

Offspring searching for their sperm donors: how family type shapes the process

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BACKGROUND: This study examines the findings from the largest survey to date of donor-inseminated (DI) offspring and focuses on respondents' learning of the method of their conception and their desire to contact their donor.

METHODS: Online questionnaires were completed by 741 DI offspring, of whom 61.8% have heterosexual parents and 38.2% have lesbian parents. Respondents were recruited via the Donor Sibling Registry, a non-profit US-based international registry that facilitates communication between donor-conceived offspring and their non-biological and biological relatives. Data were collected on family composition, offspring's feelings regarding the method of their conception, communication within families, donor anonymity and their search for their donors. This investigation focuses on the relationship between family type (single or dual-parent and lesbian or heterosexual parent/s) and offspring's reactions to learning of their DI conception.

RESULTS: Offspring of lesbian parents learned of their DI origins at earlier ages than offspring of heterosexual parents. In the latter families, disclosure tended to occur earlier in single-parent than in dual-parent families. Disclosure was most likely to be confusing to offspring of heterosexual parents, particularly when it occurred at an older age. The vast majority of offspring in all types of families desired contact with their donor; however, comfort in expressing curiosity regarding one's donor was lowest in dual-parent heterosexual families, with about one-quarter reporting an inability to discuss their origins with their social father.

CONCLUSIONS: Although the findings are not based on a random sample, the desire among offspring surveyed here is for greater openness and contact with their donor. A variety of strategies are needed for offspring of heterosexual couples to benefit optimally from the general trend toward openness in gamete donation.

Key words: children / donor conception / donor insemination / parent / sperm donor

Introduction

Although a transnational trend toward reversing decades of institutionalized secrecy regarding donor insemination (DI) is well under way, the issue remains controversial (Blyth and Frith, 2009; Cahn, 2009a, b; Janssens, 2009). Supporters of both donor anonymity and openness argue that their positions support the needs and interests not only of donors and parents, but also of donor offspring. Yet until recently it has been difficult to locate large numbers of offspring who were aware of their conception in order to assess their views. Here we present findings from the largest survey conducted to date of DI offspring. In this study we examine the relationship between family type and offspring's experiences with, and attitudes toward, donor conception and desire for contact with their donor.

Traditionally, with donor insemination, practiced in Europe since the early 19th century, and in the USA since 1884, neither the

nature of the conception nor the identity of the donor has been conveyed to the offspring (Corea, 1988: p. 35; Blyth, 1999; Daniels and Golden, 2004:8; Cahn, 2009b). As this practice grew during the 20th century, particularly with the emergence of commercial sperm banks, donor anonymity became institutionalized in most western countries. By 1986–87 approximately 30 000 births annually were estimated to have resulted from DI in the USA (Office of Technology Assessment, 1988). Although the absence of reporting requirements precludes accurate accounting, a more recent estimate is 60 000 DI births per year (Cahn, 2009b). Furthermore, numerous studies reviewed by Brewaeys (1996) and Kirkman (2003) have reported that the vast majority of parents using DI had not informed their children of their DI origins and did not intend to do so. This pervasive lack of disclosure has made it difficult, if not impossible, to measure or assess the meaning of DI for those most profoundly affected by it, the offspring.

The stigma of male infertility and questions about the moral and legal status of DI were major concerns initially driving the perceived need for secrecy (Asche, 1985; Daniels and Taylor, 1993; Snowden, 1993; Rumball and Adair, 1999; Daniels and Golden, 2004; Cahn, 2009b). The desire to protect the child also has been a rationale given by practitioners, DI parents and parents-to-be, who envisioned 'insurmountable social and psychological problems' resulting from disclosure of DI conception, not only for the child, but for the family as well (Daniels and Taylor, 1993). Parents who decline to tell their child of their donor conception have reported doing so to protect themselves and their children from being viewed negatively by others (Nachtigall et al., 1997; Gottlieb et al., 2000; Lalos et al., 2007), to protect the infertile social fathers from stigma (Nachtigall et al., 1992; Glover et al., 1996; Miall, 1996; Courtenay, 2000) and to prevent damage to family relationships (Gottlieb et al., 2000; Lalos et al., 2007). Yet several researchers have concluded that it is desirable 'that children know about donor conception before adolescence' (Kirkman, 2003: p. 2238), and that secrecy about DI has a detrimental effect on family relations (Baran and Pannor, 1993: p. xv; Daniels and Taylor, 1993).

This debate has resulted in legislative and policy changes in several countries. Sweden passed legislation in 1984 giving donor offspring the right to receive their donor's identifying information (Frith, 2001). Since then, other countries including Austria, New Zealand, the Netherlands, Norway, Switzerland, the UK as well as some Australian states, have prohibited anonymous gamete donation, establishing systems to assist people in discovering their donor's identity (Blyth and Frith, 2009). In 2002 the American Society of Reproductive Medicine (ASRM) shifted toward more openness by officially endorsing directed, known donation in cases where donors and prospective parents agree (ASRM, 2002; ASRM Practice Committee, 2008). While these policy changes seem to indicate a trend away from anonymous donation, the practice continues to be protected in many jurisdictions (Blyth and Frith, 2009).

Evidence that parental attitudes are moving, albeit slowly, in the direction of greater openness was found by Gottlieb et al. (2000) after passage of a Swedish law allowing children to receive their donor's identifying information. Moreover, Scheib et al. (2000) found that in an American program that offers options, almost 80% of prospective parents chose donors willing to release their identity to adult offspring. Similar changes were noted by Brewaeys et al., (2005) in a study of 105 couples in the Netherlands. Lesbian couples choosing identifiable donors outnumbered heterosexual couples; 98% of lesbian couples and 63% of heterosexual couples chose identifiable donors. This was a marked increase for each group from 8 years earlier. Both single-parent families and lesbian couples have been found in several studies to be more willing than heterosexual couples to tell their children about their conception and to seek more information about the donor (Leiblum et al., 1995; Klock et al., 1996; Jacob et al., 1999; Brewaeys et al., 2001; Murray and Golombok, 2005: p. 251).

As the above-cited studies indicate, there is mounting evidence that changing family structures, particularly the growth of single-parent heterosexual and single and dual-parent lesbian families, are a strong factor in normalizing sperm donation and openness within the family on the topic. A study of 791 parents of donor offspring found that 47% of parents were trying to trace their child's donor, and 87%

were seeking their child's donor siblings (Freeman et al., 2009). While that study sample was self-selected, it is noteworthy that lone mothers and lesbian-couple parents far outnumbered heterosexual-couple parents among those searching for donors and donor siblings.

Only recently have a small number of studies emerged that examine the experiences of DI offspring themselves. Reporting on 165 respondents ages 13 and older, Jadva et al. (2009) found that offspring of single mothers and lesbian couples learned of their DI origins at an earlier age than did offspring of heterosexual couples. They also found fewer negative experiences among those informed at an earlier age. In a separate article using the same data set, Jadva et al. (2010) focused on the experiences of offspring searching for and contacting their genetic relations. Of the respondents, 77% were searching for their donor, but only 29% of offspring from heterosexual-couple families had told their father they were searching, compared with 89% from lesbian-couple families, 'who had told their co-parent'. Their main reasons for searching were curiosity and to better understand their genetic identity. Similarly, a recent survey of 85 adult DI offspring of primarily married heterosexual couples, reported that 76% 'either wanted to meet, obtain identifying information on, or develop relationships with, their donors' (Mahlstedt et al., 2010).

The evidence regarding the relationship between family type and desire to contact the donor is inconsistent, however Jadva et al. (2010) and Freeman et al. (2009) found a similar openness among single mothers and lesbian couples, which led them to conclude that the absence of a father is a key factor in the desire to contact the donor. Yet, a study of 29 DI offspring conducted by Scheib et al. (2004) found that the 'mere presence of co-parents, regardless of their sex' dampens the offspring's expression of interest in their donors. In other words, among adolescent offspring of open-identity sperm donors, they found that youths from households headed by single women were more interested in contacting donors than were those from households headed by lesbian couples.

The goal of this study is to address these mixed findings of current research on DI offspring. Given that DI offspring are a hard-to-study group, small samples have limited past research. This study is the largest-scale examination of offspring perspectives to date. It is an analysis of data from two surveys conducted by the Donor Sibling Registry (DSR), focusing on offspring's own experiences and attitudes regarding donor conception. It differs from the studies of Jadva et al. reported above in that it was conducted 2 years later, asks somewhat different questions, and has a much larger sample not limited to families belonging to the DSR. We ask: Is there an association between family type (single or dual and heterosexual or lesbian parents) and (a) the age respondents were when told about their conception; (b) respondents' reactions to finding out about DI; (c) their desire to contact their donor; (d) their perception of parents' responses to their curiosity about the donor; and (e) their reasons for searching for their donor.

Materials and Methods

This is a secondary analysis of data collected in two simultaneous surveys of oocyte and sperm donor offspring conducted by the DSR over a 15-week period (October 2009 to January 2010). At that time the DSR had a total of more than 26 000 on-line registrants, most of whom

(approximately 15 000) identify themselves as parents of donor-conceived children. Other members are parents-to-be, donors and unspecified 'others' (including siblings, wives, children and donors' parents). Exact numbers of registrant offspring are unknown since subscribers do not always provide this information, but at least 1000 are known to be donor-conceived offspring over the age of 18. It is not known what proportion of the USA or world's donor-conceived offspring and/or their parents are registered with the DSR, but no other similar registries of comparable size exist in the world. Furthermore, as indicated above, many if not most donor-conceived offspring (especially those born to heterosexual parents) are not told that they were conceived using donor gametes. In any case, it is impossible to calculate a response rate for these surveys even among donor offspring with knowledge of their conception; therefore it must be assumed that these respondents are not necessarily representative of the total population. In spite of these significant limitations, the two sets of survey findings together offer valuable information on the perspectives of the largest portion of this understudied population ever reported.

The survey instruments were designed and data were collected by the DSR under the direction of the third author in an effort to better serve the organization's membership and without government or other institutional funding. At that time, the research questions addressed in the current study had not been developed, nor anticipated. Rather, question design was guided by previously published DSR surveys and by the third author's extensive experience working with donor families.

Data were collected using two on-line questionnaires administered via *Survey Monkey*, a web-based survey software website: a 67-question survey for donor offspring raised with heterosexual parents and parallel 73-question survey for donor offspring raised with lesbian parents. Both surveys consisted of similar multiple choice and open-ended questions designed to produce both quantitative and qualitative data. The latter survey included additional questions on parents' sexual orientation, and related issues. Both surveys included items on the offspring's family makeup, communication about the method of conception, knowledge and feelings about being donor conceived, efforts to contact donors and other biological relatives, consequences of such efforts and attitudes toward donor anonymity and donor conception.

Links to the surveys were posted on the DSR website inviting donor-conceived members (all of whom are over 18) to complete the survey on-line. A few days after the initial online invitation, DSR parents were sent an email inviting them to encourage their DI-offspring to participate in the study. In addition, cover letters to parents with invitations to participate and a link to the questionnaire were sent to lesbian, gay, bisexual, transgendered (LGBT) groups, to other unspecified individuals, as well as to list-serves that might include family members of donor-conceived offspring. The first and second authors were asked by the DSR to analyze the anonymized secondary data after it was collected. We applied to the California State University IRB for approval to conduct the analysis, and after providing assurances that confidentiality of all participants would be carefully protected, we were granted IRB approval in the form of an exemption.

A total of 759 offspring responded. Due to their small number, offspring conceived via oocyte donation (18) were excluded from our analyses. Our final sample consisted of 741 offspring of sperm donors: 458 (61.8%) offspring of heterosexual parents (OHETs) and 283 (38.2%) offspring of lesbian parents (OLSBs). (This survey did not include questions on reasons for parents' single status or on relationship status at the time of conception.) Respondents live in the USA (80.5%) and 11 other countries (19.5%) including Canada, UK, Australia, Sweden, Denmark, South Africa, New Zealand, Germany, Israel, Mexico and Uganda. Of the respondents, 31% are male and 69% are female. The age distribution of the respondents ranges from age 9 to over 40. Of the 704 respondents who indicated their

age, 52.6% were 18 or under and 47.4% were 19 or older. A much larger proportion of respondents from lesbian families cluster in younger age categories than respondents from heterosexual families. For instance, 60% of respondents with lesbian parents and 26% of respondents with heterosexual parents were 15 years or younger.

Since this study uses a non-probability sample, the analyses are exploratory and our findings are necessarily limited to descriptive rather than inferential statistics. We have assessed the strength of observed relationships using Yule's Q , a standard measure of association, with a possible range of -1.0 to $+1.0$, between dichotomous, categorical variables (such as 2×2 contingency tables). Formal validity tests were not conducted. However, responses to each open-ended question, which served as a follow-up to a given closed-ended question, were coded for common patterns and there was consistency among responses across closed-ended items as well as between the closed-ended and the open-ended follow-up comments. Typical comments are included in the findings section to expand on and enrich our understanding of the quantitative responses.

It should be noted that in our analysis of respondents' feelings in response to learning of their DI conception, we utilize the variable 'age told' instead of current age of respondent. We exclude current age because it is strongly associated with age told and therefore confounds any further analysis of the impact of this variable.

Results

Family type and donor anonymity

Offspring of OHETs were as likely to describe their families as single parent (42.6%) as dual parent (42.2%); in contrast, 62% of OLSBs were raised in dual-parent families ($n = 449, 262$; $Q = -0.50$). About 15% of OHETs and 13% of OLSBs checked the category 'other', which included living in two households as a result of divorce or with stepparents, grandparents or other relatives.

A little over 93% of OHETs and 82% of OLSBs reported that they were conceived using anonymous donors. A minority of respondents reported that their parent(s) had used a known or willing-to-be-known donor, 18% of OLSBs and 7% of OHETs ($n = 415, 283$; $Q = +0.49$).

Disclosure to offspring

Disclosure patterns differed between heterosexual and lesbian parents. For instance, 45.7% of OHETs compared with 79.3% of OLSBs reported that they have always been aware that they were donor conceived ($n = 407, 203$; $Q = -0.64$). By age 10, these figures change to 94.55% for OLSBs and 60.2% for OHETs. A full 24% of OHETs compared with 2% of OLSBs were told when they were over 18. Family type was linked to the age at which OHETs learned that they were donor conceived. For instance, 24.3% (42) of OHETs in dual-parent families and 75% in single-parent families stated that they always knew they were donor conceived ($n = 131, 41$; $Q = -0.81$). There was virtually no difference in this regard between OLSBs in single (80%) and dual-parent families (79.4%).

All of the OLSBs reported that they had been told of their DI origins by one or both of their mothers, except one, who was told by a family friend. Of the OHETs, 36 indicated they had been told of their DI origins by someone other than a parent: 9 had been told by siblings, grandparents, other relatives or friends; another 5 had found paperwork or e-mail evidence of their conception; in 4 cases disclosure

Table 1 Respondents' initial feelings upon learning about method of conception by family type^a.

Feelings	OHETs		OLSBs	
	Single parent (n = 160), %	Dual parent (n = 169), %	Single parent (n = 46), %	Dual parent (n = 120), %
Cannot recall initial feelings	30.6	12.4	34.8	40.0
Different	18.8	20.1	17.8	10.8
Makes no difference	28.1	16.6	26.1	34.2
Confused	13.1	33.7	6.5	7.5
Special	20.0	19.5	19.6	15.0

OHETs, offspring of heterosexual parents; OLSBs, offspring of lesbian parents.

^aSince respondents were asked to check 'all that apply', *n* reflects the total number of responses and columns do not add to 100%.

had taken place because of a medical situation; and 18 offspring found out as a result of a divorce or a family argument. There were 11 others who used the comment option to describe more complex disclosure processes such as overhearing conversations or figuring it out themselves, sometimes with the help of blood tests or DNA testing. These 47 cases comprised 10% of OHETs.

Written comments also provide insight into patterns of disclosure in families with social fathers. There were 14 OHETs from two-parent families who indicated that their social fathers were unaware that they knew of their donor conception. Some of these respondents indicated that they withheld their knowledge to protect their social father, as in the following examples:

My parents . . . agreed never to tell anyone. My mother told me after they divorced. I'm not sure of her reasoning, but I never told my father I knew. It would have felt like a betrayal to me.

Mom told us. We're still debating over how our relationship would change with Dad if he knew we knew.

I do not want my dad to know that I know because I don't want him to be upset or think it changes anything.

Offsprings' responses to disclosure

Respondents were asked to indicate their feelings upon learning they were donor conceived and at the time they responded to the survey. Only a minority reported that the disclosure initially made them feel 'different' from others, or 'confused.' Parents' sexual orientation played a weak role for the minority of respondents who did indicate these feelings. A slightly higher proportion of OHETs (19%) indicated that they felt 'different' compared with 14% of OLSBs ($n = 398, 196$; $Q = +0.18$). As Table 1 illustrates, this difference also is somewhat related to parents' relationship status (single or coupled). Among respondents who indicated that they felt different, OLSBs in dual-parent families were the least likely group to feel this way. It should be noted that feeling 'different' may have both negative and positive connotations. As one OLSB stated, 'I felt both special and different'. An OHET wrote, 'I feel unique in a way. It's an unconventional way to be born, but I'm happy knowing I was so wanted'.

Findings show a larger difference by parents' sexual orientation in feelings of confusion, with 25% of OHETs indicating that they felt confused upon learning of the method of their conception compared with ~10% of OLSBs ($n = 398, 197$; $Q = +0.52$). Feelings of confusion are

further associated with relationship status (single- or dual-parent family). Of those who reported feeling confused, the largest percentage were in dual-parent heterosexual households (33.7%) (see Table 1).

Feelings about DI changed over time for many respondents. As Table 2 shows, while feeling different remains fairly steady over time, feelings of confusion diminish. No respondents reported feeling confused currently who had not also done so initially.

Written comments provide additional insight into the change in feelings. For instance, a respondent who reported being ashamed and embarrassed about her origins as a child, notes that presently, 'I am learning to be okay with it.' Another woman, who was told when she was very young, explains, 'It has taken me a LONG time to come to terms with my conception, but I am very happy and at peace with it now.' Comments such as 'I feel frustrated because people view you sometimes as a scientific experiment', or 'I feel a bit like a science/social experiment', reveal that some still harbor negative feelings.

The age respondents learned of the method of their conception had a bearing on whether they felt confused upon learning this news (see Fig. 1). Of those who said they had always known, 8.6% indicated that they felt confused about their conception, while 45.8% of those who had not been told until they were over 18 felt confused.

The comments below typify reactions of respondents in our study who learned about the method of their conception as teenagers or later:

I felt totally blindsided, sort of dumbfounded, speechless, confused . . .

Angry, that someone who I loved could have kept such a secret from me.

I felt a sense of loss . . . of all the qualities I'd always thought I'd gotten from my father.

For a few of the respondents, the news that their social father was not their biological father was welcome. In these cases, responses had to do with the social father's abusive behavior or poor physical or mental health. For example, one respondent, who reported being very disappointed that his/her parents 'allowed me to live with a secret that was toxic to them and detrimental to my mental health,' nevertheless, upon learning the method of his conception sometime after the age of 35, describes feeling:

Table II Respondents' current feelings about being donor conceived by family type^a.

Feelings	OHETs		OLSBs	
	Single parent (n = 161), %	Dual parent (n = 168), %	Single parent (n = 45), %	Dual parent (n = 121), %
Different	26.1	26.2	28.9	19.8
Makes no difference	47.2	35.7	44.4	50.4
Confused	7.5	11.3	4.4	3.3
Special	23.0	25.6	13.3	26.4

^aSince respondents were asked to check 'all that apply', n reflects the total number of responses and columns do not add to 100%.

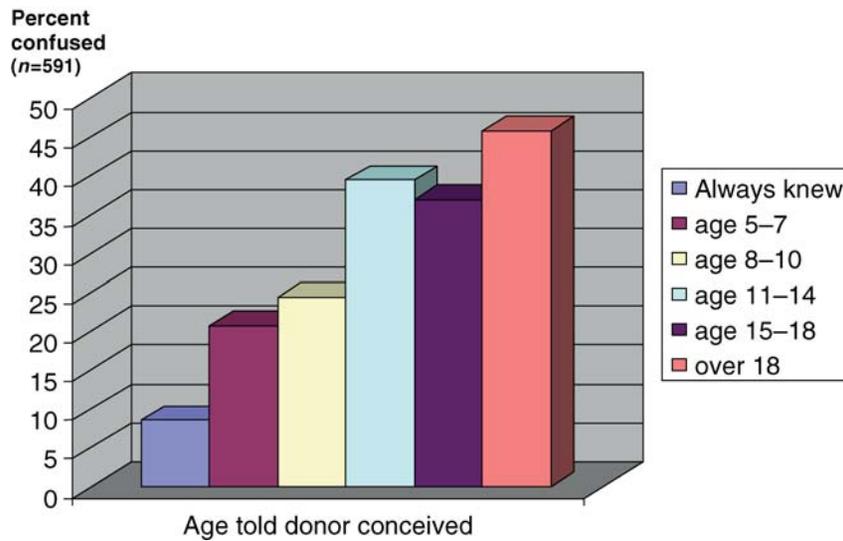


Figure 1 Feelings of confusion by age told.

[B]oth elated about having the possibility of [not] inheriting my dad's health problems, excited to finally know the truth, confused about how this could even have happened.

Others expressed similar positive responses related to negative feelings about their social father:

My father was an alcoholic and had many problems, both physical and psychological. So I was relieved to learn that I did not share his DNA.

Occasionally the primary emotion in response to learning one was donor conceived is relief because the offspring sensed something salient to their identity was being withheld. Examples include the following:

Relieved for an explanation for why I felt like a misfit.

Relieved! I knew there was something being hidden.

Written comments suggest that the secrecy surrounding the method of conception, rather than the method itself, may continue to be a source of resentment. One offspring wrote: 'I have a lot of anger over the medical profession's presumptions about secrecy and

anonymity', and another remained 'angry with the way I was conceived being anonymous'.

Much more frequently, not knowing one's biological parent and one's biological roots is the main source of discomfort. The following comments typify this feeling:

It makes me angry that I am denied the basic right of knowing who my father was and what ethnicity I am.

I am curious as to what my biological father is like, do I have any siblings, what were his parents like.

The man who raised me is still my dad, but I'm pissed off... I'm missing half of my genetic medical history.

Offsprings' desire to contact donor

Of those who responded to the question, 82% (n = 518) indicated a desire to be in contact someday with their donor. There was no appreciable difference between the proportions of OHETs in dual- (82%) and single-parent (86%) families wanting contact with the donor, and only a slight difference between OLSBs in dual- (75%) and single-parent (88%) families. However, the age at which respondents expressed an interest differed by parents' sexual orientation.

Table III Parents' initial reactions to respondents' curiosity about the donor^a.

Reaction	OHETs		OLSBs	
	Mothers ^b (n = 363), %	Fathers (n = 217), %	Biological mother (n = 157), %	Social mother (n = 132), %
Supportive	58.9	19.8	77.7	59.8
Hesitant	22.9	14.7	9.6	8.3
Understanding	33.4	12.9	28.7	29.5
Angry	4.0	5.5	0.6	0.8
Fearful	9.6	6.0	2.5	3.1

^aSince respondents were asked to check 'all that apply', n reflects the total number of responses and columns do not add to 100%.

^bThe category mother for OHETs and biological mother for OLSBs include both single and married/coupled mothers.

Table IV Respondents' reasons for wanting to contact the donor by family type^a.

Reasons	OHETs		OLSB	
	Single parent (n = 134), %	Dual parent (n = 150), %	Single parent (n = 33), %	Dual parent (n = 95), %
Curious about donor's looks	85.1	89.3	90.9	87.4
To learn about ancestry	74.6	79.3	63.6	55.8
To learn about medical history	61.9	80.0	45.5	45.3
So donor can learn about respondent	53.7	48.7	66.7	50.5
To establish a relationship with donor	41.8	36.7	54.5	29.5

^aSince respondents were asked to check 'all that apply', n reflects the total number of responses and columns do not add to 100%.

When asked when they first expressed an interest in learning about the donor, 35% of OHETs and 72% of OLSBs indicated 'by age 11' (n = 316, 139; Q = -0.66). By age 18, only 65% of OHETs had expressed an interest in the donor compared with 95% of the OLSBs (n = 316, 139; Q = -0.82).

Family type was linked to how comfortable respondents felt expressing curiosity about the donor to their parents with OHETs from dual-parent families being the least likely group to express such comfort. As Table III shows, respondents indicated that mothers were more supportive and understanding than fathers. Among OLSBs, biological mothers were reported to be somewhat more supportive than social mothers, while social and biological mothers were viewed as equally understanding.

A lack of support did not mean that parents necessarily reacted with hostility. For OHETs, only 4% of mothers and 5.5% of fathers were reported to be initially angry, while only two OLSBs reported that one or both parents were angry (see Table III).

In addition to the 14 OHETs who noted that their social father is unaware that they know of their DI conception, another 38 OHETs indicated that their father is unaware of their curiosity about the donor. Thus, about one-quarter of offspring in dual-parent heterosexual families reported that they do not, or feel they cannot, discuss the situation with their social father.

Reasons for desiring contact with donor

Regardless of family type, the most frequently stated reason for wishing to have contact with one's donor was 'to see what they

look like' (see Table IV). A boy between 9 and 12 being raised by two moms typified written comments when he explained, 'I want to see if I'm anything like him.' A woman further reflects this desire:

It would be nice to look in the mirror and say, "Hey, I don't have my mom's nose but I do get it from my genetic father."

Curiosity about the donor's looks was followed by a desire to learn about ancestry and medical history for OHETs, while OLSBs ranked their desire for the donor to learn about them higher than their need to know about their medical history.

Although a good number of respondents do want to establish a relationship with the donor, this was mentioned less frequently than other reasons for wanting contact (see Table IV). The largest proportion of respondents who wanted to establish a relationship with the donor were offspring of single lesbians, and the difference between OLSBs in single- and dual-parent families was somewhat strong (n = 33, 95; Q = +0.51).

Contact and its consequences

Overall, only 68 offspring (9.2%) in the entire sample reported that they are or have been in contact with their donor, with little difference between OHETs and OLSBs. The most common method (29 cases) of contacting one's donor was via the DSR, followed by contact through the sperm bank or clinic (9 cases). Finding a donor through a sperm bank could be difficult. As one young woman stated, 'I had to be VERY persistent... They [the sperm bank] said uniting donors and kids wasn't part of their business.' Other methods included

using search engines such as Google (4 cases). In some cases, parents helped offspring find their donor. As one young girl explained, 'my mom tracked him down, and others said 'mom introduced us'.

Contact sometimes occurred easily for offspring with lesbian parents when the donor was a friend. Some had unusual stories. As one respondent reported:

I was part of a documentary for donor-conceived children and someone who saw it contacted my donor and let him know about it and gave him my name.

Once contact had been established the most commonly checked description of the relationship by OHETs (14 cases) was 'my donor is a friend to me'. Other responses selected were 'my donor is like a parent to me' (five cases), and 'like an aunt/uncle to me' (nine cases). Two OHETs and four OLSBs indicated, 'My donor feels like a complete stranger to me.' Only one OLSB described his donor as 'like a parent to me'.

Discussion

The data presented here provide the first large-scale examination of the views of a new social minority and a potentially significant emerging social interest group: donor-conceived offspring who are aware of their DI origins. The results indicate that disclosure patterns and responses varied along two dimensions of family type: single- or dual-parent and parents' sexual orientation (heterosexual or lesbian).

Disclosure typically took place for offspring of lesbian parents at earlier ages than for the offspring of heterosexual parents, with more than three-quarters of the former reporting that they had always known the method of their conception, compared with fewer than half of children of heterosexual parents. Findings suggest that this difference may be due to the presence of fathers in many of the latter families, rather than to sexual orientation, as the association with early disclosure was nearly as strong in families with single heterosexual mothers as among lesbian parents. Families in which there was a father present were slowest to disclose.

Time of disclosure to offspring of their DI origins is of particular interest in light of the observation by Golombok *et al.* (2002: p. 966) that the consequences of disclosure in the early years are likely to be more positive, and their conclusion that 'as they grow up it becomes more difficult for parents to tell their children that they were conceived using donor sperm.' This greater difficulty on the part of parents parallels responses of offspring in the current study. Some of the respondents who reported being older at disclosure, expressed feelings of anger and resentment in their written comments and checked the most clearly negative initial reaction to learning of their origins: feeling 'confused'. However, regardless of initial reactions, by the time of the survey, far fewer offspring reported that they still felt 'confused' regarding their origins, although the number remained highest for children of coupled heterosexuals. Others have found that there is a widespread belief that disclosure should take place before adolescence (MacDougal *et al.*, 2007).

While few offspring had been in contact with their donor, desire for such contact was strong in all types of families. The higher proportion of children of lesbian parents who expressed this interest by age 10 could be expected given their earlier average age of disclosure. While the Freeman *et al.* (2009) study found that some parents

search for their child's donor relations even in the absence (perhaps in anticipation) of their child's expressed interest, the current study makes it clear that curiosity also can exist on the part of the offspring without being shared with the parents, particularly with the fathers.

Comfort in expressing feelings of curiosity regarding one's donor was lowest in dual-parent heterosexual families. In fact, about one-quarter of offspring reported that they were unable to discuss their origins with their social father. In more extreme cases, the father was reported to be unaware not only of the offspring's curiosity about his or her donor, but of the offspring's knowledge of the DI conception itself. These indications of poorer communication with fathers are consistent with the findings by Mahlstedt *et al.* (2010) that only 16% of the legal fathers were perceived as supportive of their offspring's donor searches, and Jadva *et al.* (2010: p. 526) who, found that 'only 22% (16/74) of offspring from heterosexual-couple families had told their father' of their search in contrast to '89% (16/18) of offspring from lesbian-couple families who had told their co-parent.'

Leading reasons checked by offspring for wanting contact with their donor were curiosity about the donor's looks and to learn about their ancestry and medical history. In general, this reinforces findings of Jadva *et al.* (2010) that the wish for contact with donors is primarily out of a desire to learn more about oneself. However, we found, as did Jadva *et al.* (2010), that offspring of single parents, reported a somewhat greater interest in establishing a relationship with their donor than offspring of dual parents. In our study, this was greater among offspring of single lesbians than among single heterosexuals.

The pattern of earlier age at disclosure and higher levels of comfort in expressing curiosity about one's donor in families with single parents and coupled lesbians is consistent with findings by Freeman *et al.* (2009) and Scheib and Ruby (2008) regarding parents' curiosity and/or desire to contact donors. Furthermore, regardless of whether they have used open-identity donors, both single-parents and lesbian couples have previously been found to be more willing than heterosexual couples to tell their children about their conception and to seek more information about the donor (Leiblum *et al.*, 1995; Klock *et al.*, 1996; Jacob *et al.*, 1999; Brewaeys *et al.*, 2001; Murray and Golombok, 2005; Jadva *et al.*, 2010).

We did not find, as did Scheib *et al.* (2004: p. 249) an association between 'the mere presence of co-parents, regardless of their sex' and a 'dampening' of 'the youth's expressed interest in their donors'. In line with Jadva *et al.* (2010), we found it was the presence of a social father that was most strongly associated with lower levels of perceived support and understanding of offspring's curiosity about the donor. Our data revealed a moderately strong association between parents' sexual orientation and the use of a known or willing-to-be known donor, but no association with the presence or absence of a co-parent for offspring of lesbians. In general, the most consistently salient factor in distinguishing the responses of offspring on issues related to the donor was the presence or absence of a father.

While some offspring indicated their fathers were supportive and/or understanding regarding their curiosity about the donor, responses to a number of items in the survey make it clear that from the perspective of offspring, tensions related to DI are most prevalent in families headed by coupled heterosexuals. Responses that point to a need for improved communication in such families include: the later age at which these offspring report learning of their DI conception; the lower levels of comfort they report in expressing curiosity about

their donor to their father; the higher proportion of fathers who are reported to be unaware of their offspring's curiosity about their donor; and above all, the existence of cases in which social fathers do not even know that the offspring is aware of his or her DI origins.

This study confirms that even when parents acknowledge DI conception there may be secrecy and/or tension around the offspring's curiosity about the donor and about the search for the donor. We found, as did [Jadva et al. \(2009\)](#), that this tension is greatest in families with fathers. Fathers' trepidations about contact with the donor were also noted by [Scheib et al. \(2004\)](#): p. 249), who found that no fathers reported looking forward to their child meeting the donor, in contrast to lesbian co-parents, about half of whom did so. It should be pointed out that these were fathers who had chosen donors willing to release their identities.

Discomfort on the topic of DI perceived when communicating (or not) with fathers runs counter to changes taking place in the larger social context. Secrecy with DI, once considered essential, is no longer the assumed preference of all parents. It is actively discouraged in many jurisdictions. At the same time, as stated previously, a majority of jurisdictions worldwide continue to require or permit anonymous DI ([Blyth and Frith, 2009](#)). To the extent that there is a trend away from donor anonymity, it is being supported and perhaps even fueled by the openness of single mothers and lesbian couples. These changes and the increasingly widespread use of many forms of assisted reproduction suggest movement toward normalization and decreasing stigma, at least for the offspring. They also point to a need for more research into the social and psychological consequences of DI for infertile males, for the relationship between fathers and their DI offspring after disclosure, and for family dynamics in general.

It appears that infertile men may be among the last to become comfortable with openness surrounding DI. This is not surprising given that male infertility has been found to be associated with higher levels of stigma than female infertility ([Nachtigall et al., 1997](#)) and to pose a particular challenge to popular conceptions of masculinity ([Humphrey, 1977](#); [Mason, 1993](#); [Edelman et al., 1994](#); [Gannon et al., 2004](#)).

Stigma related to infertility has long been recognized as a general barrier to openness regarding DI. [Salter-Ling et al. \(2001\)](#) found this stigma to be most pronounced among those with lower educational levels. [Brewaeyts \(2005\)](#) has argued that increased education as well as counselling for infertile men and their partners is in order. [Slade et al. \(2007\)](#) have suggested, perhaps specific cognitions about stigma could be targeted in therapeutic input, but it may be that the conflation of masculinity and fertility should be challenged routinely in clinical settings at the time of the diagnosis of infertility and be included in discussions of options for infertile men and their partners. For example, group counselling as a component of fertility treatment has been found to be beneficial to Chilean blue-collar male participants ([Furman et al., 2010](#)).

While cultural assumptions associating masculinity with fertility are not likely to be eliminated with one or two counselling sessions, heterosexual parents should at least be counselled to expect that related issues may resurface regardless of whether the DI is kept secret or disclosed very early. Our data suggest that fathers could benefit from additional support, confirming a found need for DI parents to discuss DI matters with professionals after the birth of their children ([Brewaeyts et al., 2005](#)). It would also be appropriate for fertility specialists to examine the way in which the male role in reproduction is reduced to a focus on sperm only. As [Carmeli and Birenbaum-](#)

[Carmeli \(1994\)](#) have noted, men are marginalized by current practices in reproductive science and medicine; scientists have searched for solutions for male infertility by operating on the woman's body. More research into both the prevention and treatment of male infertility could reduce the marginalization of men in reproduction. Furthermore, although they certainly exist, the culture has not yet provided positive examples of fathers of DI offspring, or images of strong father-child bonds in such families, as are now entering the media for same-sex parents. Challenges to cultural misconceptions regarding links between masculinity and infertility might also be integrated into high school and university biology and sex education curricula. These could be part of a larger public health effort to offer men an expanded 'set of options in terms of perceiving and representing their bodies and their health' recommended by [Gannon et al. \(2004\)](#).

The major limitation of this study, aside from the use of a non-probability sample, is that recruitment was drawn partially from DSR members. This suggests that the sample may be biased towards the inclusion of offspring having an interest in contacting their donor. Furthermore, since the survey was designed by the DSR for organizational rather than scientific purposes, our analysis was limited to the data collected for the former use, which included only minimal demographic data, and, for example, no information about the family structure at time of conception, or other relevant attitudinal factors. Another limitation of the study is that respondents with lesbian parents are much younger on average than offspring of heterosexual parents. Despite these limitations, this study has expanded understanding of DI individuals who are aware of the method of their conception and suggests the need for greater attention to the development of relationships between social fathers and their offspring over time.

In general, our findings both confirm and expand on findings from previous studies indicating that family type is a salient factor in understanding disclosure and communication patterns related to DI. Specifically, they indicate that many of those who are aware of the method of their conception favor early disclosure and greater openness regarding their biological origins, desire more information and contact with donors than has been provided, and often feel supported by their mothers (regardless of sexual orientation or marital status) in this quest. Their responses are consistent with a general societal trend toward greater openness as assisted reproduction in all forms becomes more commonplace. Hopefully one by-product of this greater openness will be a cultural shift reducing the stigma of male infertility and thereby eliminating one barrier to more open communication between fathers and their DI offspring. In any case, the increasingly widespread use of genetic testing and advances in communication technologies, as well as a general trend toward normalizing all forms of assisted reproduction, are all contributing to growing numbers of DI offspring becoming aware of their origins, searching for their sperm donors and calling for policies that facilitate their success in doing so.

Authors' roles

D.B. and P.J. analysed and interpreted the data, drafted the article and approved the final version to be published. W.K. designed the survey and acquired data. P.J. and W.K. revised drafts critically for important intellectual content.

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