


Same-sex mothers' experiences of equal treatment, parenting stress and disclosure to offspring: a population-based study of parenthood following identity-release sperm donation

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STUDY QUESTION: What are the experiences of same-sex mothers following identity-release sperm donation regarding equal treatment in society, parenting stress and disclosure to child?

SUMMARY ANSWER: Mothers predominantly reported equal treatment in society, low levels of parenting stress and early disclosure of the donor conception to the child, and half of the couples had also informed the child of his/her right to obtain the donor's identity.

WHAT IS KNOWN ALREADY: The number of two-mother families is increasing, and previous studies have reported about challenges related to heteronormativity, discrimination and the status of the non-birth mother. Same-sex mothers have been found to disclose the child's donor conception earlier than different-sex parents, but little is known regarding disclosure of the child's right to obtain identifying information about the donor.

STUDY DESIGN, SIZE, DURATION: The present study concerns the fourth wave of data collection of a nation-wide longitudinal study. A total of 143 same-sex mothers (73% response rate) following identity-release sperm donation completed individual surveys when their donor-conceived child had reached age 7. These women represent a total of 82 couples who had undergone sperm donation treatment.

PARTICIPANTS/MATERIALS, SETTING, METHODS: The study is part of the longitudinal Swedish Study on Gamete Donation (SSGD). Couples accepted for gamete donation treatment at seven Swedish University hospitals were recruited between 2005 and 2008 and were requested to complete postal surveys during four waves of data collection. The present study sample includes same-sex mothers who completed a survey when their donor-conceived child had reached 7 years of age. Data were collected with the Swedish Parenting Stress Questionnaire (SPSQ), and study-specific items on experiences of treatment in society and disclosure behavior. Group comparisons (birth mothers vs non-birth mothers) were conducted using Chi²-tests, independent *t*-tests and Mann–Whitney *U*-tests, and written comments provided for open-response items were analyzed by qualitative content analysis.

MAIN RESULTS AND ROLE OF CHANCE: The mothers were generally open about the child's donor conception and the large majority (>80%) reported being treated positively and in the same way as other parents. However, satisfaction with treatment in health care settings was significantly lower than that reported in contacts with the child's school and recreational activities ($P < 0.001$) and open-response comments indicate that this may be related predominantly to heteronormative language and assumptions. Birth mothers and non-birth mothers reported similar treatment in society and similar levels of parenting stress. All but one couple had already talked with their 7-year-old child about his/her conception with donor sperm. Half of the couples had also informed the child about his/her

opportunity to obtain identifying information about the donor, and remaining couples planned later disclosure. Children's reactions were generally described as neutral, positive or characterized by interest and curiosity.

LIMITATIONS, REASONS FOR CAUTION: The present study was performed within the context of the Swedish legislation on identity-release donation, which limits the generalizability to same-sex couples using anonymous or known sperm donors. Although no evidence of attrition bias was found, it is possible that those couples who initially declined participation in the SSGD (23%) or dropped out at the fourth wave of data collection (27%) differ from the study sample in terms of variables that we were unable to control for.

WIDER IMPLICATION OF THE FINDINGS: The present finding that most same-sex mothers in a population-based sample experience equal treatment in society is encouraging and validates previous results from predominantly qualitative studies. Nevertheless, the fact that a subgroup experiences discrimination and less favorable treatment indicates that further action is needed, particularly in child health care settings. The present study is the first to report on the timing of parents' disclosure of the child's right to identifying donor information and suggests that disclosure during preschool ages is feasible and does not appear to be related to negative consequences. In view of the increased availability and use of identity-release donation, there is a pressing need to investigate parents' intentions, behaviors and needs with regard to talking with their child about his/her opportunity to obtain the donor's identity.

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Introduction

Advances in medically assisted reproduction (MAR) and legislative changes have led to increased diversity and opportunities for starting a family. For example, single women and female same-sex couples have access to sperm donation treatment in a majority and about half of European countries, respectively (fertilityeurope.eu/atlas). The changes in terms of treatment availability, public funding and reimbursement have led to an increased number of two-mother families. Previous studies have shown that, compared to different-sex couples having used MAR, mothers in same-sex couples report higher relationship satisfaction ([Borneskog et al., 2014b](#)), lower parenting stress ([Borneskog et al., 2014a](#)) and more equal division of childcare and household labor ([Brewster, 2017](#)). In addition, children of same-sex parents have been found to be comparable to other children in terms of psychological, social, emotional and behavioral development (see [Dempsey, 2013](#); [Perrin et al., 2013](#) for extensive reviews).

Despite the positive aspects accounted for above, two-mother families face challenges not seen by different-sex couples with spontaneously conceived children. While some of these are shared with other groups of donor recipients, others are unique to same-sex parents and include experiences of stigma, discrimination, exclusion and minority stress (e.g. [Hayman et al., 2013](#); [Crouch et al., 2017](#); [Appelgren Engström et al., 2018](#); [Malmquist et al., 2019](#)). In the face of prejudice and heteronormative attitudes, two-mother families may need to defend their status as a family. Previous research has highlighted how the role of the non-birth mother may be particularly vulnerable ([Cherguit et al., 2013](#); [Brennan and Sell, 2014](#); [Wojnar and Katzenmeyer, 2014](#); [Hayman and Wilkes, 2017](#)).

A common issue for all families formed with donation is the question of disclosing to the child that he/she was donor conceived. While historically, many different-sex parents chose to keep the donation a secret, early disclosure is today encouraged ([The National Board of Health and Welfare, 2004](#); [Ethics Committee of the American Society of Reproductive Medicine, 2018](#); [Human Fertility and Embryology Authority, 2019](#); [ESHRE Working Group on Reproductive Donation,](#)

[2022](#)). Higher disclosure rates have been reported among two-mother families and solo mothers compared to different-sex parents ([Scheib et al., 2003](#); [MacCallum and Golombok, 2004](#); [Beeson et al., 2011](#)), presumably due to the need to explain the absence of a father. However, a more recent study suggests that this may be changing and reports comparable disclosure rates between single mothers and different-sex parents ([Freeman et al., 2016](#)).

Historically, donor conception has been performed unregulated with anonymous donors and under complete secrecy, with the principal goal to resolve the problem of the involuntary childless couple. Following an increase of children born following donor insemination, the Swedish government in 1981 appointed the Insemination Committee to investigate the need for regulation to ensure the offspring's legal protection, including the legal status of the non-biological parent. Based on ethical argumentation and research about adoptive children, the committee emphasized the importance of an open and honest relationship between parents and child, and that parents should be encouraged to talk with their child about his/her donor conception ([Swedish Government Official Reports \(SOU\), 1983](#)). After considerable debate among consultant bodies, Sweden in 1984 introduced legislation that gives donor-conceived offspring of mature age the right to obtain identifying information about the donor ([Stoll, 2008](#)). Prior to this legislation, couples were generally advised by the clinician to keep the donor insemination secret from others (including the child), and we have not found any investigations of these couples' adherence to this advice. However, studies of heterosexual couples treated in Sweden after 1984 indicate increasing openness regarding having used gamete donation. Among 148 couples treated in the years directly following the legislative change few had disclosed the donor conception to their child and about half were unsure or negative toward disclosure ([Gottlieb et al., 2000](#)). In contrast, a large majority of parents who had started treatment in 2005–2008 intended to disclose the donor conception to their child ([Isaksson et al., 2012](#)) and more than half had shared this information when the child had reached school age ([Lampic et al., 2021](#)). Importantly, parents who conceived with gametes from an identity-release donor are expected to not only inform

the child of his/her donor conception but also of the opportunity to obtain the donor's identity. While identity-release donation is available in an increasing number of countries (fertilityeurope.eu/atlas), to our knowledge, no study has previously investigated how and when parents inform their children of their right to obtain identifying information about the donor.

The overarching aim of the present study was to investigate the experiences of same-sex mothers with school-aged children conceived by identity-release sperm donation. Specific aims were (i) to compare birth mothers' and non-birth mothers' experiences of treatment in society and parenting stress and (ii) to investigate two-mother families' disclosure of the donor conception and the child's right to donor information.

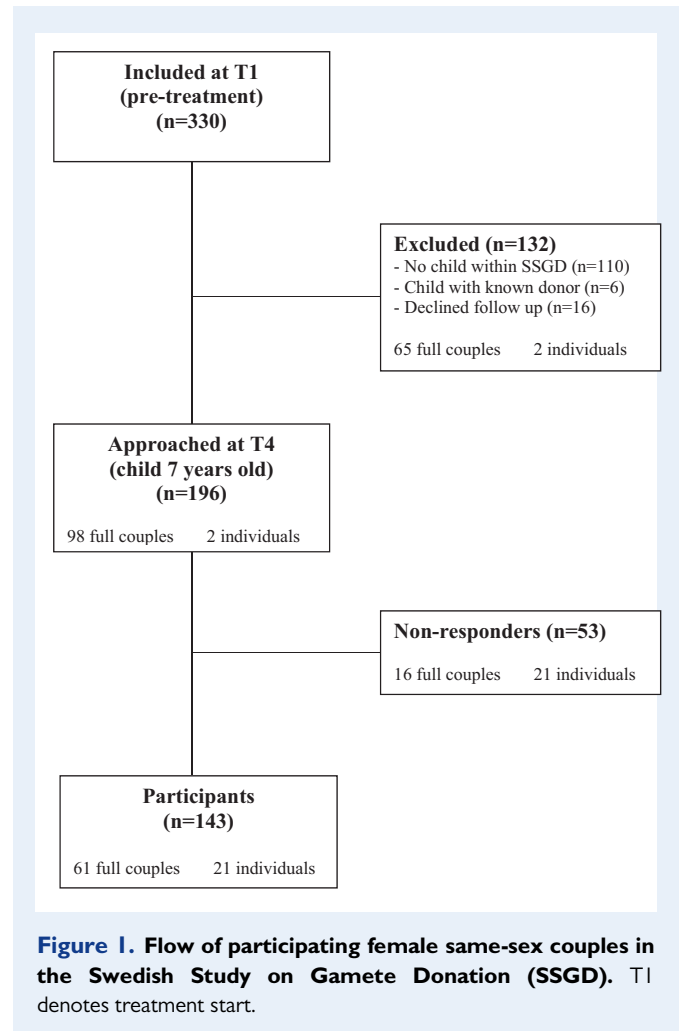
Materials and methods

Participants and procedure

The present study is part of the prospective longitudinal Swedish Study on Gamete Donation (SSGD) that includes participants from fertility clinics at the University Hospitals in Stockholm, Gothenburg, Uppsala, Umeå, Linköping, Örebro and Malmö. Between April 2005 and March 2008, a consecutive cohort of 214 female same-sex couples (428 individuals) commencing fertility treatment with donated sperm was approached for participation. At the time of data collection, all treatment with donor sperm in Sweden was performed by the participating clinics. Thus, the approached cohort comprises all Swedish same-sex couples starting sperm donation treatment during the study's 3-year recruitment period. Of the approached women, 330 (165 birth mothers to be and 165 non-birth mothers to be) were included (response rate 77%). Exclusion criteria at baseline were not completing at least one round of treatment (insemination or embryo transfer) and not being able to read or write in Swedish. Questionnaire data were collected at four time points; at the commencement of treatment (T1), 2 months after treatment (T2), when a potential child was 12–36 months old (T3), and when a potential child had reached 7 years of age (T4). The present study concerns data collected at T4, a time point chosen as 7-year-old children have been shown to have a basic understanding of heritability and conception ([Williams and Smith, 2010](#)). In addition, it was assumed that parents of 7-year-olds would have a rich bank of experiences to draw from when answering questions regarding perceived treatment in society. The questionnaires were distributed via mail, together with a prepaid return envelope and a cover letter stating the purpose of the study and guaranteeing confidentiality. Two reminders were sent in case of no response.

Inclusion criteria for the present study were having a 7-year-old child conceived with donor sperm at one of the participating clinics during 2005–2010. Excluded were three couples who had used a known donor to conceive and 16 women who had actively declined follow-up ([Fig. 1](#)). Of 196 eligible women, 143 responded to the survey at T4 (73% response rate). The present sample constituted of 61 full couples and 21 individuals, and the participants thus represented 82 couples that had a child by identity-release sperm donation.

To investigate potential attrition bias, responders and non-responders at T4 were compared with regard to age and educational



level assessed at treatment start (T1) and attitudes toward disclosure to offspring (six items) assessed 2 months after treatment (T2; [Isaksson et al., 2011](#)). Comparisons revealed no significant group differences (data not shown), except for one attitude item, where agreement with the statement 'Parents should be honest with their children regarding their genetic origin' was higher among non-responders than responders ($U = 2911.0, P = 0.035$).

The Regional Ethical Review Board in Linköping has approved the SSGD project, Dnr M29-05, M29-05/1-06, 2013/299-31.

Measurements

Openness and perceived treatment in society

Openness and perceived treatment in society were measured with 15 items adapted from a previous study on parents following surrogacy ([Sydsjö et al., 2019](#)). First, participants indicated their level of openness about the child's donor conception in three different settings: health care, the child's school and the child's recreational activities. Response alternatives were 'Totally open', 'Told selected individuals' and 'Did not inform at all'. Then, participants responded to four items about perceived treatment by persons in each of the three settings: 'I am being treated in the same way as other parents', 'As a parent I am treated positively', 'Me and my partner are given equal parental status'

and 'Too much emphasis is placed on the parents' same-sex relationship instead of on my child's needs'. For each item, participants were asked to give separate responses for the categories 'health care', 'child's school' and 'child's recreational activities'. Responses were indicated on a five-point Likert scale, ranging from 'Disagree totally' to 'Agree totally', with the additional option 'Cannot form an opinion'. There was also an option to provide comments regarding openness and perceived treatment.

Parenting stress

Parenting stress was assessed with the Swedish Parenting Stress Questionnaire (SPSQ). The SPSQ is based on parts of the Parent domain of the American Parenting Stress Index (Abidin, 1995) and is validated for Swedish conditions (Östberg et al., 1997). The SPSQ consists of 34 items and is designed to measure experiences of stress related to parenthood. Responses to the SPSQ form a General parenting stress score and five subscales: Incompetence, Role restriction, Social isolation, Spouse relationship problems and Health problems. Scores can range from 1 to 5, with higher scores indicating more parenting stress.

Disclosure to the child

Disclosure to the child was measured with two study-specific items previously used by the research group (Lampic et al., 2021). Participants were asked to indicate whether they had started to talk with their child about (i) his/her donor conception and (ii) the possibility to obtain the identity of the donor. For each item, five response alternatives were provided: 'Yes, I have started talking about it', 'No, I intend to do it later on', 'No, I intend to do it if/when the child raises the question', 'No, I am uncertain/hesitant' and 'No, I will not tell the child about this'. Participants who already had started to talk with the child or planned to do so later were also asked to indicate the child's age at (planned) disclosure (open-response format). In addition, participants were encouraged to comment on their thoughts regarding disclosure and to describe the child's reaction to disclosure (open-response format).

Data analysis

Differences between birth mothers' and non-birth mothers' rating of openness, perceived treatment and parenting stress were investigated using independent samples *t*-tests or Mann-Whitney *U*-tests depending on distribution and level of measurement. Pearson χ^2 -tests or Fisher's exact tests were used to compare differences in proportions. To compare perceived treatment between the three settings (health care, school and recreational activities), Friedman tests followed by *post hoc* tests using Bonferroni-corrected Wilcoxon Signed-Rank Tests, were calculated on the original data (five-point Likert scale). For clarity of presentation of results regarding perceived treatment, the two positive and the two negative response alternatives were collapsed into the broader categories 'Agree' and 'Disagree'. Child age at disclosure was categorized into age brackets based on the lowest age indicated by the mothers of a couple. All statistical analyses were performed in IBM SPSS. *P*-values below 0.05 (two-sided) were considered significant. Responses provided in an open-response format were analyzed inductively with qualitative content analysis (Elo and Kyngäs, 2008). Using a manifest approach, words and phrases reflecting the same content

were brought together to form categories, which are presented as a complement to the quantitative results.

Results

Participant characteristics

Participants were 143 women who had conceived a child following sperm donation treatment as part of a same-sex couple. These women represented a total of 82 couples who had undergone donation treatment together. For 61 couples, both mothers participated at T4, and for 21 couples, only one of the mothers participated (12 birth mothers and 9 non-birth mothers). At T4, when the child had reached age 7, participants' responses showed that 31 of the 82 couples (38%) had separated/divorced. All but two of the separated couples had shared custody of the donor-conceived child, with the child most often living every other week with each mother. The group of participants consisted of 73 birth mothers and 70 non-birth mothers who were around 40 years of age at the time of the study; birth mothers had a significantly higher level of education than non-birth mothers ($P = 0.024$; Table I).

Openness about the child's donor conception

More than 90% of participating mothers reported being totally open about the child's donor conception in contacts with health care and the child's school, and 72% were totally open in connection with the child's recreational activities (Table II). There were no statistically significant differences between birth mothers and non-birth mothers in terms of openness (data not shown). Analysis of open-response comments provided by 17 participants showed that having used donation treatment was primarily considered *an obvious and inseparable part of the family structure*, e.g. 'It is obvious as they have two mothers'.

Table I Socio-demographic data of participants.

	Birth mothers N = 73 (% ¹)	Non-birth mothers N = 70 (% ¹)	<i>P</i> -value
Age at T4 M/SD²	40.20/4.07	41.65/5.45	0.105 ^{3,4}
Education			0.024 ⁵
Compulsory (9 years)	3 (4)	2 (3)	
Secondary (11–12 years)	18 (25)	34 (49)	
University	52 (71)	34 (49)	
Same partner⁶			0.504 ⁷
Yes	47 (64)	46 (66)	
No	26 (36)	24 (34)	

¹Percentages do not add up to 100 due to rounding; ²M = mean, SD = standard deviation; ³Independent samples *t*-test; ⁴For this analysis, N = 69 birth mothers and 66 non-birth mothers; ⁵Fisher's exact test; ⁶Living with the same partner at the time of the study (T4) as at the commencement of donation treatment (T1), i.e. the co-parent of the donor-conceived child; ⁷Pearson χ^2 -test.

Table II Same-sex mothers' level of openness about the child's donor conception and perceived treatment in contact with health care, child's school and recreational activities.

		Health care N = 139 (% ¹)	Child's school N = 139 (% ¹)	Child's recreational activities N = 139 (% ¹)	P ²	
Openness³	Totally open	130 (94)	125 (91)	96 (71)		
	Told selected individuals	5 (4)	6 (4)	21 (15)		
	Did not inform at all	3 (2)	6 (4)	19 (14)		
Treatment	I am being treated in the same way as other parents	Agree	120 (86)	136 (98)	126 (91)	<0.001
		Neutral	8 (6)	0 (0)	0 (0)	
		Disagree	9 (6)	2 (1)	1 (1)	
	No opinion	2 (1)	1 (1)	12 (9)		
As a parent, I am being treated positively	Agree	119 (86)	130 (94)	123 (88)	<0.001	
	Neutral	13 (9)	7 (5)	7 (5)		
	Disagree	6 (4)	2 (1)	1 (1)		
	No opinion	1 (1)	0 (0)	8 (6)		
Me and my partner are given equal parental status	Agree	112 (81)	131 (94)	123 (88)	<0.001	
	Neutral	10 (7)	4 (3)	3 (2)		
	Disagree	14 (10)	2 (1)	3 (2)		
	No opinion	3 (2)	2 (1)	10 (7)		
Too much emphasis is placed on the parents' same-sex relationship instead of on my child's needs	Agree	10 (7)	4 (3)	3 (2)	<0.001	
	Neutral	11 (8)	5 (4)	5 (4)		
	Disagree	113 (81)	128 (92)	119 (86)		
	No opinion	5 (4)	2 (1)	12 (9)		

¹Percentages do not add up to 100 due to rounding.

²Comparison of perceived treatment in the three settings (using original 5-point Likert scale) with Friedman test;

³Missing values for openness in contacts with child's health care (n = 1), school (n = 2) and recreational activities (n = 3).

Perceived treatment in society

More than 80% of the mothers reported that they received positive and similar treatment as other parents and were given equal parental status in contacts with health care, and the child's school and recreational activities (Table II). Few mothers (2–7%) stated that too much emphasis was being placed on the parents' same-sex relation. Perceived treatment in society was found to differ significantly between the three settings for all four items ($P < 0.001$; Table II). *Post hoc* tests showed that participants reported significantly lower scores of equal and positive treatment in health care settings compared to perceived treatment in contacts with the child's school and recreational activities ($P < 0.001$), with no significant differences between the latter two settings. Responses did not differ significantly between birth mothers and non-birth mothers (data not shown).

A total of 43 participants provided an open-response comment regarding contact with health care and the child's social network. Most of these were categorized as reflecting *positive experiences*, *absence of negative experiences* or the view that *being open led to positive treatment*. For example, one mother wrote: '[We receive] positive treatment, but need to be open and provide information'. Other comments were

categorized as reflecting *negative experiences*. The majority of these concerned *heteronormative assumptions and/or language*, e.g.: 'Forms in health care settings are still directed towards a man and a woman'. Other comments concerned *ignorant or inappropriate treatment*, e.g. 'An IVF nurse questioned why we chose donation rather than "taking care of it at home"', or experiences of *devaluation of the non-birth mother*. For example, one birth mother wrote: 'I have received positive treatment, but my ex-partner [the child's non-birth mother] has been assigned "lower parental status" and has even been referred to as a "bonus mother"'. Of the three investigated settings, health care was the one most often mentioned in the negative comments. Some comments could not be categorized as reflecting either positive or negative experiences. For example, a few mothers noted that, at child health care visits, they often had to explain that there may be hereditary factors not known by the parents.

Parenting stress

Birth mothers reported marginally higher levels of parenting stress on the subscale Role restriction ($P = 0.05$; Table III). There were no

Table III Comparison of parenting stress (SPSQ¹) between birth mothers and non-birth mothers.

	Birth mothers ² N = 72 M (SD) ³	Non-birth mothers ² N = 70 M (SD) ³	P-value ⁴
General parenting stress (Total score)	2.40 (0.46)	2.34 (0.42)	0.476
Incompetence	2.10 (0.60)	2.11 (0.57)	0.944
Role restriction	3.30 (0.61)	3.07 (0.75)	0.050
Social isolation	1.86 (0.61)	1.80 (0.48)	0.480
Spouse relationship problems	2.50 (0.92)	2.32 (0.74)	0.226
Health problems	2.58 (0.73)	2.58 (0.70)	0.975

¹Swedish Parenting Stress Questionnaire; ²Missing values for 1–4 mothers for some scales; ³M = mean, SD = standard deviation; ⁴Independent Samples t-test.

differences between birth mothers and non-birth mothers on any of the other subscales, or on General parenting stress.

Disclosure to offspring

Disclosure regarding the child's donor conception

A total of 141 participants representing 82 couples reported on their disclosure of the donor conception to the child. Except for mothers in one couple who planned to disclose when the child raises the question, all indicated that they had already started to talk with their child about his/her conception with donor sperm (Table IV). Most couples had started disclosure before the child had reached age 6. Forty mothers provided open-response comments to their disclosure of the donor conception. These concerned how the donation had been a topic of discussion *from an early age* and that disclosure was perceived as *natural or inevitable*, e.g. '[speaking about it] feels inevitable as our child has two mothers'. Other comments concerned the perceived *importance of honesty and the child's right to information*, e.g. '[It is] important to be honest. When asked "Where is my dad?" you need to be able to provide an answer'. A number of comments also concerned *narratives and methods of disclosure*, e.g. having used certain children's books when disclosing.

Disclosure regarding the child's opportunity to obtain donor identity

A total of 135 participants representing 81 couples reported about their disclosure of the child's opportunity to obtain identifying information about the donor. About half of the couples (n = 43) had already started to talk with the child about this opportunity, most often between age 3 and 7 (Table IV). The remaining couples planned to disclose this information later. Some provided an approximate age for the planned disclosure (most often between age 8 and 12), and others commented that they would disclose when the child raised the question. Forty mothers provided comments regarding their disclosure of the child's opportunity to obtain donor information. One category reflected how *the child's level of maturity or interest* was seen as key to when to start disclosure, e.g. 'I think we'll talk about it when he understands more about genes, starts to think about who he resembles and so on'. Another category concerned the subject's *importance*, emphasizing either the importance of the child being aware of the right to identity, or the importance of using identity-release donation. The remaining comments were predominantly statements confirming that parents had already disclosed about the right to donor identity.

Table IV Disclosure to child regarding donor conception and right to information about donor identity, based on responses by mothers in 82 recipient couples.

	Donor conception N (%)	Right to donor ID N (%)
Disclosed	81 (99)	43 (52)
Child age 0–2 years	38 (46)	3 (4)
Child age 3–5 years	40 (49)	26 (32)
Child age ≥6 years	2 (2)	10 (12)
Don't recall child age	1 (1)	4 (5)
Plan to disclose	1 (1)	38 (46)
Child age 8–12 years		11 (12)
Child age 13–17 years		4 (3)
Uncertain about child age		4 (5)
When child asks	1 (1)	19 (23)
Hesitant/will not disclose	0 (0)	0 (0)
Missing	0 (0)	1 (1)

¹Percentages do not add up to 100 due to rounding.

Child reaction to disclosure

Participants provided open-response comments about how the child had reacted to finding out about his/her donor conception (50 mothers) and his/her right to obtain information about the donor's identity (24 mothers). Analysis of these comments resulted in four categories reflecting mothers' perceptions of the child's reactions as *neutral, unspecified positive*, characterized by *interest or curiosity*, or, in a few cases, as *partly negative*. The last category is exemplified by one mother who wrote that her child had reacted to information about the donor conception with curiosity, but that '[...] occasionally he wishes that he had a mother and a father in order to be like everybody else'. Children's interested or curious reactions to finding out about their right to obtain the donor's identity could involve fantasies about the donor, as exemplified by quotes from two mothers: 'A lot of questions. "Is it Zlatan [Ibrahimovic]? Could it be Hitler?"' and 'He fantasizes a bit about it. He knows that it is not a parent but that he may see him'.

Discussion

The present study reports on the parenting experiences of a population-based sample of 143 same-sex mothers with school-aged children conceived by identity-release sperm donation. Most mothers reported being treated positively and in the same way as other parents in society. However, satisfaction with treatment in healthcare settings was significantly lower than that reported in contacts with the child's school and recreational activities, and appeared to be influenced by experiences of heteronormative language and assumptions. Birth mothers and non-birth mothers reported similar treatment in society and similar levels of parenting stress. Almost all couples had already talked with their 7-year-old child about his/her donor conception. Half of the couples had also disclosed the child's opportunity to obtain the donor's identity, which was considered to require a higher level of maturity.

Openness and perceived treatment in society

The mothers in the present study were generally open about having used sperm donation to become parents, and reported receiving positive and similar treatment as other parents in society. Contentment with treatment was particularly high with regard to contact with the child's school and recreational activities. This is encouraging and contrasts some earlier reports of mothers hiding their two-mother family structure from the child's school due to experiences of homophobia and discrimination (e.g. [Lindsay et al., 2006](#); [Iraklis, 2021](#)). Positive experiences of inclusive school environments have, however, also been previously reported (e.g. [Mercier and Harold, 2003](#)), and regional and cultural differences have been suggested to play a major role in the differences in results ([Lindsay et al., 2006](#)).

Satisfaction with treatment in contacts with health care was significantly lower compared to the other settings. Open-response comments contributed valuable information, particularly regarding more negative experiences. Mothers reported facing different types of heteronormative assumptions at health care visits, and the use of heteronormative language in verbal and written information stands out as a particularly problematic area. This has been repeatedly reported (e.g. [Cherguit et al., 2013](#); [Titlestad and Robinson, 2019](#); [Soinio et al., 2020](#); [Appelgren Engström et al., 2021](#)) and emphasizes how the use of normative language can contribute to a non-inclusive environment ([Brennan and Sell, 2014](#)). Health care was also the setting where the highest proportion of participants perceived that the birth mother and non-birth mother were given unequal parental status. This is concerning and highlights the previously acknowledged need (e.g. [Wilton and Kaufmann, 2001](#); [Brennan and Sell, 2014](#); [Appelgren Engström et al., 2021](#)) for health care personnel to equally recognize and address both mothers.

In light of the issues discussed above, we suggest that measures are taken within health care to better accommodate a variety of family constellations, including those headed by two mothers. We agree with previous recommendations (e.g. [Appelgren Engström et al., 2021](#)) that heteronormative language should be avoided in both verbal and written information, and that a diversity of family constellations should be represented in brochures, forms and other material. Personnel need to be updated on terminology and perceptive to what terms are used

and preferred by individual families. It has previously been acknowledged that health care personnel need to reflect on their own conceptions of family and parenthood, and how these may affect their interactions with patients (e.g. [Brennan and Sell, 2014](#)). The use of incorrect and potentially hurtful terms, as in the current example of a non-birth mother being referred to as 'bonus mother', may for example be indicative of a view that a child can only have one mother. Finally, increased personnel continuity may reduce the need for parents to repeatedly explain their family constellation.

Our results are roughly in line with the conclusions of two reviews focusing on experiences of lesbian, gay, bisexual and transgender parents when accessing health care for their children, relying predominantly on qualitative studies. First, a review of studies conducted in Europe, Australia and the USA concluded that parents rarely experienced overt homophobia in health care settings, but did encounter normative heterosexism and a lack of acceptance and inclusion ([Kelsall-Knight, 2021](#)). A second review focused specifically on same-sex mothers' experiences of child health care services in the Nordic countries, as these rank as the most gender equal in the world and therefore may be more supportive of same-sex relations and parenting ([Wells and Lang, 2016](#)). The authors concluded that same-sex mothers were generally content, but also reported some incidences of discriminative behavior and issues regarding heteronormative language and the status of the non-birth mother. The present survey study thus complements these findings and, by using a population-based sample with relatively high response rates, contributes with more secure conclusions regarding the prevalence of same-sex mothers' perceptions of equal treatment. On a final note, it is interesting that several mothers in the present study spontaneously commented that they believed that it was their openness that led to favorable treatment. It seems plausible that being proactive and informing about the family structure may be a strategy for avoiding heteronormative assumptions being made. Future studies are needed to investigate to what extent same-sex mothers use such strategies to influence the way they are treated in society.

Parenting stress

The parenting stress scores of the mothers in the present study were similar to those previously reported in other Scandinavian samples of predominantly heterosexual mothers ([Östberg et al., 1997](#); [Skreden et al., 2012](#); [Widarsson et al., 2013](#)) and thus do not indicate any problems related to the area. Although a marginally significant difference was found for the subscale Role restriction, birth mothers and non-birth mothers did not differ from each other in terms of general parenting stress or on any of the other subscales. Overall, this study does not indicate any major differences between birth mothers and non-birth mothers, either in terms of parental stress or in terms of openness or views on how they are treated.

Disclosure to child

Research indicates that disclosure in early childhood is preferable to later disclosure ([Jadva et al., 2009](#); [Ilioi et al., 2017](#)), and it is thus encouraging that almost all mothers in the present study reported having talked with their child about his/her donor conception by age seven. Half had started disclosure when the child was between 3 and 5 years old, and many even earlier than that. These results are in line with

previous studies suggesting that same-sex mothers start disclosure earlier than different-sex parents (Scheib et al., 2003; Beeson et al., 2011; Lampic et al., 2021). By discussing the donation in early childhood, the mothers may be said to use the 'seed planting strategy' (Mac Dougall et al., 2007), characterized by the striving that the child 'will always have known' about the donation, so that the information will never come as a surprise. Similarly to what has been previously suggested (Vanfraussen et al., 2001), disclosure regarding the donation was typically intertwined with discussing the family structure of two mothers and no father.

To our knowledge, this is the first study to investigate parents' disclosure of the child's opportunity to obtain identifying donor information. When the child had reached 7 years of age, about half of the couples reported having talked with their child about this and the remaining planned to do so when the child was older. The open-response comments indicate that the subject of donor identity was perceived to require a higher degree of child maturity compared to talking about the donation itself. Many mothers thus seem to engage in gradual disclosure, which is in line with the results from a previous interview study, in which parents described disclosure as a process with different levels, of which informing about the right to donor identity was the last step (Isaksson et al., 2016). However, as disclosure intentions do not always translate into actual disclosure (Readings et al., 2011), this should be followed up.

Children's reactions to finding out about the donor conception or about the opportunity to obtain the donor's identity were predominantly described as neutral, positive or as characterized by interest and curiosity. This is in line with previous reports from both same-sex and different-sex parents following disclosure of donor conception in childhood (Scheib et al., 2003; Isaksson et al., 2016), and also with the results of a recent study reporting donor conceived adolescents own accounts (Zadeh et al., 2018). Many parents find it difficult to talk with their children about having used gamete donation (Tallandini et al., 2016; ESHRE Working Group on Reproductive Donation, 2022) and informing them of their right to obtain the donor's identity may entail further challenges. For example, parents may have to handle the child's fantasies and fears regarding the donor and potential contact with him, as well as their own thoughts and feelings regarding the donor and his potential role in the child's life (Isaksson et al., 2016; Widbom et al., 2021).

Methodological considerations

The present study is based on a large national sample of female same-sex couples who commenced treatment with donor sperm between 2005 and 2008. The population-based design, where all same-sex couples starting sperm donation treatment in Sweden during a 3-year period were approached regarding participation, and a high initial response rate render a much smaller risk of selection bias compared to studies relying on self-selection. While our attrition analysis showed that responders and non-responders were comparable in terms of age, education and attitudes toward disclosure, we cannot rule out the existence of other potential differences. For example, it is possible that those who dropped out may have had more negative experiences in terms of treatment compared to those who remained in the study. It should also be acknowledged that other researchers have suggested

that same-sex mothers may tone down negative experiences to normalize their family construction and strive for societal acceptance of two-mother families (Clarke et al., 2004; Malmquist and Nelson, 2014). Regarding disclosure, it must be considered that all families in the study had chosen to pursue donation treatment within the health care system in Sweden, where identity-release donation is mandatory and early disclosure is recommended. Finally, the combined methodological approach, where qualitative analysis of open-response comments was used to enrich and increase understanding of the quantitative results, represents a strength of the study.

Conclusions

The present results from the fourth wave of the population-based SSGD show that most same-sex mothers with school-aged donor-conceived children experience equal treatment in society. This is an encouraging finding and validates previous results from predominantly qualitative studies. Nevertheless, the fact that a subgroup of women experiences discrimination and less favorable treatment indicates that further action is needed, particularly in child health care settings. The study is the first to report on the timing of parental disclosure regarding the child's right to obtain identifying donor information and suggests that disclosure during preschool ages is feasible. Overall, the mothers' disclosure behavior seems to be in line with the intentions of the Swedish legislation. In view of the increased availability of identity-release donation, there is a need to investigate parents' intentions, behaviors and needs with regard to talking with their child about the right to obtain the donor's identity.

Data availability

The data underlying this article will be shared on reasonable request to the corresponding author.

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Authors' roles

C.L. and G.S. conceived of the design and collected the data. E.T. and C.L. performed the analyses. All authors contributed to the interpretation of the results. E.T. drafted the manuscript and all authors critically revised the manuscript and approved the final version.

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Conflict of interest

The authors have no conflict of interest to declare.

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