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Self-esteem and problem behavior in Dutch adolescents conceived through sperm donation in planned lesbian parent families

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ABSTRACT

Until 2004, Dutch women seeking donor insemination through medical facilities could opt for open-identity or anonymous donors. Since then, Dutch law only permits open-identity donation. The present study compared the well-being of adolescents conceived before 2004 through known, open-identity, and anonymous donors, and born into planned lesbian parent families (i.e., the mothers identified as lesbian before the children were conceived). The sixty-seven participating adolescents ($M_{\text{age}} = 16.04$ years) completed the Rosenberg Self-Esteem Scale and the Youth Self-Report, and answered questions about their donor. Thirty-three were conceived through known, twenty-two through open-identity, and twelve through anonymous donors. No significant associations were found between donor type and self-esteem or problem behavior. Likewise, no significant differences were found on these two variables for adolescents with known donors who did or did not play important roles in their lives. For adolescents conceived with sperm from as-yet unknown donors (open-identity or anonymous), feeling uncomfortable about not knowing the donor was associated with lower self-esteem and more externalizing problem behavior. That donor type was found to have no bearing on adolescent self-esteem or problem behavior may be useful to prospective lesbian parents.

KEYWORDS

Adolescent offspring; lesbian mothers; donor type; self-esteem; well-being

In 1989, the United Nations Convention on the Rights of the Child decreed it a fundamental human right to know one's genetic origins. This decree was based on the premise that understanding one's personality traits, talents, and interests is associated with access to one's genealogy. It has been suggested that insufficient information about one's genetic lineage could lead to a defective sense of identity, which in turn may be associated with psychological problems (e.g., de Melo-Martin, 2014).

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Studies have shown that adopted children benefit from information about their biological origins (Grotevant, Dunbar, Kohlet, & Esau, 2000). These studies have been cited in media debates about anonymous sperm donation because of concerns about secrecy (Ravelingien & Pennings, 2013). As a result, in the beginning of the twenty-first century, policies were changed in a number of countries (e.g., the Netherlands) to prohibit gamete donation from anonymous donors based on concerns that children could be harmed if they lack complete genealogical information (Ravelingien & Pennings, 2013). Consequently, fertility clinics in these countries now only use open-identity sperm donors who allow contact by their offspring when they reach a specified age. In the Netherlands, the allowed age of contact before 2004 was eighteen years, but it was subsequently lowered to sixteen years.

The kinship theory of genomic imprinting (Haig, 2000) could be invoked as an argument in favor of providing genealogies to donor-conceived offspring for whom kinship, identity, and relatedness are intertwined in unique ways (Frith, Blyth, Crawshaw, & van den Akker, 2018). Kinship is created through the web of social relationships that constitute the fabric of family ties. Identity construction is a relational process that often incorporates genetic connections (e.g., Lawler, 2014). Kinship theory suggests that genetic commonality and connectedness are so central to identity development that insufficient information about the sperm donor could psychologically harm donor-conceived offspring (Lawler, 2014).

However, there is no empirical evidence that conception through anonymous gamete donation impairs healthy development. The primary source of information about donor anonymity and offspring well-being comes from sexual minority parent families (Golombok, 2015), since most heterosexual parents who give birth to donor-conceived children do not disclose the method of conception to their offspring (e.g., Freeman & Golombok, 2012). In contrast, lesbian mothers typically tell their children about the means of conception at an early age, regardless of whether the donors are known (e.g., acquaintance, friend, or relative), open-identity, or anonymous (e.g., Agigian, 2004). By adolescence, donor-conceived offspring in planned lesbian parent families (i.e., the children were conceived after their mothers came out as lesbian) are as well-adjusted as their peers in heterosexual parent families (Gartrell & Bos, 2010; van Rijn-van Gelderen, Bos, & Gartrell, 2015).

The United States National Longitudinal Lesbian Family Study (NLLFS) is one of the few studies on donor-conceived offspring in which donor type was included in the analyses (Gartrell, Peyser, & Bos, 2011). The prospective lesbian mothers chose sperm donors in the late 1980s after U.S. fertility clinics first opened their doors to lesbian women (Gartrell et al., 1996). When the NLLFS offspring were seventeen years old, 66.7% with open-identity donors

indicated a desire to contact their donors at the allowed age of eighteen, and 23% with anonymous donors stated that they wished to know them (Bos & Gartrell, 2010). No differences in psychological development were found between NLLFS adolescents conceived through open-identity and anonymous donors (Bos & Gartrell, 2010; Gartrell & Bos, 2010). The NLLFS did not assess self-esteem (confidence in one's worth or abilities), which is strongly related to identity development (e.g., Soenens, Berzonsky & Papini, 2016) and serves as an important mediator between negative experiences and problem behavior during adolescence (e.g., Arslan, 2016; Jasinskaja-Lahti & Liebkind, 2001). How self-esteem develops in donor-conceived offspring has not been fully explored. The NLLFS also did not compare psychological adjustment (self-esteem and problem behavior) in adolescents with known donors who were or were not actively involved in their lives, nor did it explore associations between the adolescents' psychological adjustment and their feelings about conception through open-identity donation.

The present study was designed for further exploration of questions concerning Dutch adolescents in lesbian-headed households who were conceived through known, open-identity, or anonymous sperm donation. First, it was assessed whether adolescents with known donors differed in well-being (self-esteem, internalizing problem behavior, and externalizing problem behavior) from those with as-yet-unknown donors (i.e., open-identity or anonymous donors). In addition, adolescent well-being was compared across the three donor types. Second, it was investigated whether there was a difference in well-being between adolescents with known donors who did and did not play an important role in their lives. Third, this study examined how (un)comfortable adolescents with open-identity or unknown donors were about not knowing their donors, and whether their level of comfort was associated with their well-being.

Method

Participants

Participants were sixty-seven adolescents (thirty-six female) born and raised in planned lesbian parent families in the Netherlands. Their ages ranged from thirteen to eighteen years ($M = 16.04$, $SD = 1.32$). Most birth mothers (89.6%, $n = 60$) and co-mothers¹ (80.6%, $n = 54$) were of Dutch ethnic cultural background. With the exception of three mothers (one birth mother and two co-mothers with a non-Western background), the remaining were born in unspecified Western countries.² The offspring identified as Dutch (92.5%, $n = 62$) or mixed (unspecified; 7.5%, $n = 5$).

Most mothers had a higher vocational or university degree (birth mothers 80.6%; co-mothers 65.7%). All offspring of continuously coupled

parents lived with them; those with separated parents (19.0%) lived primarily with their birth mothers. Most families resided in large cities or mid-sized towns (89.6%), and the others in rural areas.

Procedure

Participants' mothers were recruited between 2001 and 2002 for a longitudinal study on planned lesbian parent families in the Netherlands (Bos, 2004). Recruitment took place in four ways: through information provided by the largest Dutch interest group for lesbian, gay, and bisexual (LGB) parents; by announcement in a lesbian magazine; by flyers at LGB health services; or while receiving fertility clinic services across the Netherlands.

At the time of recruitment, the inclusion criteria for study participation were that the index children must have been conceived by a lesbian through donor insemination, born into a lesbian two-mother family, and be between four and eight years old. This resulted in a sample of 100 families (Bos, 2004). During the first wave, all mothers consented to participate in the future.

After approval by the Institutional Review Board of the University of Amsterdam (Faculty of Social and Behavioral Sciences), in 2011 (Wave 3), the mothers were contacted for permission to invite the index offspring to complete a password-protected online questionnaire. Eighty-two percent of parents consented; no information is available about non-responders. Adolescents older than nineteen years were excluded ($n=15$) due to the age limit of the Youth Self-Report (YSR; Achenbach & Rescorla, 2001). Sixty-seven adolescents consented (no available information on non-responders) and completed the YSR without compensation. At Wave 1 (2004), the psychological adjustment of the index offspring was assessed through parental reports on the Child Behavior Checklist (CBCL). Preliminary analyses revealed no significant differences on these CBCL scores between offspring who did and did not participate in 2011.

Measures

Donor type and feelings about the donor

Adolescents were asked whether they knew their donor (0 = *no*, 1 = *yes*). Those who did were asked whether they felt that the donor played an important role in their lives (0 = *no*, 1 = *yes*). The remainder were asked whether their donor was open-identity or anonymous. Adolescents with open-identity donors were asked whether they would like to meet their donor when they became age-eligible at eighteen. Adolescents with as-yet-unknown open-identity donors (including two 18-year-olds who had not

contacted theirs) and those with anonymous donors were asked how they felt about not knowing their donors (1 = *very comfortable*, 5 = *very uncomfortable*).

Self-esteem

Self-esteem was assessed through the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979). The RSES includes ten items (e.g., “On the whole, I am satisfied with myself”) rated from 1 = *strongly disagree* to 4 = *strongly agree*. Cronbach’s alpha for the sample was 0.85. In the analyses, the mean score across the ten items was used. The RSES has demonstrated good reliability across different samples, and it has been validated for use with adolescents (Blascovich & Tomaka, 1991).

Problem behavior

The YSR was used to measure internalizing (i.e., feelings or behaviors related to the self, such as “I am unhappy, sad, or depressed,” 31 items) and externalizing (i.e., activities directed toward others, such as “I break rules at home, school, or elsewhere,” 32 items) problem behavior. The YSR is known for its reliability, internal consistency, and factor structure (Achenbach & Rescorla, 2001).

The YSR asks the respondent to indicate whether each statement was reflective of her/his behaviors/feelings at any time within the previous six months (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). Based on the sum scores of the statements, scales were computed for internalizing (Cronbach’s alpha = 0.87) and externalizing problem behavior (Cronbach’s alpha = 0.86). Possible scores ranged from 0–62 for internalizing and 0–64 for externalizing problem behavior.

Statistical analyses

Due to the small number of participants within the different donor-type groups, non-parametric Mann-Whitney U tests (Gliner, Morgan, & Leech, 2011) were conducted to compare self-esteem and problem behavior in adolescents with known versus as-yet-unknown donors. To check the stability of our results, bootstrap significance tests were conducted with 5,000 resamples (Field, 2013) that were generated based on the original data. Bootstrapping is a non-parametric approach used with small sample sizes when there are no expectations of normality (Wilcox, 2005). Bootstrapping analyses were also conducted for comparing self-esteem and problem behavior by donor type, and for comparing those whose known donors did and did not play an important role in their lives.

To investigate the association between how adolescents felt about not knowing their donors and their scores on self-esteem and internalizing/externalizing problem behavior, Spearman and bootstrapping (5,000 resamples) correlations were calculated. Spearman and bootstrapping analyses also assessed whether gender and age were associated with known donor role, and how the remaining offspring felt about not knowing their donors. The bootstrapping associations were significant when the 95% CI intervals did not include 0 (Field, 2013). All analyses were conducted in SPSS version 23.

Results

Descriptive information

Of the sixty-seven adolescents, twenty-two (32.8%) were conceived through open-identity and twelve (17.9%) through anonymous donors, making a total of thirty-four (50.7%) with as-yet-unknown donors, since most with open-identity donors had not yet reached the age when donor contact was allowed. Twenty of the thirty-three (49.3%) with known donors reported that these men had an important role in their lives, and thirteen indicated that they did not. Eleven with open-identity donors indicated that they intended to meet them.

Known versus as-yet-unknown donors

Table 1 shows means and standard deviations for adolescent self-esteem and internalizing and externalizing problem behavior, separated for adolescents with known and as-yet-unknown donors. Across the sample, the means were 3.21 ($SD = 0.47$), 9.39 ($SD = 6.92$), and 11.30 ($SD = 5.82$) for self-esteem and internalizing and externalizing problem behavior, respectively. The Mann-Whitney U and bootstrap significance tests revealed no significant difference between those with known and as-yet-unknown donors on any variable (Table 1).

Known, open-identity, and anonymous donors

For the previously mentioned analyses, we combined the open-identity and anonymous donor offspring. As this combination may have influenced our findings, we conducted additional analyses across the three donor type groups. Mann-Whitney U and bootstrap significance tests showed no significant differences between adolescents with known, open-identity, and anonymous donors on any variable (Table 2).

Table 1. Comparison of self-esteem and problem behavior in adolescent offspring with known and as-yet-unknown donors.

	Mean	SD	Mann-Whitney (M-W) U		Bootstrap ¹		
			M-W U	<i>p</i>	Lower	Upper	<i>p</i>
<i>Self-esteem</i> ²			555.0	.945			.994
Adolescent:							
knows the donor	03.21	0.43			03.05	03.35	
does not know the donor	03.21	0.50			03.04	03.37	
<i>Internalizing problem behavior</i> ³			522.0	.624			.752
Adolescent:							
knows the donor	09.09	07.32			06.64	11.75	
does not know the donor	09.68	06.61			07.64	11.76	
<i>Externalizing problem behavior</i> ⁴			550.5	.895			.873
Adolescent:							
knows the donor	11.18	05.33			09.34	13.06	
does not know the donor	11.41	06.34			09.41	13.54	

¹Based on resample of *N* = 5,000.

²1- β error probability = 0.05, *d* = 0.00 (*N* = 67).

³1- β error probability = 0.06, *d* = 0.09 (*N* = 67).

⁴1- β error probability = 0.05, *d* = 0.04 (*N* = 67).

Known donors: Importance in life

Of the thirty-three adolescents with known donors, twenty (60.6%) indicated that their donors were important in their lives, and thirteen (39.4%) indicated the opposite. The Mann-Whitney U and bootstrap significance tests revealed no significant differences in self-esteem and internalizing and externalizing problems between these two groups (Table 3). Neither offspring gender (Spearman *r* = .11, *p* = .53, bootstrapping 95%CI = -.24, .45) nor age (Spearman *r* = .18, *p* = .310, bootstrapping 95%CI = -.20; .48) was significantly associated with known donor importance.

Offspring with as-yet unknown donors: Associations between feeling (un)comfortable and self-esteem or problem behavior

The mean score for how adolescents with as-yet-unknown donors felt about not knowing the donor was 1.94 (*SD* = 1.28; 5 = maximal discomfort; Figure 1). Gender (Spearman *r* = .29, *p* = .098, 95%CI = -.05, .58) and age (Spearman *r* = -.01, *p* = .937, bootstrapping 95%CI = -.28; .36) were not significantly correlated with these feelings. Significant Spearman correlations were found between these feelings and self-esteem and externalizing problem behavior: adolescents who felt more uncomfortable had lower scores on self-esteem (*r* = -.41, *p* = .016) and higher scores on externalizing problem behavior (*r* = .48, *p* = .004). The association between feeling (un)comfortable and internalizing problem behavior was not significant (*r* = .27, *p* = .120). Bootstrapping analyses revealed that for both self-esteem and externalizing problem behavior, the association with



Table 2. Comparisons of self-esteem and problem behavior in adolescent offspring with known, open-identity, and anonymous donors.

	Mann-Whitney (M-W) U						Bootstrap ¹				
	Known versus Open-identity		Known versus Anonymous		Open-identity versus Anonymous		95% Confidence Intervals		Known versus Open-identity	Known versus Anonymous	Open-identity versus Anonymous
	M-W U	p	M-W U	p	M-W U	p	Lower	Upper	p	p	p
Self-esteem²	363.0	.999	192.50	.889	124.0	.772			.778	.639	.562
Donor type:											
Known	03.21	0.43					03.06	03.35			
Open-identity	03.17	0.53					02.94	03.38			
Anonymous	03.28	0.47					03.02	03.54			
Internalizing problem behavior³									.663	.975	.745
Donor type:											
Known	09.09	07.32					06.73	11.71			
Open-identity	09.95	06.89					07.19	12.82			
Anonymous	09.17	06.34					05.83	12.92			
Externalizing problem behavior⁴									.551	.504	.346
Donor type:											
Known	11.18	05.33					09.43	13.06			
Open-identity	12.18	07.03					09.47	15.30			
Anonymous	10.00	04.81					07.27	12.60			

¹Based on resample of $N = 5,000$.

²Known versus Open-identity: 1- β error probability = 0.06; d = 0.09 ($N = 55$); Known versus Anonymous: 1- β error probability = .07, d = .16 ($N = 45$); Open-identity versus Anonymous: 1- β error probability = .09, d = .22 ($N = 34$).

³Known versus Open-identity: 1- β error probability = 0.07; d = 0.12 ($N = 55$); Known versus Anonymous: 1- β error probability = .05, d = .01 ($N = 45$); Open-identity versus Anonymous: 1- β error probability = .06, d = .12 ($N = 34$).

⁴Known versus Open-identity: 1- β error probability = 0.09; d = 0.17 ($N = 55$); Known versus Anonymous: 1- β error probability = .10, d = .23 ($N = 45$); Open-identity versus Anonymous: 1- β error probability = .15, d = .34 ($N = 34$).

Table 3. Adolescent self-esteem and problem behavior vis-a-vis donor importance among offspring with known donors.

	Mean	SD	Mann-Whitney (M-W) U		Bootstrap ¹		
			M-W U	p	Lower	Upper	p
<i>Self-esteem</i> ²							
Donor had an important role in offspring's life:			123.50	.809			.978
no	03.21	0.48			02.91	03.48	
yes	03.20	0.41			03.03	03.38	
<i>Internalizing problem behavior</i> ³							
Donor had an important role in offspring's life:			125.0	.853			.782
no	09.54	09.00			05.19	14.86	
yes	08.80	06.24			06.24	11.40	
<i>Externalizing problem behavior</i> ⁴							
Donor had an important role in offspring's life:			114.0	.555			.713
no	11.62	05.87			08.73	14.64	
yes	10.90	05.09			08.75	13.33	

¹Based on resample of N = 5,000.
²1- β error probability = 0.05, d = 0.02 (N = 33).
³1- β error probability = 0.06, d = 0.10 (N = 33).
⁴1- β error probability = 0.06, d = 0.14 (N = 33).

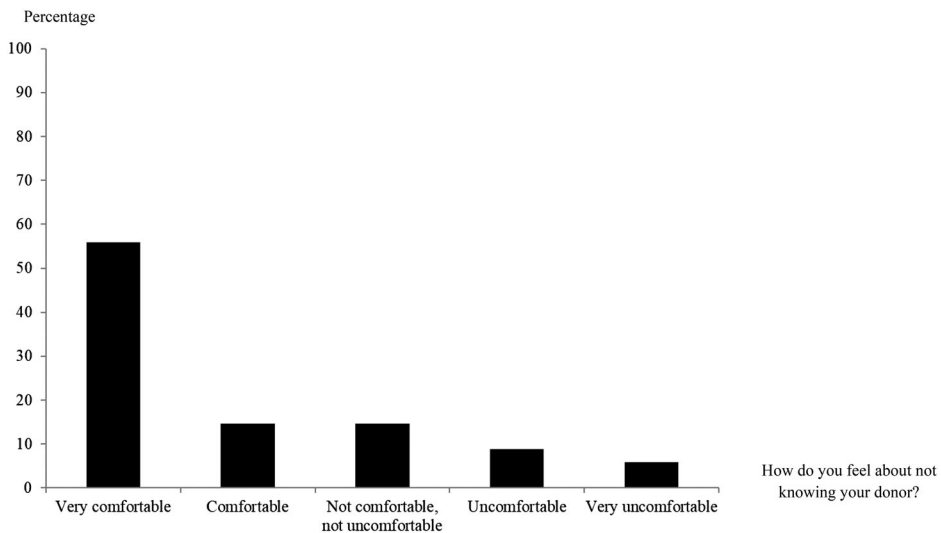


Figure 1. Percentage responding in each answer category pertaining to how the adolescents felt about not knowing their donors (only asked of adolescents with as-yet-unknown donors).

feeling (un)comfortable was significant (self-esteem: 95%CI = -.61; -.09, externalizing problem behavior: 95%CI = .25; .71).

Discussion

This study focused on differences in self-esteem and problem behavior among Dutch adolescent offspring in planned lesbian families who had been conceived through known, open-identity, and anonymous donors.

Offspring who did and did not consider their known donors important in their lives were compared on self-esteem and problem behavior. Offspring with as-yet-unknown donors (open-identity or anonymous) were queried about how they felt in not knowing their donors, and these feelings were assessed in relation to their self-esteem and problem behavior.

There were no significant differences in self-esteem or problem behavior between offspring conceived through known or as-yet-unknown donors. These findings are similar to the reports on the donor-conceived NLLFS offspring at ten and seventeen years old (Bos & Gartrell, 2010). However, the NLLFS data were based on CBCL reports completed by the mothers (Bos & Gartrell, 2010), whereas the present study used the YSR (Achenbach & Rescorla, 2001). In previous investigations comparing the Dutch offspring in the current study with a matched group of youth reared by heterosexual parents, the donor-conceived offspring had significantly higher scores on self-esteem (Bos, van Gelderen, & Gartrell, 2015), but no differences in problem behavior (van Rijn-van Gelderen, Bos, & Gartrell, 2015). Altogether, these studies fail to support the premise based on kinship theory that children without complete genealogical information will be psychologically harmed (United Nations, 1989). That self-esteem and problem behavior were unrelated to donor type may also be helpful to prospective lesbian mothers considering anonymous sperm donation, particularly those concerned about the long-term effects of donor anonymity on offspring well-being (Gartrell et al., 1996).

Lesbian women who elect known donors may or may not wish to share childrearing with them (Chabot & Ames, 2004; Gartrell, Bos, Goldberg, Deck, & van Rijn-van Gelderen, 2015; Goldberg & Allen, 2007). The present study did not ask offspring with known donors to specify the type of donor involvement, or changes in the involvement over time (e.g., was the donor involved in everyday childrearing and decision making or was he only an occasional visitor). Most adolescents with known donors reported that their donors played an important role in their lives. Adolescents with known donors who were considered important did not differ in self-esteem or problem behavior from those who considered theirs unimportant. Since lesbian couples with known donor-conceived offspring must negotiate the nature of the donor's role in relation to the broader lexicon of "kinship" and "family" (Nordqvist, 2012), our findings suggest that these mothers did so successfully. Touroni and Coyle (2002) found that lesbian mothers of known donor-conceived offspring had worked out roles, responsibilities, and boundaries with the donors in ways that were satisfactory to the family. Future research could provide additional information about these dynamics through in-depth interviews about the offspring-donor relationship from the perspective of the offspring, mothers, and donors. It would

also be valuable to explore the extent to which the involvement of a known donor is based on the co-mother's comfort, since she may be put in the position of defending her role and identity as a parent (Goldberg & Allen, 2013).

In the current investigation, half of open-identity donor offspring reported that they intended to contact their donor. Adolescents with open-identity donors were not asked what they would like to know about their donors, or why they wanted to contact them. Scheib, Riordan, and Rubin (2005) found that U.S. adolescents with open-identity donors were especially interested in such questions as, "What's he like?" and "What does he look like?" Scheib et al.'s (2005) study included adolescents from lesbian mother families ($n=12$), single-mother-by-choice families ($n=11$), and heterosexual mother-father families ($n=6$); the offspring in these three groups did not differ in their areas of interest regarding their donors, and all groups felt comfortable having open-identity donors. In a study by Vanfraussen, Ponjaert-Kristoffersen, and Brewaeys (2003) on children and adolescents conceived by lesbian mothers through anonymous sperm donors in Belgium, few offspring reported a desire to know the identity of their donor or felt that they needed more information about his physical appearance. According to some scholars, parental attitudes toward an open-identity or anonymous donor could conceivably influence the offspring's interest in or feelings about the donor. Grace, Daniels, and Gillett (2008) suggest that parental curiosity about whether her child resembled the donor in looks, traits, and characteristics made the donor relevant and gave him personhood.

Although most adolescent offspring in the present investigation with as-yet-unknown (open-identity or anonymous) donors felt relatively comfortable in not knowing their donors, those who felt less comfortable had lower scores on self-esteem and higher scores on problem behavior. Consistent with kinship theory, it is possible that adolescents expressing discomfort may feel deprived of sufficient information about their genetic lineage (Mann, Hosman, Schaalma, & De Vries, 2004). Given the importance that contemporary society attaches to genetic relationships among family members, increasing attention has been paid to socio-genealogical knowledge in child and adolescent development (Ravelingien & Pennings, 2013). The dominant message in this discourse is that donor-conceived offspring need genetic information to define who they are (Donovan, 2006). This message corresponds with valuing transparency in decision making and access to personal information (Frith, 2001). In such a cultural context, lesbian mothers may feel obligated to justify the choice of donor anonymity. Our results may be helpful in counselling mothers who feel anxious about making this selection (Gartrell et al., 1996), since the offspring of as-yet-

unknown donors fared as well as the group whose donors were known. It is also important for clinicians to offer guidance to families whose anonymous donor-conceived offspring felt uncomfortable or had low self-esteem, as characterized some in this study.

Our study has limitations. Our findings should be interpreted cautiously: The post-hoc power analyses and effect sizes were very small. Furthermore, a multi-informant approach was not used. The findings are based only on questionnaires completed by the adolescent offspring. There is a possibility of reporter bias if the adolescents felt protective about their mothers' donor choices. Although the overarching study is longitudinal, the present investigation was cross-sectional and, as such, it was not possible to assess causality. Future studies should explore how self-esteem, problem behavior, and feelings about donor type evolve over time. Additionally, this study had a relatively small sample and the participants were demographically homogeneous: most mothers were White, highly educated (i.e., a proxy for socioeconomic status), urban residents. Sample homogeneity and size precluded analyses from an intersectional approach. Since only two-thirds of the original 100 offspring participated in the current investigation, caution is warranted in the interpretation of our data. Those who declined to participate may have been experiencing more psychological difficulties, thereby affecting our results. Finally, before 2004, some Dutch clinics provided a "donor passport" containing information about the donor's personality traits, talents, and interests (Winter et al., 2012), which may have satisfied the curiosity of their offspring (Ravelingien, Provoost, & Pennings, 2015). Adolescents in this study were not asked whether they had such a passport, thus precluding comparisons based on information received from the sperm bank.

Notwithstanding these limitations, our findings revealed that donor type (known, open-identity, or anonymous) in planned lesbian families was not associated with self-esteem or problem behavior in the adolescent offspring. Although we found no evidence that having an anonymous donor was harmful to offspring, future research is needed to explore the best strategies for enhancing self-esteem in adolescents who express discomfort about their lack of connection to the men who provided part of the means for their conception.

Notes on contributors

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Notes

1. All birth mothers and no co-mothers were biologically and genetically related to the index adolescents.
2. Five birth mothers and ten co-mothers did not reply to the ethnicity question.

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