

Surrogacy families headed by gay men: relationships with surrogates and egg donors, fathers' decisions over disclosure and children's views on their surrogacy origins

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STUDY QUESTION: How do gay father families experience surrogacy in terms of their relationships with surrogates and egg donors, fathers' disclosure decisions and children's views on their surrogacy origins?

SUMMARY ANSWER: More families had a relationship with the surrogate than the egg donor, and almost all had started to disclose to their children, the majority of whom expressed limited interest in their surrogacy conception.

WHAT IS KNOWN ALREADY: Gay fathers tend to report greater contact with the surrogate than the egg donor and to disclose only the use of a surrogate (omitting discussion of the egg donor and the respective fathers' genetic relatedness). Children's views on their surrogacy conception to gay fathers are not known.

STUDY DESIGN, SIZE, DURATION: Thirty-one children and 80 fathers were interviewed as part of a larger in-depth investigation of 40 Italian gay father surrogacy families. Multiple strategies were used to recruit participants.

PARTICIPANTS/MATERIALS, SETTING, METHODS: Children were aged 6–12 years and had been born to gay fathers through gestational surrogacy. Semi-structured interviews were conducted in participants' homes with each family member, separately. Fathers' interviews were presented from the perspective of the father who identified as being most involved with the child on a day-to-day basis. Qualitative content analysis was performed and quotations illustrating the findings were reported. Where appropriate, comparisons were conducted using χ^2 or Fisher's exact tests.

MAIN RESULTS AND THE ROLE OF CHANCE: A total of 31 children in 24 families were interviewed. Most families reported a harmonious relationship with the surrogate ($n = 20$, 57.1%) and a distant relationship with the donor ($n = 10$, 66.7%) ($\chi^2(1) = 23.33$, $P < 0.001$). Before the child was aged 4 years, almost all families ($n = 34$, 85%) had started to disclose their use of a surrogate, with 16 families ($n = 16$, 40%) also disclosing their use of a donated egg, and only 4 (10%) disclosing which father's sperm had been used. Of the 31 children interviewed, most ($n = 17$, 54.8%) showed a clear understanding of their conception. About 19 (61.3%) expressed limited interest in their conception, 11 (35.5%) felt positive and 1 child (3.2%) was unsure how he felt. Children differed in their feelings towards their surrogate and egg donor (Fisher's exact test, $P = 0.002$). Of the 31 children who were aware of the surrogate, the majority felt grateful towards her ($n = 22$, 71%), while of the 25 children who were also aware of the egg donation, 11 (44%) showed limited interest in their donor.

LIMITATIONS, REASONS FOR CAUTION: The sample's convenience nature and the gay father families' high income limited the representativeness of the findings. Further, some children belonged to the same family, and this could have biased the results, as these children may have had similar experiences.

WIDER IMPLICATIONS OF THE FINDINGS: Prior to this study, the voice of children conceived by gay fathers through surrogacy had not been heard. Future research on factors influencing children's desired contact with—or interest in—the surrogate and/or egg donor and their feelings when contact is not possible will be important in preparing families for such events.

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Key words: surrogacy / gay father family / disclosure / egg donation / child's perspective

Introduction

An increasing number of gay men are creating families through surrogacy (Norton *et al.*, 2013)—a practice whereby a woman (the 'surrogate') bears a pregnancy for the intended parent(s) with the intention of handing over the resulting child. In gestational surrogacy, the surrogate has no genetic relationship to the child; fathers may select an egg donor with whom they might have contact in the future (an 'open-identity donor') or one with whom they want little or no contact (an 'anonymous donor'), although the possibility of complete anonymity is doubtful (Harper *et al.*, 2016). In Italy, as in many other European countries, surrogacy is illegal for everyone in all forms (i.e. commercial or altruistic), and those who wish to use surrogacy must do so transnationally (e.g. in California or Canada).

One of the main concerns regarding gay father surrogacy families pertains to the surrogate–child relationship, as it is assumed that the child may view the surrogate as a mother and suffer when there is no relationship—or one that is limited by physical distance (Golombok, 2015; Lingjardi and Carone, 2016b). Reproductive clinics place significant weight on child welfare when considering whether treatment should be provided to particular clients (Pennings *et al.*, 2007). Furthermore, intended parents must demonstrate their ability to maintain a respectful and caring relationship with the surrogate and explore any plans relating to disclosure and future contact in a psychosocial consultation prior to treatment (Practice Committee of the ASRM, 2017). Yet these aspects of treatment have been largely under-researched. No studies have investigated how children born to gay fathers through surrogacy feel about their origins, the terms they use when talking about their surrogate and egg donor, or their understanding of their conception.

Parents may assume that contact with the surrogate or donor may help their children understand their origins (Jadva *et al.*, 2012), but children may desire less/more contact or only be interested in knowing these persons at certain moments in their life (e.g. when genetics becomes salient to their identity formation). Studies conducted in Spain (Smietana *et al.*, 2014), Italy (Carone *et al.*, 2017a) and the USA (Greenfeld and Seli, 2011; Blake *et al.*, 2016; Murphy, 2015) from the fathers' perspective have found predominantly positive and friendly relationships between fathers and the surrogate. However, parents have not been found to frequently engage in contact and/or a relationship with the egg donor. In a study of 40 American gay father surrogacy families (Blake *et al.*, 2016), of whom four used an anonymous egg donor, only 25% were found to have met the donor after the child's

birth and only 31% had a relationship with her; conversely, 83% had met the surrogate and 85% had a relationship with her.

Fathers who use surrogacy must explain their path to parenthood to their children. Compared with other family forms created by third-party reproduction, surrogacy families are more open about the conception method, irrespective of the parents' sexual orientation (Readings *et al.*, 2011; Jadva *et al.*, 2012; Blake *et al.*, 2016; Carone *et al.*, 2017a). Gay couples may or may not disclose to their children which father has a genetic connection to the child. When children in the US study of gay father surrogacy families were aged 5.5 years (Blake *et al.*, 2016), 83% of the fathers had started the disclosure process, though some had not yet mentioned the use of donated eggs or disclosed whose sperm had been used.

This paper aims at investigating the gay father families' experiences of surrogacy, addressing three research questions: What was the nature of the families' relationships with the surrogate and egg donor?; What and when did parents disclose to their children about their surrogacy origins?; How did their children understand—and feel about—their surrogacy conception? Data were collected from the perspective of the fathers and children.

Materials and Methods

Participants

Data were collected as part of a larger investigation of father–child relationships and child adjustment in gay father surrogacy families (Carone *et al.*, under review). Forty families—all residing in Italy—participated in the study. The inclusion criteria were that the target child was aged 3–9 years and had been conceived through surrogacy, and that the parents had been together since the child's conception. For this part of the study, all children older than 6 years ($n = 33$, $age_{range} = 6–12$ years) who were aware of their surrogacy conception were interviewed about their experience of surrogacy. Interviews were not conducted with two children because the parents did not consent; ultimately, 31 children in 24 families were interviewed. Participants' characteristics are presented in Table 1.

Procedure

Study approval was obtained from the Institution Ethics Committee. Three of the researchers trained in the study techniques visited the families at home between January and July 2017. Semi-structured interviews were conducted with each family member (i.e. each father and all children), separately. Written informed consent was obtained from all adult participants. Parents consented for their children to be interviewed and edited the

Table 1 Characteristics of the participating families.

Gay father surrogacy families (N = 40 families, 80 fathers)	
Target child's mean age _{months} (SD)	71.30 (28.18)
Parents' mean age _{years} (SD)	45.9 (6.59)
Mean annual household income (SD)	€124,972 (66,122)
	N (%)
Parents' ethnicity (Caucasian)	75 (93.8)
Parents' residence	
Northern Italy	16 (40)
Central Italy	19 (47.5)
Southern Italy	5 (12.5)
Parents' educational level (bachelor's degree or higher)	60 (75)
Parents' occupation (professional/managerial)	59 (73.7)
Parents' work status (full-time)	75 (93.7)
Length of couple's relationship	
Fewer than 10 years	12 (30)
11–15 years	10 (25)
More than 15 years	18 (45)
Marital status	
Civil partnership in Italy	20 (50)
Married/civil partnership abroad	12 (30)
Unmarried/no civil partnership	8 (20)
Type of surrogacy	
Gestational	40 (100)
Genetic	0
Where surrogacy arrangements have been carried out	
USA	26 (65)
Canada	10 (25)
Ukraine	2 (5)
Colombia	1 (2.5)
India	1 (2.5)
Surrogates previously known	
No	39 (97.5)
Yes (non-genetic father's sister)	1 (2.5)
Where surrogates have been met	
Agency or clinic	27 (67.5)
Online advertisements (e.g. surrogacy blogs, Facebook groups)	12 (30)
Family member	1 (2.5)
Egg donors previously known	
No	40 (100)
Yes	0
Egg donors' identity status	
Open-identity	29 (72.5)
Very little chance of contacting/meeting her in the future	11 (27.5)
Where surrogates/egg donors have been met	
Agency or clinic	33 (82.5)
Online advertisements (e.g. surrogacy blogs, Facebook groups)	7 (17.5)

Continued

Table 1 Continued

Children participating in the interview (N = 31, from 24 families)	
Mean age _{months}	99.58 (20.57)
Gender	
Boy	16 (51.6)
Girl	15 (48.4)
Recruitment	
From Italian Rainbow Family (association of same-sex parent families)	16 (40)
Word of mouth of the participating families to other families who fitted the study criteria	14 (35)
Through advertisements on the website of same-sex parent groups	7 (17.5)
At events with gay fathers in attendance	3 (7.5)
Response rate	
Families	40 participated, of the 55 who contacted the research team (72.7%)
Children interviewed	31 participated, of the 33 who fitted the study criteria (93.9%)

interview terminology to ensure it matched their discussions with the child. Where possible, children gave written consent to take part; failing this, verbal assent was gained.

The interviews lasted (on average) 90 min and 1 h with children and parents, respectively, were digitally recorded, transcribed, anonymized and imported into Atlas.ti (version 8, Scientific Software Development; Berlin, Germany). Fathers' interviews were presented from the perspective of the father who identified as most involved with the child on a day-to-day basis ('father A'). This distinction was straightforward in most families ($n = 29$, 72.5%); in the remaining families ($n = 11$, 27.5%), 'father A' was assigned randomly.

Measures

Surrogacy conception interview

Children were asked about their feelings towards—and understandings of—their surrogacy origins, through questions informed by a previous study of surrogacy children born to heterosexual parents (Jadva et al., 2012). Question examples and data categorization are presented in Supplementary Data.

Fathers through surrogacy interview

Fathers were asked about their relationship with the surrogate and egg donor, and their decisions to disclose to their children, in accordance with previous studies of gay father surrogacy families (Blake et al., 2016; Carone et al., 2017a). Data categorization is presented in Supplementary Data.

Data analysis

Text-driven qualitative content analysis (Krippendorff, 2013) was performed. Data were organized in an Excel (version 1.30, Microsoft Corporation, Redmond, WA, USA) spreadsheet (e.g. all quotations pertaining to 'children's feelings towards their surrogate' were copied into one cell). Then, a coding manual was created to describe the information in each cell. Finally, the interviews were rated in accordance with the

coding manual and frequency counts were calculated. Half the transcripts ($n = 20$ father interviews; $n = 16$ child interviews) were recoded by a second researcher to calculate interrater reliability (Cohen's kappa = 0.88; $P < 0.001$). Any discrepancies between coders were discussed until consensus was reached.

Quotes illustrating the study findings are reported in Tables II–V. Comparisons between fathers' relationships with the surrogate versus egg donor, and between children's views on their surrogate versus egg donor, were conducted using χ^2 or Fisher's exact tests. Differences in children's age according to the stages of disclosure were examined using the Kruskal–Wallis H test, whereas differences in children's age according to their level of understanding of conception were assessed through the Mann–Whitney test. SPSS version 24 (IBM Corp., Armonk, NY, USA) was used for quantitative analysis; a $P < 0.05$ was considered statistically significant.

Results

Quality of relationships between families, surrogates and egg donors

Following the birth, more parents had met the surrogate ($n = 30$, 75%) than the egg donor ($n = 9$, 22.5%) ($\chi^2(1) = 22.06$, $P < 0.001$) (Table II). However, there were no differences ($\chi^2(1) = 2.85$, $P = 0.09$) between families who had seen the surrogate in the past year ($n = 16$, 40%) and those who had seen the donor ($n = 9$, 22.5%). At the time of the interview, more fathers were in contact with the surrogate ($n = 35$, 87.5%) than the donor ($n = 15$, 37.5%) ($\chi^2(1) = 21.33$, $P < 0.001$). Social media (Facebook) was the main method of communication with both the surrogate ($n = 29$, 82.8%) and the donor ($n = 11$, 73.3%).

Fathers did not differ in their satisfaction with their contact with the surrogate versus the egg donor ($\chi^2(2) = 1.31$, $P = 0.51$). Most were satisfied with their contact with the surrogate ($n = 21$, 52.5%), about one-third ($n = 12$, 30%) felt neutral, and seven (17.5%) were unsatisfied, because they desired more. Likewise, 16 fathers (40%) were satisfied with their contact with the donor, 16 (40%) felt neutral and the remaining 8 (20%) were unsatisfied because they wanted more or wished the donor was open-identity.

A difference was found between the quality of families' relationships with the surrogate versus the donor ($\chi^2(1) = 23.33$, $P < 0.001$). Most families with a relationship with the surrogate ($n = 35$, 87.5%) described it as harmonious ($n = 20$, 57.1%), and the remaining families described it as distant, with little communication and/or warmth ($n = 15$, 42.9%). Conversely, most families with a relationship with the donor ($n = 15$, 31%) described it as distant ($n = 10$, 66.7%), and the remaining families described it as harmonious ($n = 5$, 33.3%). None of the families had a negative relationship with both the surrogate and the donor. Findings are presented in more detail in Table II.

Parental disclosure of origins

Most fathers ($n = 34$, 85%) had started to disclose to their children, and the remaining planned to do so in the following years. Apart from two sets of fathers, all had started the disclosure process before the child's age of 4 years ($n = 32$, 94.1%). Sixteen families (40%) had referenced the donated egg and only four (10%) had discussed which father's sperm had been used. The Kruskal–Wallis H test showed that children's age significantly differed across the stages of disclosure ($\chi^2(3) = 11.85$, $P < 0.01$). Dunn's post-hoc tests revealed that children who were fully disclosed (i.e. the use of both a surrogate and an egg

donor, as well as the fathers' genetic relatedness) (mean rank = 35) were significantly older ($P < 0.01$, adjusted using the Bonferroni correction) than children who were only aware of the use of a surrogate (mean rank = 14.61). Findings are presented more in detail in Table III.

Children's views on their surrogacy origins

All of the 31 children older than 6 years had been informed by their fathers of their surrogacy birth, while only 25 had been told about their donor. Most ($n = 17$, 54.8%) showed a clear understanding of their conception, in that they were aware that one woman had donated an egg and another woman had carried them in her tummy. The remaining children ($n = 14$, 45.2%) showed some understanding, explaining that their fathers could not have had them on their own, but without referring to the surrogate and/or donor. The Mann–Whitney test showed that the older the children, the higher the level of understanding they had reached ($U = 37$, $P < 0.01$). About half of the children ($n = 15$, 48.4%) discussed their conception with their fathers only when their fathers named the surrogate and/or the donor, and two-thirds ($n = 21$, 67.7%) discussed surrogacy in response to friends' questions.

About three-quarters of the children ($n = 24$, 77.4%) remembered the moment at which they were first told about their conception (Table IV). Among these children, about one-third ($n = 10$, 41.7%) remembered feeling positive (i.e. curious or special) in that moment, eight (33.3%) remembered limited interest, four (16.7%) could not recall and two (8.3%) did not understand the question. When children were asked about their current feelings about their conception, most ($n = 19$, 61.3%) expressed limited interest (i.e. they did not often think about it or they felt indifferent about it), eleven (35.5%) felt positive and one (3.2%) was unsure.

As shown in Table V, the children differed in their feelings towards their surrogate versus their egg donor (Fisher's exact test, $P = 0.002$), with more children feeling grateful towards their surrogate ($n = 22$, 71%) and expressing limited interest in their donor ($n = 11$, 44%). However, two children (8%) felt angry that their donor was not in contact with their family and a further two children (8%) wanted to know their donor. Likewise, the children explained their surrogate's and donor's roles using different terms (Fisher's exact test, $P = 0.006$). More children considered their surrogate an 'auntie' ($n = 17$, 54.8%) and called their donor a 'kind lady' ($n = 12$, 48%) and/or 'donor' ($n = 6$, 24%).

Children had differing questions about their surrogate versus their egg donor (Fisher's exact test, $P = 0.03$). More children wanted to know about their surrogate's life and family ($n = 16$, 51.6%) and had no particular questions for their egg donor ($n = 14$, 56%). However, four children (16%) had questions about a future relationship with their donor, even though she was not in contact with their fathers. Conversely, children's beliefs about their surrogate's versus donor's motivations for undertaking surrogacy did not differ (Fisher's exact test, $P = 0.21$). Most believed that their surrogate ($n = 19$, 61.3%) and donor ($n = 17$, 68%) had both wanted to help create a family.

Discussion

This study was the first to investigate the views of the children of gay fathers on their surrogacy origins. The findings show that, in almost all families, children were disclosed to before the age of 4 years. Initially, disclosure explained the non-traditional family structure and need of a

Table II Family relationships with surrogates and egg donors.

	Surrogate N = 40	Egg donor N = 40	χ^2 /Fisher's exact test	Illustrative quotes
Met since child born			22.06(1)*	
Yes	30 (75%)	9 (22.5%)		'Probably three years ago [...] She and her husband came to our house in [place name] to know the child. He was almost 5, he was old enough to be able to interact a bit with them.' (SU)
No	10 (25%)	31 (77.5%)		
Seen in past year			2.85(1)	'We haven't seen her probably for over a year now, physically.' (ED)
Yes	16 (40%)	9 (22.5%)		
3+	9 (56.2%)	2 (22.2%)		
1–2 times	7 (43.8%)	7 (77.8%)		
No	24 (60%)	31 (77.5%)		
Contact maintenance			21.33(1)*	'We follow each other on Facebook, I email her and send her pictures probably several times a year. The frequency of other communications is decreasing.' (ED)
Contact	35 (87.5%)	15 (37.5%)		
Facebook friends	29 (82.8%)	11 (73.3%)		
Whatsapp/text message	22 (62.8%)	10 (66.7%)		
Cards/gifts/flowers	21 (60%)	2 (13.3%)		
Email	20 (57.1%)	6 (40%)		
Skype/FaceTime	16 (45.7%)	4 (26.7%)		
Phone	9 (25.7%)	1 (6.7%)		
No contact	5 (22.5%)	25 (62.5%)		
Met fathers' families of origin			7.04(1)*	'She and her daughters came to our civil partnership and they physically met our families.' (SU)
Yes	15 (37.5%)	5 (12.5%)		
Siblings, parents, friends	6 (40%)	4 (80%)		'I'm satisfied, it's what we wanted. If I felt that she wanted more contact we'd definitely do it more, but there're no problems with the surrogate in the process or anything like that, it was great. I think we both are on the same page.' (Mostly satisfied, SU)
Baby showers	6 (40%)	1 (20%)		
Weddings/civil partnerships	3 (20%)	0		
No	24 (60%)	35 (87.5%)		
Non-genetic father's sister	1 (2.5%)	0		
Satisfaction with level of contact			1.31(2)	
Mostly satisfied	21 (52.5%)	16 (40%)		
Neutral	12 (30%)	16 (40%)		
Mostly unsatisfied, wants more	7 (17.5%)	8 (20%)		
Quality of relationship with fathers			23.33(1)*	'I think there is a healthy distance between us. I don't think I would want to have her too involved in [child's name]'s life. So I think I want a good relationship though. And, uh, for [child's name]'s sake. In case she expresses any curiosity about knowing who carried him...' (Distant relationship, SU)
No relationship	5 (15%)	25 (69%)		
Relationship	35 (85%)	15 (31%)		
Harmonious	20 (57.1%)	5 (33.3%)		
Distant	15 (42.9%)	10 (66.7%)		
Negative	0	0		
Relationship with SU/ED's family			26.60(1)*	'She and her family come for spending holidays together about every two years.' (SU)
No relationship	10 (25%)	33 (82.5%)		
Known	30 (75%)	7 (17.5%)		
Meetings during the year	13 (43.3%)	1 (14.2%)		
Met few times during the process	10 (33.3%)	3 (42.9%)		
Still in contact via social networks	6 (20%)	3 (42.9%)		
Non-genetic father's sister	1 (3.3%)	0		

Note: In the illustrative quotes section, SU refers to the surrogate and ED refers to the egg donor.
As some fathers engaged in multiple methods of contact maintenance, percentages do not equal 100.
*P < 0.001.

Table III Fathers' decisions over disclosure.

	N (%)	Illustrative quotes
The disclosure process		'We've always talked very openly because [SU's name], her husband and daughter will always be part of our life. So we, since he could understand anything, we've always talked about their role in our life, and as he gets older we add more colour and depth to the story.'
Started the process of disclosure	34 (85%)	
Plan to disclose in the next years	6 (15%)	
Age of child when first told		'It was probably when the kids were around 2.'
0–2 years	11 (32.3%)	
2–4 years	21 (61.8%)	
4–6 years	2 (5.9%)	
Stages of disclosure (N = 34 disclosed)		
Two dads need help to have a baby	29 (85.3%)	'Since he was born we explain about, like a tale, that we loved each but we couldn't have baby on ourselves [...] so one kind lady, actually two, helped us.'
Babies carried in women's bellies/tummies	27 (79.4%)	'She has the understanding that she was in [SU's name]'s tummy and she helped us in all of this.'
Specific reference to the surrogate	22 (64.7%)	'Since we've explained he was in her belly for several months, we also told who she is. We showed a picture of us with [SU's name].'
Disclosure of the donated egg (N = 40)		'We've talked to her about the donor, but that's quite difficult, just the language.'
Yes	16 (40%)	
Plan to disclose in the next years	19 (47.5%)	
Don't know/if child will ask	5 (12.5%)	
No	0	
Disclosure of whose sperm was used (N = 40)	4 (10%)	'Someday he'll ask about the sperm for sure, and then we'll have to give him his answers.'
Yes	9 (22.5%)	
Plan to disclose in the next years	13 (32.5%)	
Don't know/if child will ask	14 (35%)	
No		
Materials used (N = 34 disclosed)		
Children's books about families/reproduction	23 (67.6%)	'We got a book from the association of gay parents we are part of. It's about different families [...] I was choosing something to read one day and [child] picked it up and read it and bought it back and said, "Look, look, this is a family just like ours. This is daddy and this is papa and this is me."'
Homemade books/photo albums/videos	18 (52.9%)	'We've a birth book, we call it "our surrogacy storybook", it collects the first months of their lives, and the hospital, and [surrogate] giving birth with us there.'
Photos of the surrogate in the house	16 (47%)	'We've always had a picture of us with [SU], with our arms around her when she's like nine months pregnant with the boys. And we're like, "That's [SU's name], the nice woman who helped us become a family. This is us when you were inside her belly."'

Note: As some fathers disclosed multiple aspects of the process and used multiple materials to disclose, percentages do not equal 100.

woman's belly, and details related to the donated egg and—more rarely—which father's sperm was used were added as the child grew older.

Most children showed a clear understanding of surrogacy in middle childhood (6–12 years). This finding contrasts with data from children aged 7–10 years born to heterosexual parents using gamete donation (Blake *et al.*, 2010, 2014) or surrogacy (Jadva *et al.*, 2012), which show that the children had a limited understanding of their birth. The present study's findings not only support the view that surrogacy may be easier for children to understand than gamete donation (Readings *et al.*, 2011) but also that the immediate exposure of children in gay father families to their non-traditional family form means that their origins are explained early and they have more time to integrate this information.

Disclosure rates relating to the use of a donated egg (40%) and genetic relatedness (10%) were very low, relative to the rates relating to

the use of a surrogate (85%). One explanation for this may be that a vague suggestion of the egg donor's role was often incorporated into discussions about the fathers' need for two women to conceive. Second, at the child's age of 6 years (the mean age of the target child), fathers' simplistic explanations of surrogacy did not necessitate a sophisticated understanding of the role of gametes in human reproduction. Third, many fathers reported that their intention to become a parent mattered more than genetic relatedness, though this finding stands in contrast to those of studies showing that genetic connection to the child is greatly valued by gay fathers using surrogacy (Murphy, 2015; Blake *et al.*, 2017; Carone *et al.*, 2017a, 2017b). Finally, the very low rate of disclosure regarding which father's sperm had been used might suggest that fathers did not feel comfortable sharing this information with their children.

Table IV Children's experiences and understanding of their surrogacy origins during middle childhood (6–12 years).

	N = 31 (%)	Illustrative quotes
Remember when first told		'Mmm, I'm not sure, I'd say no, I don't remember that.' (6-year-old boy)
Yes	24 (77.4%)	
No	7 (22.6%)	
Who disclosed		'We're in the kitchen around the table and daddy started telling me a story of two sailors who needed the help of a woman.' (7-year-old girl)
Fathers	31 (100%)	
Others	0	
Response to disclosure (N = 24)		'I was a bit confused, confused and surprised because, uhm, I did not remember that [SU's name] gave me birth when I was 2 or 3 years.' (Feeling confused, 7-year-old girl)
Positive	10 (41.7%)	
Special	5 (50%)	
Curious	5 (50%)	
Limited interest	8 (41.7%)	
Could not recall	4 (16.7%)	
Confused	2 (8.3%)	
Current feelings about having been surrogacy-conceived		'I'm a special boy [...] I've two daddies, and I came out from the belly of [SU's] name who is not my mum. Everyone come out from his mother's belly, but not me. That's incredible!' (Feeling positive/special, 11-year-old boy)
Limited interest	19 (61.3%)	
Positive	11 (35.5%)	
Special	8 (72.7%)	
Curious	3 (27.3%)	
Confused	0	
Don't know	1 (3.2%)	
Children's understanding		'Daddy went to the doctor who had three rooms [...] In one he took the egg and put it in a bag, in another room he took the seed and put it in another bag. Then they went to the third room and put both together in [SU's name]'s tummy [...] They waited for nine months and then I arrived. My daddies were lucky because the egg and the seed combined at the first attempt.' (Clear understanding, 12-year-old boy)
Clear understanding	17 (54.8%)	
Some understanding	14 (45.2%)	
No understanding	0	
Discussion with parents		'When she comes here to visit us and then she leaves, my daddies, especially [father's name], ask me if I have any question [...] Maybe they want to be sure that all is clear to me, I don't know why.' (10-year-old boy)
Only when fathers name her	15 (48.4%)	
Only when they meet	7 (22.6%)	
Never	5 (16.1%)	
Spontaneously	4 (12.9%)	
Discussion with friends		'They don't believe that I have two daddies and I was born from the [SU's name]'s belly who live in the US [...] they are always asking, it's so booring to explain!' (9-year-old girl)
Only when they are asked	21 (67.7%)	
Never	8 (25.8%)	
Spontaneously	2 (6.5%)	

Alternatively, beliefs about the significance of genetic relatedness (particularly within the Italian social context) (Lingiardi and Carone, 2016b) might have prevented families from disclosing so as to not delegitimize the non-genetic father. Among the non-disclosing fathers, 60% intended to disclose their use of an egg donor and 55% intended to disclose whose sperm had been used. However, it cannot be known whether this intention will eventually translate into actual disclosure. Prior to disclosing this additional information, parents may feel that they have disclosed the nature of their child's conception, but the child will not know the full story.

Consistent with most of the 10-year-old children of heterosexual parents who were interviewed by Jadva et al. (2012) and the findings of studies with gamete donation families (Blake et al., 2010; Zadeh et al., 2017), most children in the present study expressed limited interest in

their conception, suggesting that surrogacy was not foremost in their thoughts. This finding may be particular to the Italian context, where public discussion of assisted reproduction occurs mainly in contexts in which children are less involved (e.g. TV debates, newspapers). However, because several children with limited interest claimed that they had not extensively thought about it, it is likely that they lacked the adequate vocabulary to explain their feelings in detail. Finally, loyalty to their fathers may have prevented some children from admitting personal struggles with their conception (Vanfraussen et al., 2001).

Contrary to concerns that the children of gay fathers find it difficult to deal with their origins (Golombok, 2015; Lingiardi and Carone, 2016a), none of the children in this study showed negative feelings towards their conception during middle childhood. Some children even felt grateful that a surrogate and egg donor had helped their

Table V Children’s views on their surrogate and egg donor during middle childhood.

	Surrogate N = 31 (%)	Egg donor N = 25 (%)	Fisher’s exact test	Illustrative quotes
Feelings			<i>P</i> = 0.002	
Gratitude	22 (71%)	10 (40%)		‘I’m here because she made me, but she is not my first thought of the day and actually even the last one [...] uhm, because we live far away and we have met 3 to 4 times. How can she affect my life?’ (Limited interest SU, 10-year-old boy)
Limited interest	9 (29%)	11 (44%)		
Curiosity	0	2 (8%)		‘She just came once, she gave her egg and then disappeared [...] she had to remain, ask my parents how they were doing, she had to wait until I was born!’ (Anger ED, 11-year-old girl)
Anger	0	2 (8%)		
Terminology used to define her role*			<i>P</i> = 0.006	
Auntie/family friend	17 (54.8%)	3 (12%)		‘She is auntie [SU’s name] and her two children are my cousins.’ (Auntie SU, 7-year-old boy)
Kind lady	6 (19.4%)	12 (48%)		‘Since a couple of months in the cafeteria my friends and I are daydreaming about the fact that I could have a mum somewhere and brothers around the world! Because she may probably have donated to other families, she could be married, and I like it. Although probably it is not so, I like to think about it.’ (Mum ED, 11-year-old girl)
Called by name	3 (9.7%)	3 (12%)		
Mummy tummy/Egg mum/Donor	3 (9.7%)	6 (24%)		
Mum	2 (6.4%)	1 (4%)		
Questions			<i>P</i> = 0.03	
About her life and family	16 (51.6%)	5 (20%)		‘I would like to know how they did me if they didn’t have sex [...] how they put me in [SU’s name]’s tummy’ (Questions about the conception process SU, 8-year-old boy)
None	10 (32.3%)	14 (56%)		
About the conception process	4 (12.9%)	2 (8%)		
About a relationship with her	1 (3.2%)	4 (16%)		
Beliefs about her motivation			<i>P</i> = 0.21	
She wanted to help create a family	19 (61.3%)	17 (68%)		‘Because she understood how important having a family was for my daddies and she decided to help them.’ (She wanted help create a family ED, 7-year-old boy)
She wanted an extended family	7 (22.6%)	1 (4%)		
She needed money	2 (6.5%)	4 (16%)		
Don’t know	3 (9.6%)	3 (12%)		

Note: *The same children used different terms to describe the surrogate and the egg donor. This table reports those terms that best accounted for feelings expressed throughout the interview.

fathers create a family; others were not particularly interested. These feelings were also mirrored by the terms children used to define these women, with most considering the surrogate an ‘auntie’ and the donor a ‘kind lady’, their ‘egg mum’ or ‘just a donor’.

Understanding the factors that contribute to children’s narratives about surrogates and egg donors is challenging. While age of disclosure has been found to be relevant to children’s perceptions of the donor and donor conception (Jadva *et al.*, 2009; Hertz *et al.*, 2013), in this study all children were disclosed to at a young age. Children’s representations of and feelings towards their surrogate and donor may have instead been more influenced by their parents’ explanations. Most fathers used children’s books and/or homemade books, photo albums and videos when disclosing, and described the surrogate and egg donor in terms such as ‘belly’, ‘little eggs’, ‘generous helpers’, ‘kind ladies’ and ‘aunties’.

Three children used the term ‘mum’ when referring to their surrogate (*n* = 2) and egg donor (*n* = 1). However, studies of donor-conceived children have shown that children’s use of terms such as ‘dad’ does not imply their desire to develop a father–child relationship with that person (Scheib, Riordan and Rubin, 2005; Jadva *et al.*, 2009; Zadeh *et al.*, 2017). In this light, the view commonly assumed by the public debate that children who are conceived through surrogacy will want or miss a maternal relationship with their surrogate and/or donor (Golombok, 2015) is misleading. Rather, in this study, children’s use of the term ‘mum’ was likely influenced by the multiple heteronormative social contexts with which they interacted daily (e.g. school, the media),

that express views on how families are and should be constructed and thus confront them with words that they try to integrate into their narratives. Further, the children were at an extremely influential age, and it is reasonable to assume that peers may have influenced their dominant narratives of family life. In this sense, amendments to the school syllabus that explain family diversity and teaching resources about same-sex parent families and human reproduction may be helpful.

Given the debate over the terminology parents should adopt when discussing conception with their child (Daniels and Thorn, 2001) and the idea that family communication about conception is bidirectional between parents and children (Van Parys *et al.*, 2016), future research should address fathers’ and children’s co-construction of the surrogacy conception narrative as the children grow up. It is perhaps not until adolescence—when identity issues become salient—that children are able to form their own views about their conception. Without such data, firm conclusions on children’s meaning-making of their conception cannot be drawn.

Despite the view that surrogacy arrangements are more likely to end positively when they are entered into altruistically (Brazier *et al.*, 1998), this study suggests that even commercial surrogacy arrangements can facilitate a successful father–surrogate relationship. In line with previous research on gay father surrogacy families (Greenfeld and Seli, 2011; Smietana *et al.*, 2014; Blake *et al.*, 2016; Carone *et al.*, 2017a; Murphy, 2015), this study found that fathers were more likely to maintain a relationship with the surrogate than the donor. In most

cases, the father–surrogate relationship was harmonious; most surrogates met the child after the birth and some also met the fathers' family and friends. Further, many fathers connected with their surrogate's husband and children. The similarity of these findings with those of studies carried out in different socio-cultural contexts (e.g. Blake et al.'s, 2016 US study) may be partly explained by reference to the broader context of trans-national surrogacy. In these studies, families and surrogates lived in different locations. It is thus reasonable to assume that positive relationships with the surrogates helped families cope with the geographical distance and feel emotionally connected to their developing child throughout the pregnancy. Furthermore, contact after the birth enabled them to link disclosure to their child to the possibility that the surrogate might clarify any doubts or questions posed by the child in later years.

Conversely, only 31% of the fathers had a relationship with the egg donor. This discrepancy could be explained by inherent differences in the donor and surrogate roles: intended fathers have several months to develop a relationship with the surrogate, whereas the same cannot be said of the donor. Fathers may also express different preferences for their surrogate and egg donor, and these may affect the nature of their relationships with these persons. Studies have shown that fathers are more likely to be interested in potential future contact with the surrogate than the donor, and more likely to be interested in the donor's medical history and physical appearance than the surrogate's (Greenfeld and Seli, 2011; Smietana et al., 2014; Murphy, 2015).

However, although the donor was generally invisible in the gay father families, over 70% of the fathers had deliberately chosen a donor with whom there was some chance of future contact. It is therefore possible that as the children grow up and acquire a better understanding of—and more curiosity about—their origins, contact with the egg donor may be established or become more frequent. If, and how, this will occur merits further investigation.

When interpreting the findings, the convenience nature of this sample must be considered, as fathers who had a particularly positive experience may have been more likely to participate. Further, the data collection required researchers to probe into numerous sensitive issues, such as disclosure decisions. To limit the risk of socially desirable responding, the interviews involved detailed questioning about the surrogacy experience. Future research would benefit from a longitudinal approach in order to avoid retrospective recall bias. Although a variety of recruitment procedures were used to diversify the sample, the gay father surrogacy families were necessarily unique in terms of income, given the high cost of the surrogacy procedure. As the number of gay father surrogacy families grows with time, future researchers should optimize recruitment strategies to increase the likelihood of a representative sample.

Research with young children is difficult due to their limited vocabulary, comprehension and attention span. The researchers were trained to respond to children's cues of discomfort in the interviews and to not ask for expansive responses when these cues appeared. A possible limitation of the study is that, in nine cases, children belonged to the same family. This may have biased the results, as it is possible that these children had similar experiences. However, as not all children within each family gave the same responses, it is probable that they had differing experiences of surrogacy.

Prior to this study, the voice of children born to gay fathers through surrogacy had not been heard. These findings have important implications for psychologists and fertility counsellors, as they provide an in-

depth examination of gay father families' experiences of surrogacy, in terms of their relationships with surrogates and egg donors, fathers' disclosure decisions, and children's views on their origins. Future research on factors influencing children's desired contact with—or interest in—the surrogate and/or donor and their feelings in the event that contact is not achieved will be important to adequately prepare families for such events.

Supplementary data

Supplementary data are available at *Human Reproduction* Online.

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Authors' roles

N.C., R.B. and V.L. were responsible for the study design. N.C., D.M., C.A., V.C. and E.P. collected data, and N.C. conducted data analysis, interpreted results and drafted the manuscript. All authors contributed to its revision and approved the final version for publication.

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Conflict of interest

None declared.

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Data categorization

Children's Surrogacy Conception Interview

The interview began as follows: 'Your dads told me that a woman [two women] helped them to have you. Can you tell me more about that?'. The following questions comprised: 'Can you remember when your dads first told you about this?', 'Do you remember how you felt when your dads told you?', 'How do you feel about it now?', 'Do you ever talk about this with your parents?', 'Do you ever talk about this with your friends?', 'How do you feel towards the woman who helped your dads?', 'Why do you think she helped your fathers create your family?' and 'Have you any questions you would like to ask her?'

Data were categorized as follows: (i) child's memory of when he/she was first told (yes, no); (ii) person(s) who disclosed the child's surrogacy origins (fathers, others); (iii) child's initial reaction to disclosure (positive, limited interest, confused, could not recall); (iv) child's current feelings about their birth (positive, limited interest, confused, do not know); (v) child's understanding of his/her surrogacy birth (no understanding, some understanding, clear understanding). A rating of 'no understanding' was made when the child was unable to demonstrate any understanding of their surrogacy birth. A rating of 'some understanding' was made when the child mentioned terms and phrases that helped explain their conception, e.g. 'my daddies could not have me on their own', without referring to the use of two different women. A rating of 'clear understanding' was made if the child showed an accurate awareness of their conception; (vi) child's discussion with parents (never, only when fathers name the surrogate/egg donor, spontaneously); (vii) child's discussion with friends (never, only when asked, spontaneously); (viii) child's feelings towards the surrogate/donor (gratitude, limited interest, curiosity, anger); (ix) terminology used

when talking about the surrogate/donor (name, mummy tummy/egg mum/donor, kind lady, auntie/family friend, mum); (x) child's beliefs about the surrogate's and egg donor's main motivation for engaging in surrogacy (wanted to help create a family, wanted an extended family, needed money, do not know); (xi) questions for the surrogate/donor (no questions, questions about the conception process, questions about the surrogate/donor, questions about a relationship with the surrogate/donor).

Fathers through Surrogacy Interview

Data were categorized as follows: (i) surrogate/egg donor met since child born (yes, no); (ii) surrogate/egg donor met in past year (yes, no); (iii) number of meetings in past year (1–2, 3 or more); (iv) methods of contact (phone, email, Skype/Facetime, text message/WhatsApp, Facebook friends, cards/gifts/flowers); (v) surrogate/egg donor met with fathers' family (yes, no, father B's sister); (vi) satisfaction with level of contact with surrogate/egg donor (mostly satisfied, neutral, mostly unsatisfied); (vii) quality of relationship with surrogate/egg donor (no relationship; in relationship: harmonious, neutral, negative); (viii) relationship with surrogate/egg donor's family (no relationship; in relationship: met few times during the process, still in contact via social media, meet throughout the year, father B's sister); (ix) started the process of disclosure (yes, plan to tell in the next years); (x) age of child when first told (0–2 years, 2–4 years, 4–6 years); (xi) stages of disclosure (two dads need help to have a baby, babies carried in women's bellies/tummies, specific reference to surrogate; disclosure of donated egg: yes, plan to tell in the next years, do not know/if child will ask; disclosure of whose sperm was used: yes, plan to tell in the next years, do not know/if child will ask, no); (xii) materials used to disclose (use of children's books about families/reproduction, photos of the surrogate, homemade books/photo albums/videos).