Attitudes towards disclosure and relationship to donor offspring among a national cohort of identity-release oocyte and sperm donors

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STUDY QUESTION: What are oocyte donors and sperm donors’ attitudes towards disclosure and relationship to donor offspring?

SUMMARY ANSWER: Oocyte and sperm donors in an identity-release donor programme support disclosure to donor offspring and have overall positive or neutral attitudes towards future contact with offspring.

WHAT IS KNOWN ALREADY: There is a global trend towards open-identity gamete donation with an increasing number of countries introducing legislation allowing only identifiable donors. While women and men who enrol in identity-release donor programmes accept that they may be contacted by donor offspring, there is limited knowledge of their attitudes towards disclosure to donor offspring and how they perceive their relationship to potential donor offspring.

STUDY DESIGN, SIZE AND DURATION: The present study is part of the ‘Swedish study on gamete donation’, a prospective cohort study including donors at all fertility clinics performing donation treatment in Sweden. During a 3-year period (2005–2008), donors were recruited consecutively and a total of 157 oocyte donors and 113 sperm donors (who did not donate to a specific ‘known’ couple) were included prior to donation. Participants in the present study include 125 female (80%) and 80 male donors (71%) that completed two follow-up assessments.

PARTICIPANTS/MATERIALS, SETTINGS AND METHODS: Participants completed two postal questionnaires 2 months after donation and 14 months after donation. Attitudes towards disclosure to donor offspring were assessed with an established instrument. Perceptions of involvement with donor offspring and need for counselling was assessed with study-specific instruments. Statistical analyses were performed with non-parametric tests.

MAIN RESULTS AND THE ROLE OF CHANCE: A majority of oocyte and sperm donors supported disclosure to donor offspring (71–91%) and had positive or neutral attitudes towards future contact with offspring (80–87%). Sperm donors reported a higher level of involvement with potential donor offspring compared with oocyte donors (P = 0.005). Few donors reported a need for more counselling regarding the consequences of their donation.

LIMITATIONS, REASONS FOR CAUTION: While the multicentre study design strengthens external validity, attrition induced a risk of selection bias. In addition, the use of study-specific instruments that have not been psychometrically tested is a limitation.

WIDER IMPLICATIONS OF THE FINDINGS: The positive attitudes towards disclosure to offspring of female and male identity-release donors are in line with previous reports of anonymous and known donors. While our results on donors’ general positive or neutral attitudes towards future contact with potential donor offspring are reassuring, a subset of donors with negative attitudes towards such contact warrants concern and suggests a need for counselling on long-term consequences of donating gametes.

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**Introduction**

There is a global trend towards open-identity gamete donation with an increasing number of countries introducing legislation allowing only identifiable donors (Blyth and Frith, 2009). In addition, programmes offering donors that are identifiable to offspring have become more common, as shown in an investigation of donor insemination programmes in the USA (Scheib and Cushing, 2007). While donation treatment with identifiable donors aims at providing donor offspring the right to information about his/her genetic origin, legislation is not a guarantee for offspring to access knowledge about their genetic origin. International studies have shown that increasing percentages of recipient couples choose to share with their offspring that they were conceived using donated gametes (Gottlieb et al., 2000; Leeb-Lundberg et al., 2006; van den Akker, 2006; Lalos et al., 2007; Daniels et al., 2009; Isaksson et al., 2012). More hesitation has been reported regarding the benefits of offspring obtaining identifying information about their donor (Isaksson et al., 2011); among parents using an identifiable donor, future contact with the donor may be regarded as a threat to the family, and especially to the non-genetic parent.

Despite the increasing availability of programmes using identity-release donors, there is limited knowledge of donors’ attitudes towards disclosure issues and relationship to potential donor offspring, particularly for oocyte donors. A systematic review of oocyte donors (Purewal and van den Akker, 2009) predominantly included studies on commercial, volunteer and patient donors that had donated anonymously and women that had donated to specific ‘known’ recipients. The results on anonymous donors indicate that most were interested in the outcome of their donation and significant proportions of commercial donors would be willing to have contact with offspring. Two studies concerned volunteer donors’ attitudes towards disclosure and donor offspring (Soderstrom-Anttila, 1995; Fielding et al., 1998). These studies were based on relatively small samples of anonymous oocyte donors and reported inconsistent results. More recently, Jadva et al. (2011) performed an online survey with 11 women and 69 men who had donated anonymously but later had taken active steps to be identifiable to offspring by joining the Donor Sibling Registry (DSR). The oocyte donors predominantly viewed their relationship with offspring as ‘a genetic relationship only’ (45.5%) or as ‘a distant member of the family’ (27.3%) and few reported worries about the well-being of offspring. A majority of both oocyte and sperm donors stated that they accepted contact with offspring and, among those who had already had contact with offspring, all reported this to be a positive experience. There is an apparent lack of studies investigating attitudes towards disclosure and relationship with offspring among women who donate oocytes within an open-identity system.

A recent systematic review of sperm donors (Van den Broeck et al., 2013) indicates a wide variation regarding male donors’ interest in the outcome of their donation and their attitudes concerning disclosure of information and potential contact with offspring. The researchers suggest that sperm donors who are older and married are more positive towards being contacted by offspring from their donation, which is in line with previous reviews concerning sperm donors (Daniels, 2007a) and oocyte donors (Daniels, 2007b). Two studies have been conducted with sperm donors that had donated anonymously and, through membership in the DSR, had shown interest in making information about themselves known to offspring (Jadva et al., 2011; Daniels et al., 2012). Almost all men reported thinking about the offspring they had helped to create, including thoughts about the number of offspring, their health and well-being and possible physical resemblance between the donor and offspring (Daniels et al., 2012). One in four reported worries about the well-being of their donor offspring (Jadva et al., 2011). In both studies a majority of men reported being open to contact with the offspring, and almost a third was open to establishing a parent–child relationship (Daniels et al., 2012).

Few studies have investigated the attitudes towards disclosure and relationship to offspring among donors within open-identity donor programmes (Scheib, 2004; Daniels et al., 2005; Ekerhovd et al., 2008). Questionnaire studies with 30 newly recruited sperm donors (Ekerhovd et al., 2008) and 30 previous sperm donors (Daniels et al., 2005) at Swedish clinics (i.e. under legislation on identity-release donation) found that a majority of the men were positive regarding future contact with potential donor offspring but 13% were negative. Daniels et al. (2005) discussed that older men that had donated between 1 and 3 years previously expressed more positive feelings regarding contact with offspring than younger men who had been donors <1 year. According to results from an interview study with 27 men that had donated in an open-identity programme in the USA 10–18 years previously (Scheib, 2004), donors were generally positive about the upcoming identity releases and many were looking forward to meeting adult offspring. However, more than half also expressed concerns related to future contact with offspring, including the impact on their lives and families.

Sweden was the first country to introduce legislation that gives offspring conceived by donation treatment the right to obtain identifying information about their donor at the age of majority. The hospitals are required to keep a registry of the donors for 70 years and to provide offspring with information about the donor upon request. During the recruitment period for the Swedish study on gamete donation (2005–2008) all clinics performing gamete donation in Sweden followed the same principles for screening of oocyte and sperm donors, i.e. criteria for being accepted as a donor were being physically and psychologically healthy with no known hereditary disease, being ~25–35 years of age (women) or up to 50 years of age (men), and preferably having biological children of their own. All donors were evaluated regarding their physical status by a physician and their psychological status by a psychologist/counsellor; these evaluations were performed in one-to-one sessions. The physician informed the donor about the legislation on donation treatment and the donor signed a legal document confirming that the donor has neither responsibilities nor demands on any resulting offspring. Pre-donation counselling was not mandatory but was available for those who requested it. The clinics followed the principle that each donor may contribute to offspring in a maximum of six families. Donors received compensation of ~350€ for 1 round (oocyte donors) and 10 rounds of donation (sperm donors), respectively. Those donors that actively requested information about the outcome of their donation from the clinic could receive information about the number of live children.

**Key words:** oocyte donation / insemination / artificial / heterologous / disclosure / psychology
Systematic reviews on oocyte donors (Purewal and van den Akker, 2009) and sperm donors (Van den Broeck et al., 2013) concluded that there is a need for longitudinal studies on long-term psychosocial consequences of donating gametes, particularly for donors who are identifiable to potential offspring. Recent results from the nationwide longitudinal ‘Swedish study on gamete donation’ have shown that female and male identity-release donors present with mature and stable personality characteristics (Sydsjö et al., 2011; Sydsjö et al., 2012), donate for altruistic reasons (Skoog Svanberg et al., 2012) and that pre-donation ambivalence is related to lower satisfaction with their contribution 2 months post-donation (Skoog Svanberg et al., 2013).

The aim of the present study was to investigate and compare attitudes towards disclosure and relationship to donor offspring and need for counselling among identifiable oocyte and sperm donors soon after donation and 1 year post-donation.

**Materials and Methods**

**Participants and procedure**

The present study is a part of the Swedish multicentre study on gamete donation, a prospective, longitudinal study of donors and recipients of donated sperm and oocytes, with the overall goal to investigate psychosocial aspects of gamete donation. The multicentre study includes all infertility clinics performing gamete donation in Sweden; i.e. clinics located at the University hospitals in Stockholm, Gothenburg, Uppsala, Umeå, Linköping, Örebro and Malmö. Donors, recipient couples and one comparison group undergoing standard IVF treatment (with own gametes) were recruited prior to donation/treatment and are followed over time; data are collected in questionnaires, medical charts and interviews.

During the period 2005–2008, a consecutive sample of oocyte and sperm donors was approached at the infertility clinics regarding study participation. Participating clinics followed the same protocol for study recruitment (with clear inclusion and exclusion criteria) and distribution of questionnaires. Persons who did not speak or read Swedish were excluded, as were donors who did not complete at least one round of donation. Donors completed two questionnaires post-donation: 2 months after successful oocyte retrieval (females) or successful sperm cryopreservation (males), and the next questionnaire about 12 months later. Questionnaires were labelled with a unique identification number for each participant, necessary for longitudinal data assessment. The questionnaires were distributed by mail, together with a prepaid return envelope and a cover letter stating the purpose of the study and guaranteeing confidentiality. Two reminders were sent out to non-respondents. Participation was rewarded with gift vouchers (worth ~12€).

**Oocyte donors:** Of 217 eligible women that were approached a total of 181 women (83%) accepted participation in the multicentre study and completed a baseline questionnaire prior to donation (not included in the present study). For the present study, women that reported donating to a specific/known recipient couple were excluded (n = 24) leaving 157 oocyte donors at baseline, of which 141 (90%) completed the questionnaire 2 months post-donation and 125 (80%) also completed the questionnaire 14 months post-donation.

**Sperm donors:** Of 156 eligible men that were approached 118 men (76%) accepted participation and completed a baseline questionnaire prior to donation (not included in the present study). For the present study, men that reported donating to a specific/known recipient couple were excluded (n = 5) leaving 113 men at baseline, of which 93 men (82%) completed the questionnaire 2 months post-donation and 80 men (71%) also completed the questionnaire 14 months post-donation.

**Instruments**

**Attitudes towards disclosure, perceived involvement with potential donor offspring and need for counselling were assessed with identical instruments at both assessments (2 months and 14 months after donation).**

**Attitudes towards disclosure to offspring**

Attitudes towards disclosure to offspring were assessed by six items developed and previously used by the research group with couples receiving donated gametes (Isaksson et al., 2011) and in adapted forms with gynaecologists, obstetricians and the general population (Svanberg et al., 2003, 2008; Lampic et al., 2009). Donors were requested to indicate their responses on a 5-point Likert scale from ‘Agree totally’ to ‘Disagree totally’; in addition, respondents could choose the option ‘Cannot form an opinion’. This scale has been found to have high-interval reliability among male and female heterosexual recipients of donor oocyte and sperm (α = 0.77) (Isaksson et al., 2011) and, in an adapted version, in men and women of the general population (α = 0.80) (Svanberg et al., 2003). In the present sample, Cronbach’s alpha values for the six items (computed on the 5-point scale) were acceptable for both groups at the 2 months assessment (women: α = 0.72; men: α = 0.72) and for the women at the 14 months assessment (α = 0.71), whereas alpha values for the men at the 14 months assessment (α = 0.48) indicated low internal consistency. A disclosure index was formed by computing the individual’s mean value for the six items, with high mean values indicating positive attitudes towards disclosure to donor offspring.

**Involvement in potential donor offspring**

Involvement in potential donor offspring was assessed with five items developed on the basis of earlier research (Söderström-Anttila, 1995; Fielding et al., 1998; Svanberg et al., 2003). One item concerns interest in the outcome of the donation and four items concern thoughts and feelings about potential offspring, including a sense of responsibility for offspring if anything happened to his/her parents, and feelings about being contacted by offspring in the future. The response format was identical to that described for ‘Attitude towards disclosure’ (above). Cronbach’s alpha values (computed on the 5-point scale) for the four items assessing thoughts and feelings towards potential offspring were acceptable at 2 months (women: α = 0.76; men: α = 0.76) and 14 months post-donation (women: α = 0.64; men: α = 0.85). An involvement index was formed by computing the individual’s mean value for the four items, with high mean values indicating a high level of involvement in donor offspring.

**Need for counselling**

Need for counselling was assessed with one item ‘I want more counselling regarding the consequences of the donation’. The response format was identical to that described for ‘Attitude towards disclosure’ (above).

Additional data collected in the questionnaires included age, highest level of education, marital status, biological children and knowledge of the outcome of the donation.

**Data analysis**

All analyses were performed using PASW Statistics version 18. Two indexes were formed by computing each individual’s mean value for disclosure (six items) and involvement (four items), respectively, with high mean values indicating positive attitudes towards disclosure to donor offspring and strong perceived involvement with potential donor offspring. Characteristics of female and male donors were compared with χ²-tests for nominal scale variables and, for age, with an independent t-test. Analyses of attitudes towards disclosure, perceived involvement and the need for counselling were based on ordinal data (5-point scale scores) and were computed with Mann–
Wilcoxon signed rank test, \( z \), indicating increased concerns regarding the benefits of offspring learning.

Overall, support for disclosure to offspring was stable over time for male donors, with only one within-group difference for oocyte donors indicating an increased feeling of responsibility for potential offspring (Wilcoxon signed rank test, \( z = 2.225, N\)-ties = 41, \( P = 0.026 \), two-tailed).

There were no differences between sexes or assessments with regard to future contact with donor offspring. Fourteen months post-donation, a majority of donors were positive (females 56%; males 66%) or neutral (females 24%; males 14%) towards the possibility that an adult offspring might contact them in the future. Significant subsets of female (13%) and male donors (17%) were not positive towards future contact and remaining participants had no opinion. Open comments made by the donors (4 females and 3 males) who chose the most negative response alternative to the item on future contact, showed that two of the women strongly regretted donating oocytes due to subsequent fertility problems and altered life values. Both donated at a young age (at age 22 and 26 years, respectively), had no biological children and commented that they believed that the age limit for donors was set too low.

Perceived involvement in potential donor offspring (index) was not related to experience of biological parenthood among female and male donors. There were no differences in involvement in donor offspring between oocyte donors with and without biological children at the 2 months assessment \( (U = 1406.0, \text{mothers } n = 87, \text{non-mothers } n = 38, P = 0.184, \text{two tailed}) \) and at the 14 months assessment \( (U = 1611.0, \text{mothers } n = 81, \text{non-mothers } n = 42, P = 0.630, \text{two tailed}) \). Similarly, there were no differences in involvement in donor offspring between sperm donors with and without biological children at the 2 months assessment \( (U = 604.0, \text{fathers } n = 31, \text{non-fathers } n = 49, P = 0.123, \text{two tailed}) \) and at the 14 months assessment \( (U = 601.5, \text{fathers } n = 24, \text{non-fathers } n = 55, P = 0.531, \text{two tailed}) \).

Need for counselling

Few donors reported a need for more counselling regarding the consequences of their donation, and there was no change over time. At 14 months post-donation, expressed need for counselling was more common among males \( (n = 5, 7\%) \) than females \( (n = 3, 2\%) \).

Discussion

The present results indicate that oocyte and sperm donors in an identity-release donor programme support disclosure to donor offspring and have overall positive or neutral attitudes towards future contact with offspring. Interestingly, male donors reported a higher level of involvement with potential donor offspring than did oocyte donors.

The present results of donors’ positive attitudes towards disclosing information about the conception to donor offspring are in line with previous findings on oocyte and sperm donors (Purewal and van den Akker, 2009; Van den Broeck et al., 2013) predominantly including research with anonymous donors and may reflect a general support of honesty and human rights. However, as the present study was conducted within the context of open-identity legislation, informing offspring about their conception also entails the first step towards the opportunity to obtain identifying information about the donor. As such, the present findings support previous findings from the Swedish context reported for heterosexual recipients of donated gametes (Isaksson et al., 2011).
gynaecologists and obstetricians (Svanberg et al., 2008) and the general population (Svanberg et al., 2003), indicating overall positive attitudes towards disclosure to donor offspring in Sweden, and particularly so among women. The present results are also in line with findings from sperm donors within an open-identity programme, expressing that offspring should have the option to know their identity and were looking forward to identity releases (Scheib, 2004). Only one previous was found that compared male and female donors’ attitudes towards disclosure, the results indicating no significant differences within anonymous sperm (n = 34) and oocyte donors (n = 39) (Fielding et al., 1998). As in previous studies (Svanberg et al., 2003; Isaksson et al., 2011), significant subsets of participants could not form an opinion regarding consequences of future contact between donor and offspring, suggesting a need for information and counselling for donors and recipient couples.

A great majority of female and male donors wanted to know if the donation resulted in a pregnancy, which supports previous reports (Purewal and van den Akker, 2009; Van den Broeck et al., 2013). Providing gamete donors with basic information about the outcome of their donation (e.g. the number of donor offspring) has been argued to provide positive feedback (Raes et al., 2013). In addition, information about the number and age of offspring also enables the donor to prepare for potential future contact with donor offspring, as stated by the Ethics Committee of the American Society of Reproductive Medicine (Ethics Committee of the American Society for Reproductive Medicine, 2009): ‘This information can provide psychological closure to the donor, caution the donor that contact may later occur, and give donors who already have children the opportunity to consider the impact of future contacts on their children and/or partner’ (p. 26).

While our findings that almost half of sperm donors would think about offspring from their donation is in line with earlier research on male donors that had taken active steps to being identifiable to offspring (Jadva et al., 2011; Daniels et al., 2012), our results of identity-release oocyte donors’ perceptions contribute new and unique knowledge. Interestingly, female donors reported lower levels of involvement with potential donor offspring compared with males. This was a surprising finding considering the fact that donation of oocytes is a more time-consuming and invasive procedure than sperm donation. One possible explanation for this finding is related to previous findings that men place more importance on the genetic link between parent and child compared with women, both among heterosexual recipients of gametes (Isaksson et al., 2011) and in the general population (Svanberg et al., 2008).

### Table 1 Characteristics of oocyte donors and sperm donors at the assessments 2 months post-donation and 14 months post-donation.

|                      | Oocyte donors | Sperm donors | χ² | P     |
|----------------------|---------------|--------------|-----|-------|
|                      | N = 141       | N = 93       |     |       |
| **2 months post-donation** |               |              |     |       |
| Education            |               |              |     |       |
| Elementary           | 28            | 19.9         | 8   | 8.6   |
| High school          | 47            | 33.3         | 22  | 23.7  |
| University           | 66            | 46.8         | 63  | 67.7  |
| Civil status         |               |              |     |       |
| Single               | 36            | 25.5         | 35  | 37.6  |
| Steady company       | 18            | 12.8         | 16  | 17.2  |
| Co-habiting/married  | 87            | 61.7         | 42  | 42.2  |
| Biological children  |               |              |     |       |
| Yes                  | 92            | 65.2         | 35  | 37.6  |
| No                   | 49            | 34.8         | 58  | 62.4  |
| Do you know if your donation has resulted in a pregnancy? a | | | | |
| I do not know        | 58            | 41.1         | 85  | 94.4  |
| Pregnancy            | 40            | 28.4         | 4   | 4.4   |
| No pregnancy         | 43            | 30.5         | 1   | 1.1   |
| **14 months post-donation** | | | | |
| Biological children  |               |              |     |       |
| Yes                  | 87            | 69.6         | 31  | 38.8  |
| No                   | 38            | 30.4         | 49  | 61.3  |
| Do you know if your donation has resulted in a pregnancy? a | | | | |
| I do not know        | 50            | 40.3         | 48  | 60.0  |
| Pregnancy            | 48            | 38.7         | 32  | 40.0  |
| No pregnancy         | 26            | 21.0         | 0   |       |

Comparisons between female and male donors were computed with χ²-test.

* a Regarding the knowledge of donation outcome, there were missing data for three male donors at 2 months post-donation and one female donor at 14 months post-donation.
### Table II  Oocyte and sperm donors’ attitudes towards disclosure to donor offspring at 2 months and 14 months post-donation.

| Attitudes towards disclosure                                                                 | Oocyte donors | Sperm donors | U      | P    | Oocyte donors | Sperm donors | U      | P    |
|--------------------------------------------------------------------------------------------|---------------|--------------|--------|------|---------------|--------------|--------|------|
| It is in the best interest of the child that he/she never be informed of his/her genetic origin |               |              | 4799.5 | 0.003|               |              | 3891.5 | 0.374|
| Agree                                                                                     | 3             | 2.1          | 5      | 5.4  | 5             | 4.1          | 3      | 3.8  |
| Neutral                                                                                  | 7             | 5.0          | 8      | 8.7  | 8             | 6.5          | 10     | 12.7 |
| Disagree                                                                                 | 122           | 87.1         | 73     | 79.3 | 103           | 83.7         | 58     | 73.4 |
| No opinion                                                                               | 8             | 5.7          | 6      | 6.5  | 7             | 5.7          | 8      | 10.1 |
| Parents should be honest with their children with regard to their genetic origin          |               |              | 4252.0 | <0.0001|               |              | 3336.0 | 0.001|
| Agree                                                                                     | 123           | 87.9         | 69     | 75   | 111           | 89.5         | 56     | 70.9 |
| Neutral                                                                                  | 7             | 5.0          | 9      | 9.8  | 4             | 3.2          | 11     | 13.9 |
| Disagree                                                                                 | 2             | 1.4          | 10     | 10.9 | 4             | 3.2          | 6      | 7.6  |
| No opinion                                                                               | 8             | 5.7          | 4      | 4.3  | 5             | 4.0          | 6      | 7.6  |
| The child’s relationship with the mother/father (non-genetic parent) could be damaged if he/she learns of the donation |               |              | 3008.0 | <0.0001|               |              | 2402.5 | <0.0001|
| Agree                                                                                     | 123           | 87.9         | 69     | 75   | 111           | 89.5         | 56     | 70.9 |
| Neutral                                                                                  | 7             | 5.0          | 9      | 9.8  | 4             | 3.2          | 11     | 13.9 |
| Disagree                                                                                 | 2             | 1.4          | 10     | 10.9 | 4             | 3.2          | 6      | 7.6  |
| No opinion                                                                               | 8             | 5.7          | 4      | 4.3  | 5             | 4.0          | 6      | 7.6  |
| The child has the right to know that he/she was conceived by oocyte/sperm donation        |               |              | 4371.5 | <0.0001|               |              | 3332.0 | 0.004|
| Agree                                                                                     | 127           | 90.7         | 69     | 75.0 | 110           | 88.7         | 60     | 75.9 |
| Neutral                                                                                  | 4             | 2.9          | 11     | 12.0 | 2             | 1.6          | 11     | 13.9 |
| Disagree                                                                                 | 2             | 1.4          | 7      | 7.6  | 4             | 3.2          | 1      | 1.3  |
| No opinion                                                                               | 7             | 5.0          | 5      | 5.4  | 8             | 6.5          | 7      | 8.9  |
| It is in the best interest of the child to be able to learn (as an adult) the identity of the donor |               |              | 4203.5 | 0.744|               |              | 3517.0 | 0.339|
| Agree                                                                                     | 93            | 66.4         | 69     | 75.0 | 85            | 68.5         | 48     | 61.5 |
| Neutral                                                                                  | 22            | 15.7         | 12     | 13.0 | 20            | 16.1         | 10     | 12.8 |
| Disagree                                                                                 | 12            | 8.6          | 3      | 3.3  | 9             | 7.3          | 9      | 11.5 |
| No opinion                                                                               | 13            | 9.3          | 8      | 8.7  | 10            | 8.1          | 11     | 14.1 |
| Contact with the donor (as an adult) can be harmful for the offspring and/or for the family |               |              | 3594.5 | 0.015|               |              | 2805.0 | 0.019|
| Agree                                                                                     | 1             | 0.7          | 1      | 1.1  | 0             | 0.0          | 1      | 1.3  |
| Neutral                                                                                  | 11            | 7.9          | 13     | 14.1 | 10            | 8.1          | 13     | 16.7 |
| Disagree                                                                                 | 101           | 72.1         | 62     | 67.4 | 91            | 73.4         | 53     | 67.9 |
| No opinion                                                                               | 27            | 19.3         | 16     | 17.4 | 23            | 18.5         | 11     | 14.1 |

The two positive and two negative response alternatives of the 5-point Likert scale were collapsed into ‘Agree’ versus ‘Disagree’. Comparisons between female and male donors were computed on the 5-point scale (excluding responses ‘No opinion’) with Mann–Whitney U-test.

*There are missing data for one female and one male donor on all items at the 2 months and 14 months assessments; in addition, 14 months post-donation data are missing for one additional female donor on one item and one additional male donor on two items.
Thus, male donors may be more likely to regard donor offspring as their genetic children and feel responsibility for their well-being. This notion is in line with previous results on perceptions among sperm donors open to identity release, understanding sperm as a symbol of genetic relatedness (Riggs and Russell, 2011), regarding their relationship to donor offspring as ‘special’ or ‘like my own child’ (Jadva et al., 2011) and being open to establishing a parent–child relationship (Daniels et al., 2012). While there is a lack of research on women that donate oocytes within open-identity programmes, the study by Jadva et al. (2011) included 11 oocyte donors that had donated anonymously but subsequently had taken active steps to being identifiable to offspring. These women predominantly viewed their relationship with offspring as ‘a genetic relationship only’ or as ‘a distant member of the family’. Another explanation may be related to men and women’s motives for donating gametes, with sperm donors more frequently stating that they want to share their good genes (Skoog Svanberg et al., 2012) and some men being motivated by a desire to procreate (Riggs and Russell, 2011). While it has been suggested that having own children among donors is related to being open to contact with donor offspring (Daniels, 2007a,b), the present findings did not support that personal experience of parenthood was associated with perceived involvement with donor offspring among oocyte nor sperm donors.

In view of the fact that study participants voluntarily enrolled in an identity-release donor programme, the finding that a majority of donors welcome the possibility that donor offspring might contact them in the future is reassuring and in line with previous results of identity-release sperm donors in Sweden (Daniels et al., 2005; Ekerhovd et al., 2008) and in the USA (Scheib, 2004). However, at 14 months post-donation, 17% of the sperm donors and 13% of the oocyte donors in the present study were not positive towards future contact with offspring and sperm donors reported increased concern regarding the benefits of offspring learning the identity of the donor. According to previous research of sperm donors in identity-release donor programmes (Scheib, 2004; Daniels et al., 2005) and sperm donors who had taken active steps to make themselves identifiable to offspring (Daniels et al., 2012), men may gradually understand that contact with donor offspring will have consequences not only for the donor and the offspring but also for their respective families. These results suggest that identifiable donors may

| Table III | Oocyte and sperm donors’ perceived involvement with donor offspring at 2 months and 14 months post-donation. |
|-----------|---------------------------------------------------------------------------------------------------|
|           | **2 months post-donation** | **14 months post-donation** |
|           | Oocyte donors | Sperm donors | Oocyte donors | Sperm donors |
| Involvement with offspring | N = 141a % | N = 93a % | U | P | N = 125a % | N = 80a % | U | P |
| Think about the child | 5093.0 | 0.145 | 4025.5 | 0.254 |
| Agree | 56 | 40.0 | 45 | 48.9 | 44 | 35.5 | 36 | 45.6 |
| Neutral | 24 | 17.1 | 11 | 12.0 | 16 | 12.9 | 14 | 17.7 |
| Disagree | 52 | 37.1 | 31 | 33.7 | 57 | 46.0 | 26 | 32.9 |
| No opinion | 8 | 5.7 | 5 | 5.4 | 7 | 5.6 | 3 | 3.8 |
| Like to know how the child fares in life | 4388.5 | 0.002 | 3392.5 | 0.005 |
| Agree | 36 | 25.7 | 38 | 41.3 | 24 | 19.4 | 33 | 42.3 |
| Neutral | 16 | 11.4 | 15 | 16.3 | 25 | 20.2 | 15 | 19.2 |
| Disagree | 82 | 58.6 | 33 | 35.9 | 66 | 53.2 | 29 | 37.2 |
| No opinion | 6 | 4.3 | 6 | 6.5 | 9 | 7.3 | 1 | 1.3 |
| Feel responsible for the child if anything happened to his/her parents | 3798.0 | <0.0001 | 2265.0 | 0.003 |
| Agree | 10 | 7.1 | 27 | 29.7 | 17 | 13.7 | 22 | 28.2 |
| Neutral | 10 | 7.1 | 9 | 9.9 | 12 | 9.7 | 13 | 16.7 |
| Disagree | 104 | 74.3 | 48 | 52.7 | 84 | 67.7 | 41 | 52.6 |
| No opinion | 16 | 11.4 | 7 | 7.7 | 11 | 8.9 | 2 | 2.6 |
| I welcome the possibility of being contacted by an offspring after 18 years | 5856.0 | 0.889 | 4223.5 | 0.685 |
| Agree | 85 | 60.7 | 58 | 63.0 | 69 | 55.6 | 52 | 65.8 |
| Neutral | 28 | 20.0 | 22 | 23.9 | 30 | 24.2 | 11 | 13.9 |
| Disagree | 20 | 14.3 | 9 | 9.8 | 16 | 12.9 | 13 | 16.5 |
| No opinion | 7 | 5.0 | 3 | 3.3 | 9 | 7.3 | 3 | 3.8 |

The two positive and two negative response alternatives of the 5-point Likert scale were collapsed into ‘Agree’ versus ‘Disagree’. Comparisons between female and male donors were computed on the 5-point scale (excluding responses ‘No opinion’) with Mann–Whitney U-test.
aThere are missing data for one female and one male donor on all items at the 2 months and 14 months assessments; in addition, there are missing data for one male donor on one item (2 months post-donation) and two items (14 months post-donation).
Donors’ attitudes towards disclosure and offspring

Conflict of interest

The authors declare that there are no conflicts of interest.

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