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Children's Gender-Typed Behavior from Early to Middle Childhood in Adoptive Families with Lesbian, Gay, and Heterosexual Parents

Rachel H. Farr¹ · Samuel T. Bruun¹ · Kathleen M. Doss² · Charlotte J. Patterson³

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Abstract Gender-typed behaviors—both gender-conforming and nonconforming—were investigated longitudinally among children in 106 adoptive U.S. families with lesbian, gay, and heterosexual parents at two times (Wave 1, preschool-age; Wave 2, school-age) over 5 years. At Wave 1 (W1), parents reported on children's gender-typed behavior using the Pre-School Activities Inventory (PSAI; Golombok and Rust 1993), and children's gender-typed toy play was evaluated using observational methods. At Wave 2 (W2), children reported on their own gender-typed behavior using the Children's Occupations, Activities, and Traits Personal Measure (COAT-PM; Liben and Bigler 2002). Observations of children's gender-conforming toy play and parents' reports of children's gender nonconformity (PSAI) in early childhood (W1) were associated with children's self-reports of gender nonconformity (COAT-PM) in middle childhood (W2); toy play was most strongly predictive of gender nonconformity 5 years later. Children's gender-typed behavior also varied by age and gender at both time points, but no significant differences were found as a function of parental sexual orientation across time. Informative to ongoing debates about same-sex

parenting, our findings indicate that among children reared by lesbian, gay, and heterosexual parents, gender-typing appears to be similar, and predominantly gender-conforming, across early to middle childhood.

Keywords Adoptive parents · Early childhood development · Gender nonconformity · Gender roles · Sexual orientation · Toy selection

Research has shown that children of same-sex parents generally demonstrate developmental outcomes comparable to those of their peers with heterosexual parents, but parenting by sexual minority adults remains controversial in the United States (Fedewa et al. 2015). Among the many concerns surrounding same-sex couples, some have suggested that children raised by same-sex parents may not learn socially appropriate gender roles (Gato and Fontaine 2013). Concerns center around the idea that without a parent who is modeling gender-conforming behavior, children will become confused about their gender development or identity. (For more details about this controversy, see Biblarz and Stacey 2010.) Meanwhile, as controversy continues about whether lesbian and gay adults can rear children who develop in gender-typical ways, broad cultural debate and attention have also surrounded the issue of gender nonconformity among children (e.g., Ehrensaft 2016; Schulevitz 2016). In studying children's gender-typed behaviors, influences such as toy play have been demonstrated to share strong associations with gender-conforming behaviors (Li and Wong 2016). In the present study, we examined preschool to school-age children's gender-typed behavior, in terms of gender conformity and nonconformity and including play

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observations, among children adopted by lesbian, gay, and heterosexual parents.

Our examination of children's gender-typed behavior is framed by social learning theory (Bandura 1977). This framework predicts that during social interactions, such as through play and modeling from parents, children learn what sorts of behaviors are socially acceptable. At an early age, children can identify themselves as belonging to particular social categories, such as gender or race, and are able to identify others who also belong to these social categories (Leaper 2002; Martin 1993; Ruble et al. 2006). During the preschool years, children have a clear sense of their gender identity and often become more rigid in their attitudes about gender (Martin 1993; Ruble et al. 2006; Serbin et al. 1993). Children observe members of their own category, including fictional examples, and imitate their behavior if it appears to be beneficial or to receive rewards. For example, boys might watch men successfully solve problems with aggression in much of the popular media (Coyne et al. 2014). If such behavior is accepted by both peers and authority figures, then boys might learn to see it as appropriate behavior. Members of the surrounding social context, particularly parents, can also impose sanctions on behavior, leading children to see it as unacceptable.

Children's Gender Conformity and Nonconformity

In terms of gender-typed behaviors, most children become distinctly gender-conforming and gender-segregated in their play and social interactions by early childhood (Dinella et al. 2016; Maccoby and Jacklin 1987), and this pattern continues across middle childhood (Lee and Troop-Gordon 2011). In contrast to gender-conforming behaviors, gender nonconformity is the degree to which children take on gender role behaviors and characteristics that are generally viewed as typical for the other gender (Lee and Troop-Gordon 2011). The term *gender nonconformity* does not generally refer to individuals who experience gender dysphoria, but rather simply describes behaviors that contrast with traditional social gender norms (Edwards-Leeper et al. 2016; Jewell and Brown 2014; Lee and Troop-Gordon 2011; Malpas 2011). Evidence indicates that for some children, gender nonconformity may emerge in early childhood and that it often persists into later stages of development (Edwards-Leeper et al. 2016; Jewell and Brown 2014; Malpas 2011). Most children, however, become increasingly less likely to engage in gender-nonconforming behaviors; by six years of age, many children think of gender-nonconforming behaviors in negative terms and tend to avoid them (Jewell and Brown 2014). Indeed, children appear to reach a peak of rigidity in gender stereotyping between 5 and 7 years old (Serbin et al. 1993).

Some research describes the development that individuals experience in different domains of gender-typed behavior,

including gender-conforming and nonconforming knowledge, play, and even occupational aspirations across childhood, adolescence, and adulthood. For example, children show high levels of stereotypical gender-related knowledge in early childhood, with further increases in this area into middle childhood (Banse et al. 2010; Halim et al. 2013; Serbin and Sprafkin 1986). Interestingly, at the same time, children across early to middle childhood show an increase in gender stereotype flexibility, such as the understanding that although trucks are typically associated with boys, girls can also play with trucks (Banse et al. 2010). Moreover, multiple studies have examined occupational aspirations of children, and how these may be influenced by perceptions of gender (Alm 2015; Baird 2012; Coyle and Liben 2016; Weisgram et al. 2010). In Baird's (2012) longitudinal study using data from the National Longitudinal Survey of Youth, adolescents who demonstrated gender-nonconforming characteristics (including occupational aspirations) were less likely to have traditional, gender-conforming occupations in adulthood, providing additional support to the notion that gender nonconformity may be stable across development. More research would be helpful in exploring occupational aspirations and other gendered preferences among children over time and during earlier periods of development.

Child Gender and Parental Influence

Research on children's gender development within heterosexual parent families clearly shows that gender socialization of children differs as a function of parent gender and child gender (Leaper 2002). Heterosexual fathers tend to be stricter than mothers in terms of what they consider to be gender-appropriate child behavior (Leaper 2002; Lytton and Romney 1991). As predicted by social learning theory, children are sensitive to gender-typed messages they receive from parents, and boys may be particularly sensitive to a father's approval or disapproval (Raag and Rackliff 1998). Boys are also especially likely to avoid gender-nonconforming behavior across early to middle childhood, although both boys and girls often behave in increasingly gender-conforming ways across childhood (Golombok et al. 2008; Halim et al. 2013; Jadva et al. 2010; LoBue and DeLoache 2011). In general, both mothers and fathers treat their daughters and sons in gender-typical ways from very early in life; for instance, parents buy children gender-stereotyped toys and decorate children's bedrooms in gender-stereotyped ways (Leaper 2002; Sutfin et al. 2008). Even so, questions remain about whether and to what degree parents can influence their children's gender role behavior.

Play is a domain of development in which applications of social learning theory are clear, particularly in the reinforcement of gender-typed behavior among children during play.

Research indicates that play becomes increasingly gender-conforming as children grow and experience increased contact with siblings, peers, and teachers (Goldberg and Garcia 2016; Goldberg et al. 2012; Halim et al. 2013), which has notable implications for children's socioemotional development. For instance, Li and Wong (2016) found that girls in the first grade showed more empathy than did boys of the same age, likely as a result of distinct patterns of gendered play. Whereas girls tend to practice social skills by engaging with toys in collaborative and cooperative ways, boys tend to play in more competitive ways with gender-stereotypical toys. Boys who played with more gender-neutral toys, however, showed more empathy than did their counterparts who played with primarily masculine-stereotyped toys (Li and Wong 2016). Thus, toy play serves as one route for children to develop toward greater gender conformity (or nonconformity).

Toy play is one area in which social learning theory operates because parents often select toys for their young children and in so doing, they implicitly or explicitly teach children gender role behavior (Leaper 2000, 2002). Toys can serve as models of what sorts of objects and behaviors are considered appropriate for one's own gender. Even as early as one year of age, boys and girls demonstrate different toy preferences (Snow et al. 1983). By two years of age, girls prefer objects that are pink whereas boys avoid them (LoBue and DeLoache 2011). Among three- to five-year-olds, boys are likely to prefer cars, trucks, trains, toy guns, and swords, and girls are likely to prefer tea sets, dolls, and dollhouses (Dunn and Hughes 2001; Martin et al. 1990). Children are remarkably astute when it comes to understanding what toys are considered gender-appropriate by the broader culture, even when their parents claim not to hold these stereotyped beliefs (Freeman 2007). Thus, the extent to which parents directly influence children's gender-typing in early and middle childhood remains unclear.

Children's Gender-Typing: Parental Sexual Orientation

Broadly, research on parental sexual orientation and child development has shown that children's outcomes are generally unrelated to parents' sexual identities (Moore and Stambolis-Ruhstorfer 2013; Patterson 2017). For example, in a literature review conducted by Anderssen et al. (2002), which detailed a collection of 23 studies examining outcomes of children with lesbian and gay parents in comparison to children with heterosexual parents, no differences were found with regard to a variety of outcomes, including gender-typical behavior. Similarly, Fedewa et al.'s (2015) meta-analysis revealed that across 18 studies, which specifically assessed gender role development among children with lesbian, gay, and heterosexual parents, no significant effects could be attributed to parental

sexual orientation. In fact, children with lesbian or gay parents scored higher on conventional gender role behaviors than did children with heterosexual parents (Fedewa et al. 2015). Other reviews of child outcomes in the context of lesbian and gay parenting have also revealed that children with sexual minority parents did not differ significantly from their peers raised by heterosexual parents. Biblarz and Stacey (2010) emphasized the similarities of parenting among lesbian, gay, and heterosexual people and suggested the importance of a stable family life, regardless of parental sexual orientation. Consistent with this view, research on diverse family forms has revealed the importance of family processes over family structure to children's outcomes (Lamb 2012; Moore and Stambolis-Ruhstorfer 2013; Patterson 2017).

There have, however, been a few studies that highlight possible differences in gender-typed attitudes among children with sexual minority versus heterosexual parents. For instance, some investigators have reported that lesbian mothers endorse more gender-flexible attitudes than do heterosexual parents and that these attitudes may be passed along to children, including attitudes about occupational aspirations (Fulcher et al. 2008; Goldberg et al. 2012; Sutfin et al. 2008). Relatedly, children of lesbian and gay parents have been found to show greater acceptance of gender nonconformity in their peers and may display more gender-flexible behaviors themselves (Biblarz and Stacey 2010). Similarly, some longitudinal evidence indicates that toddlers and preschoolers with lesbian and gay parents engage in significantly less gender-stereotyped play (according to parent reports) than do those with heterosexual parents (Goldberg and Garcia 2016; Goldberg et al. 2012). Lastly, school-age children of lesbian parents have been found to be less likely than their peers with heterosexual parents to view their own gender as being superior (Bos and Sandfort 2010). Thus, parental sexual orientation may exert some influence on children's gender-typed attitudes, but it may be indirect. That is, parental attitudes and behaviors regarding gender may play more salient roles than parental sexual orientation per se in affecting children's gender-typing (Fulcher et al. 2008; Sutfin et al. 2008). These studies, however, have rarely included gay fathers, self-report data from children, or observational data. Thus, it remains unclear as to whether and when the influence of parental sexual orientation results in differences in children's gender-typed behaviors over time. (For an exception, see Goldberg and Garcia 2016.)

Research on sexual minority parent families is, however, still limited in some respects. In each of the reviews and meta-analyses we described, there are many fewer studies representing gay father families as compared with lesbian mother families. While there has been increasing attention toward the inclusion of gay fathers, less information is available overall about outcomes for children in these families (Farr et al. 2010; Goldberg and Garcia 2016; Golombok

et al. 2014). In addition, studies examining gender-typed behavior among children in lesbian, gay, and heterosexual parent families have relied on parent report measures, such as the Pre-School Activities Inventory (PSAI; e.g., Farr et al. 2010; Goldberg and Garcia 2016; Goldberg et al. 2012; Golombok et al. 2003), rather than including observational measures. Importantly, however, the PSAI has been demonstrated to reliably predict gender role behavior among a large sample of 5000 children from age 2.5 to 8 years-old (Golombok et al. 2008), as well as into adolescence (Golombok et al. 2012). There is also limited research on lesbian and gay parent families who adopt children. (For exceptions, see Farr et al. 2010; Goldberg and Garcia 2016.) Research among adoptive families, however, could offer valuable insight about gender development and socialization of children in the absence of biological ties between parents and children (Iervolino et al. 2005). Finally, longitudinal studies of children's gender-typed behaviors have been rare among children of lesbian and gay parents (e.g., Goldberg and Garcia 2016). Thus, there is much still to learn in this area.

The Present Study

In the current study, we examined how gender-typed toy play and gendered characteristics (i.e., displaying certain traits and behaviors considered typical of similarly-aged girls and boys) in early childhood were associated with children's gender-typed behaviors in middle childhood, and whether child gender and parental sexual orientation were associated with gender-typed behaviors during both developmental periods. We studied families headed by lesbian, gay, and heterosexual adoptive parents at two different time points that were 5 years apart. Our target sample thus included children who were in early childhood at Wave 1 (W1) and who were in middle childhood at Wave 2 (W2). At each wave, we employed a number of age-appropriate measures to assess children's gender role behavior and the possible influence of child gender and parental sexual orientation. As important as early and middle childhood are for gender development (Leaper 2002), little longitudinal research has examined stability or change in gender-typed behavior among typically-developing children across early to middle childhood. (For exceptions, see Golombok et al. 2008; Halim et al. 2013.) The age groups represented in the current study allowed for an investigation of gender role behaviors during a period when children have already developed some initial ideas about gender; contributing longitudinal information on this topic may be informative to affirmative practice with children who engage in both gender-typical and more gender-diverse behaviors (American Psychological Association 2015).

Based on previous research about children's gender-typing and children reared by lesbian and gay parents, we addressed the following three sets of research questions and subsequent predictions. First, are children's gender-typed behaviors in early childhood associated with gender-typed behaviors in middle childhood? Based on existing evidence, we expect that children who exhibit greater gender conformity or nonconformity as preschoolers also would do so in middle childhood (Edwards-Leeper et al. 2016; Lee and Troop-Gordon 2011; Maccoby and Jacklin 1987; Serbin et al. 1993). In other words, we expect levels of gender conformity and nonconformity to remain relatively stable through early and middle childhood, with the possibility that gender conformity would be more prominent and nonconformity less prominent in middle compared to early childhood (Golombok et al. 2008). Moreover, we expect children at both time points to show greater gender-conforming than nonconforming gender-typing.

Second, do demonstrations of gender conformity and nonconformity differ among boys and girls? Given the literature on these topics in early and middle childhood, we expected boys to show more gender conformity (than nonconformity) than girls in their play and characteristics at both time points (Jadva et al. 2010; Li and Wong 2016). Third, do children's gender-typed behaviors differ across family types (i.e., having lesbian, gay, or heterosexual parents)? Based on earlier research about lesbian and gay parent families (e.g., Fedewa et al. 2015), as well as studies of biological and socialization influences on gender development (Edwards-Leeper et al. 2016; Golombok et al. 2008) that have focused on similarly-aged children's gender-typed behaviors (versus attitudes) and/or included data beyond parent reports, we predicted that no differences will emerge as a function of parental sexual orientation in children's gender-typing at either early or middle childhood. Furthermore, given questions that have been raised about whether children will show typical gender development in the absence of a same-gender parent (Biblarz and Stacey 2010; Gato and Fontaine 2013), we compared outcomes among both boys and girls with lesbian versus gay parents.

Method

Participants

Participants were drawn from a longitudinal study of lesbian, gay, and heterosexual adoptive parents and their children (Farr 2017; Farr et al. 2010). Families were recruited within the United States through five adoption agencies that completed private, domestic placements with sexual minority and heterosexual parents. At W1, all participating families had adopted children between 1 and 5 years-old. All children had been adopted in infancy and had not experienced any prior

placements. All parents were the legal adoptive parents of their children.

At W1, participants included 56 (53%) children from same-sex parent families (29 gay father families; 27 lesbian mother families) and 50 (47%) children from heterosexual parent families. In total, 53 girls and 53 boys were represented (11 boys and 16 girls with lesbian mothers, 18 boys and 11 girls with gay fathers, and 24 boys and 26 girls with heterosexual parents). At W1, children's ages ranged from 13 to 72 months-old ($M = 36.14$, $SD = 15.78$) and parents ranged from 30 to 60 years of age ($M = 41.69$, $SD = 5.51$). Families generally represented high socioeconomic status. On average, 77% ($n = 163$) and 71% ($n = 130$) of parents in the sample worked full-time at W1 and W2, respectively, with household incomes averaging \$166,000 at W1 and \$188,000 at W2. (Gay fathers earned significantly more income than lesbian and heterosexual parents at W2 only; otherwise, no differences were found in these regards by family type; see Farr 2017; Farr et al. 2010). Approximately 89% ($n = 187$; data were missing for one parent) of parents had completed a college degree (or higher). A plurality of the sample ($n = 45$; 43%) had completed transracial adoptions (i.e., at least one parent was of a different race than the child). Approximately 80% ($n = 170$) of parents and 42% ($n = 44$) of children at W1 were White. Another 17% ($n = 36$) of parents were Black, and the remaining 3% ($n = 6$) represented Asian, Latinx, or multiracial identities. Among children, 32% were Black ($n = 34$), 22% were multiracial ($n = 23$), 3% were Latinx ($n = 3$), and the remaining 2% were Asian or another racial identity ($n = 2$). Families resided in 12 states throughout the United States, primarily along the East Coast, West Coast, and in the South.

At W1, families also gave permission to be re-contacted for future participation opportunities. Approximately 5 years later, when children were 8 years-old on average ($M = 8.34$, $SD = 1.65$, range = 5–12), families were contacted again to participate in a second wave of data collection. A total of 96 (91%) of the original 106 families participated in some capacity at W2; non-participation was generally due to lack of time or nonresponse to the study invitation. For the current study, 89 children (44 girls, 45 boys) completed measures at W2. These 89 children represented 9 boys and 15 girls from lesbian mother families, 16 boys and 10 girls from gay father families, and 20 boys and 19 girls from heterosexual parent families. In general, few differences distinguished participating families at W1 and W2, but participating parents at W2 had higher educational attainment, were more likely to have completed a transracial adoption, and were more likely to be lesbian or gay than were parents who only participated at W1. (For additional demographic information at both W1 and W2, see Farr 2017). No significant differences were uncovered in outcome variables of interest at W1 (i.e., parent-reported PSAI results, observations of gender-conforming and gender-nonconforming toy play) between participating families at

W1 and W2. Moreover, of the 106 children represented at W1, 45 (43%) had one or more siblings. Of the 89 children who provided data at W2, 56 (63%) had one or more siblings. Generally, these siblings were younger and also adopted. Regardless, preliminary analyses indicated that there were no differences in any variables of interest in our study based on having siblings or not at W1 or W2.

Assessments

For the present study, several different methods of assessment were employed. At W1, participating children and parents were invited to take part in an unstructured family play session—a “blanket play task.” The length of time children played with gender-conforming and nonconforming toys during the play session was assessed. Also at W1, parents completed a standardized questionnaire regarding their preschool children's gender-typed behaviors. Five years later, at W2, children completed a standardized questionnaire about their own gender-typed behaviors. More details about assessment are provided in the following.

Observations of Preschool Children's Gender-Typed Toy Play

At W1, one of two toy sets was provided for families during a 5-min free play session: one set geared for children approximately 12–30 months of age (“toddlers”), and the other geared for children approximately 30–60 months (“preschoolers”). Each toy set was kept in one of several small backpacks that were used to transport toys to participating families' homes. The toy set for younger children contained a purple horse stuffed animal, shape sorting bucket, telephone toy, set of building blocks (Legos®), set of four rubber cars, jack-in-the-box toy, Mr. Potato Head® toy, Buzz Lightyear® action figure, Doodle Pro® drawing tool, board book, coloring book, and set of crayons. The toy set for older children contained a tea party set, construction set, story book, puzzle, Mr. Potato Head® toy, Doodle Pro® drawing tool, set of building blocks (Legos®), coloring book, set of crayons, set of several dolls and accessories, set of several cars, trucks and other vehicles, and Buzz Lightyear® toy and other action figures. Each set included boy-typical, girl-typical, and gender-neutral toys.

All toys were independently rated by undergraduate research assistants; interrater agreement was 100%. Boy-typical toys included the action figures, construction set and building blocks, and all cars or trucks. Girl-typical toys included the dolls and accessories, purple horse stuffed animal, and tea party set. All other toys (i.e., shape sorting bucket, telephone, jack-in-the-box, Mr. Potato Head®, books, and drawing tools and accessories) were designated as gender-neutral. Parents and children were introduced to the backpack containing the toys appropriate for the child's age and were given

freedom to play with whatever they wished in whatever ways they chose. A simple fleece blanket, with dimensions of 54 in. by 66 in., was spread out on the floor to designate a play area for families. A digital camcorder set up on a tripod video-recorded the family play sessions. One family declined to participate in the videotaping so observational data were missing for one child.

Parent Reports of Preschool Children's Gender-Typed Behaviors

At W1, children's gender-typed behavior was assessed using the Pre-School Activities Inventory (PSAI; Golombok and Rust 1993). This is a 24-item parent report instrument that asks parents to rate how often their child participates in certain activities (11 items; e.g., "Sports and ball games"; "Playing at taking care of babies"), displays certain characteristics (6 items; e.g., "Enjoys rough and tumble play"; "Likes pretty things"), and plays with certain toys (7 items; e.g., "Guns or objects used as guns"; "Tea set"). Parents rated each item on a 6-point scale from 0 (*Never*) to 5 (*Very Often*). An age-adjusted mean score can be calculated from these 24 items. The PSAI has been demonstrated as having good reliability and validity across several studies with large samples of children and children from diverse families (Goldberg and Garcia 2016; Golombok and Rust 1993; Golombok et al. 2008). Information about mean scores by family type and child gender in this sample have been reported elsewhere (see Farr et al. 2010).

For the present study, because both parents in each family completed the PSAI for their child, we calculated an average score from parents' individual reports. Next, we created a score of Gender Nonconformity by subtracting each participant's score from the population average ($M_{boys} = 60$; $M_{girls} = 40$, Golombok and Rust 1993). Higher positive scores on our Gender Nonconformity variable indicate greater deviation from the gender-typed norm or gender nonconformity (and higher negative scores indicate greater gender conformity). We created this variable in order to simultaneously compare scores for girls and boys (rather than running separate analyses which reduce power), as well as to more readily compare this variable to others of interest in our study (e.g., gender-conforming toy play).

School-Age Children's Self-Reported Gender-Typed Behaviors

At W2, children's gender-typed behaviors were assessed using the Children's Occupations, Activities, and Traits Personal Measure (COAT-PM; Liben and Bigler 2002), a child-report measure of gender-typed activities, occupational aspirations, and characteristics. This measure is divided into three subscales that separately assess children's traits, activities, and occupational aspirations. Items reflect masculine (e.g., aggressive, banker, play basketball), feminine (e.g.,

emotional, baby-sitter, wash clothes) or neutral (e.g., study hard, artist, play cards) traits, occupations, and activities, respectively. Data are reported elsewhere across masculine and feminine domains for girls and boys separately, as well as about related variations by family type (Sumontha et al. 2017).

For our study, gender-conforming (masculine items for boys; feminine items for girls) and gender-nonconforming responses (masculine items for girls; feminine items for boys) were averaged separately for each of the three subscales (occupations, activities, and traits) and then overall means of all three subscales were combined and calculated (aligned with Liben and Bigler's 2002 guidelines) to create gender conformity and gender nonconformity variables and to make comparisons more readily to other variables of interest for our study. Mean scores ranged from 1 to 4, with higher scores signifying greater gender conformity on the Gender Conformity variable and greater gender nonconformity on the Gender Nonconformity variable. In Liben and Bigler's (2002) description of the COAT-PM, they report scores for an overall sample of 198 sixth-grade children. Averaging across occupational aspirations, activities, and trait scores, Liben and Bigler's results reveal the gender-conforming score (masculine items for boys; feminine items for girls) to be $M = 2.85$ ($SD = .66$), whereas for gender-nonconforming preferences (feminine items for boys; masculine items for girls), this was $M = 2.30$ ($SD = .62$). The COAT has been demonstrated to have good psychometric properties in terms of both reliability and validity across several studies (Liben and Bigler 2002).

Procedure

At W1, researchers visited participants' homes; parents completed questionnaires and families took part in a videotaped blanket play task involving both parents and their child. A dark brown fleece blanket was spread out on the floor to designate an area for play. Backpacks containing a toy set appropriate for the target child's age were placed on the blanket. Parents and children were invited to sit on the blanket and play freely with any of the toys for 5 min.

At W2, about 5 years later, parents were contacted to continue their involvement in the study. Upon agreeing to participate again, families were re-visited in their homes. During W2, children (and parents) completed questionnaires online as part of the broader longitudinal study (Farr 2017). The study was approved by the Institutional Review Boards of the University of Virginia, University of Massachusetts Amherst, and University of Kentucky. Participation was entirely voluntary and the researcher obtained written consent from all participating parents, as well as assent from all participating children. Following participation at both waves, families were thanked for their participation,

and the first author debriefed families about the general and specific aims of the study.

Coding of Observational Data

After W1 data collection, two research assistants each spent approximately 20 h in training to learn the coding system and practice viewing, rating, and discussing a set of pilot family play sessions. After high levels of reliability ($\alpha \geq .80$) were achieved, each coder individually rated family play interactions for 50% of the families in the sample. To establish reliability, both coders rated an additional 25% of the family interactions. In all, each coder rated approximately 75 videotaped interactions. Coders were closely supervised by the first author, including many opportunities for feedback and discussion. Reliability checkpoints occurred at the 25%, 50%, and 75% completion milestones.

To code children's toy preferences, the coders recorded the number of seconds each child played with a particular toy, from the time the child picked up a toy or started to play with it until the time when the child lost interest or put down the toy. These toy preferences were recorded for the first 300 s (5 min) of the play session for each family, with time spent playing with gender-conforming (boy-typical toys for male children; girl-typical toys for female children) and gender-nonconforming toys (boy-typical toys for female children; girl-typical toys for male children) recorded. Toy preferences were then tallied to give the total time children played with gender-conforming and gender-nonconforming toys. Research assistants also made notes of any unusual occurrences (e.g., using parts of the tea set as blocks in building something with the Lego® set, or using Barbies® as action figures) or when children did not play with toys at all (e.g., talking with parents; running off the blanket), but these incidents were infrequent. Interrater reliability for both boy- and girl-typical toy play among children was .98. Any discrepancies in length of time were resolved by averaging the two coders' scores.

Power Analyses

Power analyses were conducted to determine power levels for the study analyses ($N = 106$ families, $\alpha = .05$). For bivariate correlations, power reached .99 for large and medium effects, and .88 for small effects. For t -tests comparing two independent groups (e.g., boys and girls), power reached .99 for large, .82 for medium, and .27 for small effects. For ANOVAs accounting for main effects and interactions with three groups, power reached .96 for large, .61 for medium, and .14 for small effects. For multiple regression with two predictors, power reached .99 for large, .95 for medium, and .22 for small effects. We conclude that, although most of our analyses were not sufficiently powered to detect small effects, they were

sufficiently powered to detect medium effects and more than adequately powered to detect large effects.

Results

In what follows, we first present descriptive information for each variable of interest related to gender-typed behavior in terms of gender conformity versus nonconformity. Next, we discuss associations among variables over time, comparing parents' reports and observational data collected at W1 with children's reports 5 years later at W2. We then describe analyses related to the demographic characteristics of the children (e.g., gender) and gender-typed behavior. Finally, we present results about associations of parental sexual orientation and children's gender-typing.

Descriptive Analyses and Longitudinal Associations

In addressing our first research question, we found that, as expected, preschool-age children played significantly longer with gender-conforming toys (in seconds, $M = 121.26$, $SD = 109.98$) than they did with gender-nonconforming toys ($M = 51.13$, $SD = 73.29$), $t(104) = 4.63$, $p < .001$, $d = .45$. Also at W1, parents generally reported that their preschool-age children exhibited gender-conforming activities and characteristics, with the mean sample score hardly deviating from the PSAI population norm ($M = -.45$, $SD = 9.64$) and in the direction of greater than expected gender conformity. The standard deviation for the population on this measure is set as 10, and the sample standard deviation was 9.64, which means that a majority of children in our sample fell within a typical range (Golombok and Rust 1993). (Please see Farr et al. 2010 for standard scoring information and results from the PSAI with this sample.) At W2, school-age children also endorsed more gender-conforming ($M = 2.61$, $SD = .48$) than gender-nonconforming responses ($M = 2.32$, $SD = .40$) about occupational aspirations, traits, and activities on the COAT-PM, $t(88) = 6.82$, $p < .001$, $d = .72$. Notably, these means were very comparable to those found among a similarly-aged sample by Liben and Bigler (2002), reported to be $M = 2.85$ ($SD = .66$) and $M = 2.30$ ($SD = .62$), respectively.

In summary, then, and as predicted, children were generally described or observed to be gender-conforming and showing typical gender-typed behavior across measures and time (see descriptive information in Table 1), represented by medium-to-large effect sizes (when compared with gender-nonconforming behavior). In comparing discrepancies between gender-conforming and nonconforming behavior, effect sizes were larger at middle than in early childhood, indicating children's tendency toward greater gender conformity and away from nonconformity over time.

Table 1 ANOVA results comparing study variables of interest as a function of family type

	Family type			Full Sample <i>M (SD)</i>	ANOVA	<i>p</i>	Same-sex vs other-sex <i>d</i>
	Lesbian <i>M (SD)</i>	Gay <i>M (SD)</i>	Heterosexual <i>M (SD)</i>				
Wave 1	(<i>n</i> = 27)	(<i>n</i> = 29)	(<i>n</i> = 50)	(<i>n</i> = 106)	<i>F</i> (2, 103)		
PSAI (G-NC)	.93 (9.70) ^a	-2.57 (11.61)	.04 (8.27)	-.45 (9.64) ^b	1.043 ^c	.356	.10
Toy play (sec; G-C)	126.31 (125.48)	130.72 (107.58)	113.14 (104.35)	121.26 (109.98)	.27	.766	.14
Toy play (sec; G-NC)	33.23 (80.44)	47.97 (68.25)	62.28 (71.65)	51.13 (73.29)	1.39	.253	.29
Wave 2	(<i>n</i> = 24)	(<i>n</i> = 26)	(<i>n</i> = 39)	(<i>N</i> = 89)	<i>F</i> (2, 86)		
COAT-PM (G-C)	2.56 (.37)	2.69 (.49)	2.60 (.54)	2.61 (.48)	.51	.602	.06
COAT-PM (G-NC)	2.36 (.32)	2.33 (.41)	2.29 (.45)	2.32 (.40)	.24	.791	.14

PSAI scores reflect Wave 1 parent reports about their preschool children’s gender-typed behaviors; scores reflect difference from the population average (for boys and for girls), with higher positive values representing greater gender nonconformity (G-NC), and higher negative values reflecting greater gender conformity (G-C). The COAT-PM scores at Wave 2 reflect school-age children’s reports about their own gender-typed traits and preferences, with higher numbers representing greater gender conformity (G-C) or nonconformity (G-NC), respectively.

^a (*n* = 26)

^b (*n* = 105)

^c *F*(2, 102)

We next examined possible associations among variables assessed in early childhood (toy play and parent-reported gender-typing), and those variables assessed in middle childhood (children’s self-reports of gender-typing). Table 2 displays correlations among all variables. At W1, preschool children who were observed as spending more time playing with gender-conforming toys also were reported by parents as showing fewer gender-nonconforming behaviors on the PSAI. There was also an association between parent-reported gender nonconformity scores on the PSAI at W1 and gender-nonconforming preferences on the COAT-PM at W2, indicating that preschool children who were described by parents as demonstrating greater gender nonconformity later reported themselves as having more gender-nonconforming preferences in middle childhood. In addition, there was a

significant negative association between gender-conforming toy play at W1 and gender-nonconforming responses about occupations, activities, and traits at W2 on the COAT-PM, such that preschool children who were observed playing with more gender-conforming toys reported themselves as having fewer gender-nonconforming preferences 5 years later. Gender-nonconforming toy play at W1 was not associated with either gender-conforming or gender-nonconforming preferences on the COAT-PM at W2.

Finally, we examined the role of children’s age as related to all variables of interest (see Table 2). Children’s age in months (from 13 to 72) at W1 was negatively associated with parent-reported gender nonconformity on the PSAI, and positively associated with length of play with gender-conforming toys. Both associations at W1 indicated that, in early childhood,

Table 2 Descriptive information by child’s gender and correlations among study variables

Variables	Girls <i>M(SD)</i>	Boys <i>M(SD)</i>	Correlations					
			1	2	3	4	5	6
Measure (W1)								
1. PSAI gender nonconformity	1.18 (10.39)	-2.08 (8.62)	–					
2. Gender-conforming toy play (seconds)	87.85 (108.65)	155.31 (101.42)	-.34***	–				
3. Gender-nonconforming toy play (seconds)	73.92 (83.97)	27.90 (51.70)	.07	-.41***	–			
Measure (W2)								
4. Gender-conforming COAT-PM	2.66 (.49)	2.57 (.48)	<.01	-.05	-.09	–		
5. Gender-nonconforming COAT-PM	2.42 (.44)	2.23 (.35)	.22*	-.31**	.16	.60***	–	
Child age								
6. W1 age (in months)	36.26 (15.80)	36.02 (15.90)	-.21*	.51***	.02	-.35**	-.27**	–
7. W2 age (in years)	8.10 (1.67)	8.57 (1.61)	-.27**	.55***	-.04	-.24*	-.29**	.80***

p* < .05. *p* < .01. ****p* < .001

older children appeared more gender-conforming than younger children. No significant association was found between children's age in months at W1 and observations of children's gender-nonconforming toy play. At W2, children's age (from 5 to 12 years) was negatively associated with both self-reported gender-conforming and nonconforming behaviors. These significant associations suggest that both gender conformity and nonconformity were less strongly endorsed by older than younger children in middle childhood.

Given the small-to-moderate significant associations among W1 variables and gender-nonconforming responses on the COAT-PM at W2, we next assessed which W1 variables (toy play data and parent-report data) afforded the best prediction of gender nonconformity at W2. Using simultaneous multiple regression analysis, results revealed that playtime with gender-conforming toys at W1 accounted for a significant amount of the variance in children's gender-nonconforming responses on the COAT-PM at W2, $F(2, 85) = 5.16, p = .008, \text{Adjusted } R^2 = .09$. Parent-reported gender-typed behavior on the PSAI at W1, however, did not emerge as a significant predictor of gender-nonconforming responses on the COAT-PM at W2 when gender-conforming toy play at W1 was also considered.

Gender-Typing and Child Gender

To address our second research question, scores for boys and girls were compared for each of the three assessments in our study. (See Table 2 for descriptive information.) Consistent with expectations, significant differences by child gender were uncovered at W1 in preschool children's length of play with gender-conforming toys, $t(103) = 3.29, p = .001, d = .64$, and with gender-nonconforming toys, $t(103) = 3.37, p = .001, d = .66$. Here, boys demonstrated higher gender-conforming play time in seconds and lower gender-nonconforming play times than did girls. Moreover, gender-conforming toy play among boys was significantly more likely than gender-nonconforming play, $t(51) = 7.27, p < .001, d = 1.01$, yet among girls, gender-conforming and gender-nonconforming toy play were equally likely, $t(52) = .63, p = .533, d = .09$. Parent reports on the PSAI at W1, however, did not reveal statistically significant differences in gender nonconformity between preschool-age boys and girls, $t(104) = 1.76, p = .082, d = .34$.

At W2, significant differences were found between boys and girls with regard to children's gender-nonconforming responses about occupational aspirations, activities, and traits at W2, $t(87) = 2.24, p = .028, d = .48$ (see Table 2). Boys selected fewer gender-nonconforming responses than did girls. Boys and girls were equally likely, however, to have selected gender-conforming responses, $t(87) = -.86, p = .393, d = .19$. Both boys, $t(44) = 6.03, p < .001, d = .90$, and girls, $t(43) = 3.77, p < .001, d = .57$, endorsed more gender-

conforming than gender-nonconforming preferences. In general, then, and as expected, boys' gender-typed behavior was more likely to be gender-conforming, and particularly less likely to be gender-nonconforming, than was girls' gender-typed behavior at both W1 and W2, represented by medium-to-large effect sizes.

Children's Gender-Typing: Parental Sexual Orientation

Finally, to address our third research question, we examined possible differences in toy play and questionnaire data as a function of parental sexual orientation. One-way, between-subjects ANOVAs were conducted to compare the results for the three variables of principal interest (observations of toy play at W1, parents' reports about children's gender-typed behaviors at W1, and children's gender-typed preferences at W2) across each of the three family types: lesbian, gay, and heterosexual parent families (see Table 1). Moreover, to compare outcomes for girls without fathers and boys without mothers, one-way between-subject ANOVA was used to compare all dependent variables by an independent variable that included four family groups: lesbian mothers with sons, lesbian mothers with daughters, gay fathers with sons, and gay fathers with daughters. As predicted, all analyses revealed no significant differences by family type in any of the W1 or W2 variables, including the ANOVA that uniquely considered families with and without a same-gender parent. In comparing differences between same- and other-sex parent families in W1 and W2 variables, effect sizes were small and nonsignificant (see Table 1).

Discussion

In the present study, we examined whether preschool children of lesbian, gay, and heterosexual parents differed in their gender-typed behaviors, including toy preferences and characteristics, and how their early gender-typing was associated with their gender-typed behavior as school-age children. We found that although children did not differ as a function of their parents' sexual orientation, early gender-typing was predictive of later gender-typed behavior in middle childhood (Golombok et al. 2008, 2012). When children played longer with toys considered culturally appropriate for their gender at W1, they demonstrated fewer gender-nonconforming behaviors (in terms of their self-described traits, preferred activities, and professional aspirations) at W2. Our results support that gender conformity, and in contrast, gender nonconformity, are observable at a young age and that these initial behaviors are likely to show consistency across early to middle childhood. Moreover, our findings revealed that parental sexual orientation was not as strongly related to indexes of children's gender-typed behavior over time as other factors, such as the

child's gender or age. These longitudinal findings have several relevant implications for developmental psychology and gender studies.

On average, scores for parent-reported, child-reported, and observational assessments were more likely to reflect gender conformity than gender nonconformity. Moreover, our sample scores for both the parent-reported PSAI at W1 and the child-reported COAT-PM at W2 were comparable to available standard scores for each measure (Golombok and Rust 1993; Liben and Bigler 2002). Our findings are indicative of typical gender development (Blakemore et al. 2009; Cherney and London 2006; Dinella et al. 2016) among participating children with parents diverse in sexual identity, and they are consistent with research documenting the likelihood of gender-conforming preferences among children in early and middle childhood (Jewell and Brown 2014; Lee and Troop-Gordon 2011; Maccoby and Jacklin 1987; Weisgram et al. 2010). Across family types, preschool children who played in gender-conforming ways and who were reported by their parents to behave in gender-conforming ways were also more likely as school-age children to describe themselves as having fewer gender-nonconforming preferences in traits, activities, and occupational aspirations—findings consistent with other research (e.g., Baird 2012; Weisgram et al. 2010). Interestingly, although older children at W2 were less likely than younger children at W2 (range: 5–12 years-old) to describe themselves as gender-nonconforming, older children also appeared to be less rigid in gender-conforming behavior than were younger children at W2. This finding is aligned with studies indicating a peak in children's gender-typing rigidity between ages 5–7 years-old (Serbin et al. 1993) and some increasing gender-typing flexibility around age 8 (Ruble et al. 2006), at least in terms of gender stereotypes. Overall, however, our findings revealed continuity of gender conformity and nonconformity over a 5-year period from early to middle childhood.

We found that observations of preschool children's gender-conforming toy play were stronger predictors of children's self-described gender-typed behaviors 5 years later than were parents' reports. This may indicate the importance of including multiple methods of assessing young children's gender role behavior, rather than relying exclusively on parent-reported data. It may also suggest, more simply, that direct observations of children's play are more strongly tied to later self-descriptions than are parents' more indirect accounts. Indeed, many studies support toy play as an influential force in gender socialization (Cherney and London 2006; Freeman 2007; Li and Wong 2016) and a clear application of social learning theory (Bandura 1977).

Interestingly, it appeared to be gender-conforming play in preschool that was most strongly associated with avoiding gender nonconformity in middle childhood; in contrast, gender-nonconforming toy play during

preschool was not associated with gender-conforming or gender-nonconforming preferences 5 years later. This may be related to the idea that children become increasingly gender-stereotypical across early to middle childhood and even less likely to engage in gender-nonconforming behaviors after age 6 (Blakemore et al. 2009; Golombok et al. 2008; Jewell and Brown 2014; Lee and Troop-Gordon 2011; Maccoby and Jacklin 1987). Comparatively speaking, gender-nonconforming play was significantly less common than gender-conforming play was among these children as preschoolers, and as such, gender-nonconforming toy play may not have been indicative of later preferences in middle childhood. For instance, Jadva et al. (2010) found evidence that both boys and girls preferred dolls to cars as infants, but as boys aged, this preference disappeared. In this way, earlier behavior that could be characterized as gender-nonconforming may be less likely to persist due to forces of socialization (via social learning theory; Bandura 1977) and other factors, and thus, it is less predictive of later gender-typing. Children's preferences for specific toys and activities also change over time (Blakemore et al. 2009), which may not have been captured by toy play observations at one time point and children's self-reports of gender-typing 5 years later.

We found that children's gender was associated with significant differences in observations of play during early childhood. Regarding toy play at W1, girls played with gender-conforming and gender-nonconforming toys for approximately equal amounts of time, whereas boys spent more time with toys that fit their gender identity than with those that did not. This finding was consistent with studies of young children's toy play in the context of heterosexual parent families, with boys and girls each preferring gender-conforming toys, both as toddlers and as preschoolers (Cherney et al. 2003; Dinella et al. 2016; Dunn and Hughes 2001; Maccoby 1998; Martin et al. 1990; Snow et al. 1983). Indeed, some other studies have also found that young girls may play equally with gender-conforming and gender-nonconforming toys (Berenbaum and Hines 1992; Cherney et al. 2003; Dinella et al. 2016; Serbin et al. 2001).

Gender differences in early childhood were also apparent in middle childhood among our sample, with boys demonstrating significantly greater aversion than same-aged girls to describing themselves in gender-nonconforming ways with regard to traits, activities, and occupational aspirations. This may support findings from other studies that suggest children become more gender-stereotypical and less likely to engage in gender-nonconforming behaviors as they grow older. This rigidity is particularly true for boys who, even more so than girls, often receive strong and consistent reinforcement from parents, peers, and media that gender-nonconforming play is inappropriate and to be avoided (Cherney et al. 2003; Cherney

and London 2006; Goldberg and Garcia 2016; Golombok et al. 2008; Jadva et al. 2010; Jewell and Brown 2014; LoBue and DeLoache 2011).

Did parental sexual orientation predict anything about children's gender conformity or nonconformity? As expected, the answer to this question was "no." Same-sex parents might demonstrate more gender-flexible attitudes and be less likely to promote gender conformity in their children than heterosexual parents are (Biblarz and Stacey 2010; Bos and Sandfort 2010; Fulcher et al. 2008; Goldberg et al. 2012), but unlike Goldberg and Garcia's (2016) study of parent-reported gender-typed behavior among 2–6 year-old children adopted by lesbian, gay, and heterosexual parents, there was no indication in our data that parental sexual orientation affected children's gender conformity or nonconformity in any significant way. Thus, the idea that lesbian or gay parents might encourage or allow more gender nonconformity among their children was not demonstrated by our longitudinal findings derived from multiple methods, including observational and child-reported data, as well as parent-reported data.

Given that no significant differences emerged on any of our measured variables as a function of family type, our findings were consistent with those of many other studies comparing children's gender role development in sexual minority and heterosexual parent households (Anderssen et al. 2002; Farr et al. 2010; Fedewa et al. 2015; Golombok et al. 2003; Patterson 2017). Although the null hypothesis of "no differences" by family type cannot be proven, it was the case that our results revealed significant results with medium-to-large effect sizes for discrepancies between gender-conforming and nonconforming behavior, boys and girls, and children of different ages, yet nonsignificant results with small effect sizes for potential discrepancies between families headed by same-sex and other-sex parents. These results suggest that children's gender-typed behaviors are more influenced by biology and socialization outside of parents' sexual orientation, especially given that the results among this sample of adopted children were not confounded by aspects of parent-child biological relatedness (e.g., Berenbaum and Hines 1992; Golombok et al. 2008; Iervolino et al. 2005; Lamminmäki et al. 2012; Leaper and Farkas 2015; LoBue and DeLoache 2011). Thus, our findings are not only consistent with those of earlier research indicating that factors beyond parental sexual orientation appear more important to children's gender development, but also add to the few studies of children from gay father and adoptive families (see also Goldberg and Garcia 2016; Golombok et al. 2014). Our study is among the first to provide a longitudinal evaluation of children's gender-typed behavior from early to middle childhood using multiple assessment methods among a sample of adoptive families diverse in parental sexual identity.

Limitations and Future Research Directions

Our study was characterized by both strengths and limitations. Some strengths included a diverse sample of adoptive families (with lesbian, gay, and heterosexual parents), the collection of longitudinal data, and the use of multiple methods assessing children's gender-typed behavior. Given that parents' reports were significantly associated with observational data at W1, and both the parent-reported and observational data were significantly associated with children's reports at a later time point, our findings offer greater rigor of methodology across multiple informants and types of assessment. Our results also offer further validation of the parent-reported PSAI (Golombok and Rust 1993) and the child-reported COAT-PM (Liben and Bigler 2002) measures.

Some limitations should also be acknowledged. First, given children's young age at W1, we were not able to collect as much self-report data as we would have liked. Moreover, the PSAI has not been validated among children younger than 2-years-old (Golombok and Rust 1993). Second, our sample is relatively small, especially considering the number of daughters and sons with lesbian and gay parents. For this reason, it is possible that no significant differences were uncovered by family type. Third, no comparable observational measure of children's gender-typing behavior was available at W2 and no measure of children's attitudes about gender were included. Thus, it remains for future research to assess any associations between children's attitudes about gender and their gender-conforming and nonconforming behavior. Relatedly, given that the COAT-PM includes aspects of gender-typed behavior through the activities and traits subscales, but also occupational aspirations, it is possible that this measure tapped different (yet also overlapping) domains of gender-typing among children (Blakemore 2003) as compared with the observations of toy preferences and the PSAI data at W1. Indeed, although gender-typed behavior often remains somewhat rigid from early to middle childhood, children show increasing gender stereotype flexibility by age 8 (Banse et al. 2010; Ruble et al. 2006). Flexibility in gender stereotypes could potentially affect school-age children's reports of their future occupational aspirations, for example. Future research would do well to disentangle domains of gender-typing among children, particularly in longitudinal work.

Practice Implications

The results of the current study could be informative to attorneys, judges, social workers, and adoption agencies with regard to ongoing debates about parental sexual orientation and its influence on children's gender role development (Biblarz and Stacey 2010). Controversy continues to surround the adoption of children by lesbian or gay parents, and debate

has often centered on the question of whether lesbian and gay adults are suitable role models for children's gender role development and socialization in the absence of other-sex mother and father figures in the family (Gato and Fontaine 2013). Our results suggest that the gender development of children adopted by both lesbian and gay parents is proceeding in typical ways, and in similar ways to its progress among children adopted by heterosexual parents. Thus, it appears that having both a male and female role model in the home is not necessary for facilitating typical gender development among adopted children, nor does it discourage gender nonconformity.

Conclusion

Our findings indicated both gender-conforming and nonconforming behaviors among preschool-age children, with greater gender conformity than nonconformity, and these behaviors appeared relatively stable from early to middle childhood. The longitudinal nature of our data allowed us to examine how gender-typed behavior develops over time in the context of diverse family structures, as well as how early gender-typing may be predictive of gender-typing in middle childhood. Consistent with other studies (Patterson 2017), children's gender-typing over time was predicted by gender, age, and earlier play styles, but not by parental sexual orientation.

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Compliance with Ethical Standards The research was approved by the Institutional Review Boards of the University of Kentucky, University of Massachusetts Amherst, and University of Virginia. Given that this research involved human participants, informed consent was obtained from all participating parents for themselves and their children prior to participating, and assent was also given from children.

Conflict of Interest The authors declare that they have no conflict of interest.

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