



Gamete donor anonymity and limits on numbers of offspring: the views of three stakeholders

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ABSTRACT

This paper discusses the attitudes of three groups of stakeholders in the world of assisted reproduction gamete donors, parents who use donated gamete, and offspring conceived with donated gametes with respect to the two issues of donor anonymity and limits on the number of offspring a single donor can produce. The data are drawn from on-line surveys which were made available between May 12, 2014 and August 15, 2014 to gamete donors, donor-conceived offspring, and parents who used donated gametes to conceive. A total of 325 donors (176 egg donors; 149 sperm donors) responded to the survey as did 2134 parents and 419 offspring. The data show that offspring are more opposed to donor anonymity than are parents and donors. Among offspring opposition to anonymity grows as they age. On the other hand, parents are most in favor of limits on numbers of offspring produced by a single donor. Parents worry about health and accidental contact between people conceived from the same donor.

KEYWORDS: anonymity, assisted reproduction technology, gamete donors, limits

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INTRODUCTION

Attitudes toward donor conception have changed dramatically since the use of donor gametes became a common medical approach to infertility in the last quarter of the 20th century.¹ What was once usually kept a secret by heterosexual couples who conceived via sperm donation has become more public. Indeed, disclosure of donor conception to the children is now recommended by many psychologists and social workers who advise parents about these issues.² Moreover, as family diversity became more accepted, single women and lesbian and gay couples could more easily acquire gametes, which they required for reproduction.³ These intended parents, who are not necessarily medically infertile, make it less likely that the reliance on donor gametes can be totally concealed either inside or outside the family. Now that disclosure has become more common, more people want to know about the donor and about any individuals to whom they might be related through a common donor. Two issues related to these quests have become widely debated in discussions of gamete donations: the right of offspring (and parents raising those offspring) to know the identity of the donor and the possibility of limiting the number of offspring who can be born from the gametes provided by any single donor. Ethicists, legal scholars, and social scientists all debate these issues.⁴

A variety of issues are at the heart of concerns about *anonymity*. The presumed right of donor-conceived individuals to know their origins is central to one side of these debates.⁵ Cahn's⁶ arguments about this issue stem from a broader concern with legal regulation of donor gametes. Indeed, she calls for a paradigmatic legal shift from an emphasis on medicine and technology to family law, which she believes, would better serve the interests of donor-conceived 'family's communities'.⁷ She points out that regulation 'need not mandate conformity', such as requiring contacts between donor-shared siblings, but that those who form these networks and develop intimate and emotional ties should have legal recognition.⁸ In short, she argues that if these networks of individuals 'function' like a family, they should be given a normative standing similar to that accorded 'traditional' nuclear families.⁹ As part of this system of

¹ Throughout the paper we use the terms 'donor' and 'donor gametes' although the individuals providing these gametes are usually paid to participate in a market transaction. The use of the language of 'donor' represents the idealized notion that the provision of gametes is an altruistic act of gift-giving.

² Joan Arehart-Treichel, *Should Children Be Told They Are 'Test-Tube' Babies?*, <http://psychnews.psychiatryonline.org/doi/10.1176/pn.45.8.psychnews.45.8.013> (accessed Dec. 10, 2014); Morton B. Brown et al., *Cumulative Birth Rates with Linked Assisted Reproductive Technology Cycles*, 366 N. ENGL. J. MED. 2483 (2012).

³ Laura Mamo, *Queering the Fertility Clinic*, 34 J. MED. HUMANITY 227 (2013).

⁴ Brigitte Clark, *A Balancing Act? The Rights of Donor-Conceived Children to Know Their Biological Origins*, 40 GA. J. INT. COMP. LAW 2 (2013).

⁵ Theresa Glennon, *Legal Regulations of Family Creation Through Game Donation: Access, Identity and Parentage*, in REGULATING REPRODUCTIVE DONATION CHAPTER 3 (Susan Golombok et al., eds., in press); ELIZABETH MARQUARDT, NORVAL D. GLENN & KAREN CLARK, *MY DADDY'S NAME IS DONOR: A NEW STUDY OF YOUNG ADULTS CONCEIVED THROUGH SPERM DONATION* (2010); Inmaculada De Melo-Martín, *The Ethics of Anonymous Gamete Donation: Is There a Right to Know One's Genetic Origins?*, 44 HASTINGS CENT. REP. 28 (2014).

⁶ Naomi Cahn, *The New Kinship*, 100 GEORGETOWN LAW J. 367 (2012).

⁷ *Id.* at 413.

⁸ *Id.* at 404.

⁹ On this point, see also Martha Minow, *Redefining Families: Who's In and Who's Out*, in FAMILIES IN THE U.S.: KINSHIP AND DOMESTIC POLITICS 7 (Karen V. Hansen & Anita Iltta Garey eds., 1998).

regulation, Cahn argues that the law should clarify the legal relationship between donors, parents, and offspring and that donors must be ‘assured that they have no parental rights or obligations’.¹⁰ Most importantly, she argues for a mandatory identification system of all donors, at least going forward. Her analysis focuses only on the resulting legal rights and obligations, but not necessarily the moral or ethical ones that might exist in a society where all gamete providers are required to be known to their offspring.

Other opponents argue against anonymity on other grounds. Cahn and Kramer, for example, assert that it is quite simply not ‘fair to deny children the knowledge of their genetic origins’.¹¹ Issues of identity are central to some of these discussions of the ‘right to know one’s origins, including the identity of their donor’.¹² Another key issue relevant to the broader issue of anonymity is that of health. Advocates for providing information about the donor’s identity have argued that medical treatment and other health-related concerns may depend on knowing one’s genetic heritage.¹³ Finally, many worry about accidental incest between offspring who do not know that they are genetically related to each other, an issue raised as early as 1984 by the Warnock Committee in the UK.¹⁴

In opposition to arguments about mandatory identification systems for sperm donors (such as that suggested by Cahn), Cohen¹⁵ argues that a market system, where intending parents can select the type of donor they want, and donors can decide what kind of donor they want to be,¹⁶ allows both stake holders more options, maximizes ‘their own welfare and life plans’ and furthers the interest of both parties.¹⁷ Further, Cohen argues that if a central organizing principle of family law is children’s welfare or best interests, a ‘prohibition on sperm-donor anonymity cannot be justified simply by concerns of “harm” to children because the regulation would “protect” these particular children out of existence’.¹⁸ In effect, Cohen argues that regulations would constrain the range of possibilities for reproduction by limiting who provides gametes and excluding intending parents who might not be willing to reproduce if donor identity were mandated.¹⁹ Finally, Cohen argues that if donor-conceived children have the right to

¹⁰ Cahn, *supra* note 6, at 408.

¹¹ Naomi Cahn & Wendy Kramer, *Sperm Donors Should Not Be Anonymous*, NEW YORK TIMES, <http://www.nytimes.com/roomfordebate/2011/09/13/making-laws-about-making-babies/sperm-donors-should-not-be-anonymous> (accessed Sept. 13, 2011).

¹² Glennon, *supra* note 5.

¹³ *Id.*

¹⁴ Naomi Cahn, *Accidental Incest: Drawing the Line—Or the Curtain?—For Reproductive Technology*, 32 HARV. J. GEND. LAW 59 (2009), Jenni Millbank, *Numerical Limits In Donor Conception Regimes: Genetic Links And ‘Extended Family’ In The Era Of Identity Disclosure*, 22 MED. LAW REV. 325 (2014).

¹⁵ I. Glenn Cohen, *Rethinking Sperm-Donor Anonymity: Of Changed Selves, Non-Identity, and One-Night Stands*, 100 GEORGETOWN LAW J. 431 (2012).

¹⁶ In addition to donors who are known by the recipients from conception, the two options offered are identity-release when the offspring turn 18 and anonymous. For a description of identity-release, see Joanna E. Scheib, Maura Riordan & Susan Rubin, *Choosing Identity-Release Sperm Donors: The Parents’ Perspective 13–18 Years Later*, 18 HUM. REPROD. 1115 (2003).

¹⁷ Cohen, *supra* note 15, at 434.

¹⁸ *Id.* at 436.

¹⁹ See also Gaia Bernstein, *Regulating Reproductive Technologies: Timing, Uncertainty and Donor Anonymity*, 90 BOSTON UNIV. LAW REV. 1189 (2010). Bernstein cautions that banning anonymous donors leads to increased inequalities and furthers commodification.

know their genetic origins, all children should be extended the same right rather than creating a 'reproductive-technology exceptionalism'.²⁰

Those who oppose a ban on anonymity make additional arguments as well. They express concern about the donors' rights to privacy, the donors' status as 'non-parents', and the human right of intended parents to form a family without excessive state intervention; they also express concern about whether there will be a sufficient number of donors if donors are required to register as is the case in the UK.^{21,22} Further, they argue that the law adequately covers reproductive technology through federal and state provisions which focus on safety and other aspects of consumer protection. For example, the screening of donors for diseases such as HIV and genetic anomalies is routine practice.²³ In addition, fertility providers are required to report to the Centers for Disease Control, which publishes a yearly report about every clinic and their IVF success rates.²⁴ Furthermore, about two-thirds of states have adopted the Uniform Parentage Act (UPA), which establishes paternity and maternity of minor children born to married and unmarried couples. The 1973 version provided protection to sperm donors in cases where a mother sued them for child support by stating that any man that 'gives his sperm to a physician for purposes of artificially inseminating someone other than his wife is not the legal father of the child borne out of that insemination'.²⁵ Some states have tailored the UPA to remove the requirement of physician involvement and to extend protection to women who are not married. Finally, Ertman²⁶ argues that case law generally recognizes freedom of contract for alternative insemination unless the genetic parents conceive through coitus or the genetic father is brought into the picture through some social practice. In short, those opposed to bans on anonymity argue from the position that sufficient regulations are in place to protect all three stakeholders.

²⁰ Cohen, *supra* note 15, at 445.

²¹ MARTHA M. ERTMAN, *LOVE'S PROMISES: HOW FORMAL AND INFORMAL CONTRACTS SHAPE ALL KINDS OF FAMILIES* (2015); Glennon, *supra* note 5; Peter Wardle, *The Real Impact of the Removal of Donor Anonymity*, 445 *BIOETHICS* 1 (2008); Mathew J. Tomlinson et al., *Sperm Donor Recruitment Within an NHS Fertility Service Since the Removal of Anonymity*, 13 *HUM. FERTIL.* 159 (2010); Ken R. Daniels, Wendy Kramer & Maria V. Perez-y-Perez, *Semen Donors Who Are Open to Contact with Their Offspring: Issues and Implications for Them and Their Families*, 25 *REPROD. BIOMED.* ONLINE 670 (2012); Strategy and Information Directorate Human Fertilisation and Embryology Authority, *NEW DONOR REGISTRATIONS*, <http://www.hfea.gov.uk/3411.html> (accessed Dec. 17, 2014); Ken Daniels, *Anonymity and Openness and the Recruitment of Gamete Donors. Part I: Semen Donors*, 10 *HUM. FERTIL.* 151 (2007); Damien W. Riggs & Laura Russell, *Characteristics of Men Willing to Act as Sperm Donors In the Context of Identity-Release Legislation*, 26 *HUM. REPROD.* 266 (2011); Uschi Van den Broeck et al., *A Systematic Review of Sperm Donors: Demographic Characteristics, Attitudes, Motives and Experiences of the Process of Sperm Donation*, 19 *HUM. REPROD.* UPDATE 37 (2013); Jessica Elgot, *UK Sperm Bank Has Just Nine Registered Donors, Boss Reveals*, *THE GUARDIAN*, Aug. 31, 2015, http://www.theguardian.com/science/2015/aug/31/britains-national-sperm-bank-wants-men-to-prove-their-manhood?CMP=share_btn_link (accessed Sept. 3, 2015).

²² To date the arguments for and against mandatory registries for donors rarely discuss these issues as they relate to egg- or embryo-conceived families and it is not clear whether these arguments can be extended to include these other gamete users or whether stakeholders feel the same way about egg and embryo donation as they do sperm donation. Virginia Bolton et al., *A Comparative Study of Attitudes Towards Donor Insemination and Egg Donation in Recipients, Potential Donors and the Public*, 12 *J. PSYCHOSOM. OBSTET. GYNECOL.* 217 (1991).

²³ Bebe J. Anderson, *Lesbians, Gays, and People Living with HIV: Facing and Fighting Battlers to Assisted Reproduction*, 15 *CARDOZO J. LAW GEN.* 455 (2009).

²⁴ ERTMAN, *supra* note 21, at 39.

²⁵ *Sperm Donors and Child Support*, *FREEADVICE*, http://family-law.freeadvice.com/family-law/child_support/artificial_insemination_donor_obligation.htm (accessed Sept. 4, 2015).

²⁶ ERTMAN, *supra* note 21, at 48, 59.

The debate about anonymity has been resolved differently in different places. In some countries (Spain, France, and Denmark), the anonymity of donors is protected by law.²⁷ In other countries, laws have been enacted to allow children access to identifying information about gamete donors. Outside of North America, Sweden, Austria, the Australian state of Victoria, Switzerland, the Netherlands, Norway, the United Kingdom, New Zealand, Germany, Ireland, and Finland are countries that have mandates that donors be identifiable to their genetic offspring.²⁸ In North America, changes are minimal although donor anonymity has led to legal attempts to challenge anonymity. In 2011, the Supreme Court of British Columbia banned anonymous gamete donation; however, in 2012 the British Columbia decision was overturned and donor anonymity remains.²⁹ In the United States, some states have enacted new regulations about donor conception, and in 2011 Washington used its power to regulate anonymity in the gamete market although donors can still opt out of being identified.³⁰ The United States, however, does not have a uniform body of laws about this issue.

The debates about *limits on the number of offspring* who can be conceived or born from a single donor's gametes center around issues concerning the spread of genetic malformations, inadvertent incest, and the emotional distress for all parties (parents, donors, and offspring) of knowing that there are numerous people with shared genes (ie donor siblings or half siblings). This knowledge has become more common with the rise of informal registries that allow for contact among those individuals with the same donor.³¹ Media attention to the issue of large numbers of offspring from a single donor suggests that the public at large is fascinated with (and even appalled by) the idea of a vast number of genetically related individuals.³²

As is the case for anonymity, regulations vary by country. A number of countries including parts of Austria, Australia, Belgium, Canada, Denmark, France, Germany, Hong Kong, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, and the United Kingdom have limits that range from a low of 3 in Hong Kong to as many as 25 in the Netherlands.³³ The USA is again an outlier here with recommendations by the

²⁷ Melo-Martín, *supra* note 5.

²⁸ Millbank, *supra* note 14; *Sperm Donation Laws by Country*, WIKIPEDIA, THE FREE ENCYCLOPEDIA (2015), http://en.wikipedia.org/w/index.php?title=Sperm_donation_laws_by_country&oldid=654148051 (accessed Mar. 31, 2015).

²⁹ *Sperm Donor Identity Protected by B.C. Court Ruling*, <http://www.cbc.ca/news/canada/british-columbia/sperm-donor-identity-protected-by-b-c-court-ruling-1.1132062> (accessed Sept. 18, 2015).

³⁰ Bonnie Rochman, *Where Do (Some) Babies Come From? In Washington, a New Law Bans Anonymous Sperm and Egg Donors*, TIME, <http://healthland.time.com/2011/07/22/where-do-some-babies-come-from-in-washington-a-new-law-bans-anonymous-sperm-and-egg-donors/> (accessed Sept. 1, 2015).

³¹ Millbank, *supra* note 14.

³² Jacqueline Mroz, *One Sperm Donor, 150 Sons and Daughters*, THE NEW YORK TIMES, Sept. 5, 2011, <http://www.nytimes.com/2011/09/06/health/06donor.html> (accessed Dec. 31, 2014); Tom Blackwell, *Limit Pregnancies by Same Sperm Donor: Fertility Experts National Post* (2011), <http://news.nationalpost.com/2011/09/08/limit-pregnancies-by-same-sperm-donor-fertility-experts/> (accessed Jan. 2, 2015); NYU News: *Sperm Donation Industry Needs Regulation* 2013, <http://www.nyu.edu/news/2013/12/04/rawley-7/> (accessed Jan. 1, 2015); *Sperm Donor 'Super Dads'—Why It's Dangerous for One Donor to Sire Dozens*, ABC NEWS BLOGS, 2011, <http://abcnews.go.com/blogs/health/2011/09/06/sperm-donor-super-dads-why-its-dangerous-for-one-donor-to-sire-dozens/> (accessed Jan. 2, 2015); Lindsey Porter, *Why Limit Offspring Numbers in Sperm Donation?* *prezi.com* (2013), <https://prezi.com/qrkxf5klqbrb/why-limit-offspring-numbers-in-sperm-donation/> (accessed Jan. 2, 2015); *Id.*

³³ *Sperm Donation Laws by Country*, *supra* note 28; Millbank, *supra* note 14.

American Society of Reproductive Medicine but no enforced national limit. The ASRM recommends restricting conceptions by individual donors to 25 births per population of 800,000.³⁴

The fertility industry is a big business³⁵ and it has a stake in both of these issues. Because of the profit they gain from providing gametes, the fertility industry is unlikely to push for regulations that go beyond those they already have in place.³⁶ In addition, three parties have an ongoing interest in the regulations concerning issues of gamete donations: donor-conceived offspring, parents who rely on donated gametes to conceive a child, and gamete donors themselves.

Research on donor-conceived *offspring* has suggested that those who come from heterosexual families are less comfortable altogether with the idea of donor conception than are those who come from lesbian families;³⁷ other research suggests that there is not a single idea about, or attitude toward, anonymity even for those from lesbian families.³⁸ Studies do suggest that offspring who find out late in life about their donor conception are particularly disturbed by that knowledge.³⁹ Recent research on offspring views them as key stakeholders who want to end anonymity.⁴⁰

The research on *parents* who are raising children conceived with the use of donated gametes is even more diverse. VanFraussen et al.⁴¹ found that the majority of lesbian parents wanted the donor to remain anonymous and that they felt this way more strongly than did their children. In a study of 144 couples who received counseling about oocyte donation in Brussels, more than two-thirds preferred known donation, a response motivated by fears of the unknown origin of genetic material and the trust recipients had in the donor they had selected.⁴² An interest in preserving sharp boundaries between the donors and the recipients was a primary motivation for wanting to maintain anonymity among those who preferred anonymity. One study has found that parents who have relied on sperm donations are more in favor of anonymity than are those who have relied on egg donations.⁴³

³⁴ American Society for Reproductive Medicine and Society for Assisted Reproductive Technology, Birmingham, Alabama, *Recommendations for Gamete and Embryo Donation: A Committee Opinion* (2008), [http://www.npg-asrm.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines/Guidelines_and_Minimum_Standards/2008_Guidelines_for_gamete\(1\).pdf](http://www.npg-asrm.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines/Guidelines_and_Minimum_Standards/2008_Guidelines_for_gamete(1).pdf) (accessed Mar. 13, 2015).

³⁵ DEBORAH L. SPAR, *THE BABY BUSINESS: HOW MONEY, SCIENCE, AND POLITICS DRIVE THE COMMERCE OF CONCEPTION* (2006).

³⁶ ASRM and SART *Exert Pressure to Hinder Legislation in Several States*, SURROGACY 101 (2012), <http://infertilityanswers.typepad.com/surrogacy-101/2012/02/asrm-and-sart-exert-pressure-to-hinder-legislation-in-several-states.html> (accessed Apr. 3, 2015).

³⁷ Diane R. Beeson, Patricia K. Jennings & Wendy Kramer, *Offspring Searching for Their Sperm Donors: How Family Type Shapes the Process*, 26 HUM. REPROD. 2415 (2011).

³⁸ Katrien Vanfraussen, Ingrid Ponjaert-Kristoffersen & Anne Brewaeys, *What Does it Mean for Youngsters to Grow Up In a Lesbian Family Created by Means of Donor Insemination?*, 20 J. REPROD. INFANT PSYCHOL. 237 (2002).

³⁹ Eric Blyth, *Discovering the 'Facts of Life' Following Anonymous Donor Insemination*, 26 INT. J. LAW POLICY FAM. 143 (2012); Lucy Blake et al., *'I Was Quite Amazed': Donor Conception and Parent-Child Relationships from the Child's Perspective*, 28 CHILD. SOC. 425 (2013).

⁴⁰ Anna Kalaitzidis & Paul Jewell, *Got to Get You into My Life: Offspring of Donor Insemination Challenging Confidentiality Rules*, 12 AUST. REV. PUBLIC AFF. 21 (2014).

⁴¹ Vanfraussen, Ponjaert-Kristoffersen & Brewaeys, *supra* note 38.

⁴² Patricia Baetens et al., *Counselling-Couples-and-Donors-for-Oocyte-Donation-the-Decision-to-Use-Either-Known-or-Anonymous-Oocytes*, 15 HUM. REPROD. 476 (2000).

⁴³ Bolton et al., *supra* note 22.

Studies have also explored the attitudes of *gamete donors*. One study found that, although sperm donors generally support sharing non-identifying information, the majority of sperm donors would resist having their identity known to the recipient and, eventually, the child.⁴⁴ A study in Australia found that donors who were under 26 or over 46 years of age and who were either single or living in a same-sex relationship were most likely to be willing to be identified to their children.⁴⁵ With respect to the issue of limits, a study in Sweden found that half of both oocyte and sperm donors thought the number of offspring should be limited to no more than 10.⁴⁶ The study also found that oocyte donors were four times more likely than were sperm donors to support an even lower upper limit of five offspring.

In spite of these indications of attitudes, no research has asked the same questions (at essentially the same time) of all three stakeholders in order to provide a precise comparison of their orientations toward the issue of anonymity and the issue of limits on number of offspring who can be born from a single donor. This paper begins this discussion by comparing answers to questions about anonymity and limits from offspring, parents, and donors. The paper does not seek to resolve legal, moral, or ethical questions that emerge from a consideration of these issues. Rather, it seeks to understand whether the stakeholders are likely to argue for or against regulation on either of the issues; it also seeks to understand whether *other* actors who might argue for or against regulation on either of the issues can count on the support of any of the three sets of stakeholders.

METHODS

Data Collection

Invitations to answer an online survey were sent to parents, offspring, and donors, via email to all members of the Donor Sibling Registry (DSR, an online registry which facilitates voluntary contact between participants in donor conception), and to a variety of other organizations including Single Mothers by Choice and Circle Surrogacy. Invitations to participate in the survey were also posted on Craigslist in four large urban areas as well as on several other websites including weareeggdonors.com, ParentsviaEgg donation.com, and Resolve.com. Several Facebook groups (facebook.com/colage/pflag, and /ourfamilycoalition) asked people to participate. Details of the study were available on the DSR website on an open-access Webpage and on Single Mothers by Choice Facebook page. The second author also posted on several alumni Facebook pages and a post about the study went out as a tweet to one of these alumni groups. The surveys were online from May 12, 2014 to August 15, 2014. Ethical approval for this study was obtained from the Institutional Review Boards at Middlebury College and Wellesley College. Offspring aged 13 and over were approved for participation.

It is impossible to calculate a response rate for these surveys because they were made available at so many different locations. In any case, web surveys generally have

⁴⁴ Susan Klock, *A Survey of Sperm Donors' Attitudes: A Much-Needed Perspective*, 101 FERTIL. STERIL. 43 (2014).

⁴⁵ Riggs & Russell, *supra* note 21.

⁴⁶ Gunilla Sydsjö et al., *Oocyte and Sperm Donors' Opinions on the Acceptable Number of Offspring*, 93 ACTA OBSTET. GYNECOL. SCAND. 634 (2014).

relatively low response rates.⁴⁷ Concerns about response rates and the non-random nature of this study have to be weighed against the advantages of trying to make contact with hard to reach populations.⁴⁸ One group, gamete donors are an extremely hard to reach population and have never been studied with a random sample. Random samples of parents and offspring are also unlikely although there is one known study of attitudes toward donor conception among offspring that drew on a representative sample.⁴⁹ In the last section of this paper, we discuss the limitations of using a convenience sample. Nonetheless, these data present an important addition to the scant number of existing studies that focus on stakeholders' views on the regulation of donor anonymity and desirable limits on the number of offspring born from a single donor.

Participants

A total of 325 donors (176 egg donors; 149 sperm donors) responded to the survey, as did 2134 parents raising children conceived with donor gametes and 419 offspring conceived with donor gametes. Demographic information about these respondents is provided in Table 1. The data show that the majority of both parents and offspring responding to the survey are women and the majority of all three are white/Caucasian. Donors and offspring are more likely to be heterosexual than are the parents; parents and donors are more likely to be above age 30. Donors are the group most likely to be currently living with a partner. The majority of respondents in each of the three groups took the survey through the DSR invitation. We have no way of knowing how many of them also belong to the other organizations that provided access to the survey.

Measures

All three groups were asked a series of questions, many of which were the same. This study focuses on the answer to the two that asked respondents how strongly they agreed with the statement that 'donors should *not* be anonymous'⁵⁰ and that 'donors should be limited in the number of offspring that can be produced from their donations'. In the survey, some statements were phrased affirmatively and others negatively to prevent a response pattern from occurring. Both of these questions were scored on a five point scale: 1 = 'strongly agree'; 2 = 'agree'; 3 = 'neutral'; 4 = 'disagree'; 5 = 'strongly disagree'. On Likert scales like this, the middle position is assumed to represent a position of neither agreeing nor disagreeing (in this case neutrality) rather than confusion about attitudes.⁵¹

⁴⁷ Martha C. Monroe & Damien C. Adams, *Increasing Response Rates to Web-Based Surveys The Journal of Extension (JOE)* (2012), <http://www.joe.org/joe/2012december/tt7.php> (accessed Mar. 4, 2015); Mick Couper, *Web Surveys: A Review of Issues and Approaches*, 64 PUBLIC OPIN. Q. 464 (2000); Kevin B. Wright, *Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services*, 10 J. COMPUTER-MEDIAT. COMMUN. (2005).

⁴⁸ Tabitha Freeman et al., *Gamete Donation: Parents' Experiences of Searching for Their Child's Donor Siblings and Donor*, 24 HUM. REPROD. 505 (2009).

⁴⁹ MARQUARDT, GLENN & CLARK, *supra* note 5.

⁵⁰ The open-ended comments added by respondents indicate that they understood the meaning and import of this question in spite of its being phrased in the negative.

⁵¹ MARQUARDT, GLENN & CLARK, *supra* note 5.

Table 1. Respondent characteristics.

	<i>Donors</i>	<i>Parents</i>	<i>Offspring</i>
Percentage of women	55% (322)	97% (2134)	78% (418)
Percentage of Caucasian	92% (324)	94% (2134)	99% (423)
Percentage of heterosexual/straight (only asked of those over 18 among offspring)	86% (324)	56% (2134)	82% (327)
Current age	Donors	Parents	Offspring
13–18			23%
19–30	19%	2%	50%
30–49	52%	70%	24%
50+	29%	28%	3%
<i>Total</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>
<i>N</i> =	325	2134	423
Current marital status (only asked of those over 18 among offspring)	Donors	Parents	Offspring
Currently single	33%	50%	52%
Partnered	65%	48%	44%
Other	2%	2%	4%
<i>Total</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>
<i>N</i> =	325	2134	327
Percent of respondents who took the survey through the DSR invitation	74% (319)	68% (2117)	65% (419)

Most of each of the three surveys consisted of closed-answer responses. Respondents were given the opportunity to answer some questions freely and some questions left room for respondents to add information. In what follows, when quoting from respondents, we have corrected spelling and grammar when it is clearly typos. Otherwise, the responses are as written on the surveys. With the help of research assistants, the first two authors developed codes for open-ended responses. The written comments illuminate the quantitative data and offer further insight. In this regard, survey data are often augmented with contextual data, such as qualitative comments, in order to provide additional information.⁵²

⁵² JOHN BREWER & ALAN HUNTER, FOUNDATIONS OF MULTIMETHOD RESEARCH (2006); Hannah Bruckner, *Surveys*, in THE OXFORD HANDBOOK OF ANALYTICAL SOCIOLOGY (Peter Hedstrom & Peter Bearman eds., 2009)

Table 2. Attitudes toward anonymity.

<i>Agreement with statement that donors should not be anonymous*</i>	<i>Stakeholder</i>			<i>Total</i>
	<i>Donors</i>	<i>Offspring</i>	<i>Parents</i>	<i>All</i>
Strongly agree (score = 1)	17%	31%	14%	17%
Agree (score = 2)	15%	15%	17%	17%
Neutral (score = 3)	45%	33%	45%	43%
Disagree (score = 4)	17%	11%	15%	14%
Strongly disagree (score = 5)	7%	10%	10%	10%
<i>Total</i>	100%	100%	100%	100%
<i>N =</i>	323	410	2126	2752
<i>Mean**</i>	2.80	2.50	2.90	2.80
<i>SD</i>	1.12	1.29	1.18	1.15

*Chi-square test significant at 0.00 level.

**Difference of means significant at 0.00 level.

Statistical Analyses

We rely on both analyses of categorical data with chi-square tests of significance and analyses of ordinal data with difference of means (ANOVA; *t*-tests) tests of significance; we use the standard of a probability of 0.05 or less. All data were analysed using the SPSS Statistics (IBM SPSS, Inc. Chicago, IL. USA version 22.0).

RESULTS

Attitudes Toward Anonymity

The respondents to our survey tend toward neutrality on the issue of anonymity with a slight bias *against* anonymity (mean of 2.8 when 3 would be neutrality) (Table 2). Of course, it is impossible to know with these data precisely what kinds of interactions and relationships respondents believed would be possible and desirable if there were no anonymity.⁵³ Nevertheless, even without that precision, our data show that opinions differ significantly among the three stakeholders. Offspring tend most strongly to agree with the statement that donors should *not* be anonymous (mean 2.5); almost a third of the offspring 'strongly agree' that donors should not be anonymous (almost twice as many as among donors and almost three times as many as among parents). Donors next most strongly agree, verging slightly toward 'agree' from 'neutral' (mean 2.8). Parents are close to donors in their attitudes and closest to 'neutral' (mean 2.9). The difference among the three groups is statistically significant at the 0.00 level both for the categorical response and for the comparison of means for the ordinal data. We look at these three groups of stakeholders in some detail below.

⁵³ For an exploration of the kinds of contact respondents in each group prefer, see Margaret K. Nelson, Rosanna Hertz & Wendy Kramer, *Orientations Toward Contact: Offspring, Parents and Sperm Donors* (unpublished paper).

Donor Attitudes

Almost half of all donors are neutral about the issue of anonymity, although the mean tilts toward agreeing that anonymity is a problem and that donors should *not* be anonymous (Table 2). As shown in Table 3A, among donors, there is no statistically significant relationships between gender and attitudes. On average, sperm and egg donors essentially agree on this issue. Moreover, donors who were known from birth, anonymous donors, and donors who agreed to have their identity released when their offspring turned 18 do not give significantly different answers to this question. There is also no statistically significant difference between those respondents who came to the survey through the DSR and those who did not or among different categories of sexual orientation.

There is an association between age of donors and attitudes toward anonymity: those who are younger are more neutral and even tend toward favoring anonymity (mean of 3.1 among those under 30) in comparison with those in their thirties (mean of 2.8) or 40 or older (mean of 2.7). Younger donors are more likely to have been given a choice about what kind of donor to be (51 per cent of those below age 30, 58 per cent of those in their twenties and 74 per cent of those 40 or older say that they were not given a choice). For some of the older respondents, the absence of choice might be influencing their responses. However, these are also people who have had a longer interim since donating; there might well be age-related yearning for knowledge about offspring and subsequent turning against anonymity.

Further understandings of attitudes toward anonymity emerge from a number of questions in the survey. Respondents were asked to comment on how they made the choice they did about what kind of donor to be; other questions asked donors to comment about whether or not they saw themselves as a threat to parents of their offspring and whether they ever felt displaced by the parents of their offspring; and donors were also offered the opportunity, as were all respondents, to make a general statement about their experience at the end of the questionnaire.

Quite a few donors indicated adamantly that they did *not* have a choice about what kind of donor to be and they resented that fact: ‘I had no choice’; ‘that was the only choice’. In addition, some indicated clearly that they felt coerced (by the banks or the parents) into being anonymous and that on reflection they would now have made a different choice:

I didn’t have a choice—anonymous was the only option. At the time that is what I wanted, but now I wish I had the option to know the recipient. (Sperm donor)

I was sort of bullied into it, because the parents who chose me wanted [me] to be anonymous. (Egg donor)

One egg donor, who opposed anonymity and suggested that anonymity was imposed on donors, noted that she thought it was important to express one’s own point of view and not be anonymous: ‘You DO have a choice about the type of donation. If you don’t want to be anonymous, STAND YOUR GROUND because there are plenty of agencies that offer open donation options’. Yet another egg donor indicated why she opposed anonymity: ‘It is worth knowing what happens to your eggs. I’m glad I didn’t do it anonymously. It’s more satisfying than I ever expected’. A sperm donor

Table 3. Stakeholder attitudes.

3A DONORS	Attitude toward anonymity				Attitude toward limits			
	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Gender								
Men	2.8	146	1.21		2.6	174	1.19	
Women	2.9	174	1.04		2.6	145	1.17	
Kind of donor	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Known	2.9	30	1.28		3.2	30	1.32	0.03
Anonymous	3.0	141	1.10		2.6	142	1.21	
Identity release	2.8	86	1.04		2.5	86	1.08	
Survey site								
DSR	2.9	235	1.11		2.6	234	1.16	
Other	2.8	23	0.90		2.6	23	1.20	
Sexual orientation	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Heterosexual/straight	2.8	276	1.13		2.6	275	1.17	
Gay/lesbian	2.6	25	0.87		2.4	25	1.25	
Bisexual	3.2	16	1.28		3.2	16	1.11	

Table 3 Continued.

3A DONORS	Attitude toward anonymity			Attitude toward limits				
	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Donor age								
20's	3.1	63	1.11	0.04	2.7	63	1.23	
30's	2.8	84	0.92		2.7	85	1.11	
40+	2.7	176	1.19		2.5	174	1.18	
3B PARENTS								
	Attitude toward anonymity			Attitude toward limits				
Gametes	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Embryo	2.9	119	1.13		2.0	119	1.07	0.00
Egg	2.8	106	1.09		2.8	105	1.19	
Sperm	2.9	1797	1.12		1.7	1802	0.92	
Age of oldest child	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
0-5	2.9	888	1.15	0.00	1.6	891	0.85	0.00
6-10	2.9	461	1.06		1.8	461	0.93	

Table 3 Continued.

3B PARENTS	Attitude toward anonymity				Attitude toward limits			
	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Age of oldest child								
11–18	3.0	416	1.09		1.8	416	1.01	
19+	2.6	242	1.11		1.8	244	1.01	
Located donor sibling families	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
YES	2.9	1163	1.10		1.6	1167	0.92	0.00
NO	2.8	464	1.17		1.9	466	1.05	
Survey site	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
DSR	2.9	1431	1.09		1.7	1435	0.96	
Other	3.0	669	1.17		1.8	670	1.00	
Gender	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Men	2.7	46	1.15		2.8	46	1.34	0.00
Women	2.9	2064	1.12		1.7	2068	0.95	

Table 3 Continued.

3B PARENTS	Attitude toward anonymity				Attitude toward limits			
	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Sexual orientation								
Straight	2.8	1195	1.12	0.00	1.7	1199	0.94	0.00
Gay/lesbian/bisexual	3.0	927	1.09		1.8	927	1.01	
Marital status								
Single never married	2.9	741	1.12	0.00	1.6	742	0.86	0.00
Ever partnered with member of same sex	3.1	788	1.10		1.8	789	1.02	
Ever partnered with member of other sex	2.7	551	1.13		1.9	552	1.02	
3C OFFSPRING	Attitude toward anonymity				Attitude toward limits			
Gender	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Men	2.8	87	1.31	0.05	2.5	319	1.28	
Women	2.4	87	1.29		2.2	320	1.26	

Table 3 Continued.

3C OFFSPRING	Attitude toward anonymity				Attitude toward limits			
	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Age								
Teens	2.7	91	1.08	0.00	2.5	91	1.31	0.05
20's	2.7	207	1.34		2.2	207	1.23	
30+	2.1	112	1.26		2.0	113	1.28	
Family of origin	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
Mother and father	2.3	220	1.27	0.00	2.1	220	1.24	
Other	2.8	190	1.25		2.3	191	1.30	
Located donor sibling families	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
YES	2.2	160	1.28	0.00	2.1	160	1.21	
NO	2.7	149	1.24		2.1	150	1.25	
Survey site	Mean	N	SD	Significance level of difference of means	Mean	N	SD	Significance level of difference of means
DSR	2.5	266	1.22		2.2	267	1.23	
Other	2.6	142	1.41		2.2	142	1.33	

made much the same point about the possibility of knowing how one's gametes were used: 'I had no choice in the anonymity, but would love the chance to meet my genetic offspring one day. A child is a child'.

Almost half of all donors are neutral on this issue. Neutrality is framed by the beliefs that anonymity serves a purpose until a child turns 18 and that anonymity could be forsaken after that age. One sperm donor explicitly expressed these sentiments:

My feeling was and is still the same: In childhood and adolescence, the emotional maturity has not yet developed enough to fully understand the complex nature of their relationship to their donor-dad. These children have families and that should be the focus while they are children.... The specific reason I think over 18 is a good call, is that [it] allows for some maturity, on the part of the kids, the parents, and the donor to process and understand the relationship with some perspective.

As the range of responses makes clear, some donors wanted to preserve anonymity (24 per cent). Some of these donors indicated that they saw anonymity as protecting intended parents. As one egg donor said: 'I was an anonymous donor, so I do not feel that the female parents will be threatened by me'. Another egg donor suggested that her attitudes about anonymity grew stronger the more she read from people opposed to anonymity: 'I used to not think about it much. As I got older, and started reading discussion from people who wanted to do away with donor anonymity, I became more passionate about protecting the ability to have anonymous donors'. Still others indicated that they did not want to complicate a child's understanding of who were their parents: 'I respect the Intended Parents and do not want to appear intrusive upon their exclusive rights of parenthood. I wanted the child's parents to always been seen as the child's parents'.

Several sperm donors, like the egg donors just quoted, commented that anonymity protected parents who might feel threatened by a gamete donor: 'The general thinking was that both parents would feel threatened by the donor's role, which is part of the reason why donation was anonymous'; 'I thought I would cause conflict [if I were known]'; '[I was anonymous] to protect myself and the Couple and their child(ren)'. One anonymous sperm donor was particularly respectful of what he believed were the cultural biases in the community to which he would be donating:

Since I am Filipino, a lot of the parents who chose to work with me come from a cultural background where infertility is frowned upon. I respected their privacy and I was open to both being an anonymous or open donor. Almost all of them wanted me to be an anonymous donor.

In addition, gamete donors of both kinds also, quite simply, wanted to protect themselves:

I did not know where I would be in twenty years, and did not consider it fair to me that this would come back to haunt me. For example, what if I were in politics?

I wanted to help make happy and healthy families, but I did not want any ties to the family or responsibility.

Parent Attitudes

On the issue of anonymity, parents have a similar distribution of attitudes to donors with 45 per cent tending toward neutrality and the remainder split between those who favor and those opposed to anonymity (Table 2). In comparison with their children and even in comparison with donors, parents tend somewhat more toward an interest in preserving the right of donors to remain anonymous should they so choose. In fact, twenty-five per cent of parents said that an 'anonymous donor' had been their first choice for type of donor. Many parents express gratitude toward (rather than curiosity about) the donor: '[I would want others to know] how rich and fulfilling our lives are thanks to the generous gift we received through sperm donation'; 'My child is such a gift and I am so grateful for the donor's contribution and for the opportunity'; 'It is a wonderful gift, the gift of life and I will be forever grateful for that gift'.

As shown in Table 3B, parents who have relied on a sperm donor alone and not an egg donor, parents who have relied on an egg donor alone but not a sperm donor, and parents who have relied on embryos do not differ significantly on this issue. Parents with the oldest children are most likely to agree that anonymity should not be allowed: these are the parents least likely to have had a choice about anonymity; they are also the parents whose children might be most interested in finding the donor since they have passed through adolescence and are moving out to start their own lives. Parents do not differ on this issue depending on whether or not they have had contact with their child's donor siblings (or the parents of their child's donor siblings). Those who came to the survey through the DSR are not significantly more inclined toward strong agreement than are those who came through some other means. This finding is surprising since the parents who have used the services of the DSR are the parents who are most interested in donor relatives. Among parents (where there are very few male respondents) there appears to be no significant influence of gender.

Although gender appears to have no statistically significant relationship to attitudes toward anonymity among parents, *sexual orientation* does have a statistically significant relationship to attitudes among gamete recipients. Straight parents agree more strongly that anonymity should not be allowed than do those parents who are lesbian, gay, or bisexual. Moreover, those parents who are currently or formerly partnered with someone of the *other sex* believe more strongly that donors should not be anonymous than do those who are currently or formerly partnered with someone of the *same sex*. Those who are single, never married fall somewhere between these two groups. This relationship between living arrangement and attitude toward anonymity is not sustained among those who have relied on egg donors or donated embryos. It is sustained among those who have relied on sperm donors. The mean score for 'single, never married' is 2.8; it is 3.1 for 'ever partnered with member of same sex'; and it is 2.7 for 'ever partnered with member of other sex' ($p = 0.02$). It thus appears that in situations where the absence of anonymity is most likely to challenge directly a male non-biological parent with the threat of displacement by a donor of the same sex, the parents express most agreement with a statement about anonymity. In those families that have relied on sperm donation and there is a social father (because the women are partnered to a man), the mothers appear to think that a distinction should be made between a social dad and a biological father. Lesbians (whether currently single or partnered) who have relied on sperm donors do not have social fathers in their children's lives (although men may play

important roles in those children's lives); these women might be less concerned about who the biological father might be. Those women who are partnered to a woman may also be unwilling to threaten the security of the non-genetic mother with knowledge of, or access to, their child's genetic father.

Offspring Attitudes

Among the three groups, offspring are the respondents most likely to tend toward opposition to anonymity. However, as shown in Table 2, the responses of offspring are also more varied than are responses within the other two groups: the standard deviation among offspring stands at 1.29 in comparison with 1.12 for donors and 1.18 for parents.

Some of the offspring who are opposed to anonymity suggest that they believe that having an anonymous donor is one piece of an entire 'wrong' done to them. That is, among the open-ended responses a number of offspring express indignation about a range of issues connected with their donor conception. Some had been denied information about their conception earlier in their lives and they are angry about that. Some believe that anonymity itself is wrong. And others believe that reliance on donors makes a child the result of a legal arrangement rather than the result of some other kind of social interaction. A woman in her thirties reflected all of these attitudes:

I had very conflictual feelings [about being donor conceived] during my teenage time and early adulthood. I didn't talk about it because I was afraid of hurting my parents and losing approval from my family and society. It was more or less a secret I was ashamed of. Later, I allowed myself to have my own opinion about it, even if it was different from my parents'. Now, I need to tell the world about how I disagree with a lot of aspects of donor conception. I think secrecy, anonymity and objectification of the child are really the most aspects of it. I feel deeply betrayed to have been lied to, and I am mad for being the object of a contract.

Similarly, another woman in the same age range wrote, 'I am against anonymous donation of any kind'.

In contrast to these responses, the wide variability indicates that some offspring believe that anonymity is just fine, as does this 23-year-old woman:

[My feelings] haven't changed much. I am and have always been in favor of anonymous donation, I feel happy in the family configuration I have and do not want to meet or know my donor. I understand that this is different for a number of other donor conceived kids, which has shown me how complex this topic really is. Just because I do not have a problem with having an anonymous donor, does not mean others don't either. It's a hard decision to make, but I believe that it matters most how you are raised [whether or not] you feel unhappy about not knowing the donor, though this of course could be wrong. My own feelings haven't changed, but I do now understand more of the topic's complexity. As for the donor himself, I am grateful he decided one day to donate, but that is all the thought I really give him.

The question of what shapes offspring attitudes is an interesting one. As shown in Table 3C, among offspring, gender is modestly relevant to the issue of anonymity: women believe more strongly that anonymity is wrong than do men (who tend toward

neutrality). One reason, suggested by some respondents, might be that women are more likely to view themselves as having a critical role in the reproduction of the next generation and they want to know about the genes that will be passed on to their children. This was the case for one woman in her thirties:

Everyone talks about donor privacy and rights, but that usually leaves the offspring with the short end of the deal—we should have equal rights to know as much as the donor has rights to anonymity. I don't think I would have wanted to seek out my donor if I had not had my own children. Having children makes me want to find out even more. Also, I believe that many of the donors that participate at a young age, cannot comprehend the future implications of having offspring. Again, offspring should have rights to information about their genetics. It's as if no one anticipated that these impersonal sperm would ever be living breathing human beings walking around that want to know who they are and where they come from (a basic human right if you ask me).

Among offspring, age is also related to this issue. Older respondents are more likely than younger ones to agree with the statement that donors should not be anonymous. Clearly, for some respondents, a concern about roots is something that has grown with time, as indicated by a 27-year-old man:

I have definitely become more actively involved in the discourse as I have become older. When I was a teenager my parents did not talk to me about these issues and I never realized that I had been deprived of what I now consider to be fundamental rights. I believe that anonymous donations should be banned and that strict government regulations should be put in place to protect the rights of offspring.

A 59-year-old woman who had experienced anonymity as a parent and as a child wrote that she believed anonymity was wrong:

I started out as a donor parent when I became pregnant at 39. At 53, I found out that I'm also a donor child. I think anonymity should be banned. I'm glad that I did sleuthing so that I know who my children's donor is and they can choose to contact him when they reach 18.

Those donor-conceived offspring who were born into a heterosexual couple hold stronger attitudes about this issue than those who were born under some other arrangement: they are more likely to agree that donors should *not* be anonymous (2.3 versus 2.8). For many offspring born into a heterosexual, two-parent family, there is a sense of betrayal:

Always tell the children who they are, where they come from and how they came to be. Learning about it when you're older feels like a massive betrayal. I figured it out myself as a teenager but wish I had been told from the beginning.

Anonymity should be abolished. It is very likely that a "Donor-Conceived" adult will harbor resentment of the parent who used an anonymous "donor." There is no way to keep their conception story from them.... It can be a traumatic experience finding this news out when you are an adult.

Single mothers and parents from gay and lesbian couples raise different issues for offspring. Respondents suggest that their concerns are more about the family form they are born into than the issue of anonymity, with more respondents from non-coupled and gay and lesbian families emphasizing that families can take all different forms and that love is not based on genes. This quote from a woman born to a lesbian couple illustrates these points:

A family with children conceived with donated sperm is just as viable, loving, and connected as any other family. The most healthy conception of a donor for the children is for the donor to be very unimportant in their conception of their family. Discourage your friends from asking them, 'Don't you want to meet your father?' I had no desire to meet my donor, and it was distressing when people insisted about this.

Finally, we note that those offspring who have *not* had contact with donor siblings are more opposed to anonymity than those who have had contact with donor siblings (2.2 versus 2.7). Having contact with donor siblings can be a stand-in for the donor and the donor becomes less important when donor siblings are located.⁵⁴ However, whether or not one came to the survey through the DSR (which might affect the likelihood that they have had contact with donor-related relatives) does not affect attitudes.

Limiting Numbers of Offspring

A question about limiting the number of offspring that could be produced by donors was agreed to most strongly by the parents followed by offspring and then by donors (Table 4). Whereas offspring were most likely to strongly agree that anonymity should not be allowed, parents are the stakeholders who are most likely to strongly agree children should be unique and should not have a lot of donor siblings.

Donor Attitudes

Among donors, gender is not significantly related to attitudes about limits: sperm and egg donors have similar attitudes (Table 3A). Of course because men *can* produce so many more offspring than can women, the foundation for these attitudes is different among men than among women who have more natural limits. One sperm donor wrote that he thought that he could have as many as 50 offspring (and was comfortable with that) as long as others were not producing children with genetic problems:

At the time I donated I was told that there was only about one live birth for each thirty IVF procedures. Maybe that was true at the time but I'm not even sure about that. I thought that I could have at most about fifty offspring but now after talking to mothers on the DSR [I] suspect that number could be much higher. I don't think that is inherently a huge problem as the numbers are small enough and the distribution great enough that intermarriage would be unlikely but it could be an issue if a donor with a genetic condition somehow slipped through the genetic screening.

⁵⁴ Rosanna Hertz, Margaret K. Nelson & Wendy Kramer, *Donor Conceived Offspring Conceive of the Donor: The Relevance of Age Awareness, and Family Form*, 86 SOC. SCI. MED. 52 (2013), Margaret K. Nelson, Rosanna Hertz & Wendy Kramer, *Making Sense of Donors and Donor Siblings: A Comparison of the Perceptions of Donor-Conceived Offspring in Lesbian-Parent and Heterosexual-Parent Families*, 7 in VISIONS OF THE 21ST CENTURY FAMILY: TRANSFORMING STRUCTURES AND IDENTITIES 1, 42 (Patricia Neff Cluster & Sampson Lee Blair eds., 2013).

Table 4. Attitudes toward limits on numbers of offspring.

<i>Agreement with statement that donors should be limited in the number of children they can produce*</i>	<i>Stakeholder</i>			<i>Total</i>
	<i>Donors</i>	<i>Offspring</i>	<i>Parents</i>	<i>All</i>
Strongly agree (score = 1)	21%	41%	54%	50%
Agree (score = 2)	28%	20%	27%	26%
Neutral (score = 3)	30%	22%	13%	16%
Disagree (score = 4)	13%	10%	3%	6%
Strongly disagree (score = 5)	8%	7%	2%	3%
<i>Total</i>	100%	100%	100%	100%
<i>N =</i>	322	411	2143	2758
<i>Mean**</i>	2.57	2.22	1.75	1.86
<i>SD</i>	1.17	1.27	0.97	1.06

*Chi-square test significant at 0.000 level.

**Difference of means significant at 0.00 level.

An egg donor suggested that she was ‘alarmed’ by the suggestion that there might be limits on how many offspring she could produce:

I had a positive experience overall [donating eggs]. I think if someone is led to do that, they should be encouraged to. I also think the questions [in the survey] – concerning limits to donations (and laws about contact and communication) – are alarming. The standards for donation are already far higher than for having children without donor services. Parents don’t go through any fraction of the screening process that I went through, to become pregnant... The process was highly invasive, and I think it’s only fair that a donor should be able to have the same choices about involvement (or the number of donations to make) that others have, who decide to create children.... This is not something in need of more regulation.

Donors who came to the survey through the DSR have essentially the same attitude toward limits as those who came through some other route. In addition, neither age nor sexual orientation is related significantly to these attitudes. However, type of donor is significant here. Those who have agreed to have their identity released when an offspring turns 18 and anonymous donors have similar attitudes; both of these are subject to the regulations in place at the egg or sperm bank and both of these are making money from donating. However, donors who are known to recipients from conception are more neutral: they have control over how many children will be produced from their donations and the issue might not be of relevance to them at all.

Parent Attitudes

Parents are the group who express the greatest agreement with the statement about limiting numbers of offspring from a single donor and a full 54 per cent ‘agree strongly’ that donors should be limited in the number of offspring they have. Moreover, there

is relatively little variability on this matter (standard deviation = 0.97) although many independent variables other than survey site shape this attitude (Table 3B). Parents address this issue quite frequently in their final comments.

Two issues emerge among those who have relied on sperm donors. One is that parents believe that they had been lied to by the sperm banks about how many offspring there might be from a single donor: 'Sperm banks are not truthful when they say they limit sperm donors to ten children per donor'. One respondent, a woman aged 40, who also felt she had been lied to, indicated that she did not like the fact that there were so many donor offspring who might run into each other by accident:

The number of donor conceptions to our donor far exceeds what we were told was the limit. We were told they had to stop at 10 families. There are more than 10 families that we know of. Many of these families live close to one another and have crossed paths in their lives.

For some parents, the focus was on the health consequences of there being a number of donor siblings. One respondent pointed out that the lack of regulation on limits could have serious health consequences:

Be aware of the lack of laws surrounding the way cryogenics banks operate. [The second bank I used allowed] for 2 to 2.5 dozen half-siblings. I shared information about medical conditions (O-AB syndrome) that landed my newborn son in the NICU in the hopes that they would share it with other prospective parents.

However, there are, as suggested, some parents who are not bothered by a plethora of donor siblings:

The number of offspring of individual donors should not be limited by governmental regulation. It is better to have large numbers of healthy offspring than to have regulations that will increase the price of sperm. We know my daughter has 18 half siblings if we include the donor's children by marriage. We fully expect, however, that she has many more donor conceived siblings because to date there are no heterosexual couples that have reported using our donor's sperm.

The small number of men responding to the survey makes it difficult to explore gender here; the available evidence suggests that mothers are more likely to believe that there should be limits than are fathers. Parents who have relied on a sperm donor agree most strongly with the idea of limits followed by those who have relied on an embryo involving both sperm and egg donations. Those who express the least agreement with the idea of limits are those who have only used an egg donation. Of course, for parents who have used an egg donor, limits are a less pressing issue (because there are built in limits via egg donation itself).

The age of one's oldest child is related significantly to these attitudes and those with the youngest children are most adamant about this issue. These are also the parents who are most likely to be newly confronting this issue as they find out just how many donor siblings there are. In addition, those who *have* had contact with donor siblings are more insistent about limits than those who have not (yet) had any such contact.

Sexual orientation is also related to attitudes toward limits among those who have relied on a sperm donor. Heterosexual respondents are more likely to agree that there should be limits than those who do not identify as straight. Living arrangements are related to attitudes toward limits as well with those who are single, never married agreeing more strongly that there should be limits in contrast with both those with same sex partners and those with partners of the other sex.

Offspring Attitudes

Offspring tend to agree with the notion that there should be limits (albeit not as strongly as parents) but there is a fair degree of variability in their attitudes with a fifth expressing neutrality and almost a fifth disagreeing with this statement (standard deviation = 1.27). Interestingly, whereas the issue of anonymity produced strong attitudes among some offspring and was an item of discussion raised at the end of the survey with some frequency, these respondents did not raise the issue of limits.

Women agree no more strongly that there should be limits than do men (Table 3C). Moreover, attitudes toward limits do not depend on whether or not offspring have met donor siblings, which is counter to what was found about the issue of anonymity and counter to the finding among parents. Both age and family structure, however, do shape attitudes among offspring. Those who are older agree more often that there should be limits than do those who are younger. However, it is clear that like older offspring, younger offspring can also feel strongly about limits. A woman who was 19 wrote,

When I was younger I thought it was weird especially the thought of having so many half siblings. I still think that the amount of kids there can be for one donor is TOO MUCH. It's overwhelming for the donor kids and the donor himself, and there should be a strict limit like 10 or less. I'm more comfortable with the whole situation now that I know who everyone is, except my donor is still trying to be anonymous.

There is a very slight increase in commitment toward limits for offspring who come from heterosexual families relative to those who come from some other family form, but this difference is not statistically significant. Given the strong association of age and family type at the time of birth (75 per cent of those in their teens were not born into a heterosexual, two-parent family, in contrast with 49 per cent of those in their twenties and 13 per cent of those over 30), it would not be surprising to find that the strongest agreement with the statement that there should be limits would be found among those who are older who were born into heterosexual families. These are the offspring least likely to have known from birth about their donor conception. Their attitudes about limits might be related to their initial experience with donor conception. Professionals in the world of assisted reproduction used to advise parents to ignore genetic ties and encouraged them to look and behave structurally 'as if' the children were their biological offspring.⁵⁵ The offspring of parents who had received this advice might well want to continue to think that a 'normal' family size would be an appropriate limit for the number of donor-conceived offspring from a single donor.

⁵⁵ MARY LYNDON SHANLEY, *MAKING BABIES, MAKING FAMILIES: WHAT MATTERS MOST IN AN AGE OF REPRODUCTIVE TECHNOLOGIES, SURROGACY, ADOPTION, AND SAME-SEX AND UNWED PARENTS* (2001).

DISCUSSION

Limitations of the Study

The major limitation to this study is that the data came from a non-random set of respondents, two-thirds of whom came to the survey through the DSR.⁵⁶ Donors often sign up on the DSR because they are interested in connecting with their offspring or providing information to them. Parents who sign up might want to find the donor for their child; they might also want to know donor siblings and their families; they may also simply want to register a child in case information concerning health issues arises. Children below age 18 can only sign up for the DSR with their parents. Moreover, more women than men responded to the survey and we cannot be certain that the attitudes of parents would be the same (especially with respect to limits) were there a more proportional response rate.

Offspring who join the DSR also might be motivated by an interest in the donor but they might be equally interested in knowing their donor siblings. We do not know how searching for connection differentiates between these respondents and others in the broader population who have not sought out the DSR services, other Internet websites, or their own bank's registry. We do know that for neither of the two variables under consideration did respondents who took the survey through the invitation from the DSR differ in their attitudes from those who came to the survey through some other route. Most striking is that we would have expected respondents who took the survey through the DSR link to express the most objections to donor anonymity since these are people who have sought the identity of donor-conceived relatives. However, they do not. Equally interesting is that the two groups do not differ on limits even though the respondents who came through the DSR are most likely to know about the existence of donor-conceived relatives and are seeking donor connections. As was the case for parents, the majority (78 per cent) of the respondents were female; we do know that gender is not significantly related to attitudes toward limits although it is related to attitudes toward anonymity (with more somewhat more women than men agreeing that anonymity was a problem).

Using Empirical Data to Construct Policy

There has always been a debate about the role of empirical data in policy making. Recently, leading bioethicists Ezekial Emanuel and Arthur Caplan argued this very question at the American Society of Bioethics and the Humanities. Emanuel contended that empirical research needs to become foundational for bioethics and then should be used by policy makers; Caplan took on Emanuel's plenary address to their professional society to claim that there is more to bioethics than empirical research regardless of the rigors of data or how it was generated. His most memorable retort goes to the heart of the problem as he saw it. He claimed, 'Bioethics at the bedside is very much an ethical, social and personal activity'.⁵⁷ Despite this zinger, Caplan does acknowledge that

⁵⁶ Freeman recently pointed out that it is misleading to critique studies based upon the DSR as not representative of the donor population as a whole. She believes that data from these samples provide important insights into the experiences of donor-conceived families who are seeking donor relations. Tabitha Freeman, *Gamete Donation, Information Sharing and the Best Interests of the Child: An Overview of the Psychosocial Evidence*, 33 *MONASH BIOETH. REV.* 57 (2015).

⁵⁷ Arthur L. Caplan, *Facts Alone will not Suffice for Bioethics*, 19 *GOOD SOC.* 16, 17 (2010)

more empirical data are needed but their use is contingent and usually there is a prior moral argument that points to the weight accorded empirical data in ethical problems in issues such as reproduction.

The use and limits of empirical research as evidence by policy makers is an ongoing debate within the world of assisted reproductive technology and the centerpiece of a special issue of the *Monash Bioethics Review*.⁵⁸ Freeman's⁵⁹ piece in this issue provides a concise history of the shifting psychological, social, and cultural meanings attributed to the factors associated with 'genetic relatedness' (including disclosure to offspring, information demands by parents, and the ability to search for donor siblings). She notes that as a result of more disclosure and a greater ability to search for genetic relatives, the emphasis on being donor conceived and the importance of knowing the donor for one's identity have become important to more families. Freeman's research and that of other social science scholars provide ample evidence that parents and children who are donor conceived function well as families. Still, as Freeman notes, the members of donor families are curious about those they are related to outside of their legal family and they want more information about them, especially around health issues. Freeman argues that an interest in genetics relatives should be honored and that as stakeholders the members of donor families should have their voices heard by policy makers. Freeman's argument suggests that wanting genetic knowledge and respecting one's legal family are parallel stances and not competing ones. For this reason, Freeman would argue that policy makers should not walk away from the empirical evidence about the views of stakeholders. Nevertheless, ethicists will have to decide how much weight to accord genetic connections that exist outside of the legal family.

Firth's⁶⁰ article in the same special issue discusses the limits of evidence used to legislate against gamete donor anonymity in the UK. She raises questions about what kind of guiding principles should inform policy makers. She is asking a question more aligned to Caplan's arguments. She also raises questions about what counts as good evidence, the difficulties of translating evidence into policy, and how evidence and policy interact.

Changes in societal attitudes, such as the one about disclosure, create new narrative framings. The empirical research that reflects these new framings can capture the conflicted and contested views of various stakeholders. However, this evidence derived from empirical research is often cherry picked by policy makers.⁶¹ To say as much is not to imply that social science research has no place in policy. In fact, a major goal of this paper is to offer a new set of data from stakeholders to be evaluated as part of policy-making in the USA.

Reading the Evidence

We now return to the data presented in this paper. The two issues—anonymous and limiting the number of offspring—produce different attitudes among the three stakeholders. Offspring are the stakeholders who express the strongest opposition to anonymity.

⁵⁸ JONATHAN C IVES & VEERLE PROVOOST, 33 MONASH BIOETHICS REVIEW SPECIAL ISSUE: ON GAMETES AND GUIDELINES (2015).

⁵⁹ Freeman, *supra* note 56.

⁶⁰ Lucy Frith, *The Limits of Evidence: Evidence Based Policy and the Removal of Gamete Donor Anonymity in the U.K.*, 33 MONASH BIOETH. REV. 29 (2015).

⁶¹ IVES & PROVOOST, *supra* note 58.

Moreover, opposition to anonymity grows among some offspring as they age and this is especially true when women become mothers; this new status triggers their interest in knowing more about the genetic ancestry they are passing on to their children. It is also the case that as offspring age, they might have a number of health concerns that make knowing about the donor and his or her genetic imprint more significant. However, because of the number of variables that shape attitudes toward anonymity among offspring, it is hard to know what these findings suggest for the future of attitudes toward anonymity. Most of the older offspring regardless of gender were raised in heterosexual families. Many of the older respondents experienced betrayal and disclosure at a later age; their strong opposition to anonymity is complex and tied in with their sense of being 'different' by virtue of their conception. The younger offspring of both genders (who are less opposed to anonymity altogether) were born into a greater diversity of family forms where anonymity may be less of an issue; those who are born to single parents or in families with gay or lesbian parents are more likely to know from birth that there was gamete donation. For these offspring, donor conception is an essential and a taken-for-granted part of their lives. In the future, then, it seems quite possible that offspring as a whole will be less opposed to anonymity than the older offspring are now because anonymity will not be tied to issues of parental betrayal.

Moreover, those offspring who are younger are more likely to have had contact with donor siblings: 76 per cent of those in their teens, and 51 per cent of those in their twenties have had contact with a donor sibling in comparison with only 17 per cent of those over 30. Offspring in the oldest group are less likely to have extensive donor profile information and donor numbers to post on registries; at the time those above 20 were born registries either did not yet exist or were relatively unknown. Posting on a registry becomes a more common practice for those who are teens; the parents of these offspring might have known that contact with donor siblings would be possible from conception. Those offspring who have that contact with donor siblings are less opposed to anonymity. Offspring who have connected with their donor siblings have some components of their curiosity answered by knowing others who come from the same donor and they might no longer need to pursue the donor him or herself. Of course, offspring may change their minds later—especially as they start to have their own families and have to confront issues of age-related health problems. At these points, they might be more vigorous about issues of anonymity. Whether or not this is the case, the data here suggest that the debate in the USA might have overstated the extent to which donor-conceived offspring uniformly prefer openness.⁶²

Taken as a whole, both parents and donors tend more toward neutrality on the issue of anonymity. Among donors, age is related to attitudes toward anonymity, with those who are older more opposed to anonymity than those who are younger. As noted, the older respondents may have been coerced into anonymity; the younger respondents are more likely to have a *choice* about whether or not to be anonymous and therefore do not need to express an opinion on this issue. Among parents sexual orientation, age of oldest child, and marital status all shape these attitudes. Those parents who are now the major consumers of gamete donation (those with younger children,

⁶² See, for example, MARQUARDT, GLENN & CLARK, *supra* note 5.

gay/lesbian/bisexual parents, single, never married mothers) are more neutral about anonymity.

Now that both donors and parents are essentially given choices about anonymity, and that they both tend toward neutrality on these issues (especially, among the kind of parents who represent the future of gamete donation use), neither group is likely to lobby for change around the question of anonymity. Moreover, only a modest group of offspring is adamant about this issue, at this moment in time. It thus seems unlikely that there will be a strong policy push for change on this issue in the USA emerging from within these three groups of stakeholders. Indeed, given the shift in concern among offspring—from anxiety about anonymity among those who are older to less concern among those who are younger—combined with both the increasing availability of choice about anonymity (for donors and parents) *and* the growing availability of contact with donor siblings, it might be that the time for a vigorous debate has passed. The data in *this* paper provide no empirical evidence about what solution—banning anonymity or allowing it to continue—best serves the interests of all three sets of stakeholders. However, if these issues are debated in the future, both sides can draw on the evidence provided here: among all three groups, substantial proportions of respondents are neutral about this issue rather than committing themselves to either the abolition or continuation of anonymity as an option for donors.

The issue of *limits on number of offspring* produced, however, is more likely to be one that stakeholders might address in the near future (as they addressed the issue of disclosure in the past) although to date it has not received much attention in the legal and policy discourse. For one thing, both parents *and* offspring hold strong opinions about this issue. Among offspring only age is related significantly to attitudes toward limits but the relationship is not strictly linear.

The parents are the stakeholders who, as a group, are most likely to favor limits. They worry about health and accidental contact. However, the attitudes of parents vary about this issue. Interestingly, gay and lesbian parents express less concern about the issue of limits than do those who are straight. Another *growing* group of gamete recipients, they prefer less regulation overall. Much ‘passion’ comes from parents with the youngest children, single women who have never been married, and those who have located their child’s donor sibling relatives. These groups are all likely to increase in size over the next decade, adding more people who have intense attitudes about the issue of limits.

Moreover, other developments might shape the attitudes of both parents and offspring. First, the possibility of contact among the families of donor siblings has grown as more stakeholders have become aware of the DSR and other registries that enable contact. Participants in the new networks might find it challenging to maintain contact with large numbers of people related to them through shared gametes.⁶³ This challenge might produce an interest among both parents and offspring in having limits on the number of possible participants of these networks. Second, the growing number of ‘identity-release’ donors might have an additional consequence of relevance to the issue of limits. Offspring, and the parents of those offspring, who worry about the eagerness with which identity-release donors will respond to large numbers of offspring, might also want to contain numbers so as to ensure an interested response.

⁶³ Rosanna Hertz, Margaret K. Nelson & Wendy Kramer, *Donor Sibling Networks as a Vehicle for Expanding Kinship: A Replication and Extension*, J. FAM. ISSUES (in press).

Donors also tend to agree with the belief that there should be limits (and very few are entirely opposed to them). Only 'kind of donor' (an issue now of choice for an increasing number of donors) is related to this issue: known donors are most neutral but both anonymous and identity-release donors are more passionate about the idea of limits. If donors do not want to be beholden to too many offspring, three developments will make it more likely in the future that they will be contacted by their genetic offspring whether or not they are anonymous at the time they donate: the further emergence of free-standing registries (like the DSR) and registries associated with sperm and egg banks that facilitate contact; the growth in the number of 'identity release' donors; and the greater possibility of relying on the Internet and cutting-edge biotechnology companies to identify donors. Taken as a whole these developments may make it even more likely that donors will want to limit the number of offspring produced so that they do not have to construct relationships with, or have the obligation of being in any form of contact with, large numbers of offspring.

It is beyond the scope of this paper to address the issue of what number of offspring would be comfortable or reasonable for any of the three stakeholders. It is also beyond the scope of this paper to address the issues of how to make a scientific decision about limits and of which variables would be included in that decision.⁶⁴ However, should any of the stakeholders initiate discussion of this issue they could find strong support in these data: almost 50 per cent of donors, over 60 per cent of offspring, and over four-fifths of parents believe in limits.

Even with qualifications about the sample discussed above, the data reported here suggest that whether or not either is a desirable outcome, it might be possible for stakeholders to push for the issue of limits on the number of donations more effectively than to push for an end to anonymity. Of course, any change would need to involve legislation either by a regulatory body (such as the Centers for Disease Control) or by individual states; any change would also need to gain the cooperation of the sperm and egg banks. Based on prior actions it seems likely the latter will resist these changes.⁶⁵ In fact, regulating limits might be even more difficult than regulating anonymity because the enforcement of such regulation would require coordination among multiple banks (and might thereby raise antitrust concerns). Moreover, in the USA where citizens do not want the government to regulate the family, any limits on donor choice (by ending anonymity or by limiting the number of offspring produced) might well be regarded with great suspicion.

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⁶⁴ The fertility industry would have to provide accurate information about the number of children born from a donor. At present the numbers of children born from a donor may not reflect the limits listed on sperm bank sites.

⁶⁵ *ASRM and SART Exert Pressure to Hinder Legislation in Several States*, *supra* note 36.