



Gamete donation: parents' experiences of searching for their child's donor siblings and donor

65

T. Freeman^{1,3} V. Jadvá¹ W. Kramer², and S. Golombok¹

70

¹Centre for Family Research, Faculty of Social and Political Sciences, University of Cambridge, Free School Lane, Cambridge CB2 3RF, UK

²Donor Sibling Registry, PO Box 1571, Nederland CO 80466, USA

Correspondence address: Centre for Family Research, Faculty of Social and Political Sciences, University of Cambridge, Free School Lane, Cambridge CB2 3RF, UK. E-mail: trf23@cam.ac.uk

75

TABLE OF CONTENTS

- Introduction
- Methods
- Results
- Discussion
- Acknowledgements
- Funding
- References

80

85

BACKGROUND: This study investigates the new phenomenon of parents of donor offspring searching for and contacting their child's 'donor siblings' (i.e. donor offspring conceived by the same donor) and donor.

METHODS: Online questionnaires were completed by 791 parents (39% lone-mother, 35% lesbian-couple, 21% heterosexual-couple, 5% non-specified) recruited via the Donor Sibling Registry; a US-based international registry that facilitates contact between donor conception families who share the same donor. Data were collected on parents' reasons for searching for their child's donor siblings and/or donor, the outcome of these searches and parents' and their child's experiences of any resulting contact.

RESULTS: Parents' principal motivation for searching for their child's donor siblings was curiosity and for their donor, enhancing their child's sense of identity. Some parents had discovered large numbers of donor siblings (maximum = 55). Most parents reported positive experiences of contacting and meeting their child's donor siblings and donor.

CONCLUSIONS: This study highlights that having access to information about a child's donor origins is important for some parents and has potentially positive consequences. These findings have wider implications because the removal of donor anonymity in the UK and elsewhere means that increasing numbers of donor offspring are likely to seek contact with their donor relations in the future.

Key words: donor conception / parent / children / sibling / donor

100

Introduction

Until recently, legal and policy frameworks have reflected a prevailing assumption that children conceived by gamete donation would not benefit from having access to information about their genetic origins and donor conceived children have generally not been told about the nature of their conception (Golombok *et al.*, 1996, 2002; Brewaeys *et al.*, 1997). Even where parents did disclose this information, children's knowledge about their origins has been inherently limited by

the policy of donor anonymity that has operated in many countries.

The principle of donor anonymity has now been questioned and, in many instances, removed from regulatory frameworks that guide the provision of assisted conception. Various systems of open-identity donation now operate in the USA as well as in Sweden, Austria, Switzerland, the Australian State of Victoria, The Netherlands, New Zealand and, most recently, the UK (Daniels and Lewis, 1996; Penning, 1997; Scheib *et al.*, 2003; Lycett *et al.*, 2005; Janssens *et al.*, 2006; Lalos *et al.*, 2007). Nonetheless, it remains a fact that, for

those parents who have chosen to inform their children about their donor conception, most have done so in the knowledge that there is no possibility of discovering the identity of the donor or of contacting him.

A further consequence of donor anonymity that has received somewhat less critical discussion is that families created through gamete donation have not been able to find out the number and identity of other children conceived using the same donor, so that donor conceived individuals may have several genetic half-siblings or 'donor siblings' whose very existence they have had no means of ascertaining. In the UK as elsewhere, restrictions have been placed on the number of half-siblings that may result from gamete donation, with the Human Fertilization and Embryology Authority stipulating that a single donor may be used to create a maximum of 10 families, although placing no limits on the number of children that may be born to each set of parents. In The Netherlands, the limit is 25 offspring per donor over a population of 800 000 (Janssens, 2003). Similarly, in the USA, the guidelines issued by the American Society for Reproductive Medicine limit the number of children to 25 live births per population area of 850 000. However, these guidelines are neither enforced by law nor subject to external monitoring, leaving the number of offspring per donor open to the discretion of individual fertility clinics in a commercial market that may be driven more by consumer demand than limited by ethical considerations.

While research has been limited by the low numbers of parents who tell their children about their method of conception (Golombok et al., 1996, 2002; Gottlieb et al., 2000), the few studies that assess children's responses to disclosure find that young children commonly react to the knowledge that an unknown donor exists with curiosity and a desire to know more about the donor (Snowden, 1990; Rumball and Adair, 1999; Lindblad et al., 2000; Vanfrausser et al., 2000).

contact experiences among families who share the same donor, although only 2 of the 14 participating families had met with these other families in person. Parents' principal motivations for seeking such families were identified as being to create family for their child, as well addressing their curiosity about the donor.

The literature on adoption provides a substantial body of research on the experiences of individuals who have been raised by non-genetic parents searching for, and making contact with, their genetic relations that may have important implications for donor conception families (Haimmes, 1988; Crawshaw, 2002; Feast, 2003). In Sobol and Cardiff's (1983) study, adoptees' reasons for searching for their birth parents included a desire to know their genealogical history, to enhance their sense of identity and to establish a relationship with them. These findings are in line with other adoption studies, with curiosity and developing one's sense of identity emerging as common themes (Haimmes and Timms, 1985; Brodzinsky et al., 1998). On making contact with birth parents, adoptees may experience negative emotions such as disappointment, although generally these reunions are found to have positive outcomes for those involved (Triseliotis, 1973; Brodzinsky et al., 1998; Gladstone and Westhues, 1998; Triseliotis et al., 2005). By comparison, research has shown that adoptees' experiences of finding and meeting birth siblings are more consistently and unambiguously positive (Humphrey and Humphrey, 1989).

The US-based worldwide registry, the Donor Sibling Registry (DSR), was founded in 2000 in order to counter the constraints faced by members of donor conception families wishing to trace donor relations by providing a mechanism for facilitating contact between families who share the same donor. Uniting donor relations is made possible in the USA because clinics assign each donor a unique identification number. The DSR has been highly successful in its aims, having been utilized by large numbers of donor conception families and

as has understanding the meaning of the new forms of 'donor relationships' that may arise for all involved. The study forms part of a larger research programme exploring the experiences of DSR members, which examines a range of issues relating to donor conception and contact between donor relations from the perspectives of donor offspring, parents and donors that will be presented elsewhere.

Methods

Participants

Participants were registered members of the DSR, who gain full access to the DSR website via a login. All DSR members were sent an email inviting them to participate in the study. Participants had to log in in order to access the questionnaire. Details of the project were also available on the DSR website on an open-access webpage. Non-site members interested in participating in the survey were directed to the membership registration page. The survey was online for 11 weeks, from April to June 2007.

Response rates were calculated in relation to the active membership of the DSR, defined as the total number of members with information posted on the website. At the start of the survey, the active DSR membership amounted to 4836 persons, comprising 4140 parents of donor conceived children, 336 adult donor offspring, 250 sperm donors, 48 oocyte donors and 62 'others'. A total of 791 parents of donor conceived children submitted a complete questionnaire, giving a response rate of 19%. While relatively low, it must be noted that such response rates have consistently been found to be a feature of online surveys in comparison to other survey methods such as postal questionnaires (Cook *et al.*, 2000; Couper, 2000; Kaplowit *et al.*, 2004). However, lower response rates must be set against the numerous advantages of Internet surveys, including the ability to access large and unique or difficult to reach populations (Couper, 2000; Wright, 2005). More specifically, as an online community who by definition have access to the Internet, the DSR implicitly lends itself to web-based research. Potential biases to arise from this response rate are addressed in the 'Discussion'.

Of the 791 parents in the sample, the large majority were female (98%, 775), with ages ranging from 26 to 62 years (mean = 43, SD = 7). Most parents (96%, 760) had at least one of their children by sperm donation, 2% (12) had at least one child by oocyte donation and less than 1% (6) had at least one child by embryo donation; in 3 (<1%) cases, parents had used more than one type of donation to have their children (2%, 16 parents did not specify their child's method of conception). The average number of children per parent was two (SD = 0.9), with 58% (459) having one child only. The mean age of the oldest (or only) child was 8 years (SD = 7) and the maximum age was 39 years; 56% (443) of parents had an oldest (or only) child of 7 years or younger. In terms of family type, at the time of having their children, 39% (311) of parents were lone mothers, 35% (280) were in a lesbian relationship and 21% (167) were in a heterosexual relationship (5%, 33 did not respond to this question). This is comparable with the population of the DSR as a whole, with membership among parents comprising approximately one-third lone mothers, one-third lesbian-couple parents and one-third heterosexual-couple parents. Seventy-six percent (212) of those who were in a same-sex couple at the time of conception were currently still with this partner, as were 67% (112) of those in heterosexual partnerships. Ninety-one percent (717) of parents presently lived in the USA, 5% (37) in Canada and 1% (8) in the UK. Other countries of residence included Austria, Germany, Ireland, Spain, Sweden, Australia, New Zealand and Israel (<1% in each case). Most parents (94%, 747) reported their racial origins as 'White', with the remaining 6% (51) being 'Hispanic or Latino', 'Black or African American', 'American Indian/Alaska Native', 'Asian', 'Native Hawaiian or Other Pacific Islander' or mixed race.

Ethical approval for this study was obtained from the Cambridge Psychology Research Ethics Committee and procedures were put in place to ensure all participants gave their consent before taking part.

Materials

Data were collected using an online questionnaire. The questionnaire consisted of multiple choice and open-ended questions in order to produce both quantitative and qualitative data. At each stage, participants were given the opportunity to provide further comments on issues raised.

The questionnaire was divided into two main sections: (1) Experiences of donor conception, including information about the age of disclosure and parents' disclosure status and (2) Searching for donor relations. The present paper focuses on data from Section (2) of the questionnaire, which was concerned with participants' motivations for searching for donor relations (i.e. donor siblings and donors) and their experiences of finding and contacting them. Information was obtained about whether or not parents were searching for their child's donor siblings and/or donors, and their reasons for these searches. Questions were asked about whether they had discussed the search with their child, and the impact of searching on their relationship with them. Data were obtained on the outcome of donor relation searches, including the number of donor siblings found, the frequency of any resulting contact between parents and their children with donor siblings, donor siblings' parents and donors and whether they had met face-to-face. Parents' feelings about their child's donor relations and their, and their child's, experiences of contacting and meeting them were also investigated.

The questionnaire design, including questions and response options, was informed by previous research carried out with donor conception families (e.g. Lycett *et al.*, 2004, 2005). The questionnaire was piloted with a range of DSR members to check its functionality and to ensure questions were meaningful and contained no ambiguities. Comparisons were conducted using χ^2 tests of significance at the 0.05 level.

Results

Number of parents searching for their child's donor relations

Most parents (87%, 688) were seeking their child's donor siblings and less than half (47%, 371) were trying to trace their child's donor, with 42% (335) searching for both. Significant differences were found with regards to family type. Of those searching for donors, 46% (159) were lone mothers, 32% (113) were lesbian-couple parents and 22% (76) were heterosexual-couple parents [χ^2 (2, n = 758) = 6.894, P < 0.05]. Likewise, the minority (19%, 129) of those searching for donor siblings were heterosexual-couple parents, compared with 43% (283) who were lone mothers and 38% (248) who were lesbian-couple mothers [χ^2 (2, n = 758) = 19.139, P < 0.001].

Parents' reasons for searching for their child's donor relations

Parents were asked to select their reasons for searching for their child's donor relations by ticking all that applied from a list of responses (including an 'other, please specify' response). They were then asked to identify what they considered to be their 'main' reason, as well as being given space to provide further comments on their motivations for searching.

Table I Parents' reasons for searching for their child's donor siblings

Reason for searching for donor siblings	Parents ^a identifying this as one of their reasons		Parents ^a identifying this as their 'main' reason	
	n	%	n	%
Curiosity (e.g. about similarities in appearance and personality)	587	85	188	27
For my child to have a better understanding of who he/she is	456	66	120	18
To give my child a more secure sense of identity	422	61	118	17
For my child to have a sibling	227	33	75	11
I want my child to know that I tried to find his/her donor sibling(s)	322	47	30	4
Medical reasons	255	37	27	4
My child asked me to	46	7	23	3
Desire to form friendship with the family	253	37	18	3
To have a better understanding of my child's genetic makeup	301	44	17	3
To find another vial of my child's donor's sperm or another egg(s)	62	9	12	2
Interest in sharing experiences of donor conception with their parents	293	43	8	1
To have a better understanding of my child's ancestral history and family background	249	36	8	1
Wanting to find out more about my child's donor sibling(s)'s life and family	260	38	8	1
Unhappy not knowing who my child's donor sibling(s) is/are	47	7	—	—
Other	53	8	30	4
Not specified	—	—	6	1

^aThis only includes parents who were searching for their child's donor siblings, $n = 688$.

Donor siblings

Parents' reasons for searching for their child's donor siblings are given in Table I, ordered from the most to least common 'main' reason.

Looking at the most common 'main' reasons for searching for their child's donor siblings, significant differences were found with respect to family type. 'Curiosity (e.g. about similarities in appearance and personality)' was the most frequent 'main' reason, being endorsed by 27% (188) of parents overall. Of these, 48% (86) were lesbian-couple parents, 32% (58) were lone mothers and 20% (36) were in a heterosexual couple when they had children [$\chi^2 (2, n = 660) = 14.004, P < 0.005$]. The next most common 'main' reason related to the child's self-identity, with 'for my child to have a better understanding of who he/she is' being prioritized by 18% (120) of parents, and 'to give my child a more secure sense of identity' by 17% (118). The latter reason yielded marked differences by family type: 60% (68) of those who stated 'to give my child a more secure sense of identity' as their 'main' reason were lone mothers, 31% (35) were lesbian-couple parents and the minority (9%, 11) were heterosexual-couple parents [$\chi^2 (2, n = 660) = 17.676, P < 0.001$]. Of the 11% (75) of parents who identified 'for my child to have a sibling' as their 'main' reason for initiating such a search, 88% (66) had an only child [$\chi^2 (1, n = 688) = 30.570, P < 0.001$].

Other 'main' reasons specified by parents for carrying out sibling searches are exemplified in Table II.

It was clear that, while emphasizing that searching for and contacting siblings were principally viewed as the child's 'choice', parents placed a lot of importance on these 'family' relationships as a source of emotional security for their child. Additional reasons

Table II Parents' other reasons for searching for their child's donor siblings

Reason for searching for donor siblings	Example quotations
Information gathering on child's behalf because it is their choice or right to know	'She is an individual who has a right to her genetic siblings'
Desire for child to form lasting relationships with donor siblings	'So that when the time is right they can form a relationship with their donor siblings and share their experiences—be a part of their lives' 'These kids share a familial bond, they have a right to know one another and one day may lean on each other for support and understanding'
To enhance child's sense of self and family	'I want to introduce my son to his donor siblings so that he will know that there are others in the world just like him'
Child is a singleton	'As an only child, to give him a sense of family' 'She's an only child and I am from a very large closely-knit family. I think it will improve her self-esteem to see others that think, act and look more like her'

Table III Parents' reasons for searching for their child's donor

Reason for searching for donor	Parents ^a listing this as one of their reasons		Parents ^a identifying this as their 'main' reason	
	n	%	n	%
For my child to have a better understanding of who he/she is	270	73	77	21
To give my child a more secure sense of identity	249	67	66	18
Curiosity about characteristics of my child's donor	263	71	38	10
Wanting to thank my child's donor	222	60	38	10
Medical reasons	133	36	28	7
To have a better understanding of my child's ancestral history and family background	221	60	19	5
My child asked me to	49	13	18	5
I want my child to know that I tried to find his/her donor	185	50	15	4
To have a better understanding of my child's genetic makeup	229	62	12	3
To obtain another vial of sperm or another egg(s)	19	5	10	3
Wanting to meet my child's donor	137	37	6	2
Unhappy not knowing who my child's biological father/mother is	53	14	6	2
Wanting to find out more about my child's donor's life and family	157	42	5	1
To find a new family member	17	5	1	<1
To find another parent figure for my child	7	2	1	<1
Desire to form a relationship	34	9	—	—
Interest in why my child's donor donated	76	20	—	—
Other	28	8	17	5
Not specified	—	—	14	4

^aThis only includes parents who were searching for their child's donor, $n = 371$.

highlighted by parents were as follows: to avoid the possibility of siblings marrying in the future; to give away or sell vials of donor sperm that they had left over from their own fertility treatment to other families who had used the same donor; and the media coverage given to the DSR which had drawn the possibility of searching to their attention.

Donor

Parents' reasons for looking for their child's donor are shown in Table III.

The most common 'main' reason for parents wishing to trace the donor related to their child's sense of self. Significant differences by family type were only found for the second most frequently stated 'main' reason, that is, 'to give my child a more secure sense of identity' (18%, 66). The majority of those parents who concurred with this were lone mothers (60%, 37), compared with 21% (13) who were lesbian-couple parents and 19% (12) who were heterosexual-couple parents [$\chi^2 (2, n = 348) = 6.518, P < 0.05$].

Other reasons described by parents for searching for their child's donor are summarized in Table IV.

A common theme that arose in response to open-ended questions was that knowing about the donor was deemed to be more important than knowing the donor; as such, the donor was viewed as providing information about the child's family background rather than becoming part of the family himself. As one parent described:

"While knowing the donor would be a bonus, what we would like to know is about the donor, for my daughter to be able to say I got my nose from him, or my love for reading from him. Is there a medical thing... that I need to be aware of".

Indeed, in contrast to the depth of meaning invested in potential connections with donor siblings, it was noticeable that very few parents stated that they were searching for the donor in order to develop any kind of relationship with him: no parent ticked 'desire to form a relationship' when asked to identify their 'main' reason for searching for the donor, with only one (>1%) endorsing 'to find a new family member' and one (>1%) 'to find another parent figure for my child'. Rather, parents expressed varying degrees of reticence about their child meeting and forming a relationship with the donor, ranging from an acceptance that it is ultimately the child's choice, to more outright apprehension and caution, as typified below:

"We don't want a relationship with the donor, but it would be interesting to meet and ask him a few questions. We also want our kids to be able to decide for themselves, someday, if they want to meet/have a relationship with this person. It isn't really our call... They may be curious and want to know more information, or they may be happy with who they are".

"If I found the donor, I don't know that I would want him to meet the kids—they are mine and my husband's kids, and I don't want the donor to think he has any relationship possibility with the kids".

Table IV Parents other reasons for searching for their child's donor

Reason for searching for donor	Example quotations
To enable child to make an informed choice in the future	'I want my daughter to have the option to contact/know her biological father when she is ready to make such choices'
To fill in missing information about child's identity	'I think it is important to know your roots in that there is not a void. It would give me a whole picture of who she is and why' 'I think, down the line, it will be very beneficial for my son to know his background more fully, to have more family, to have the questions answered. He only has half the information about who he is, I think as he gets older, it will always nag at him'
To share in pride of children	'I simply want the donor to know how grateful I am for his gift and what a wonderful offspring he has if he ever chooses to meet him' 'This child is so amazing, and has been such a joy since the moment that he arrived, that I feel the donor should know he sired a real gem of a human being'

Table V Impact of searching for child's donor relations on parents' relationships with their child

Impact on relationship with child	Parents searching for donor siblings ^a	
	n	%
Positive	202	29
Neutral	210	31
Negative	1	<1
Mixed	18	3
Not sure	41	6
Not applicable/not specified	216	31
Parents searching for donor ^b		
	n	%
Positive	78	21
Neutral	113	30
Negative	2	1
Mixed	9	2
Not sure	15	4
Not applicable/not specified	154	42

^aFor parents who were searching for their child's donor siblings, n = 688.^bFor parents who were searching for their child's donor, n = 371.

Number of parents who told their child about searches and impact on parent-child relationship

Thirty-four percent (233) of parents currently looking for donor siblings had told their child about their search. Similarly, a minority (29%, 106) of parents seeking their child's donor had informed their child. In part, this can be accounted for by the ages of the children concerned: 68% (309) of parents who had not told their child about the donor siblings search had an oldest (or only) child of 7 years or under, as had 88% (168) of those who had not told their child about the donor search. An additional reason given by parents for not yet telling their child about searching for donor relations was to avoid feelings of disappointment should none be found. Most parents reported that the impact of searching for both their child's donor siblings and their child's donor had a 'neutral' or 'positive' impact on their relationship with their child (Table V). There were no significant differences according to family type in this regard.

Outcome of searches: number of donor relations found, contacted and met

The outcomes of the parents' searches are summarized in Table VI. The lower rates of contact between children and donor relations compared with parents can be partly accounted for by the ages of the children involved.

The median and maximum number of donor siblings found, contacted and met by parents are given in Table VII. In several cases, a considerable number of donor siblings had been traced, with 11%

Table VI Outcome of searches: number (%) of searching parents and their children who had found, contacted and met donor relations

Parents searching for donor siblings (n = 688)	n	%
Found donor siblings	505	73
Parent in contact with donor sibling(s)	435	63
Child in contact with donor sibling(s)	174	25
Parent met donor sibling(s)	155	23
Child met donor sibling(s)	136	20
Parents searching for donor (n = 371)		
Found donor	66	18
Parent in contact with donor	38	10
Child in contact with donor	18	5
Parent met donor	10	3
Child met donor	11	3

(55) of parents who had found their child's donor siblings finding 10 or more, reaching 55 siblings in one instance.

Of those parents who had found and subsequently met their child's donor siblings, the majority were lone mothers (45%, 66) and lesbian-couple parents (41%, 59), with heterosexual-couple parents comprising 14% (21) of this group. Of the children and parents who had met their donor, five (45%) were from lone-mother families, two (18%) were from lesbian-couple families and one (9%) was from a heterosexual-couple family, with the remaining three children having a non-specified family type.

Table VII Outcome of searches: median and maximum number of donor siblings found, contacted and met by parents

	Median (SD)	Maximum
Donor siblings found	3 (5)	55
Donor siblings in contact	3 (5)	55
Donor siblings met	2 (2)	10

Frequency of contact with donor relations

Parents who had been in touch with their child's donor relations were asked about the regularity of contact on a six-point scale: 'frequently (at least once a month)', 'fairly often (every 1–3 months)', 'occasionally (every 3–6 months)', 'infrequently (every 6–12 months)', 'very rarely (less than once a year)' and 'once only'.

Donor siblings

The majority of parents who had contacted their child's donor siblings and/or their parents reported having regular contact with them: one-third (33%, 143) had been in touch 'frequently', and about a quarter (24%, 105) 'fairly often', with the minority (10%, 44) responding in the 'very rarely' category. While children's contact was reported as being less frequent than parents', almost half (49%, 86) who were in communication with their donor siblings had regular contact (i.e. at least once every 3 months). Fifty-seven percent (250) of parents who had contacted their child's donor siblings and parents planned to do so again in the future. No significant differences by family type were found.

Donor

Just over half of the parents who had contacted their child's donor reported being in regular contact, with 40% (15) and 16% (6) saying that they were in touch 'frequently' and 'fairly often', respectively. Thirteen percent (5) reported that they had been in touch with the

donor 'once only'. Where contact had been made between the child and donor, it was reported as more frequent than with donor siblings, with 44% (8) of the children who had contacted their donor doing so 'frequently'. Fifty-three percent (20) of parents who had made contact with their child's donor planned to do so again. No significant differences by family type were found.

Parents' experiences of contacting and meeting donor relations

Parents were asked to evaluate the experience of contacting their child's donor relations on a five-point scale, from 'very positive' to 'very negative'.

Donor siblings

The overwhelming majority of parents reported the experience of contacting donor siblings positively: 85% (371) rated it as being 'very positive' or 'positive' for themselves, and 81% (141) whose offspring were in contact with their donor siblings rated their child's experience in this way. Very few negative experiences were reported: 2% (8) and 1% (2) parents reported negative experiences of contacting their child's donor siblings for themselves and their child, respectively. As shown in Table VIII, where parents and their offspring had gone on to meet donor siblings, their experiences were even more consistently perceived as positive. There were no significant differences by family type with regards to parents' and children's experiences of either contacting or meeting donor siblings.

Responses to open-ended questions about finding, contacting and meeting donor relations further conveyed that these were generally perceived as positive experiences by parents, both for themselves and for their children. Parents frequently described feelings of excitement and happiness on their child's behalf on finding donor siblings, viewing the addition of such relationships to their children's lives as 'enriching', 'wonderful' and 'fun'. As illustrated below, responses became more emphatic in instances where parents had gone on to

Table VIII Parents' and their child's experiences of meeting donor relations

	Donor siblings				Donors			
	Parents ^a rating of their own experience		Parents ^b rating of their offspring's experience		Parents ^c rating of their own experience		Parents ^d rating of their offspring's experience	
	n	%	n	%	n	%	n	%
Very positive	124	80	93	68	9	90	9	82
Fairly positive	23	15	19	14	1	10	2	18
Neutral	7	5	17	13	0	0	0	0
Fairly negative	1	<1	1	1	0	0	0	0
Very negative	0	0	0	0	0	0	0	0
Not specified	0	0	6	4	0	0	0	0

^aThis only includes parents who had met their child's donor siblings, $n = 155$.

^bThis only includes parents of offspring who had met their donor siblings, $n = 136$.

^cThis only includes parents who had met their child's donor, $n = 10$.

^dThis only includes parents of offspring who had met their donor, $n = 11$.

contact and meet donor siblings and their families, with any initial ambivalent or negative reactions commonly being resolved:

'At first it was unsettling to know there were several siblings out there. I've gotten over that feeling. I enjoy hearing about the other kids. I have pictures of several on the refrigerator.'

'I was apprehensive about the first meeting... Then, when we actually got together... the adults were talking like old friends within an hour or two, and the kids who were I at the time did well together'.

The experience of meeting siblings and their families exceeding parents' expectations emerged as a recurrent theme in the qualitative data, as exemplified by the following accounts:

'I was actually just curious about what the sibs might be like (personalities, looks etc.). After connecting with the other moms it turned out to be a more wonderful experience than I'd ever imagined... We've become a family of sorts of our own and share a special bond. It wasn't why I sought the sibs but it was a completely wonderful surprise.'

'We expected those first meetings to be awkward. The kids hit it off immediately. And, so did the parents. I was amazed at how well the kids got along, and so quickly. The relationship they struck up was special. I was so focused on the children that I never thought about the friendships the parents might find. I am thrilled and amazed still at how quickly we connected to the parents of the other families'.

In the minority of cases where less positive contact experiences were reported, problems were largely due to differences between the families, particularly concerning parents' attitudes towards managing these new relationships between their children. For example, some parents differed as to whether, when and how they wished their child to be informed of the genetic connection between the donor siblings, with the age of the children being particularly significant in this regard. Differences between parents' sexualities could also be problematic. A further practical difficulty was that some families lived large distances from each other.

Donor

There were no negative experiences reported of parents', or their child's, experiences of contacting the donor. All parents who had gone on to meet their child's donor rated their, and their child's, experiences positively (Table VIII). Indeed, in comparison with

parents who had not found or contacted their child's donor, those who had met the donor placed greater value on the relationship between donor and child; for example, by describing the positive impact that meeting him had on their child's sense of self and of family:

'She has become a calm confident person, who relishes knowing who she is and why. Knowing her dad has completed her in some way and has allowed her to grow. It has been a very important part of her becoming the young adult that she is today.'

'She always wanted to meet her biological father since she was two years old... When he sent his picture my daughter was so happy to see that she looked exactly like him... They have so much in common... She likes the fact that he has made her feel welcome with his family and now we have larger extended family. She can complete the other side of her family tree'.

While the low numbers limit the general observations that can be made from the qualitative material in this instance, a further theme that arose was that meeting the donor gave substance to parents' and children's feelings about this person:

'I'm even happier with the donor I chose—I was choosing genetics, and I hit the jackpot. He's good looking, athletic, smart, motivated, healthy, and compassionate. I couldn't have found a better donor.'

'I think it has given her a good idea of what he's like. It will make it hard for her to romanticize him now—because he's just a normal guy. He's not a super hero or an angel'.

No significant differences by family type were found concerning parents' and children's experiences of contacting and meeting the donor.

Parents' and their child's relationships with donor relations

Donor siblings

The majority of parents (60%, 105) reported that their child got on 'very well' with their donor siblings on making contact, which exceeded expectations. This was most marked where offspring had subsequently met their donor siblings: for example, while less than one-third (29%, 40) of parents whose children had met their donor siblings had anticipated that they would get along 'very well', 69% (94) found that they did so after meeting (Table IX).

Table IX Parents' expectations and evaluation of how well their child gets along with their donor relations

	Donor siblings				Donors			
	Parents ^a expectations before meeting		Parents ^a evaluation after meeting		Parents ^b expectations before meeting		Parents ^b evaluation after meeting	
	n	%	n	%	n	%	n	%
Very well	40	29	94	69	4	36	10	91
Fairly well	43	32	21	15	4	36	1	9
Neutral	20	15	12	9	0	0	0	0
Not very well	0	0	0	0	0	0	0	0
Very badly	0	0	0	0	0	0	0	0
No expectations	32	24	—	—	2	18	—	—
Not specified	1	<1	9	7	1	9	0	0

^aThis only includes parents of offspring who had met their donor siblings, $n = 136$.

^bThis only includes parents of offspring who had met their donor, $n = 11$.

Parents commonly framed the relationships between members of donor sibling families in terms of 'family' and 'friendship': for example, by using phrases such as 'extended family', 'we are all now one big family', 'a family of close friends' and 'our small nuclear family is connected to a larger community'. Such references served to emphasize the closeness, intensity and endurance of these bonds, as illustrated below:

'We instantly bonded—the mothers as well as the children. We now consider each other family and visit/call/keep in contact... They will be part of our lives forever'.

For parents, such closeness could manifest itself in terms of strong parental feelings towards the donor siblings:

'I felt very maternal toward my son's brother and sister... What really surprised me was just how strongly I felt towards them. It changed my concept of 'family'. I know that genetically, I have no relationship to any of them but they are my family, they are a part of me. They just are!... If they ever needed anything, I'd do whatever I could for them... They mean the world to me!'

'I could not love this child more even if she was my biological child. In every way, I feel that she is my daughter. I love her completely and am so grateful and feel so blessed that it is she who came into our lives'.

Parents' descriptions of their child's relationship with their donor siblings also conveyed a sense of family, with children generally choosing to refer to their donor siblings as 'brothers' and 'sisters', and developing close attachments with them:

'My kids love the idea of having more siblings, and the relationships they have formed are great. It is like they have a bond even though they did not grow up together, and they are amazingly similar in a lot of ways.'

'My daughter... is clearly attached to them [her donor siblings] and they are to her... There are special bonds that she is forming with them that looks like nothing else I've seen with friends of hers... The fact he is her sibling draws them together like bees to honey... I think she feels very full and good about herself as her experience of 'family' grows and deepens'.

Donor

In all cases where children had met their donor, parents reported that they had got on well with him, which often exceeded their expectations (Table IX). There was considerable variation in descriptions of relationships between children and their donors, ranging from references to the donor as 'donor':

'She's too young to really know, but she and he definitely bonded on the day we spent together. She still talks about him occasionally. I refer to her donor as her donor—definitely not her father',

to the donor as 'mentor':

'I got to watch my son's dream come true. He very much wanted to meet his donor. I see the donor as a sort of Mentor. I think he has taken on a role close to that,'

and finally, to a stronger parent-like relationship, that is, donor as 'dad':

'[The donor] stated, after looking at a picture of [my daughter] that his father instincts kicked in. When they first met they talked for hours. They started a conversation that has never ended... He refers to himself as her 'dad' and she refers to him as her dad as well'.

While parents who had met their child's donor reported positive relationships developing between their offspring and the donor,

among the sample as a whole, relationships between children and donor siblings, and indeed, between the donor siblings' parents, appeared to be valued more highly, being perceived as 'safer' and 'less complex'. As one parent sums up:

'Siblings and their parents' experiences have been more important to both of us. More of a "shared experience" bond. Hard to explain but I guess it's that I take the donor for what he was/is: the donor. I wouldn't want any kind of relationship with him the way we've developed one with the siblings' families'.

Disclosure issues

As with searching for donor relations, it was clear from the open-ended responses that some parents had not told their child about finding, contacting or meeting them and that age was an important factor in this regard. For example, some children had met their donor siblings without being told of—or, if told, without comprehending—the nature of their relationship:

'Because our oldest is only three and a half, we haven't introduced him to the donor sibling we have met as a 'donor sibling.' She is just a friend who he plays with just like all his other friends. We will tell him when he will understand, but he doesn't understand yet.'

'My sons are still so young that they don't quite register the meaning of sharing a donor with this other little boy they sometimes play with. My oldest knows this other boy has the same donor and that it is important, but he has not attached the word 'brother' to him yet'.

At times, disjunctions in parents' attitudes towards disclosure marked a point of difference or contention between families:

'I have not yet told my daughter that she has four brothers. Two of them we have gone on vacation with but they are younger than my daughter and their moms are not yet ready to tell them about their siblings... but since my daughter is already five, I am thinking of going ahead and telling her because I don't want it to be a shock to her.'

'I only agree to have the kids meet if there can be full disclosure, i.e.: this is your half-sister, not a 'special friend'. I won't lie to my child about who these other little people are'.

Parents' reservations about informing their child about discovering their donor were most evident among those who had not had successful searches. Issues around non-disclosure appeared less problematic for the minority who had found and made contact with the donor: these parents appeared to be more open to their child contacting the donor while expressing sensitivity to their potential disappointment should the contact not prove fruitful and to the donor's wishes and possible resistance to contact, particularly if he had donated anonymously.

Discussion

This study found that parents of donor conceived children are searching for, and successfully making contact with, their child's donor siblings and donor. In some cases, large numbers of donor siblings (up to 55) are being found and contacted. Parents generally reported that their, and their child's, experiences of contacting and meeting donor siblings were positive. They were frequently surprised at how well they and their children got along with both the donor siblings and the donor siblings' parents, forming close and continuing bonds based on notions of family and friendship. Similar positive contact experiences were reported by Scheib and Ruby (2008), who identified

feelings of connectedness between families who share the same donor and a sense of 'family' relatedness forming between donor siblings. Our study is the first to include contact experiences between donor offspring and their donors. While it was found that parents tended to be more reticent about making contact with their child's donor, those that had done so reported very positive experiences of these meetings and the ensuing relationships between the donor and child.

Curiosity was cited as parents' primary reason for searching for their child's donor siblings, followed by issues relating to enhancing the child's sense of self. The main reason for searching for the donor concerned their child's identity: parents were seeking information about the donor in order to give their child a better understanding of themselves. These findings are in line with Scheib et al.'s (2003, 2005) study of families created with open-identity donors, where parents' and adolescents' overriding sense of curiosity about the donor was seen to relate to an interest in developing the child's self-understanding rather than any notion of the donor as a potential father figure. The current findings also resonate with studies exploring children's reactions to finding out about their donor conception, which identify curiosity and a desire to know more about the donor as a common response (Snowden, 1990; Rumball and Adair, 1999; Lindblad et al., 2000; Vanfraussen et al., 2001). Similar themes are found in studies of adoptees looking for their birth parents (Haines and Timms, 1985; Brodzinsky et al., 1998). However, there are key differences between adoptees searching for birth parents and parents of donor conceived children searching for the donor, not least the finding that parents' curiosity in the latter case tends to be driven by a desire for the child's emotional security rather than an interest in the donor as a person. Indeed, parents displayed various degrees of reticence to their children forming relationships with their donor, although for those who had actually found and contacted the donor, more positive and meaningful conceptions of these relationships were reported. Rather, parents tended to be more open to the prospect of their child developing attachments with any donor siblings found, with the desire to find a 'sibling' for their child being particularly pronounced among those who had an only child.

Many parents also emphasized that it was a child's choice and right to know about their genetic origins. This reflects a more general policy shift away from the perception that knowledge of one's genetic history is likely to be detrimental where this conflicts with one's social parentage towards a recognition that access to such information is in 'the best interests of the child' (Pennings, 1997; Wallbank, 2004; Freeman and Richards, 2006), as exemplified by changing socio-legal attitudes towards adoption and court use of DNA paternity testing. As such, knowledge of the 'truth' of one's genetic identity is now commonly presented as an individual's entitlement within policy and regulatory frameworks (O'Donovan, 1988; Gollancz, 2001), generating a rights-based discourse that is enshrined in the United Nations 'Convention on the Rights of the Child' (1989) (see also Blyth, 1998; McGee et al. 2001).

The finding that parents placed more importance on tracing, and establishing contact with, their child's donor siblings than their child's donor has important implications for research and policy in this field. In particular, it is crucial that donor siblings are incorporated into discussions about the regulation of gamete donation, with a key consideration being the number of donor offspring to be conceived using any one donor. The potential for parents and children to form

relationships with members of families who share the same donor is a significant consequence of the removal of donor anonymity that has yet to receive adequate attention. This study shows that, while the donor sibling relationship lies at the centre of this phenomenon, a series of wider kinship networks are created, described by those involved as an 'extended family'. These kinship relationships are based on both direct and indirect genetic connections and shared understandings and experiences, out of which new concepts of the family are being defined and negotiated (see also Hargreaves, 2006). The overwhelmingly positive experiences reported in this study suggest that these newfound relationships have unique properties which are unlike more common familial relationships: for example, while several parents in this study reported feeling strong maternal bonds with their child's donor siblings, step-parents who bear no genetic relationship to their child's genetic half-siblings do not necessarily form such positive parental relationships (Hetherington and Stanley-Hagan, 1995; Dunn et al., 2000).

It is important to emphasize that the parents in the present study are not representative of all donor conception families and that potential biases in the data may arise from the nature of the sample.

First, the sample is limited to members of the DSR who, by definition, are likely to have an interest in tracing and contacting donor relations and donor siblings in particular. Although this may impact on the generalizability of the findings, this study was intended to investigate the experiences of families who wish to search for donor relations and as such the DSR provided an appropriate source.

Second, while acceptable for an online survey, the relatively low response rate of 19% might mean that participants have reported disproportionately high levels of positive experiences of contacting and meeting donor relations, with individuals who have had more negative experiences possibly being less inclined to respond to the questionnaire.

Third, the large majority (98%, 775) of respondents were female, which is partly accounted for by the fact that almost three-quarters (74%, 591) of respondents were lone or lesbian mothers. The increased interest among females in searching for genetic relations is also evident in adoption studies (e.g. Howe and Feast, 2000).

Lastly, the distribution of family type must be considered when drawing wider implications from the findings. In this sample, 39% (311) had become parents as lone mothers, 35% (280) as a lesbian couple and 21% (167) as a heterosexual couple, which is broadly representative of the population of the DSR as a whole. The higher proportions of same-sex and lone-mother households are partly due to the increased likelihood that DSR members will be open with their children about their method of conception, with lesbian and single mothers being more inclined to disclose this information than their heterosexual counterparts (Haines and Weiner, 2000; Stevens et al., 2003; MacCallum and Golombok, 2004). Indeed, there were exceptionally high levels of disclosure among the sample: 97% (761) had either told (66%, 518) or planned to tell (31%, 243) their child about their donor origins. However, it should also be born in mind that the trend towards disclosure is evident across the donor conception population and that single and lesbian women now represent a substantial proportion of recipients of donor insemination in the USA and elsewhere.

The findings in the present study indicate that family type has a significant impact on parents' motivations for searching for donor

- 1255 donors to offspring: background, content and impact. *Hum Reprod* 2006; **21**:852–856.
- Kaplowit MD, Hadloc TD, Levine RA. Comparison of web and mail survey responses. *Public Opin Q* 2004;**68**:94–101.
- 1260 Lalos A, Gottlieb C, Lalos O. Legislated right for donor-insemination children to know their genetic origin: a study of parental thinking. *Hum Reprod* 2007;**22**:1759–1768.
- Leeb-Lundberg S, Kjellberg S, Sydsjo G. Helping parents to tell their children about the use of donor insemination (DI) and determining their opinions about open-identity sperm donation. *Acta Obstet Gynecol Scand* 2006;**85**:78–81.
- 1265 Lindblad F, Gottlieb C, Lalos O. To tell or not to tell: what parents think about telling their children that they were born following donor insemination. *J Psychosom Obstet Gynaecol* 2000;**21**:193–203.
- Lycett E, Daniels K, Curson R, Golombok S. Offspring created as a result of donor insemination: a study of family relationships, child adjustment, and disclosure. *Fertil Steril* 2004;**82**:172–179.
- 1270 Lycett E, Daniels K, Curson R, Golombok S. School-aged children of donor insemination: a study of parents' disclosure patterns. *Hum Reprod* 2005;**20**:810–819.
- MacCallum F, Golombok S. Children raised in fatherless families from infancy: a follow-up of children of lesbian and single heterosexual mothers at early adolescence. *J Child Psychol Psychiatr* 2004; **45**:1407–1419.
- 1275 McGee G, Vaughan Brakman S, Gurmankin AD. Gamete donation and anonymity: disclosure to children conceived with donor gametes should not be optional. *Hum Reprod* 2001;**16**:2033–2036.
- 1280 Nachtigall RD, Pitcher L, Tschann JM, Becker G, Szkupinski Quiroga S. The disclosure decision: concerns and issues of parents and children conceived through donor insemination. *Am J Obstet Gynecol* 1998; **178**:1165–1170.
- O'Donovan K. A right to know one's parentage? *Int J Law Fam* 1988; **2**:27–45.
- 1285 Pennings G. The 'double track' policy for donor anonymity. *Hum Reprod* 1997;**12**:2839–2844.
- Rumball A, Adair V. Telling the story: parents' scripts for donor offspring. *Hum Reprod* 1999;**14**:1392–1399.
- 1290 Scheib JE, Ruby A. Contact among families who share the same sperm donor. *Fertil Steril* 2008;**90**:33–43.
- Scheib JE, Riordan M, Rubin S. Choosing identity-release sperm donors: the parents' perspective 13–18 years later. *Hum Reprod* 2003; **18**:1115–1127.
- Scheib JE, Riordan M, Rubin S. Adolescents with open-identity sperm donors: reports from 12–17 year olds. *Hum Reprod* 2005;**20**:239–252. 1315
- Snowden R. The family and artificial reproduction. In: Bromham DR, Dalton ME, Jack JC (eds). *Philosophical Ethics in Reproductive Medicine*. Manchester: Manchester University Press, 1990.
- Sobol MP, Cardiff J. A sociopsychological investigation of adult adoptees' search for birth parents. *Fam Relat* 1983;**32**:477–483. 1320
- Stevens M, Perry B, Burston A, Golding J, Golombok S. Openness in lesbian mother families regarding mother's sexual orientation and child's conception by donor insemination. *J Reprod Infant Psychiatr*. 2003;**21**:1–16.
- Triseliotis J. *In Search of Origins: The Experiences of Adopted People*. London: Routledge and Kegan Paul, 1973. 1325
- Triseliotis J, Feast J, Kyle F. *The Adoption Triangle Revisited: A Study of Adoption, Search and Reunion Experiences*. London: BAFF, 2005.
- Turner AJ, Coyle A. What does it mean to be a donor offspring? The identity experiences of adults conceived by donor insemination and the implications for counselling and therapy. *Hum Reprod* 2000; **15**:2041–2051. 1330
- Vanfraussen K, Ponjaert-Kristofferse I, Brewaeys A. An attempt to reconstruct children's donor concept: a comparison between children's and lesbian parents' attitudes towards donor anonymity. *Hum Reprod* 2001;**16**:2019–2025. 1335
- Vanfraussen K, Ponjaert-Kristofferse I, Brewaeys A. Why do children want to know more about the donor? The experiences of youngsters raised in lesbian families. *J Psychosom Obstet Gynaecol* 2003; **24**:31–38.
- Wallbank J. The role of rights and utility in instituting a child's right to know her genetic history. *Soc Leg Stud* 2004;**13**:245–264. 1340
- Wright KB. Researching Internet-based populations: advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *J Comput Mediated Commun* 2005;**10**: article 11. 1345
- Submitted on May 20, 2008; resubmitted on November 19, 2008; accepted on December 3, 2008

1350

1295

1355

1300

1360

1305

1365

1310