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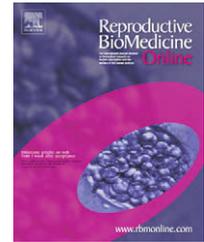
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## ARTICLE

# Experiences of offspring searching for and contacting their donor siblings and donor

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**Abstract** This study investigates a new phenomenon whereby individuals conceived by donor insemination are searching for and contacting their donor and/or 'donor siblings' (i.e. donor offspring conceived by the same donor who are their genetic half siblings). On-line questionnaires were completed by members of the Donor Sibling Registry (DSR), a US-based registry that facilitates contact between donor conception families who share the same donor. Of the 165 donor offspring who completed the survey, 15% were searching for their donor siblings, 13% were searching for their donor, and 64% were searching for both. Differences were found according to family type and age of disclosure. Fewer offspring from heterosexual couple families had told their father about their search when compared with offspring from lesbian couple families who had told their co-parent. Offspring who had found out about their conception after age 18 were more likely to be searching for medical reasons, whereas those who had found out before age 18 tended to be searching out of curiosity. Some offspring had discovered large numbers of half siblings (maximum = 13). The majority of offspring who had found their donor relations reported positive experiences and remained in regular contact with them. 

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**KEYWORDS:** donor conception, donor siblings, donor searching, DSR, offspring

## Introduction

Recent years have seen the development of a new phenomenon whereby large numbers of donor offspring conceived using anonymous sperm donation are searching for and contacting their donors and donor siblings (i.e. other offspring conceived using the same donor and who are their genetic half siblings). Searching for these genetic relations has

gained popularity due in part to the accessibility of a specifically designed website called the Donor Sibling Registry (DSR). The DSR, a US-based worldwide registry, was founded in 2000 by Wendy Kramer and her donor-conceived son in order to help others, who like them, wished to find their donor relations. In the United States clinics assign each donor a unique ID number enabling members of the DSR website to search for others whose donor ID number

matches their own. Anyone can browse the site to see if they have a match, but only fee-paying members can post their information and contact any matches. The DSR is a non-profit organisation funded through donations and membership fees and it currently (July 2009) has over 24,000 members, including parents of donor-conceived children, donor-conceived individuals and donors. To date, the DSR has helped connect over 6000 individuals with their donor relations. Despite attracting much media attention, the consequences of searching for and contacting donor relations has received little empirical investigation, and therefore not much is known about the reasons for searching for donor relations or, more importantly, what the consequences are of making these connections.

It is not only donor offspring who are using the DSR, the majority of members are parents of donor-conceived children who are searching for their child's half siblings or donor. Freeman et al. (2009) reported findings from 791 parents, of whom 87% were searching for or had contacted their child's donor or donor siblings. It was found that parents' main motivation for searching for donor siblings was curiosity, and their main reason for searching for the donor was to enhance their child's sense of identity. Most parents who had contacted their child's donor relations reported this to be a positive experience. However many of the children of these parents were still very young; the mean age of the oldest or only child was 8 years old and many children were not aware of their parents' search. Findings reported by Scheib and Ruby (2008) in their study of 14 parents of young children (aged from 6 months to 9 years) who had contacted families who shared the same donor, also found contact to be a positive experience. These parents hoped that contact with their child's half siblings would give their child a sense of kinship. Both of these studies highlight the way in which donor conception is resulting in the creation of new family formations that are based purely on genetic relatedness.

The few studies that have asked donor offspring themselves about their conception have revealed the frustration and anger that some feel about the lack of information about their donor (e.g. Turner and Coyle, 2000). Acknowledgement that offspring may feel a need to know the identity of their donor has led some countries to remove donor anonymity. In the UK, for example, all donor offspring born after April 2005 can access identifying information about their donor when they reach 18 years of age. Even in countries where anonymous sperm donation is available, such as the USA, some clinics offer 'open-identity donors', where the identity of the donor can be given to the child once she/he reaches the age of 18 (Scheib and Cushing, 2007).

As yet, no study has looked at the experiences of searching for genetic relations from the perspective of the offspring themselves. However Scheib et al. (2005) asked 29 donor offspring (aged 12–17 years) from an identity release programme, whether they were planning to ask for their donor's identity. The majority said they were moderately to highly likely to request this information. Differences were found between offspring from different family types, with offspring from single mother families more likely than those from lesbian couple families to be interested in their donor's identity. Offspring from heterosexual couple families expected their parents to react less positively to their request for their donor's identity compared

with offspring from single mother or lesbian couple families. However, it is not known how these findings may translate to the experiences of offspring who are conceived using anonymous donations. Such offspring have to face the likelihood that they may never learn of their donor's identity and for those who are successful in their search, their experiences of contacting a donor who provided an anonymous donation may differ from contacting a donor who participated in an identity release programme.

It has been suggested that the adoption literature provides valuable insight into how donor-conceived offspring may feel about searching for and contacting their genetic relations (Crawshaw, 2002; Feast, 2003; Haines, 1988). Crawshaw (2002) reported that female adoptees were more likely than male adoptees to search for their birth relatives and that their search was triggered by certain life events including starting a family or death of their adoptive parent(s). Reasons for searching included an attempt to gain a more complete sense of identity, although this did not necessarily mean that adoptees wished to form relationships with their birth relatives. Howe and Feast (2000) investigated the experiences of adopted individuals who had found information about their origins (either through searching for or being found by birth relatives). They reported that the majority of adopted individuals felt that this process had helped them gain a better sense of identity and wellbeing. For those who had contacted their birth relative(s), most had found the reunion process to be a positive experience (Howe and Feast, 2000).

Whilst some have argued that the adoption experience may shed light on donor-conceived individuals' experiences of searching, it is important to bear in mind that there are notable differences between the two groups. Donor-conceived individuals are usually genetically related to one of their parents and have not been relinquished by a birth parent. Also, with adoption, parents are expected and encouraged to be honest and open with their child about his/her origins. This is not the case with donor conception. Whilst there is now greater openness within donor-conceived families, many parents, particularly those from families headed by heterosexual couples, still choose to keep this information secret from the child. Donor-conceived individuals are thus more likely to learn of their origins at a later age than adopted individuals, which could have important implications for their experiences of searching for their genetic relations.

The present study is the first to obtain systematic data from individuals conceived using anonymous sperm donation on their experiences of searching for and contacting their genetic relations. Participants were recruited through the Donor Sibling Registry (DSR). Access to this unique sample has enabled us to examine for the first time, offspring's motivations for, and experiences of, searching for and contacting their donor and donor siblings.

## Materials and methods

The participants were all conceived by donor insemination. They were either members of the DSR or children of parents who were members of the DSR. E-mails were sent to all DSR members inviting them to take part in an online survey. For

parents of donor-conceived offspring the e-mail asked if they were willing to allow their 13- to 17-year-old child to take part. The survey was also advertised on the front page of the DSR website. Ethical approval for this study was obtained from the Cambridge University Psychology Research Ethics Committee. Procedures were put in place to ensure that children were unable to participate without their parent's consent.

Data for the current study were collected in two phases. The first phase, open to offspring aged 18 and over, was online for 11 weeks between April and June 2007. The second phase, open to offspring aged 13 and over, was online for 11 weeks between December and February 2008. Sixty-three donor offspring participated in the first phase and 102 donor offspring participated in the second phase, giving a total of 165 participants.

The response rate for the first phase was calculated using the total number of offspring who were active members at the beginning of the study (336), thus yielding a response rate of 19%. For the second phase, 456 e-mails were successfully sent to parents of 13- to 17-year-old donor children and to adult donor offspring who had not already taken part in phase 1, giving a response rate of 22%. These response rates, whilst relatively low, are in line with studies that use on-line survey methods (Cook et al., 2000; Couper, 2000; Kaplowitz et al., 2004) and need to be considered alongside the advantages of carrying out on-line surveys including the ability to target large or difficult to reach samples (Couper, 2000; Freeman et al., 2009; Wright, 2005).

## Measures

The on-line questionnaire consisted of two sections. The first asked offspring about their experiences of donor conception and the second asked about their experiences of searching for their donor and donor siblings. This paper reports findings from the second section only. The findings on experiences of donor conception are presented elsewhere (Jadva et al., 2009).

Questions included multiple choice and open-ended items. For the multiple choice questions, respondents were asked to tick boxes with different response options including an option for 'other, please specify'. These questions were analysed quantitatively to provide descriptive data in the form of frequencies and percentages. Where possible, Fisher's exact tests were computed to examine associations with family type and with age of disclosure. Respondents were also given an opportunity to elaborate on their answers and these open-ended responses were used to help illustrate and better understand the findings from the quantitative data analysis. The questionnaire examined two key areas.

### Searching for genetic relations

Information was obtained on (i) whom offspring were searching for (i.e. their donor and/or their donor siblings), (ii) whom offspring had told about their search, (iii) the impact of searching on their relationship with their parents, (iv) their reasons for searching for their donor and/or donor siblings, and (v) whether there were any triggers to initiating their search for their donor or donor siblings.

### Finding and contacting genetic relations

Information was gathered on: (i) how many offspring had found their donor and/or donor sibling(s); (ii) how frequently they were in contact with them; and (iii) their experiences of making contact.

### Participants

The sample consisted of 165 offspring conceived by sperm donation. They were aged from 13 to 61 years (median = 17 years, mean = 22 years, SD = 10). Just over half (82) were aged between 13 and 17 (median = 15 years, mean = 15 years, SD = 1) and the others (81) were aged 18 or over (median = 26 years, mean = 28 years, SD = 10). Seventy-five percent (123) were female and 25% (42) were male. The majority (90%, 148) of respondents were currently living in the US with the remainder living in Canada (4%, 7), the UK (2%, 4), Australia (2, 1%) and South Korea (0.6%, 1) 2% (3) did not state their location. With regard to ethnicity, the vast majority (95%, 157) classified themselves as 'White', 4% (5) as mixed race, and 0.6% (1) as 'American Indian/Alaska Native', and 1% (2) did not say. Thirty-one percent (51) had yet to complete high school education, 21% (35) had been, or were currently being, educated to community college level, 8% (14) to undergraduate level and 17% (28) had a postgraduate (Masters or Ph.D.) degree. Twenty-two percent (37) did not specify their educational background. Twenty-five percent (42) of offspring currently had a partner and 12% (19) had children of their own.

Fifty-eight percent (96) of offspring reported their parents to be a heterosexual couple, 23% (38) a single mother and 15% (25) a lesbian couple. The majority of offspring from heterosexual couple families were aged over 18 (64%, 61), compared with 29% (11) of offspring from single mother families and 28% (7) of offspring from lesbian couple families. All offspring from single mother and lesbian couple families and 67% (64) of offspring from heterosexual couple families had found out about their conception before age 18. Thus, all offspring (19%, 32) who had found out about their conception after age 18 were from heterosexual couple families.

## Results

It should be noted that not all offspring answered every question, and for some of the questions respondents could tick multiple responses, therefore the numbers do not always add up to 100%. Where relevant, data were examined by family type and age of disclosure.

### Searching for genetic relations

#### Number of offspring searching for donor siblings/donor

Fifteen percent (24) of offspring were searching for their donor siblings, 13% (22) were searching for their donor, and 64% (105) were searching for both. Thus, in total 78% (129) were searching for their donor siblings and 77% (127)

were searching for their donor. Eight percent (14) were not searching for either their donor siblings or their donor. The most common reasons for not searching included 'no reason' and 'don't feel the need to' although some offspring stated that they did not have enough information to search. Of those searching for their donor siblings, 57% (74) were from heterosexual couple families, 25% (32) were from single mother families and 14% (18) were from lesbian couple families (4%, 5 did not say). Of those searching for their donor, 63% (80) were from heterosexual couple families, 20% (25) were from single mother families and 13% (17) were from lesbian couple families (4%, 5 did not say). Of those searching for donor siblings, 75% (97) had found out about their conception before age 18 and 22% (29) had found out about their conception after age 18 (2%, 3 did not state their age of disclosure). Of those searching for their donor, 76% (97) had found out about their conception before age 18, and 23% (29) had found out after age 18 (1 did not state their age of disclosure). Thus the distribution by family type and age of disclosure was similar between offspring who were searching for their donor siblings and those who were searching for their donor.

### Telling others about their search

#### Donor siblings

Offspring were asked whom they had told about their search for donor siblings (see Table 1). The majority (78%, 101) had told their mother and 60% (77) had told friends. Twenty six percent (33) stated that they would tell anyone about their search. Eighty-nine percent (16/18) of offspring from lesbian couple families had told their co-parent compared with only 22% (16/74) of offspring from heterosexual couple families who had told their father.

#### Donor

With regards to searching for donors, 79% (100) had told their mother and 58% (74) had told friends. Sixty-five

percent (11/17) of offspring from lesbian couple families had told their co-parent compared with 29% (23/80) of offspring from heterosexual couple families who had told their father.

### Impact of searching on relationship with parents

#### Donor siblings

Those offspring who had told their parents about their search were asked what impact searching had had on their relationship with their mother and their father/co-parent (see Table 2). The majority of offspring reported a neutral/mixed or a positive impact. Looking at the breakdown by family type, it can be seen that 2% (1) of offspring from heterosexual couple families reported a negative response from their mother whilst none reported a negative response from their father. With regards to the impact of searching on offspring's relationship with their mothers, no significant differences were found between offspring of lesbian couple families and offspring of single mother families. With regard to the impact on offspring's relationship with their father/co-parent, the difference between offspring from heterosexual couple families and lesbian couple families showed a non-significant trend towards the offspring of lesbian couples reporting a more positive impact than offspring of heterosexual couples.

#### Donor

Table 3 shows offspring's reports of the impact of searching for their donor on their relationship with their parents. Most offspring reported a neutral/mixed (63%, 63) or positive (27%, 27) impact on their relationship with their mother with only two (2%) reporting a negative impact (both from heterosexual couple families). No differences were found between offspring from lesbian couple families and single mother families. Regarding fathers, two (9%) reported a positive impact and one (4%) reported a negative impact.

**Table 1** Whom offspring had told about their search for their donor siblings and/or donor.

Told about search	Searching for donor siblings		Searching for donor	
	n/N	%	n/N	%
No-one	7/129	5	4/127	3
Mother	101/129	78	100/127	79
Father	16/74	22	23/80	29
Co-parent	16/18	89	11/17	65
Maternal grandparent	26/129	16	22/127	17
Paternal grandparent	5/129	3	5/127	4
Siblings	26/129	16	31/127	24
Spouse/partner	24/29	83	27/33	82
Children	3/13	23	4/16	25
Other family member	15/129	12	16/127	13
Friends	77/129	60	74/127	58
I would tell anyone	33/129	26	33/127	26
Other non-family member	14/129	11	17/127	13

**Table 2** Impact of searching for donor siblings on offspring's relationship with parents, by family type.

Impact of searching for donor siblings on relationship with	All offspring		Heterosexual couple family		Lesbian couple family		Single mother family	
	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>
	<b>Mother</b>							
Positive	33	33	18	32	7	41	7	29
Neutral/mixed	64	63	34	61	10	59	17	71
Negative	1	1	1	2	0	0	0	0
Missing	3	3	3	5	0	0	0	0
<b>Father/co-parent</b>								
Positive	9	28	2	13	7	44	—	—
Neutral/mixed	22	69	14	88	8	50	—	—
Negative	0	0	0	0	0	0	—	—
Missing	1	3	0	0	1	6	—	—

<sup>a</sup>Of those who had told their mother or father/co-parent.

**Table 3** Impact of searching for donor on offspring's relationship with parents, by family type.

Impact of searching for donor on relationship with	All offspring		Heterosexual Couple		Lesbian couple families		Single mother	
	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>
	<b>Mother</b>							
Positive	27	27	17	27	5	33	5	26
Neutral/mixed	63	63	39	63	10	67	14	74
Negative	2	2	2	3	0	0	0	0
Missing	8	8	4	6	0	0	0	0
<b>Father/co-parent</b>								
Positive	6	19	2	9	4	36	—	—
Neutral/mixed	25	78	18	78	7	64	—	—
Negative	1	3	1	4	0	0	—	—
Missing	0	0	2	9	0	0	—	—

<sup>a</sup>Of those who had told their mother or father/co-parent.

None of the offspring from lesbian couple families reported a negative impact on their relationship with their co-parent.

Some offspring provided further comments on the impact that searching had had on their relationship with their parents. It was evident that for many offspring the search was being carried out by their parents, mainly by their mother. This was more common for offspring aged under 18, as they were not able to be members of the website themselves. Some offspring from heterosexual couple families revealed that their father was unaware that they knew about their donor conception, and as a result had not been told that they were searching for their donor relations. Some offspring who reported that they were unable to discuss their search with their parent(s) described feelings of isolation. As one offspring stated: *"It has isolated me so much to*

*not be able to tell my mom everything I am up to. It has really put a strain on our relationship, at least for me"* (22-year-old female, from single mother family).

### Reasons for searching

#### Donor siblings

Offspring were asked about their reasons for searching for their donor siblings. They were first asked to select all their reasons for searching from a list. They were then asked what was their main reason (see **Table 4**). The most common reason given was curiosity, with 94% (121) of offspring selecting this as one of their reasons. Curiosity was

**Table 4** Reasons for searching for donor siblings.

Reason	Offspring identifying this as their main reason		Offspring listing this as one of their reasons	
	n	% <sup>a</sup>	n	% <sup>a</sup>
Curiosity (e.g. about similarities in appearance and personality)	57	44	121	94
To know and understand a 'missing' part of me	20	16	67	52
My sibling and/or parent(s) initiated the search	9	7	18	14
To have a better understanding of why I am who I am	7	5	82	64
Medical reasons	7	5	52	40
To find a new family member	6	5	56	43
Desire to form a relationship	6	5	54	42
To have a better understanding of my ancestral history and family background	4	3	79	61
Desire for secure sense of identity	3	2	51	40
To have a better understanding of my genetic make-up	3	2	94	73
Unhappy not knowing who your donor sibling(s) is/are	2	2	42	33
Interest in sharing experiences of donor conception	1	1	55	43
Wanting to find out more about your donor sibling(s)'s life and family	—	—	86	67
To feel complete as a person	—	—	48	37
Other	3	2	8	6

<sup>a</sup>This only includes offspring who were searching for their donor siblings (n = 129).

also the most common main reason for searching for donor siblings, selected by 44% (57) of offspring.

In order to assess associations between family type and the main reason for offspring searching for their siblings, family type was collapsed into two categories; two-parent families (heterosexual couple families and lesbian couple families) and one-parent families (i.e. single mother families). Fisher's exact tests revealed a significant association between family type and offspring wishing to find a new family member ( $P = 0.029$ ), with more offspring from single mother families giving this as the main reason.

Fisher's exact tests were also carried out to identify associations between age of disclosure (i.e. offspring who found out before age 18 and those who found out after age 18) and offspring's reasons for searching for their donor siblings. Significant associations were found between age of disclosure and both medical reasons (Fisher's exact test,  $P = 0.03$ ) and to have a better understanding of 'why I am who I am' (Fisher's Exact Test,  $P = 0.03$ ), with a greater proportion of offspring told after age 18 giving these as their main reason. Offspring told before age 18 were more likely to give curiosity as their main reason for searching for donor siblings (Fisher's exact test,  $P = 0.004$ ).

Offspring were given an opportunity to comment further on their reasons for searching for their donor siblings. One of the themes emerging from this data included being an only child as illustrated by the following quote:

*"I am an only child, with step-siblings and one half-sibling... I suppose the best description of my reasoning is curiosity, but it is also, if I can put this poetically, a call from my blood. I know there is a certain affinity within genetic family that is different from any other"* (50 year old female, from heterosexual couple family).

Concerns over unknowingly forming incestuous relationships were also raised. As one offspring wrote:

*"When I was dating, I would keep in the back of my mind, could he be a half brother"* (30-year-old female, from heterosexual couple family).

### Donor

With regard to searching for their donor, the most common reason, reported by 89% (113) of offspring, was curiosity about the characteristics of the donor. Curiosity was also the most common main reason, reported by 24% (30) of offspring, followed by wanting to meet the donor (16%, 20) and medical reasons (12%, 15) (see Table 5).

Fisher's exact tests carried out to examine associations between family type and offspring's reasons for searching for their donor were not significant. However, significant associations were found between age of disclosure and offspring stating medical reasons (Fisher's exact test,  $P = 0.043$ ), with a greater proportion of offspring told after age 18 giving this as their main reason. Those told before age 18 were more likely to want to meet their donor (Fisher's exact test,  $P = 0.042$ ).

In the open-ended questions, many of the offspring wrote about the importance of knowing their genetic or ancestral history, and the sense of frustration they felt at not being able to access this information. As one offspring said:

*"All I ever wanted was a picture... and I may never in my life have that. I love my mother and I respect her choice. I'm thankful for my donor for giving me life and giving my mother her biggest wish. But it's just not enough for me"* (19-year-old female, from single mother family).

**Table 5** Reasons for searching for donor.

Reason	Offspring identifying this as their main reason		Offspring listing this as one of their reasons	
	n	% <sup>a</sup>	n	% <sup>a</sup>
Curiosity about characteristics of your donor	30	24	113	89
Wanting to meet your donor	20	16	90	71
Medical reasons	15	12	68	54
To have a better understanding of why I am who I am	12	9	95	75
To know and understand a 'missing' part of me	10	8	73	57
To have a better understanding of my ancestral history and family background	7	6	100	79
Unhappy not knowing who biological father is	6	5	55	43
To have a better understanding of my genetic make-up	4	3	100	79
Wanting to find out more about your donor's life and family	3	2	72	57
Desire for secure sense of identity	3	2	57	45
To feel complete as a person	3	2	54	43
Wanting to thank your donor	3	2	45	35
To find a new family member	2	2	42	33
Interest in why your donor donated	1	1	49	39
Desire to form a relationship	—	—	48	38
Other	3	2	5	4

<sup>a</sup>This only includes offspring who were searching for their donor (n = 127).

Wanting to find the donor did not necessarily mean that offspring wanted to form a relationship with him:

*"I don't expect any 'father–daughter' relationship. I would be fine with just an exchange of pictures and a letter possibly"* (18-year-old female, from lesbian couple family).

For some offspring, the search for their donor was prompted by having children of their own. One woman was searching for her donor: *"So my children could know him... It has always been extremely important to me to find my biological father but became even more so after I had children. It wasn't about me anymore..."* (40-year-old female, from heterosexual couple family).

Others were searching for their donor so that they could express their gratitude:

*"When someone gives you a gift, you don't hunt them down to get another one. You hunt them down to thank them for such a wonderful present, for the lovely intention, for giving"* (24-year-old female, from heterosexual couple family).

## Triggers to initiating a search

### Donor siblings

Thirty percent (39) of offspring reported that their search was prompted by a change in their personal circumstances or a life event. Of these, 31% (12) stated 'becoming a teenager', 10% (4) selected 'becoming an adult', 13% (5) selected 'a personal crisis', 10% (4) selected 'getting married or forming a long-term relationship', 5% (2) selected 'an illness or other medical condition' and 3% (1) selected 'planning to have children or having children'.

### Donor

Twenty-eight percent (36) of offspring stated that the search for their donor was prompted by a change in their personal circumstances or a life event. Of these, 36% (13) selected 'becoming a teenager', 17% (6) selected 'becoming an adult', 11% (4) selected 'planning to have children or having children', 8% (3) selected 'getting married or forming a long-term relationship', 6% (2) selected 'a personal crisis' and 3% (1) selected 'an illness or other medical condition'.

## Finding and contacting genetic relations: frequency of contact

### Donor siblings

Thirty-three percent (42) of offspring who were searching had found their donor siblings, and of those who had found their siblings 95% (40) had been in contact with them. The average number of siblings found was four and the highest number found was 13, with 29% (12) having found five or more. Fifty-two percent (35) of offspring aged under 18 had found their siblings compared with 12% (7) of offspring aged over 18 (Fisher's exact test,  $P < 0.001$ ). Of the 40 offspring who had been in contact with their siblings, 43% (17) were from heterosexual couple families, 20% (8) were from lesbian couple families, and 35% (14) were from single mother families. Offspring were asked how often they were in contact with their siblings. Half (50%, 20) were in contact at least once a month, 23% (9) once every 1–3 months and 25% (10) less than once every 3 months.



## Discussion

This study shows that some donor offspring are successfully finding, and contacting, their donor and/or donor siblings, and that when these connections are made they are generally positive. The majority of offspring who choose to search for their donor relations are open about their search, often having told their parents and friends, and most reported that their search did not impact negatively on their relationship with their parents. Whilst the main reason for offspring searching for their donor and their donor siblings was curiosity, gaining a better understanding of their genetic identity was also important. For those offspring who had children of their own, searching was a way of providing an ancestral history for their children who were also missing a part of their genetic background. Thus, the importance of genetic identity was found to go beyond the donor–offspring relationship to include others genetically related to the offspring.

Differences were found between offspring from different family types and also between offspring who had found out about their conception as children or as adults. Family type is an important factor to consider when evaluating offspring's experiences of searching for their genetic relations. In Freeman et al.'s (2009) study of parents searching for their child's half siblings, the majority of parents searching were single mothers or lesbian couples, suggesting that these families may be more open than heterosexual couple families to searching for and contacting their child's genetic relations. However, it is possible that children of heterosexual parents may be less likely to search for their genetic relations because they do not wish to upset their parents or perhaps because their parents have asked them not to search. In the present study, only 29% of offspring from heterosexual couple families had told their father they were searching compared with 89% of offspring from lesbian couple families who had told their co-parent. Single mothers and lesbian couples are more open about their child's donor conception than are heterosexual couples (Brewaeys, 2001), as they have to explain the absence of a father, and it is possible that this extends to a more general openness towards all aspects of donor conception, including the child's desire to seek out their donor relations.

Differences in reasons for searching were found between two-parent families and single mother families. More offspring from single mother families were searching for their siblings to find new family members. Whilst this could suggest that offspring in single mother families may be more interested in forming links with kin beyond their immediate family, it is also possible that offspring from heterosexual couple families and lesbian couple families were less likely to state these reasons because they did not wish to upset their non-genetic parent.

Comparisons by age of disclosure found that those offspring who had found out about their conception during adulthood were more likely to search for their donor siblings and their donor for medical reasons compared with those who had found out before age 18. Offspring who found out before age 18 were more likely to be searching for their siblings out of curiosity and for their donor because they wished to meet him. It is important to bear in mind that age of disclosure was confounded in the present study with the current age

and family type of offspring. Offspring who had found out at a young age were also more likely to be younger at the time of completing the survey and all offspring who had found out about their conception after age 18 were from heterosexual couple families. Nevertheless, the age at which offspring learn of their donor conception appears to be an important factor to consider when examining the reasons for offspring searching for their donor relations.

The findings from this study of donor offspring are similar to those of adopted individuals in that searching for their donor relations was prompted by a change in their personal circumstance or a life event that included reaching a developmental milestone, such as becoming a teenager, an adult, getting married or having children (Crawshaw, 2002). Also, donor offspring, like adopted individuals, wanted to gain a more complete sense of identity (Crawshaw, 2002; Haimes and Timms, 1985). The current study had a high proportion of female participants (75% female versus 25% male). Whilst this could have been due to females being more likely to take part in the study, it could also be a result of women being more interested than men in searching for their genetic relations. This latter reason is in line with findings from adoption studies (e.g. Howe and Feast, 2000), which have also revealed women's greater interest in searching for their birth family. One-third of offspring had found their donor siblings and a smaller proportion (9%) had found their donor. Contact with donor siblings and donors once initiated was fairly frequent and donor offspring were also in contact with their donors' family, including the donor's children and parents who are effectively the offspring's half siblings and grandparents, respectively. Thus contact did not just take place with siblings or the donor, but branched out from these linear relationships. Donor offspring viewed these individuals as members of their extended family. Thus the practice of donor conception is in some cases leading to new family relationships based on genetic connections and between individuals who had grown up apart (Freeman et al., 2009).

Some offspring stressed how important it was for them to know the identity of their donor siblings so that they would not accidentally form incestuous relationships with them. In this study, the average number of siblings found was four, with a maximum of 13. Freeman et al. (2009) reported one parent had found 55 of their child's half siblings through the DSR website, and in March 2009 the largest sibling group on the DSR was estimated to be 120 (Kramer, personal communication, March 26, 2009). In the UK, the number of families created from any one donor is limited to 10 although the same donor can be used to create siblings for any existing children. In the US, guidelines of the American Society for Reproductive Medicine suggest a limit of 25 live births per population area of 850,000. However, these guidelines are neither monitored nor enforced by law, thus explaining the large number of donor siblings found in the US (Freeman et al. 2009). In the present study, only offspring aged over 13 could take part, whereas in Freeman et al.'s study, the majority of parents had children who were much younger (mean age 8). Thus these larger sibling groups appear to consist of much younger children. It will not be possible to assess the impact of such high numbers of donor siblings until the children are much older. It is also important to bear in mind that some sibling groups are concentrated in specific areas, and therefore unknowingly meeting a donor sibling is a genuine possibility.

It is essential that the views of offspring belonging to these larger sibling groups are obtained if it is possible to fully understand the psychological impact of having such unusually high numbers of genetic half siblings.

It is important to note that the sample in the present study may not be representative of all donor-conceived individuals, specifically those who are not curious about their donor relations. Furthermore, the response rate in the current study was low and thus the sample may not be representative of all members of the DSR. Nevertheless, this study provides the first detailed examination of the reasons why some offspring search for their donor and donor siblings and what happens when they are successful in making contact, thus providing insight into this previously unstudied phenomenon.

Whilst the DSR is a specially designed website that enables individuals conceived using donor gametes to contact their donor, it is important to bear in mind that offspring may be able to find the identity of their donor in other ways. With the increasing amount of personal information that individuals make accessible on the internet, it is possible for offspring to search for their donor using an internet search engine and the information provided on their donor profile (given to their parents at the time of treatment). It is also possible for male offspring to find their donor through the use of a genealogical DNA test, where a male offspring's paternal surname can be traced using the DNA on his Y chromosome. Whilst the DSR only enables members to find donors who are registered on the website, the latter two methods allow offspring to search for donors who may not wish to be found. It is impossible to know how many offspring have found their donor using these other methods. Although the number is expected to be small at the present time, it is likely to increase in the years to come.

## Acknowledgements

We thank the members of the DSR who took part in this study. We are grateful to The Nuffield Foundation, UK, for funding this research.

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*Declaration: The authors report no financial or commercial conflicts of interest.*

Received 3 April 2009; refereed 8 June 2009; accepted 17 November 2009.