White	52	83	9	82
Asian	1	1.6	–	–
Other	7	11	1	9
Not specified	3	5	1	9
Highest educational attainment				
Less than high school	1	1.6	–	–
College or high school qualification	5	8	1	9
Undergraduate degree	22	35	6	55
Postgraduate degree	34	54	3	27
Not specified	1	1.6	1	9
Marital status				
Married	35	56	4	36
Divorced/separated	11	19	2	18
Cohabiting	7	11	3	27
Single	8	13	1	9
Not specified	2	3	1	9

their overall experience of contact on a five-point scale ranging from very positive to very negative. Open-ended questions were asked to gain detailed information about the contact experience.

Results

Not all respondents answered every question, and thus the percentages do not always equal 100%. Also, for some questions, respondents could select more than one response. Where possible, Fisher's exact tests were carried out to examine differences between sperm donors and oocyte donors and between those donors who had made contact with donor offspring and those who had not.

Experiences of donation

As shown in Table II, 17.5% of sperm donors were aged <21 years when they first donated. All oocyte donors had donated after the age of 22.

Table II Age of donors when first donated.

	Sperm donors		Oocyte donors	
	n	%	*n*	%
Under 18 years	1	1.6	0	0
18–21 years	10	15.9	0	0
22–25 years	22	34.9	4	36.4
26–30 years	13	20.6	6	54.5
31–35 years	10	15.9	1	9.1
36–40 years	4	6.3	0	0
41 years or over	2	3.2	0	0

Table III Approximate number of donations per donor for sperm donors.

	n	%
1–10	8	12.6
11–50	17	26.9
51–100	13	20.6
101–250	15	23.8
251–500	4	6.3
501–950	3	4.8

The number of times that men donated sperm ranged from 1 to 950 (mean = 143, median = 100 and SD = 192); data in Table III have been grouped to illustrate the range of responses given. For oocyte donors, the number of times donated ranged from 1 to 5 (mean = 2.6, median = 2 and SD = 1.12). A number of sperm donors (17, 27%) and 1 oocyte donor had donated at more than one clinic.

Motivations for donating gametes

Donors' reasons for donating can be seen in Table IV. No differences were observed in motivations for donating between sperm donors and oocyte donors. The most common 'other' reason for donating given by six sperm donors, included wanting to procreate or confirm one's fertility.

Telling others about being a gamete donor

Table V shows who donors had told about their donation. A non-significant trend was found towards oocyte donors being more likely to have told their siblings (Fishers exact = 0.095) and their friends (Fishers exact = 0.054) about their donation compared with sperm donors. A non-significant trend indicating sperm donors to be more likely to have told members of the DSR compared with oocyte donors was also observed (Fishers exact = 0.054).

Donors were asked to rate how comfortable they felt discussing their donation with other people on a five-point scale ranging from very comfortable to very uncomfortable. Most donors felt either

Table IV Motivations for donating gametes.

	Sperm donors				Oocyte donors			
	Donors identifying this as one of their reasons		Donors identifying this as their main reason		Donors identifying this as one of their reasons		Donors identifying this as their main reason	
	n	%	*n*	%	*n*	%	*n*	%
Wanting to help others	48	76.2	20	31.7	10	90.9	4	36.4
Financial payment	45	71.4	20	31.7	7	63.6	5	45.5
To procreate	20	31.7	13	20.6	4	36.4	0	0
To allow other parents to enjoy parenting as I have myself	10	15.9	2	3.2	3	27.3	1	9.1
I am gay/lesbian and have decided not to have children	4	6.3	2	3.2	0	0	0	0
My oocytes/embryos were surplus to my own infertility treatment	1	1.6	1	1.6	0	0	0	0
I don't want to have children myself	1	1.6	0	0	0	0	0	0
It was part of an oocyte sharing agreement	0	0	0	0	0	0	0	0
No reason	0	0	0	0	0	0	0	0
Other	15	23.8	5	7.9	1	9	1	9.1

'very comfortable' (43%, 27 sperm donors and 54.5%, 6 oocyte donors) or 'fairly comfortable' (34.9%, 22 sperm donors and 9.1%, 1 oocyte donors). Just under 10% of sperm donors (9.5%, 6) stated that they felt uncomfortable, with 3.2% (2) of these stating that they felt 'very uncomfortable'. None of the oocyte donors said that they felt uncomfortable discussing their donation with others.

Donors' views on information about, and relationship with, their donor offspring

Table VI shows how important it was for donors to know the number of offspring born as a result of their donation, what type of information they would like about their offspring, and how they view their relationship with any offspring born using their donation. No differences were found between donors who had made contact with their donor offspring and those who had not with regard to how they saw their relationship with them.

Concerns about being a donor

There were 54% (34) of sperm donors and 36.4% (4) of oocyte donors who had concerns about being a donor. When asked what their concerns were, non-significant trends were found for 'having children I would never see or know' (Fishers exact = 0.08) and 'possible legal and financial ramifications' (Fishers exact = 0.099), with more sperm donors than oocyte donors selecting these responses (Table VII). No differences were found when comparing the concerns of those donors who had made contact with their offspring and those who had not.

Analyses of open-ended responses identified additional concerns about being a donor. For example, some commented on how they had not thought about all the consequences of their donation at the time they had donated:

> It took me quite some time to realize that the children created by my donation were just that . . . they were children created by my donation. I feel terrible that somewhere there is someone that has absolutely no idea who I am, or they might think that they were abandoned.
>
> (Sperm donor)

Table V Telling others about being a gamete donor.

	Sperm donors		Oocyte donors	
	n	%	*n*	%
Partner	52	82.3	8	72.7
Friends	47	74.6	11	100
Members of the DSR	37	58.7	3	27.3
Mother	30	47.6	6	54.5
Siblings	29	46.0	8	72.7
Father	26	41.3	5	45.5
Partner's mother	5	7.9	2	18.2
Partner's father	3	4.8	1	9.1
Own children	17	42.5[a]	3	50[a]

[a]Of those who had children, i.e. $n = 40$ for sperm donors and $n = 6$ for oocyte donors.
DSR, Donor Sibling Registry.

> Looking back, I did not ask enough questions and the clinic most certainly did not volunteer a lot of information. . . . . Years later I came to regret the experience somewhat when I realized that there could be children out there who have absolutely no way of tracing me.
>
> (Sperm donor)

One donor was concerned about the possibility of being contacted by donor children who were facing hardships:

> My concern is that I might be contacted some day by offspring that might be in a difficult situation, whether it's health problems, an abusive home

Table VI Donors views on information about, and relationship with donor offspring.

	Sperm donors		Oocyte donors	
	n	%	*n*	%
Importance of knowing the number of offspring born				
Very important	16	25.4	5	45.5
Important	27	42.9	4	36.4
Neither important nor unimportant	17	27.0	1	9.1
Not important	2	3.2	1	9.1
Type of information donors would like about offspring				
None	–	–	–	–
Non-identifying information	18	28.6	3	27.3
Identifying information	32	50.8	5	45.5
Not sure	13	20.6	3	27.3
Donors view of relationship with offspring				
No relationship	0	0	0	0
A genetic relationship only	15	23.8	5	45.5
Like just another person I know	2	3.2	2	18.2
Like a distant member of the family	13	20.6	3	27.3
A special relationship, like a good friend	23	36.5	1	9.1
Like my own child	9	14.3	0	0

Table VII Concerns about being a donor.

What are your concerns about being a donor	Sperm donors		Oocyte donors	
	n	%	*n*	%
Having children I would never see or know	17/34	50	0/4	0
Worried about my donor children's well-being	17/34	50	1/4	25
Possible legal and financial ramifications	16/34	47.1	0/4	0
Wanting to contact donor children and not being able to	15/34	44.1	3/4	75
How my own child might feel	15/34	44.1	0/4	0
Number of donor children may be higher than I would like	10/34	29.4	0/4	0
Being contacted by donor child(ren)	10/34	29.4	0/4	0
Legal changes may lead to donor children being able to identify me	9/34	26.5	0/4	0
How a current or future spouse/partner might feel if they knew	7/34	20.6	0/4	0
Other people raising my genetic child	6/34	17.6	0/4	0
Uncertainty about how I might feel about offspring in the future	5/34	14.7	0/4	0
What my parents would think if they knew	1/34	2.9	0/4	0
What my friends would think if they knew	1/34	2.9	0/4	0
Other	5/34	14.7	2/4	50

> life, or even the possibility of a donor child becoming an orphan. I live with the uncertainty of this possible situation entering my life at any time.
> (Sperm donor)

Other concerns included the impact on family members. For example:

> My wife seems to feel threatened by it and hit the roof when she found out I had told our kids about their half-brothers/sisters . . . I think subconsciously she has concerns that family resources would be diverted to these children.
> (Sperm donor)

One oocyte donor commented that she was concerned about how donating affected her own fertility:

> I would like to have more information on how donating oocytes affects a woman's ability to get pregnant later in life. The clinic either did not give me that information or skimmed over the information quickly.
> (Oocyte donor)

Experiences of contact with donor offspring

The majority of sperm (85.7%, 54) and oocyte donors (72.7%, 8) were willing to make contact or had already made contact with their donor offspring. There were nine sperm donors and three oocyte donors who were not willing to make contact. Their main reasons for not wanting contact were 'don't feel the need to' (33%, four donors), followed by 'waiting for my donor child(ren) to be older' (17%, two donors) and 'don't feel ready' and 'no reason' selected by one donor each.

Some donors felt it was either their moral obligation to provide information to their offspring or that it was the child's right to obtain this information if they wished. For some, this need to give information about themselves was triggered by learning about the experiences of donor-conceived individuals, as illustrated below:

> Reading accounts of donor children, I realized that they have a right to know something of their genetic parents.
> (Sperm donor)

Other donors felt that it was important for offspring and parents to have access to medical information.

While donors were curious about their donor offspring and may have welcomed contact, they also commented that it was up to the child to initiate contact. For example, one sperm donor commented:

> Although I would be personally interested in meeting all of my genetic progeny, I strongly feel that it is not the right of the donor to initiate such contact.
> (Sperm donor)

The open-ended responses also revealed that while some donors were happy to be contacted for information, they did not want their identity to be known. However, this anonymity was sometimes compromised either intentionally or unintentionally, as was the case in the following example:

> They had discovered my identity earlier when I sent them a picture of my youngest child and the daughter recognized him . . . It has opened up many complications.
> (Sperm donor)

Another sperm donor mentioned how initially he was happy to be contacted to provide non-identifying information but later made his identity known.

Others expressed concerns over the impact that their search may have on offspring's relationships with their parents. For example, one oocyte donor said,

> My only concern with the search is that I might inadvertently alienate their mother or make her feel threatened by my contact. I have not aggressively searched for them or pursued any sneaky tactics to find them for that very reason.
>
> (Oocyte donor)

Actual contact with donor offspring

Sperm donors. Of sperm donors, 35% (22) had found and contacted at least one of their donor offspring. The number of offspring found by sperm donors ranged from 1 to 20 (mean = 3.5, SD = 4). In terms of frequency of contact, 72.7% (16) were in contact at least once a month. Some of the donor offspring were too young to contact directly, and thus for some donors, contact was maintained through the child's parents. Type of contact made by sperm donors can be seen in Table VIII. In terms of sperm donors' overall experience of meeting their donor offspring, the majority (77%, 17) reported it to be a 'very positive' experience, with the remaining 23% (5) stating it was 'fairly positive'.

Open-ended responses revealed that meeting donor offspring was sometimes an emotional encounter, as exemplified below:

> It was more emotional than I expected, even though it was just via emails and a couple letters and photos. My donor daughter actually looks a good deal more like me than my sons do . . . I and my donor daughter have the same interests of music, dance, art, reading, and so on, without any contact prior to a year ago or so. It's quite fun really.
>
> (Sperm donor)

This quote also illustrates the similarities that many sperm donors saw between themselves and their donor offspring.

In response to questions asking donors if they had noticed any similarities between themselves and their donor offspring, the majority of sperm donors reported noticing similarities in appearance (95.4%, 21), personal interests (76.0%, 17), personality (72.9%, 16) and behaviour/mannerisms (52.2%, 11), with several reporting these similarities to be 'very strong'.

Table VIII Type of contact made with donor child (or parents).

	Sperm donors *n* = 22	
	n	**%**
Email	22	100
Instant messaging	22	100
Text messaging	2	9.1
Telephone	9	40.9
Letter	3	13.6
Exchange photos	15	68.2
Face-to-face meeting	8	36.4

Qualitative responses also showed the different terminology sperm donors used when referring to their donor offspring, including 'donor daughter' or 'biological kids'. One sperm donor who did not have children of his own called his donor offspring 'daughter' and she called him 'daddy'. Another sperm donor who was in contact with seven of his donor offspring said that they all referred to him as 'dad'.

Some donors commented on how their donor offspring were in contact with other members of their family, as illustrated below:

> My mom, who otherwise has no grandchildren, is thrilled with these additions to the family. My sister enjoys being an aunt . . . I am very happy to know these kids and consider myself very fortunate.
>
> (Sperm donor)

> The basis for making contact was not so much for me to personally meet my donor child and for her to know me as her genetic father, but rather for my 10 year old non-donor daughter to one day meet her donor half-sibling and form a relationship.
>
> (Sperm donor)

The following quote exemplifies how positive these connections can be for some donors.

> I always thought that being a donor was a positive thing to do. But now I think it was the best thing I've ever done . . . I'm thrilled with the relationship I have with my new daughter. I'm best friends with her mother. My parents are thrilled with their new granddaughter. This has only been a positive, win-win experience.
>
> (Sperm donor)

However, not all contact experiences were so positive. One sperm donor commented that while contact with his donor offspring was 'a very emotionally intense experience' and 'very welcome . . . and overall, a very positive thing', he had later been cut off from all further contact by the child's mother, which he found extremely difficult to deal with.

Oocyte donors. Only one oocyte donor had contacted and met one of her donor offspring. The oocyte donor reported noticing very strong similarities between herself and the donor child with regard to appearance, personal interests, personality and behaviour/mannerisms. Contact was maintained frequently, and was reported to be a 'very positive' experience, summarized by the following quote:

> Having met one of the recipient moms and her son conceived from my oocyte, I know how wonderfully healing and affirming such contact can be for all involved.

Discussion

Our findings suggest that anonymous donors who later contact and meet their donors' offspring have positive experiences, which can lead to ongoing relationships. Some donors did not wish to initiate contact with offspring and were instead making themselves available to any offspring who may wish to contact them. When donors made contact, this contact was often emotional and sometimes extended beyond the donor–offspring relationship to include other members of the donor's family, such as the donor's children or parents.

Similar to other studies (Sauer *et al*., 1989; Schover *et al*., 1992; Cook and Golombok, 1995; Fielding *et al*., 1998; Kenny and McGowan, 2010), this investigation also found that donors' main reasons for donating were financial payment and wanting to help others. These anonymous donors were not more likely to have been motivated by procreation although relatively equal proportions of sperm donors chose altruism, financial payment and procreation as their main reason for having donated.

Many donors had no concerns about being a donor, but those who did were worried about having children they would never know and were anxious about their donor offspring's well-being. For these donors, wanting to contact the child may have been a way of alleviating these concerns. Some donors commented on how they had not fully comprehended the consequences of donating at the time. For example, while donors who donate through clinics are generally protected from any legal or financial duties to offspring conceived as a result of their donation, our findings suggest that some feel a moral obligation to support any donor offspring who may contact them and are in need of financial or emotional support. Although this situation had not occurred in practice, the uncertainty over whether this might happen was experienced as a burden by some donors.

While the majority of donors had disclosed their identity to their donor offspring, some wished to provide information while remaining anonymous. Thus, donors were choosing the level of contact they felt was most appropriate for their own circumstances. Problems arose when the information shared with their offspring was unintentionally identifiable. While the DSR enables donors who wish to contact their offspring to voluntarily access the website, donors need to be aware that offspring may be able to find out their identity in other ways: for example, using the Internet to search for their donor by using information from the donor profile provided to parents at the time of treatment. Male offspring may also carry out a genealogical DNA test to try and trace their donor (Freeman and Richards, 2006).

In some cases, the number of times an individual reported to have donated was unexpectedly high, with one sperm donor stating 950 times. Thus, dependent on sperm quality, some sperm donors could have large numbers of donor offspring. The maximum number of offspring found by a donor in this study was 20. While in this case, the donor revealed contact to be a positive experience, it is not known what the effects may be of meeting significantly higher numbers of donor offspring. Data from parents searching for their offspring's half-siblings or donors using the DSR reported one parent to have found 55 of their child's half-siblings (Freeman *et al*., 2009). Also, the current study found that 27% of sperm donors had donated at more than one clinic, making it difficult for clinics to monitor the number of offspring born to any one donor. The American Society for Reproductive Medicine recommends that donors should inform clinics if they have donated at any other clinics (Ethics Committee of the American Society for Reproductive Medicine, 2009). In the UK, the Human Fertilization and Embryology Authority require all donors to be placed on a central register, thereby being able to monitor whether donors have donated elsewhere. Sawyer (2010) suggests that the number of offspring born to open-identity donors should be limited while the full psychological and social impact of having multiple kinship connections is fully evaluated. However, our findings indicate that limits should also be placed on the use of sperm from anonymous donors, given the large sibling groups that have resulted from anonymous donation. Also, because anonymous donors may later choose to become identifiable, it would be difficult to enforce separate limits for donors who provide different levels of identifying information.

While the sample from this study may not be representative of all anonymous donors and the response rate was low, the data provide valuable information about why anonymous donors may choose to contact their donor offspring and what happens when these connections are made. Although all contact experiences were found to be positive, one donor did report being cut off from contact with his donor offspring and thus it is important to note that not all donor connections result in good relationships. Data from parents and offspring searching for donor relations suggest that in a minority of cases, contact can have disappointing outcomes (Freeman *et al*., 2009; Jadva *et al*., 2010). Future studies are needed to evaluate what factors contribute to positive and negative contact experiences.

Author's roles

All authors contributed to the research design and the acquisition and interpretation of data for this study. V.J. drafted this article and all authors contributed to its revision and have approved the final version for publication.

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