

# Lesbian and Heterosexual Two-Parent Families: Adolescent–Parent Relationship Quality and Adolescent Well-Being

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**Abstract** This study compared 51 adolescents from intact two-mother planned lesbian families (all conceived through donor insemination) with 51 adolescents from intact mother–father families on their relationships with their parents (parental control, disclosure to parents, and adolescent–parent relationship quality), psychological adjustment (self-esteem, social anxiety, and conduct problems), and substance usage (consumption of tobacco, alcohol, and marijuana/hashish). The adolescents (average age 16 years) were matched on demographic characteristics (age, gender, educational level, country of birth, parental birth country) with a sample from a large school-based survey, and data were collected by means of adolescent self-reports. Analyses indicated that adolescents in both family types had positive relationships with their parents, which were favorably associated with psychological well-being. On the assessments of psychological adjustment and substance use, family type was significantly associated only with self-esteem and conduct problems: Adolescents with lesbian mothers had higher levels of self-esteem and lower levels of conduct problems than their counterparts in heterosexual-parent families. Overall, the findings indicate that adolescents from intact two-mother lesbian families are comparable to those in a matched comparison group with intact mother–father families. The few differences found on psychological well-

being favored the adolescents in lesbian two-mother families.

**Keywords** Lesbian families · Adolescent–parent relationship quality · Adolescent well-being

## Introduction

Although numerous studies have compared children reared in lesbian and heterosexual households, there has been considerable heterogeneity in the family types under investigation. Some samples include single-parent, intact two-parent, separated two-parent, and step-parent families, without controlling for family type (see review by Moore and Stambolis-Ruhstorfer 2013). Other investigations combine children with changed and unchanged family constellations, without specifying the length of time the children have spent in each family form if their parents have repartnered (see brief by American Sociological Association 2013). Publications have also provided data on offspring with lesbian parents without indicating the number of years the offspring lived in a lesbian household (i.e., since birth in planned lesbian families, or since childhood, adolescence, or adulthood, after the mother came out; Allen 2013). As any of the abovementioned variables may be associated with differential outcomes (Perrin et al. 2013), it is important to control for family type, family stability, and parental self-identification (i.e., if LGBT, for how long) when comparing offspring in lesbian and heterosexual families. To our knowledge, no study to date has compared adolescent–parent relationships and adolescent well-being in continuously-coupled lesbian and heterosexual families.

What is known about comparisons of adolescent–parent relationships and adolescent well-being in two-mother

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families and mother–father families is mainly based on the National Longitudinal Study of Adolescent Health Study (Add Health) (Wainright and Patterson 2006, 2008; Wainright et al. 2004). Add Health is an American longitudinal study of a nationally representative sample of adolescents (grades 7–12) that has been followed into young adulthood. The Wainright studies on adolescents in female-headed households are based on the first round of Add Health data collection—during the 1994/5 school year. Wainright et al. identified 44 adolescents who lived with two mothers and compared them with 44 adolescents raised in mother–father families; the two groups of adolescents were matched on gender, age, ethnicity, adoption status, learning disability status, family income, and parental educational background. Information about the adolescent–parent relationship was derived from both adolescent and parent reports.

The comparison did not reveal any significant differences between the adolescents in female same-sex parent families and those in mother–father parent families on the studied adolescent–parent relationship variables—namely parental warmth, care, and encouragement; and adolescent sense of autonomy—as reported by both the adolescents and their parents (Wainright and Patterson 2006, 2008; Wainright et al. 2004). Likewise, no differences were found on any of the studied adolescent psychosocial variables (depressive symptoms, self-esteem, anxiety, peer relationships, delinquent behavior, and substance use) or school outcomes variables (grade point average, school connectedness, and troubles at school; Wainright and Patterson 2006, 2008; Wainright et al. 2004). Furthermore, regardless of whether the adolescents grew up in a two-mother or a mother–father family, those who were close to their parents (reflected in high scores on parental warmth and encouragement) had higher scores on psychological well-being and school outcomes, with less substance use and delinquent behavior. One significant interaction was also found: Adolescents’ perceived care from their parents had a stronger effect on school connectedness for those living with female same-sex parents than those who grew up in mother–father families (Wainright and Patterson 2006, 2008; Wainright et al. 2004). However, the 1994/5 Add Health survey did not ask the parents to specify their sexual orientation; thus the number of planned lesbian families in this study is unknown (Russell and Muraco 2012).

As sexual minority women, lesbian couples must navigate a complicated and sometimes hostile environment in order to become mothers (Berkowitz and Marsiglio 2007). Rearing children in a homophobic culture may also affect parenting experiences and childrearing styles. Studies have shown that co-mothers in intact planned lesbian families were more involved in childrearing than fathers in intact

mother–father families (Bos et al. 2007). Also, research has found that children in planned lesbian families experienced higher levels of interaction with their parents and perceived their parents as more available than children in single heterosexual mother families (MacCallum and Golombok 2004; Golombok et al. 1997). Information about parenting styles and adolescent offspring in planned lesbian families can only be found in a single study.

The US National Longitudinal Lesbian Family Study (NLLFS) has been following a cohort of planned lesbian families with children conceived through donor insemination in the mid-1980s. To date, there have been five waves of data collection. In the latest wave (T5), when the index offspring were 17 years old (see for an overview: Gartrell and Bos 2010), the adolescent questionnaire contained one item that allowed a comparison of adolescent–parent relationships in planned lesbian- and heterosexual-parent families, namely: “I feel I am getting along with my parents/guardians.” This item is one of six items from the Youth Quality of Life Instrument (YQLI; Patrick et al. 2002) that was included as part of the Washington Healthy Youth Survey (WHYS; Washington State Department of Health 2008). The NLLFS researchers used the WHYS dataset as a comparison group to assess adolescent quality of life. Seventy-eight 17-year-old adolescents from the WHYS dataset were matched 1:1 with the NLLFS adolescents on gender, age, race/ethnicity, and parental education. No significant differences were found between the two samples on any YQOL items, including adolescent–parent relationship quality (Van Gelderen et al. 2012).

Another T5 NLLFS publication (which concerned only the psychological well-being of the adolescents) reported that the NLLFS adolescents (39 girls and 39 boys) demonstrated higher levels of social, school/academic, and total competence than the age- and gender-matched normative sample of American teenagers (49 girls and 44 boys) (Gartrell and Bos 2010). The NLLFS scholars also compared the substance use of the adolescents in their sample with that of youth who participated in the 2008 US Monitoring the Future: A Continuing Study of the Lifestyles and Values of Youth Survey (MTF; Johnston 2010). The 2008 MTF survey was administered at 120 high schools to 12th-grade students identified through a multi-stage random sampling procedure. The NLLFS and MTF samples were matched on gender, age, race/ethnicity, and parental education. The NLLFS adolescents were more likely to report occasional substance use but no more likely to report heavy use than the matched MTF adolescents (Goldberg et al. 2011).

The NLLFS data also revealed that it is important for adolescents in planned lesbian families to have positive relationships with their mothers. The negative association between experiences of stigmatization associated with their

mothers' sexual orientation (reported by 41.1 % of the adolescents; Gartrell and Bos 2010) and adolescent problem behavior and life satisfaction was mitigated in those offspring who had close, positive relationships with their mother(s) (Bos and Gartrell 2010; Van Gelderen et al. 2012).

The present paper focuses on three aspects of the adolescent–parent relationship: (1) adolescent experiences of parental control, (2) adolescent disclosure to parents, and (3) the quality of the adolescent–parent relationship. Adolescence is a time during which teenagers are particularly sensitive to disapproval from peers (Rubin et al. 2006). Because lesbian mothers anticipate that their offspring may be subjected to homophobic stigmatization, protective responses include careful supervision of their offspring's routine activities and leisure time (Gartrell et al. 1999, 2000). As their offspring enter adolescence, it is not known whether lesbian parents extend this monitoring to impose even stricter controls than heterosexual parents.

In mother–father families, parental controls that feel too restrictive to teenagers have been shown to be negatively associated with their well-being (Stattin and Kerr 2000). Adolescents who are open with their heterosexual parents and accepting of parental guidance report greater satisfaction with life (e.g., Granic and Patterson 2006; Keijsers et al. 2009; Stattin and Kerr 2000). Higher ratings of adolescent–parent relationship quality have also been associated with fewer adolescent behavioral problems in heterosexual-parent families (Dekovic et al. 2004). However, very little is known about adolescents in lesbian families in regard to the quality of the adolescent–parent relationship and how it is associated with adolescent psychological well-being.

To address this gap, the present investigation focused not only on adolescents' relationships with their lesbian mothers, but also on the adolescents' psychological adjustment and substance use. In any family type, the adolescent–parent relationship might be experienced differently if the parents have separated or if there is only one parent in the household. As a result, the current study focused specifically on adolescents in intact two-parent families (American Sociological Association 2013; Gates et al. 2012; Moore and Stambolis-Ruhstorfer 2013).

The goals of the present investigation are: (1) to compare adolescents in intact two-mother planned lesbian families with demographically matched adolescents from intact mother–father families on adolescent–parent relationships (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality), adolescent psychological adjustment (self-esteem, social anxiety, and conduct problems), and adolescent substance use (tobacco, alcohol, and marijuana/hashish); and (2) to assess whether the associations between the adolescent–parent relationship, adolescent psychological

adjustment, and adolescent substance use are different for adolescents in the two family types.

## Method

### Participants

#### *Adolescents in Planned Lesbian Two-Mother Families*

The 51 adolescents who participated in the present study are part of an ongoing longitudinal study on planned lesbian families in the Netherlands (Bos et al. 2007). The sample for the present study comprised 25 adolescent girls and 26 adolescent boys, all of whom were conceived through donor insemination. Their average age was 15.9 years ( $SD = 1.30$ ). Almost 12 percent (11.8 %) attended preparatory secondary vocational school, 25.5 % senior general secondary school and 62.7 % pre-university school. All adolescents had been born in the Netherlands, as had at least one of their mothers.

#### *Adolescents in Mother–Father Families*

To compare youth in planned lesbian two-mother families on adolescent–parent relationships, adolescent psychological adjustment, and adolescent substance use with teenagers of similar demographic profiles in heterosexual two-parent families, a similar 1:1 match procedure was used as in the NLLFS (Goldberg et al. 2011; Van Gelderen et al. 2012). The comparison group was drawn from a Dutch survey on adolescents at preparatory secondary vocational, senior general secondary, and pre-university schools that employed the same instruments as the Dutch longitudinal study on lesbian families (DLLFS; Bos et al. 2007). A total of 1,518 adolescents participated in this school survey. Complete demographic data (i.e., adolescent age, gender, educational level, birth country, and country of origin for each parent) were available for 1,379 adolescents. Of this group, 1,074 adolescents (48.5 % female and 51.5 % male) were being raised in mother–father families in which the parents were still together. The mean age of this group was 14.56 years ( $SD = 1.05$ ); 22.3 % attended a preparatory secondary vocational school, 26.5 % a senior general secondary school, and 51.2 % a pre-university school; 68 % of these adolescents and their parents had been born in the Netherlands (see also: Collier et al. 2012).

From this sample of 1,074, one adolescent was selected to match one corresponding adolescent in the sample from 51 planned lesbian two-mother families based on adolescent age, gender, educational level, and country of birth, as well as parental birth country and parental relationship continuity.

**Table 1** Demographic characteristics of sample

Variable	Family type		Lesbian two-mother families versus mother-father families
	Lesbian two-mother families	Mother-father families	
No. families	51	51	
Adolescent age in years ( <i>SD</i> )	15.9 (1.30)	15.63 (1.06)	$t < 1, ns$
Adolescent gender			$\chi^2 < 1, ns$
Female (%)	49.0	47.1	
Male (%)	51.0	52.9	
Adolescent educational level			$\chi^2 = 1.23, ns$
Preparatory secondary vocational school	11.8	11.8	
Senior general secondary school	25.5	35.3	
Pre-university school	62.7	52.9	
Adolescent birth country			
Netherlands (%)	100.0	100.0	
Non Dutch (%)	000.0	000.0	
Parental birth country			
Netherlands (%) <sup>1</sup>	100.0	100.0	
Non Dutch (%)	000.0	000.0	

<sup>1</sup> Based on number of families in which at least one parent was born in The Netherlands (for the lesbian two-mother families, as reported by parents at T1; for mother-father families as reported by the adolescents)

As shown in Table 1, there were no differences between the two samples in adolescent age, gender, educational level, or birth country, nor in parental birth country, indicating that the matching was successful.

## Procedure

### *Adolescents in Planned Lesbian Two-Mother Families*

The lesbian-parent families were recruited between 2001 and 2002 in three ways, namely via the Medical Centre for Birth Control (a Dutch center that provides donor insemination services to clients regardless of their sexual orientation and relationship status), various experts in the area of gay and lesbian parenting (snowball method), and an advertisement placed in a lesbian magazine. Mothers and children were considered eligible to participate in the (DLLFS) if the children had been raised in a lesbian two-mother family since birth and one of the children (index offspring) was between 4 and 8 years old. This resulted in a sample of 100 planned lesbian families (for additional details of the study design: Bos et al. 2007). The mothers were told that we wished to follow them and their offspring over several decades, and all mothers gave written consent to contact them again in the future.

In 2010/2011, the mothers were asked whether they were willing to participate in a new wave of data collection involving their adolescent offspring. Eighty-two mothers agreed to participate and gave permission to contact their offspring. After written consent had been obtained from the mothers, their adolescent offspring were invited to participate by email. All contacted adolescents agreed to

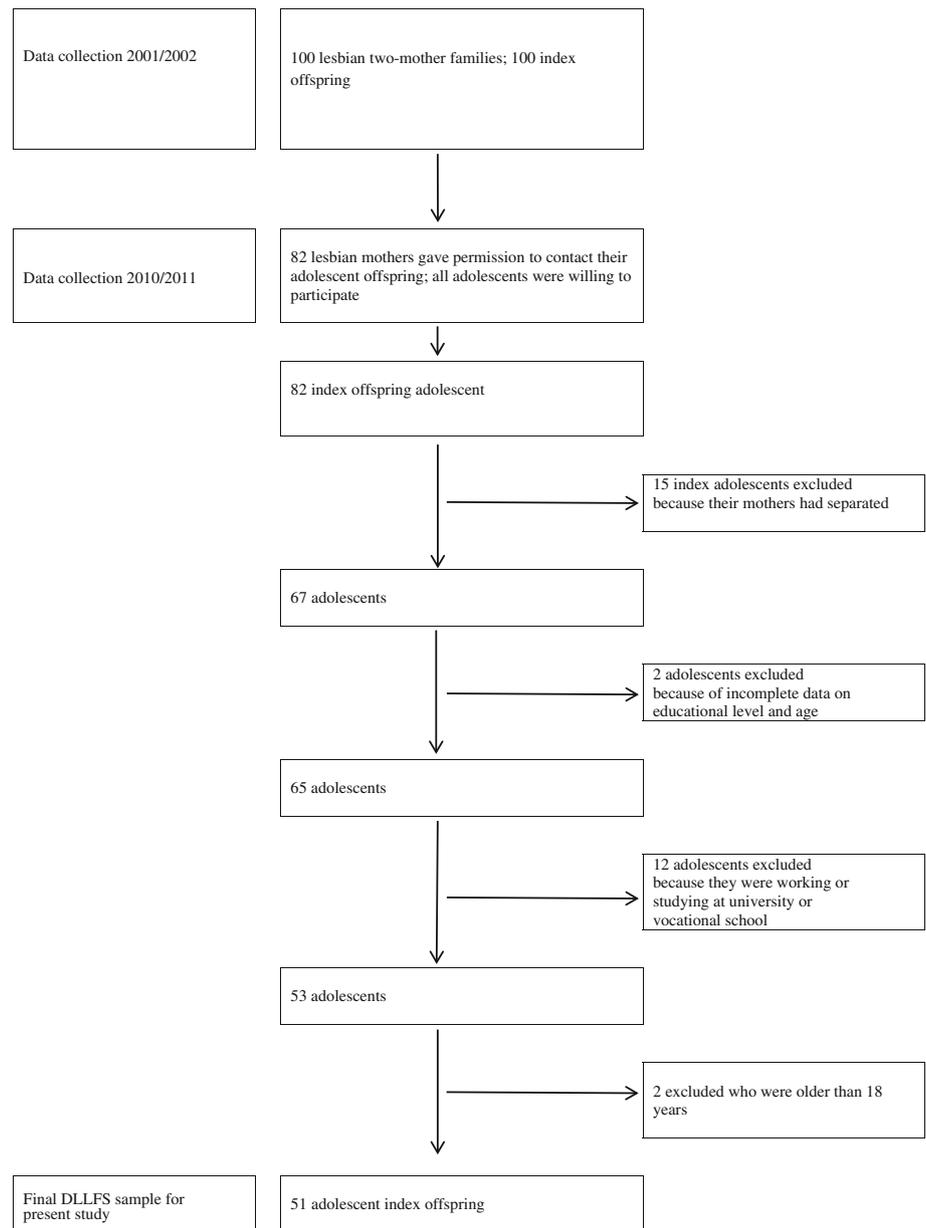
participate and completed a password-protected online questionnaire.

We compared the T1 ( $n = 100$ ) and T3 ( $n = 82$ ) offspring. At both waves a majority of the mothers were well educated (vocational or academic), an equal number of girls and boys participated, and there were no significant differences in these variables (educational level biological mother:  $X^2 = .70, p = .704$ ; educational level co-mother:  $X^2 = 1.76, p = .42$ , offspring gender:  $X^2, p = .67$ ).

As the focus of the present study was on adolescents in planned lesbian two-mother families, only offspring whose mothers were still together were included. The adolescents also had to meet other criteria. First, they had to provide demographic information about their age and educational level at the time of the present data collection. Second, because the adolescents in the comparison group were recruited in secondary schools, the adolescents with lesbian mothers had to be secondary school students at the time of data collection. Third, the (DLLFS) adolescents had to be younger than 19 years of age, because one of the instruments used in this study has this age restriction (the Youth Self Report; Achenbach and Rescorla 2001). Thirty-three (DLLFS) adolescents did not meet the above criteria, so the final sample for the present study comprised 51 intact two-mother families with 51 index offspring (see Fig. 1 for a consort diagram). These families resided primarily in urban areas (91.8%), and the mothers were well educated (89.8% of biological mothers and 81.8% of co-mothers had completed a vocational or academic degree).

There were no significant differences between the 51 participating adolescents and the 33 who did not meet the

**Fig. 1** Consort diagram of the final DLLFS sample for the present study



inclusion criteria in gender ( $X^2 = .26, p = .609$ ), region of residence (small towns versus larger urban areas:  $X^2 = 1.27, p = .531$ ), or in their mothers' educational level (biological mother:  $X^2 = 2.82, p = .245$ , and co-mother:  $X^2 = .01, p = .913$ ). However, the exclusion of adolescents who were over the age of 18, working, or studying at university or vocational school resulted in a significantly younger sample,  $F = 30.98, p < .0001$ .

*Adolescents in Mother–Father Families*

Data that were used for the comparison group were collected at school during the 2009–2010 academic year as

part of a large-scale study of adolescent health, relationships, and school experiences. Parental consent for the adolescents' participation was sought by means of a letter about the study's scope and purpose. Parents who refused permission were asked to return a form that so indicated (reasons for refusal were not requested). This procedure is consistent with Dutch ethical guidelines. Thirty-eight parents declined participation on behalf of their offspring. Research assistants from the University of Amsterdam were present in the classrooms while participants completed a paper questionnaire during the school day. The research assistants collected the instruments when the students had finished (administration time: 40–60 min).

## Measurements

The questionnaire completed by the adolescents measured adolescent–parent relationship quality, adolescent psychological adjustment, and adolescent substance use.

### *Adolescents' Relationships with Their Parents*

In the instrument completed by adolescents with lesbian mothers, each participant was asked separate questions regarding her/his relationship with each mother—the biological mother and the co-mother. In the questionnaire for the comparison group, adolescents were asked the same questions, but about their parents as a unit rather than as individuals. Asking adolescents about their parents as a unit is typical of many standardized instruments that are used to measure the adolescent–parent relationship (e.g., Keijsers et al. 2009; Muris et al. 2001).

Because the adolescent–parent relationship responses from the comparison group pertained to both parents, we pooled the mean of the scores for the biological mothers and the co-mothers, after first using a generalized linear model (GLM) for repeated measures to determine that the adolescents' scores on the subscales for biological mothers and co-mothers were not significantly different ( $p = .155$ ). Cronbach's alphas for the lesbian family results shown in each scale are based on the pooled data. In the description of the instruments, examples of items or statements are given from the questionnaire for the comparison group.

### *Parental Controlling Behaviour*

The 6-item parental control scale was used to measure the ways in which adolescents perceive that their parents are controlling their activities and friendships. An example of an item is: “Must you have your parents' permission before you go out on a weeknight?”. The adolescents were asked to rate the items on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*often*). The developers of this instrument, Kerr and Stattin (2000), found good reliability in their study (.75), as well as a high 2-month test–retest reliability ( $r = .82$ ). The Dutch version of this instrument, developed by Hawk et al. (2008), was used in the CONflict And Management Of RELationships project (CONAMORE), an on-going longitudinal study of adolescent development (e.g., parent-adolescent-relationships). At two waves—when the CONAMORE participants were 12–15 years old and again when they were 14–17 years old—the Dutch parental control scale demonstrated good reliability,  $\alpha = .80$  and  $\alpha = .86$ , respectively. For both waves, confirmatory factor analysis was also conducted, which showed that all items loaded satisfactorily on one dimension (parental controlling behavior; loadings

$\geq .42$ ). Cronbach's alpha in the present study was .90 for the planned lesbian families and .81 for the comparison group.

### *Adolescent Disclosure to Parents*

The level of adolescent disclosure to parents was measured with a 6-item scale that was developed by Wissink et al. (2006, 2009) for a study on Dutch adolescents. Adolescents were asked to indicate how much they told their parents about several domains of their lives (e.g., “How much do you tell your parents about what you do in your spare time?”); answer categories ranged from 1 (*nothing*) to 4 (*everything*). In several different surveys of Dutch adolescents, the adolescent disclosure scale showed good reliabilities ( $\alpha$ 's  $> .75$ ) (e.g., Eichelsheim et al. 2010; Wissink et al. 2006). In the present study, Cronbach's alpha was .82 for the planned lesbian families and .84 for the comparison group.

### *Quality of the Adolescent–Parent Relationship*

The Inventory of Parent and Peer Attachment (IPPA) (Armsden and Greenberg 1987; Muris et al. 2001; for the Dutch version, see: Deković and Meeus 1997; Buist et al. 2004) was used to assess the quality of the adolescent's relationship with her/his parents. The Dutch version of the IPPA consists of 10 items and three subscales: the communication scale, the trust scale, and the alienation scale. Examples of items/statements are: “If my parents know that something is bothering me, they ask me” (communication), “My parents respect my feelings” (trust), and “I don't get much attention from my parents” (alienation). Items were rated on a 5-point Likert scale, ranging from 1 (*almost never true*) to 4 (*almost always true*). Because correlations between these scales were high (Cohen 1988) (communication with trust:  $r = .69$ ,  $p < .0001$ ; communication with alienation:  $r = -.60$ ,  $p < .0001$ ; trust with alienation:  $r = -.49$ ,  $p < .0001$ ), we decided to create one scale on adolescent–parent relationship quality based on the average of the communication, trust, and alienation scales. The alienation scale was coded in such way that a high score on this scale indicated the extent to which an adolescent had a positive relationship with her/his parents. We recoded the alienation items to make a high score on this subscale an indication of an adolescent–parent relationship that was perceived as negative. Past research on the IPPA's adolescent–parent relationship quality scale (based on the average of the communication, trust, and alienation scales) has shown high internal consistency ( $\alpha = .72$ ) and high 3-week test–retest reliability ( $r = .86$ ) (Armsden and Greenberg, 1987; Raja et al. 1992). In several studies on Dutch adolescents, the Dutch version of the IPPA showed high internal consistency on the overall adolescent–parent relationship

quality scale ( $\alpha$ 's  $> .80$ ) (e.g., Buist et al. 2008). In the current study, Cronbach's alpha on the quality of the adolescent–parent relationship scale was .86 for the planned lesbian families and .83 for the comparison group.

#### Adolescent Psychological Adjustment and Substance Use

Data were collected with respect to three aspects of adolescent psychological adjustment (self-esteem, social anxiety, and conduct problems). The questionnaire also included three single-item questions about substance use (tobacco, alcohol, and marijuana/hashish).

#### Psychological Adjustment

Self-esteem was assessed by means of the Rosenberg Self-esteem scale (RSES; Rosenberg 1979). The RSES consists of 10 statements (e.g., “I have a positive attitude towards myself”) answered on a 4-point Likert scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The RSES has demonstrated good reliability and validity across different sample groups and has been validated for use with adolescents (Blascovich and Tomaka 1991; Hagborg 1993; Philips et al. 2013; Rosenberg 1989). Cronbach's alphas were .85 for the adolescents with lesbian mothers and .80 for the comparison group.

Social anxiety was measured with a shortened version of the Social Interaction Anxiety Scale (SIAS; for the original version, see Mattick and Clarke 1998). This scale included 10 statements about feeling anxious in social situations (e.g., “I get nervous when I need to speak with someone in authority”). Adolescents were asked to rate each statement on a scale of 1–5, indicating how true or characteristic the statement was of them (1 = *not true/characteristic* to 5 = *very true/characteristic*). Cronbach's alphas were .77 (adolescents with lesbian mothers) and .82 (comparison group).

Conduct problems were assessed using a 15-item subscale of the Youth Self-Report (YSR) (Achenbach and Rescorla 2001) that includes statements reflecting adolescents' feelings and/or behaviors, such as “I don't feel guilty after doing something I shouldn't do” or “I swear or use dirty language.” Each adolescent was asked to indicate whether a statement described her/his feelings/behavior at that time or within the previous 6 months. Possible answers were “*not true*” (0), “*somewhat or sometimes true*” (1) or “*very true or often true*” (2). This subscale of the YSR belongs to the DSM-Oriented scales of the YSR, and has strong psychometric properties (Achenbach and Rescorla 2001). Cronbach's alphas were .63 (adolescents with lesbian mothers) and .81 (comparison group).

#### Substance Use

Adolescents were asked to report on their consumption of tobacco, alcohol and marijuana/hashish. Substance use questions were taken from a large-scale survey of Dutch adolescents carried out by the Trimbos Institute, which is a center of expertise on mental health and addiction in the Netherlands (Monshouwer et al. 2008). For smoking, the question was, “How many cigarettes did you smoke on average during the last 4 weeks?”; answer categories ranged from 0 (*I do not smoke at all*) to 7 (*More than 20 cigarettes per day*). Regarding alcohol consumption, the adolescents were asked how many days a week, on average, they drink alcohol; answer categories ranged from 0 (*I do not drink alcohol at all*) to 7 (*7 days per week*). Finally, the adolescents were asked how many times they had used marijuana/hashish during the previous 6 months; the answer categories ranged from 0 (*0 times*) to 10 (*more than 24 times*).

#### Analyses

Before conducting the analyses, we compared the responses of the 51 matched adolescents in heterosexual-parent families to the responses of the total comparison group from which they were derived. This check was done to ensure that the selection was representative of the broader group. For this purpose, a multivariate analysis of variance (MANOVA) was carried out with whether the participant had been selected for the comparison group (0 = *no*, 1 = *yes*) as independent variable, and the studied scales and items as dependent variables. The findings of this MANOVA did not show a significant Wilk's  $\lambda$  ( $p = .234$ ), indicating that the group of 51 adolescents was similar to the total sample from which it had been drawn in regard to relationships with parents, psychological adjustment, and substance use. It was therefore possible to use the selected 51 adolescents in the comparison group and analyze whether they differed on these variables from the 51 adolescents in planned lesbian families.

To determine whether the sample sizes of 51 adolescents in planned lesbian two-mother families and 51 adolescents in heterosexual two-parent families were large enough for a comparison of the studied dependent variables, post hoc power analyses were carried out using G-Power software (Erdfelder et al. 1996; Faul and Erdfelder 1992). For a sample size of 102 respondents (51 in each family type), these analyses revealed a power (1-beta error probability) of 0.99 for MANOVAs with 9 variables, and a power of 0.94 for the ANOVAs. In the power analyses, an effect size of  $f^2 = 0.35$  and an alpha of 0.05 were used. The results of the power analyses indicated that the sample size was large enough to compare the two family types.

**Table 2** Means and standard deviations for adolescent–parent relationships, adolescent psychological adjustment, and adolescent substance use, separately for adolescents in Lesbian two-mother and mother–father families, and for boys and girls

	Family type				Gender				F-value			
	Lesbian two-mother		Mother–father families		Boys		Girls		Family type		Gender	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
<i>Adolescent–parent relationships</i>												
Parental controlling behavior	3.29	0.79	3.38	0.89	3.15	0.81	3.53	0.83	.29	.592	5.48	.021
Adolescent disclosure	3.18	0.40	3.13	0.59	3.04	0.54	3.28	0.44	.22	.638	5.71	.019
Adolescent–parent relationship quality	3.16	0.37	3.22	0.46	3.18	0.43	3.20	0.40	.53	.470	0.09	.767
<i>Adolescent psychological adjustment</i>												
Self-esteem	3.18	0.50	2.94	0.43	3.14	0.45	2.97	0.50	6.86	.010	3.59	.061
Social anxiety	1.79	0.54	2.00	0.71	1.78	0.68	2.24	0.67	3.07	.083	5.00	.028
Conduct problems	3.10	2.73	4.67	3.75	4.46	3.89	3.29	2.58	5.41	.022	3.00	.087
<i>Adolescent substance use</i>												
Cigarettes	0.76	1.30	0.76	1.59	0.67	1.40	0.85	1.50	0.00	.986	.36	.548
Alcohol	0.60	0.70	0.82	1.75	0.81	1.70	0.60	0.68	0.55	.461	.65	.423
Marijuana/Hashish	0.26	0.66	0.35	1.54	0.40	1.52	0.19	0.58	0.09	.766	.82	.368

After these checks, a 2 (family type) by 2 (gender of the adolescent) MANOVA was used to investigate the degree to which adolescents raised in planned lesbian families differed on adolescent–parent relationship variables (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality) from adolescents in mother–father families. Separate  $2 \times 2$  MANOVAs were also carried out with psychological adjustment (self-esteem, social anxiety, and conduct problems) and substance use variables (consumption of tobacco, alcohol, and marijuana/hashish) as dependent variables. To investigate whether the adolescent–parent relationship variables were significant predictors of adolescent psychological adjustment and substance use while controlling for family type and adolescent gender, and to explore whether these associations were different for adolescents in planned lesbian families and adolescents in mother–father families, hierarchical multiple regression analyses were conducted. Separate regressions were conducted with self-esteem, social anxiety, conduct problems, cigarette, alcohol, and marijuana/hashish consumption as dependent variables. In these regression analyses, family type and adolescent gender were entered in Step 1 as controlling variables. In Step 2, all adolescent–parent relationship variables (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality) were entered in the equation. The interaction between these variables and family type was entered in Step 3. If the associations between the relationship variables and the dependent variables for adolescents in planned lesbian families were different from those

of adolescents in mother–father families, there should have been a significant change in the coefficient of determination ( $\Delta R^2$ ) in Step 3. The sample size was sufficient for the hierarchical regression analyses that we calculated: the power was .99 for a large effects size of  $f^2 = 0.35$  and a probability level of  $p \leq .05$ .

## Results

### Comparison Between Adolescents in Planned Lesbian Two-Mother Families and in Mother–Father Families

Table 2 presents the means and standard deviations for the variables that measured the three studied dimensions of adolescent–parent relationships (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality), and the variables measuring adolescent psychological adjustment (self-esteem, social anxiety, and conduct problems) and substance use (cigarettes, alcohol, and marijuana/hashish).

#### *Adolescents' Relationships with Their Parents*

The 2 (family type) by 2 (gender) MANOVA with three dependent variables, namely parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality, did not show a multivariate main effect for family type, Wilk's  $\lambda = 0.98$ ,  $F(3,96) = 0.74$ ,  $p = .531$ . This finding indicates that there were no

significant differences between the adolescents in planned lesbian two-mother families and those in mother–father families in how they perceived their relationships with their parents.

The MANOVA showed a significant effect for gender, Wilk's  $\lambda = 0.89$ ,  $F(3,96) = 3.99$ ,  $p = .010$ . Separate ANOVAs on the individual scales indicated that the multivariate main effect of gender was localized in adolescent perceptions of parental controlling behavior and adolescent disclosure to parents (see Table 2): girls scored higher than boys on the scale that measured adolescents' perceptions that their parents were controlling. Compared to boys, girls also scored significantly higher on the scale that measured how open they were with their parents about several domains of their life.

The MANOVA did not show a significant family type  $\times$  gender effect, indicating that the abovementioned differences between girls and boys were similar for adolescents in planned lesbian two-mother families and father–mother families.

### *Psychological Adjustment*

The 2 (family type) by 2 (gender) MANOVA with subscales regarding adolescent self-esteem, social anxiety, and conduct problems as dependent variables showed a significant main effect both for family type, Wilk's  $\lambda = 0.90$ ,  $F(3, 94) = 3.54$ ,  $p = .018$ , and for gender, Wilk's  $\lambda = 0.90$ ,  $F(3, 94) = 3.56$ ,  $p = .017$ . Wilk's  $\lambda$  was not significant for the interaction between family type and gender, Wilk's  $\lambda = 0.97$ ,  $F(3,94) = 1.15$ ,  $p = .334$ .

As shown in Table 2, an ANOVA revealed that the adolescents in planned lesbian two-mother families scored significantly higher on the scale that measured self-esteem than the adolescents in mother–father families. The ANOVA also showed that the adolescents with lesbian mothers scored significantly lower on the conduct problems scale than their counterparts in mother–father families. On social anxiety, no significant effect was found for family type; however, the ANOVA showed a significant main effect for gender (see Table 2).

Compared to boys, girls reported higher scores on the scale that measured social anxiety. There was no significant gender effect on self-esteem or conduct problems.

### *Substance Use*

Regarding the 2 (family type) by 2 (gender) MANOVA on the consumption of cigarettes, alcohol, and marijuana/hashish, no significant multivariate effects were found for family type, Wilk's  $\lambda = 0.99$ ,  $F(3,93) = 0.23$ ,  $p = .878$ , or gender, Wilk's  $\lambda = 0.97$ ,  $F(3,93) = 0.94$ ,  $p = .424$ . The interaction between family type and gender was also not significant, Wilk's  $\lambda = 0.97$ ,  $F(3,93) = 1.05$ ,  $p = .376$ .

## Associations Between Adolescents' Relationships with Their Parents and Adolescent Psychological Adjustment and Substance Use

### *Psychological Adjustment*

Table 3 presents the results of the hierarchical regression analyses on self-esteem, social anxiety, and conduct problems. In each equation, family type and adolescent gender were entered in Step 1. The variables that measured the adolescents' relationships with their parents (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality) were entered in Step 2. The interaction between family type and these relationship variables was entered in Step 3. Inclusion of the interactions in Step 3 produced a significant change only in the coefficient of determination ( $\Delta R^2$ ) for self-esteem, and not in the coefficients for conduct problems and social anxiety.

### *Self-Esteem*

Step 3 revealed that in addition to family type, other variables were also significantly associated with self-esteem, namely the adolescents' perceptions of their parents' controlling behavior, adolescent–parent relationship quality, family type  $\times$  adolescent disclosure to parents, and family type  $\times$  adolescent–parent relationship quality. The variables entered in Step 3 of the equation together accounted for 29 % of the variance on self-esteem.

The MANOVA on psychological adjustment had already shown that adolescents with lesbian mothers scored significantly higher on self-esteem. The regression analysis also showed that adolescents with high scores on parental controlling behavior scored lower on the self-esteem variable, whereas those with high scores on adolescent–parent relationship quality had high scores on self-esteem (see Table 3).

For the family type  $\times$  adolescent disclosure to parents, simple slopes showed that the slopes were negative for both family types. Although the slope for the mother–father families was stronger than that for the lesbian mother families, neither slope was significant (lesbian mother families: simple slope =  $-.04$ ,  $t$ -value =  $-.08$ ,  $p = .939$ ; mother–father families: simple slope =  $-1.41$ ,  $t$ -value =  $-1.78$ ,  $p = .079$ ).

For the interaction between family type and the quality of adolescent–parent relationships, simple slope tests showed that the association between self-esteem and this relationship variable was significant only for adolescents in mother–father families (lesbian -mother families: simple slope =  $.62$ ,  $t$ -value =  $1.48$ ,  $p = .142$ ; mother–father families: simple slope =  $1.91$ ,  $t$ -value =  $3.79$ ,  $p < .0001$ ). These findings indicate that adolescents in mother–father families who gave high ratings to the quality of their relationships with their parents also scored higher on self-esteem.

**Table 3** Hierarchical multiple regression analyses predicting adolescent psychological adjustment (self-esteem, social anxiety, and conduct problems)

Variable	<i>B</i>	<i>SE(B)</i>	<i>B</i>	<i>p</i>	<i>F</i>	<i>R</i> <sup>2</sup>	$\Delta F$	$\Delta R^2$
<i>Self-esteem</i>								
Step 1					5.22**	.10		
Family type	−0.25	0.09	−0.26	.008				
Adolescent gender	−0.17	0.09	−0.17	.073				
Step 2					3.12*	.14	1.66	.04
Family type	−0.24	0.09	−0.26	.009				
Adolescent gender	−0.18	0.10	−0.19	.064				
Parental controlling behavior	−0.06	0.06	−0.10	.379				
Adolescent disclosure	0.14	0.12	0.14	.268				
Adolescent–parent relationship quality	0.14	0.15	0.12	.350				
Step 3					4.85***	.29	6.79***	.15
Family type	−0.27	0.08	−0.29	.002				
Adolescent gender	−0.07	0.09	−0.07	.443				
Parental controlling behavior	−0.19	0.07	−0.34	.005				
Adolescent disclosure	−0.04	0.13	−0.04	.763				
Adolescent–parent relationship quality	0.62	0.18	0.54	.001				
Family type × Parental controlling behavior	−0.18	0.13	−0.16	.162				
Family type × Adolescent disclosure	−1.10	0.26	−0.58	<.0001				
Family type × Adolescent–parent relationship quality	1.29	0.36	0.56	<.0001				
<i>Social anxiety</i>								
Step 1					3.97*	.08		
Family type	0.22	0.12	0.18	.072				
Adolescent gender	0.27	0.12	0.21	.031				
Step 2					3.14*	.14	2.47	.06
Family type	0.23	0.12	0.19	.056				
Adolescent gender	0.23	0.13	0.18	.070				
Parental controlling behavior	0.13	0.08	0.17	.126				
Adolescent disclosure	−0.17	0.16	−0.14	.917				
Adolescent–parent relationship quality	−0.42	0.20	−0.28	.035				
Step 3					2.33*	.17	0.99	.03
Family type	0.26	0.12	0.20	.039				
Adolescent gender	0.19	0.13	0.15	.165				
Parental controlling behavior	0.21	0.10	0.28	.032				
Adolescent disclosure	0.13	0.19	0.10	.495				
Adolescent–parent relationship quality	−0.71	0.26	−0.47	.008				
Family type × parental controlling behavior	0.22	0.19	0.14	.251				
Family type × adolescent disclosure	0.41	0.37	0.16	.271				
Family type × adolescent–parent relationship quality	−0.83	0.52	−0.27	.111				
<i>Conduct problems</i>								
Step 1					4.42*	.08		
Family type	1.54	0.65	0.23	.020				
Adolescent gender	−1.14	0.65	−0.17	.083				
Step 2					8.00***	.30	9.60***	.22
Family type	1.47	0.58	0.22	.013				
Adolescent gender	−1.13	0.63	−0.17	.077				
Parental controlling behavior	1.05	0.43	0.26	.015				
Adolescent disclosure	−1.96	0.84	−0.29	.021				
Adolescent–parent relationship quality	−2.44	1.07	−0.30	.024				

**Table 3** continued

Variable	<i>B</i>	<i>SE(B)</i>	<i>B</i>	<i>p</i>	<i>F</i>	<i>R</i> <sup>2</sup>	$\Delta F$	$\Delta R^2$
Step 3					6.12***	.35	2.39	.05
Family type	1.65	0.57	0.25	.005				
Adolescent gender	-1.45	0.65	-0.22	.027				
Parental controlling behavior	1.62	0.48	0.40	.001				
Adolescent disclosure	-1.14	0.91	-0.17	.211				
Adolescent–parent relationship quality	-4.41	1.28	-0.53	.001				
Family type $\times$ parental controlling behavior	1.47	0.90	0.18	.106				
Family type $\times$ adolescent disclosure	3.64	1.82	0.27	.048				
Family type $\times$ adolescent–parent relationship quality	-5.87	2.48	-0.36	.020				

\*  $p < .05$ ; \*\*  $p < .001$ ; \*\*\*  $p < .0001$

### Social Anxiety

For social anxiety, inclusion of the variables that measured the adolescents' relationships with their parents and the interaction between family type and these variables did not produce significant  $\Delta R^2$ 's when they were entered in Step 2 and Step 3, respectively (see also Table 3). In Step 1, only gender was significantly related to social anxiety; together with family type (which was not significantly related to social anxiety), gender accounted for 1 % of the variance. As mentioned, compared to boys, girls scored higher on social anxiety.

### Conduct Problems

For conduct problems, the inclusion of the variables concerning adolescents' relationships with their parents in Step 2 produced a significant  $\Delta R^2$ ; however,  $\Delta R^2$  was not significant when the interactions between these variables and family type were entered in the regression in Step 3. Entering the relationship variables in Step 2 accounted for 30 % of the variance on conduct problems. The findings of this analysis (see Table 3) showed that in addition to family type (which was also significantly associated with conduct problems), parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality were also significantly related to conduct problems: adolescents in lesbian families scored lower on conduct problems. In addition, adolescents with high scores on disclosure, low scores on parental controlling behavior, and high scores on the adolescent–parent relationship quality had low scores on conduct problems.

### Substance Use

The results of the hierarchical regression analyses on cigarette, alcohol, and marijuana/hashish consumption are shown

in Table 4. In these equations, none of the three steps was significantly related to these dependent variables. These findings indicate that cigarette, alcohol, and marijuana/hashish consumption was not significantly related to family type or gender (Step 1). Findings of the regression analyses showed that the use of cigarettes, alcohol, and marijuana/hashish was also not significantly related to the parental relationship variables (parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality) (Step 2), or the interaction between these variables and family type (Step 3).

### Discussion

The present study found that adolescents in intact two-mother planned lesbian families showed only a few significant differences from a matched group of adolescents in intact mother–father families on a large range of studied variables. Adolescents who were born and raised in lesbian two-mother families had higher scores on self-esteem and lower scores on conduct problems than their counterparts in mother–father families. On all other studied variables related to the adolescent–parent relationship (parental control, disclosure to parents, and adolescent–parent relationship quality) or to other aspects of well-being (social anxiety, smoking cigarettes, drinking alcohol, using marijuana/hashish), no significant differences were found between adolescents in the two family types.

The adolescents in the comparison group were selected from a broader dataset, and the 1:1 matching was based on adolescent age, gender, educational level, and country of birth, as well as the birth country of their parents. Since we verified before conducting the analyses that the matched adolescents were representative of the broader dataset, our findings are unlikely to have been influenced by the selection methodology.

**Table 4** Hierarchical multiple regression analyses predicting adolescent substance use (consumption of cigarettes, alcohol, and marijuana/hashish)

Variable	<i>B</i>	<i>SE(B)</i>	$\beta$	<i>p</i>	<i>F</i>	<i>R</i> <sup>2</sup>	$\Delta F$	$\Delta R$ <sup>2</sup>
<i>Consumption of cigarettes</i>								
Step 1					0.20	.00		
Family type	0.00	0.29	0.00	1.00				
Adolescent gender	0.18	0.29	0.06	.53				
Step 2					1.72	.08	0.05	.08
Family type	-0.02	0.29	-0.01	.933				
Adolescent gender	0.19	0.30	0.07	.533				
Parental controlling behavior	0.33	0.20	0.19	.099				
Adolescent disclosure	-0.45	0.38	-0.16	.239				
Adolescent-parent relationship quality	-0.67	0.46	-0.19	.153				
Step 3					1.53	.12	0.32	.04
Family type	0.03	0.29	0.01	.920				
Adolescent gender	0.13	0.31	0.04	.688				
Parental controlling behavior	0.47	0.23	-0.28	.042				
Adolescent disclosure	-0.17	0.44	-0.06	.692				
Adolescent-parent relationship quality	-1.37	0.62	-0.40	.028				
Family type $\times$ Parental controlling behavior	0.75	0.44	0.22	.092				
Family type $\times$ Adolescent disclosure	0.74	0.87	0.13	.398				
Family type $\times$ Adolescent-parent relationship quality	-1.39	1.21	-0.20	.256				
<i>Consumption of Alcohol</i>								
Step 1					0.88	.02		
Family type	0.25	0.26	0.09	.353				
Adolescent gender	-0.24	0.26	-0.09	.363				
Step 2					0.48	.03	0.22	.01
Family type	0.25	0.27	0.10	.350				
Adolescent gender	-0.19	0.28	-0.08	.483				
Parental controlling behavior	-0.05	0.18	-0.03	.771				
Adolescent disclosure	-0.08	0.36	-0.03	.831				
Adolescent-parent relationship quality	-0.12	0.44	-0.04	.779				
Step 3					0.45	.04	0.42	.01
Family type	0.26	0.27	0.10	.336				
Adolescent gender	-0.16	0.30	-0.06	.595				
Parental controlling behavior	-0.06	0.22	-0.04	.766				
Adolescent disclosure	-0.05	0.42	-0.02	.915				
Adolescent-parent relationship quality	-0.25	0.59	-0.08	-.081				
Family type $\times$ Parental controlling behavior	0.40	0.42	0.13	.126				
Family type $\times$ Adolescent disclosure	-0.26	0.83	-0.05	-.050				
Family type $\times$ Adolescent-parent relationship quality	0.16	1.16	0.03	.025				
<i>Consumption of Marijuana/hashish</i>								
Step 1					0.48	.01		
Family type	0.07	0.23	0.03	.748				
Adolescent gender	-0.21	0.23	-0.09	.362				
Step 2					0.74	.04	0.92	.03
Family type	0.45	0.23	0.02	.848				
Adolescent gender	-0.16	0.24	-0.07	.523				
Parental controlling behavior	0.11	0.16	0.08	.494				
Adolescent disclosure	-0.41	0.31	-0.18	.196				

**Table 4** continued

Variable	<i>B</i>	<i>SE(B)</i>	$\beta$	<i>p</i>	<i>F</i>	<i>R</i> <sup>2</sup>	$\Delta F$	$\Delta R$ <sup>2</sup>
Adolescent–parent relationship quality	−0.04	0.40	−0.01	.922				
Step 3					0.62	.05	0.44	.01
Family type	0.05	0.24	0.02	.854				
Adolescent gender	−0.13	0.26	−0.06	.615				
Parental controlling behavior	0.06	0.19	0.05	.742				
Adolescent disclosure	−0.51	0.36	−0.22	.162				
Adolescent–parent relationship quality	−0.03	0.51	−0.01	.948				
Family type × parental controlling behavior	0.09	0.36	0.03	.800				
Family type × adolescent disclosure	0.04	0.72	0.01	.953				
Family type × adolescent–parent relationship quality	0.60	1.01	0.11	.551				

Across the three aspects of the adolescent–parent relationship that we investigated (i.e., parental controlling behavior, adolescent disclosure to parents, and adolescent–parent relationship quality), we found that the adolescent–parent relationship in planned lesbian two-mother families did not differ from that in mother–father families. These results differ from previous studies on parenting of younger children in lesbian families, which showed that lesbian mothers scored higher than heterosexual fathers or single, heterosexual mothers on various parenting aspects (e.g., Bos et al. 2007; MacCallum and Golombok 2004; Golombok et al. 1997). However, our finding was consistent with the reports on adolescents in same- and different-sex-parent families based on the Add Health data (Wainright and Patterson 2006, 2008; Wainright et al. 2004). The difference between the current study and the Wainright et al. studies is that our target group comprised adolescents in intact two-mother planned lesbian families in which the children were conceived through donor insemination and the mothers self-identified as lesbian.

Our findings regarding the adolescent–parent relationships were also in line with what was found in the NLLFS. However, in the NLLFS, adolescents in planned lesbian families were compared with their counterparts in mother–father families on only one item that assessed adolescent–parent relationships (“I feel I am getting along with my parents/guardians”), and no significant difference was found. In contrast to in the NLLFS, the current study used a more sensitive operationalization of the adolescent–parent relationship by focusing on several aspects of this relationship and measuring it with standardized instruments.

That adolescents in planned lesbian two-mother families are well-adjusted is also consistent with the reports of the Add Health studies on adolescents in female same-sex parent households (Wainright and Patterson 2006, 2008; Wainright et al. 2004). In contrast to those studies, however, we also found some significant differences (on self-esteem and conduct problems), all of which favored the

offspring in lesbian two-mother families. Similarly, the T5 NLLFS adolescents demonstrated more competencies and fewer behavioral problems than age- and gender- matched adolescents from heterosexual-parent families in the normative sample of American youth (Gartrell and Bos 2010).

The current investigation also revealed that in addition to family type, parental controlling behavior and adolescent–parent relationship quality (both as perceived by the adolescents) were important predictors of self-esteem and conduct problems. Adolescents who felt that their parents controlled their activities and friendships showed lower levels of self-esteem and higher levels of conduct problems. Those who reported high levels of adolescent–parent relationship quality scored high on self-esteem and low on conduct-problems. These findings are in line with previous investigations on adolescents in father-mother families (e.g., Dekovic et al. 2004; Stattin and Kerr 2000).

Family type, adolescent disclosure to parents, parental controlling behavior, and adolescent–parent relationship quality were not significantly associated with smoking cigarettes, drinking alcohol, or using marijuana/hashish. It is conceivable that peer pressure and friendship patterns may be more important than parents as predictors of substance use (e.g., Hummel et al. 2013; Whitesell et al. 2013).

Only one interaction between family type and the adolescent–parent relationship emerged as statistically significant: adolescents’ perceptions of the quality of their relationships with their parents was a significant predictor of self-esteem for those with opposite-sex parents, but not for those with lesbian parents. Since adolescents with lesbian mothers scored higher on self-esteem than their counterparts in mother–father families, these findings suggest that the associations between adolescent–parent relationship quality and family type warrant further investigation to determine the direction of influence.

Several limitations of the present study also deserve mention. First, because the current study did not use a multi-informant approach, the comparison between

adolescents in planned lesbian two-mother families and those in mother–father families was based only on the information provided by the adolescents. In future studies, to counteract the possibility of reporter bias as adolescents in same-sex parent families develop a keener awareness of their minority status (Golombok and Tasker 1996; Rivers et al. 2008), we recommend that data be collected from other informants, such as teachers. It would also be helpful to include observational assessments of the adolescents' actual interactions with their parents. In addition, several studies have shown that adolescents do not provide accurate information about their substance use (e.g., Mensch and Kandel 1988; Williams and Nowatzki 2005). In future assessments of substance use in adolescents, data should be collected from additional sources, such as peers. The correlational nature is another limitation of the present study. Consequently, it was not possible to clarify the directions of the findings (Steinberg et al. 1992).

The results of our investigation contribute to the existing literature on adolescents in same-sex parent families, and especially to that on adolescents who were conceived through donor insemination and raised in planned lesbian families. Building upon the work of the NLLFS, the current report is one of few to have addressed adolescents' relationships with their lesbian mothers in association with adolescent psychological adjustment and substance use. Also, this is the first study to compare adolescents from intact two-mother planned lesbian families with a matched group of adolescents from intact heterosexual-parent families drawn from a large school-based survey. Our findings revealed that there were no significant differences in adolescent–parent relationship quality between adolescents from these two family types, and that adolescents raised since birth in intact two-mother planned lesbian families demonstrate healthy psychological adjustment.

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