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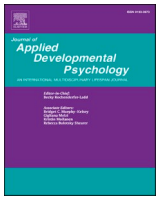

Children's implicit and explicit attitudes and stereotypes about same-gender parent families

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ABSTRACT

Although lesbian, gay, bisexual, transgender, and queer (LGBTQ+) parent families are increasingly visible in the United States, we know little about how children perceive them. Among 151 elementary school students (M_{age} = 7.95 years; 74 girls; 77 % white), we assessed (a) implicit attitudes (and associations with explicit attitudes), (b) perceptions of parents' attitudes, and (c) gendered stereotypes about same-gender parent families. Children showed greater implicit biases against same-gender (versus different-gender) parent families, and LG-specific stereotype endorsement (distinct from broad gender stereotypes), despite limited ability to define "gay" or "lesbian." Attitudes were similar across demographic factors and experience with same-gender parent families. Thus, despite increasing societal visibility of same-gender parent families, children hold biases (consistent with societal biases) against them.

As numbers of people identifying as lesbian, gay, bisexual, transgender, and queer (LGBTQ+) increase in the United States (U.S.; Miller, 2021), so do the numbers of children with LGBTQ+ parents (Gates, 2015; Goldberg & Conron, 2018). These children and their LGBTQ+ parents commonly face discrimination and stigma at institutional and intrapersonal levels (Herek, 2016; NASEM, 2020). Although prejudice and *adult* attitudes toward LGBT[1] individuals and their families have been studied extensively (Frias-Navarro et al., 2017; Herbstrith et al., 2013; Kille & Tse, 2017; Tan et al., 2017), we know little about how *children* perceive their peers with LGBTQ+ parents, particularly in terms of implicit attitudes (i.e., automatic) and stereotypes. Given social-cognitive interconnections in how implicit and explicit attitudes, stereotypes, and prejudice develop among children (Bigler & Liben, 2006), as well as implications for early interventions to reduce bias, we used a theoretically-grounded approach to understand more about school-age children's attitudes toward same-gender adoptive parent families.

Theoretical framework and children's explicit and implicit attitudes and stereotypes

Developmental intergroup theory (DIT; Bigler & Liben, 2006) offers understanding about the developmental trajectories of prejudice (i.e., negative attitudes toward individuals or groups; Herek, 2016; Horn, 2019) and stereotyping (i.e., attributing fixed traits to members of a social group; Levy & Dweck, 1999). DIT posits children are likely to develop stereotypes and prejudice toward perceptually salient groups. Salience may result from visible or proportional differences between groups, such as with racial/ethnic groups (e.g., white[2] and Black people in the U.S. differ perceptually in skin color and proportionally in numerical representation).

DIT also posits that children form stereotypes toward groups that are psychologically salient in their environment, such as when adults repeatedly and functionally use the groups to sort and categorize individuals (e.g., repeated use of gender to sort, label, and color code children). These inputs can influence children's categorizations, which

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[1] We use the terms (LGBTQ+, LGBT, LG, sexual minority, same-gender) that accurately represent earlier research.

[2] We capitalize Black and lowercase white in deference to those who have been oppressed by whiteness as a social construct and power, and to acknowledge that minoritized racial/ethnic identities, such as Black, Latino/a/x/e, and Asian/Pacific Islander, constitute specific cultural groups with shared histories and experiences (Crenshaw, 1991).

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then serve as a foundation for particular biases. Experimental evidence supporting DIT shows that children develop stereotypes and prejudice even about novel social groups (e.g., based on assigned red or blue shirts) when the groups are perceptually salient, proportionately different, or functionally used (e.g., Bigler & Liben, 2007; Brown & Bigler, 2002). Because gender is perceptually salient (e.g., enhanced by different hairstyles, clothing, and color palettes) and used by adults in functional ways, it is not surprising that gender is one of the earliest developing and strongest stereotypes that children endorse (Bigler & Liben, 2007; Brown & Stone, 2016). Vast existing literature shows children can exhibit prejudice, bias, stereotyping, and social exclusion toward individuals from marginalized groups due to gender, race/ethnicity, religion, income, nationality, and disability (Baron, 2015; Baron & Banaji, 2006; Erdley & Dweck, 1993; Levy & Dweck, 1999).

Drawing from DIT, children may develop prejudice or stereotypes about sexual minority parent families, as these families are less common (i.e., proportionally dissimilar) and the gender composition of parents may be perceptually discriminable from heterosexual parent families (Bigler & Liben, 2007; Farr et al., 2019). This conclusion is empirically supported by the few published studies about children's explicit bias toward LGBTQ+ people and their families, conducted with economically and ethnically diverse samples in the Netherlands, Canada, and the U.S., respectively. Children show more explicit bias toward LG versus heterosexual individuals (Bos et al., 2012), same- versus different-gender couples (Spence et al., 2018), and children with same- versus different-gender parents (Farr et al., 2019). In the sole study (to our knowledge) to explore school-age children's explicit attitudes about their peers with same-gender parents, participants were less positive (i.e., lower warmth, less normalcy), desired less proximity (i.e., lower likelihood of being friends), and were more negative (i.e., greater disgust) toward children with same- versus different-gender parents (Farr et al., 2019). Thus, existing research about children's explicit attitudes regarding LG people and their families is consistent with studies among adults about LG-specific stereotypes and anti-gay attitudes, which often relate to disgust and norm defiance, especially gender role violations (Herek, 2016; Horn, 2019).

Although previous work has shown that children show more *explicit* (i.e., deliberate) bias toward same-gender couples, including parenting couples (Farr et al., 2019; Spence et al., 2018), we do not know whether children show *implicit* (i.e., automatic) bias in this way. This is important to investigate, given that if children do demonstrate implicit bias toward same-gender parenting couples, it may indicate that these negative associations have been repeated so frequently in children's environments that these attitudes have become automatic. Furthermore, implicit and explicit attitudes about same-gender parent families may be distinct from one another, as with other social groups (e.g., race, gender; Horn, 2019). This distinction is likely due in part to social desirability concerns that compete with biased beliefs, limit explicit statements of bias, and relate to beliefs about fairness (Dunham et al., 2008). These possibilities, however, have not been studied among children in reference to same-gender parent families.

Thus, possible similarities and differences in children's *explicit* and *implicit* attitudes about same-gender parent families remain an untapped research question. Explicit attitudes are effortful, deliberative, and controllable, while implicit attitudes are efficient, automatic, and difficult to control (Gawronski & Bodenhausen, 2006). Implicit attitudes can develop via repeated associations between the attitude object and a valence (Gawronski & Bodenhausen, 2006). This process may happen directly (e.g., learning an association from parents, teachers, or peers) or indirectly (e.g., inferring associations based on common pairings in media; Amodio, 2019). Compared to explicit attitudes, implicit ones are more resistant to developmental and age-related increases in social desirability and endorsement of other cultural norms (e.g., fairness and egalitarianism; Baron & Banaji, 2006; Raabe & Beelmann, 2011). While DIT helps us to understand how children develop stereotypes and prejudices about groups that are perceptually and psychologically salient, an additional theory, the Associative and Propositional Processes in Evaluation (APE) model (Gawronski & Bodenhausen, 2006, 2014) adds depth to our understanding about the formation of implicit attitudes.

The APE model posits that implicit attitudes form when repeated associations between the attitude object and attitude valence (positive or negative) occur (Gawronski & Bodenhausen, 2006, 2014). Implicit attitudes can emerge relatively rapidly, and positive implicit attitudes may occur in response to familiar stimuli (Dunham et al., 2011; Gonzalez et al., 2017). Thus, when an attitude object is salient, and with repeated associations, the attitude valence will become automatically activated. Implicit attitudes appear early in life (e.g., Qian et al., 2016; Williams et al., 2016), which researchers explain through two early-onset developmental processes – a tendency to favor the ingroup (beginning with a preference for the familiar) and a sensitivity to cultural knowledge about social group status (Baron et al., 2016; Dunham et al., 2008).

Across early to middle childhood, developmental trajectories of implicit and explicit attitudes toward social groups (i.e., gender, race, nationality) both overlap and also diverge. Implicit attitudes tend to be stable and favor ingroups, while explicit attitudes tend to become more egalitarian (Baron, 2015; Baron & Banaji, 2006; Dunham et al., 2008; Raabe & Beelmann, 2011). This dissociation may occur due to children's growing understanding of social desirability effects and internalizing norms regarding the expression of intergroup bias (Rutland et al., 2005). Children's attitudes may also shift over time as their cognitive functioning and moral identity become more sophisticated (Pahlke et al., 2021). Among adults, research has indicated that bias can be understood through implicit and explicit assessments, and both offer distinct insights regarding features of said bias (Greenwald & Banaji, 2017). Implicit and explicit attitudes can have unique, additive, or interactive effects on various behavioral outcomes (i.e., discrimination, well-being, etc.; Forscher et al., 2019; Perugini et al., 2010). Regarding adults' attitudes toward sexual minority people, implicit and explicit measures tend to be correlated, and they consistently reveal preferences for heterosexual versus lesbian or gay people (Westgate et al., 2015). To our knowledge, however, no study has explored whether young children's explicit and implicit attitudes about same-gender parent families are correlated. This knowledge would provide clues about how bias toward this specific group develops, and about effective interventions to reduce anti-LGBTQ+ bias at early ages.

Children's attitudes (implicit or explicit) and stereotyping may also relate to perceptions of their parents' attitudes (Castelli et al., 2009; Degner & Dalege, 2013). Given that children with same-gender parents may not always be perceptually evident to others, children may form prejudicial attitudes toward less perceptually discriminable groups when other factors draw attention to categorization according to DIT, such as modeling by parents, peers, teachers, or media (Bigler & Liben, 2007). In their meta-analysis of 131 studies, Degner and Dalege (2013) found a significant average medium effect size for associations between parent and child intergroup attitudes across childhood and adolescence. Although robust across different reports (children's or parents') about parents' attitudes, this effect was particularly strong when parents' attitudes were child-reported (Degner & Dalege, 2013). Regarding LG people and their families, one mixed method study found that perceptions of parents' attitudes were associated with children's explicit attitudes about same-gender attraction (Spence et al., 2018). In a quantitative study, children's explicit negative attitudes toward LG individuals were mediated by perceived parental pressure for gender conformity (Bos et al., 2012), possibly reflecting how negativity toward sexual minorities is often tied to perceived gender role violations (Horn, 2019). However, no studies have explored how children's attitudes about same-gender parent families are related to those children's perceptions of their own parents' attitudes.

We also know little about specific stereotypes that children might hold about peers with same-gender parents. Do children apply well-established gender conformity stereotypes (i.e., how girls and boys

"should" look and behave; Brown & Stone, 2016) to children raised by LG adults? Or do children endorse LG-specific stereotypes about peers with same-gender parents, reflecting attitudes of fear, disgust, immorality, or violations of "what's natural" (Herek, 2016; Spence et al., 2018)? Lastly, do children apply stereotypes that reflect both of these notions, since sexual minority prejudice often stems from perceived gender nonconformity (Horn, 2019)?

Finally, are factors such as children's knowledge or experience related to their explicit and implicit attitudes about same-gender parent families? Extensive research on contact theory (e.g., Pettigrew & Tropp, 2006), including studies related to LGBTQ+ people (e.g., Horn, 2019; Salvati et al., 2019), have clearly shown that people show less stereotyping and prejudice toward groups with whom they have had more positive, intimate contact. Research on race and ethnicity has shown that knowing and interacting with an outgroup individual is associated with fewer prejudicial attitudes and stereotypes about that individual, which then extends to fewer prejudicial attitudes about the broader outgroup. Familiarity is associated with greater empathy, lower anxiety during intergroup interactions, and more understanding and knowledge about a group, which further predicts fewer biases (see meta-analysis by Pettigrew & Tropp, 2006 which includes evidence from experimental studies; Salvati et al., 2019). We do not yet know whether children's knowledge and experience related to LGBTQ+ people similarly reduce prejudicial attitudes toward same-gender parent families.

Thus, we sought to explore and disentangle these features about implicit and explicit attitudes as well as specific stereotyping among school-age children toward same-gender parent families. No studies (we know of) have simultaneously and directly examined – through closed-*and* open-ended responses – young children's implicit attitudes and stereotypes about same-gender parents and their children, as well as perceptions of their own parents' attitudes. As prejudice and discrimination potentially affect millions of children with LGBTQ+ parents, understanding more about children's implicit attitudes and stereotyping toward same-gender parent families is key to informing efforts to reduce the harm of discrimination.

Current study

Although important, previous research has not captured the complexity and multidimensionality of children's intergroup attitudes toward same-gender parent families. Thus, we utilized a multi-method design to assess children's implicit (and explicit) attitudes – their own and their perceptions of their parents' attitudes – as well as explicit gender-differentiated stereotypes about same-gender couples and their children. We compared children's attitudes across three family groups: female same-gender, male same-gender, and different-gender parent families. Although we did not have predictions differentiating female and male same-gender parent families, we had four hypotheses based on our theoretical framework and extant research. Given that research in this area is still developing, most of our hypotheses were directional, but still largely exploratory and were not pre-registered.

Firstly, we predicted that children would demonstrate implicit biases favoring different-gender versus same-gender couples (Hypothesis 1a). We then queried whether children's implicit attitudes would be related to their explicit ones across a variety of dimensions, including perceived normalcy, grossness, and warmth toward same-sex parent families as well as desire for proximity. Shared association between implicit and explicit attitudes could indicate a lesser role of social desirability effects. If, alternatively, implicit attitudes shared few associations with explicit attitudes, this could point to the role of social desirability effects as related to intergroup bias and sexual orientation among elementary school-age children. We acknowledged the possibility, too, that the age of children could affect this pattern of results, with social desirability effects (and weaker implicit-explicit attitude associations) being more likely with older children compared to younger children (Hypothesis 1b; Baron, 2015; Baron et al., 2016; Dunham et al., 2008).

Secondly, we expected to replicate previous research (Farr et al., 2019; Kille & Tse, 2017) that children would show explicit biases toward different- versus same-gender parents and their children (Hypothesis 2a). Second, given links between children's explicit beliefs and perceptions of their parents' beliefs (e.g., Degner & Dalege, 2013), we predicted that children would describe their parents as favoring different-gender (versus same-gender) parent families (Hypothesis 2b; Bos et al., 2012; Herek, 2016; Horn, 2019; Spence et al., 2018).

Aligned with literature on gender stereotyping among children and DIT (Bigler & Liben, 2007; Brown & Stone, 2016), we tested competing hypotheses (Hypothesis 3) regarding how children would perceive the gendered preferences of children with LG parents. Would children apply gender-conforming stereotypes to children aligned with the gender of their parents (i.e., girls with two female parents would like fashion most, as fashion is stereotypically feminine; boys with two male parents would like trucks most, as trucks are stereotypically masculine)? Conversely, would children apply gender-nonconforming stereotypes associated with sexual minority individuals (i.e., who stereotypically deviate from gender norms; Horn, 2019) to children with LG parents such that children with same-gender female parents would like trucks more and children with same-gender male parents would like fashion more than children with different-gender parents, regardless of child gender? Further, we also wanted to explore whether pictured child gender would impact the endorsement of stereotypes. Specifically, would children apply gender-nonconforming stereotypes to the sons and daughters of same-sex couples in the same way? If children pick up on the broader gender nonconformity of the parents, would they expect the pictured child to also express non-conforming preferences based on gender (i.e., boys will like fashion, and girls will like trucks if they have same-sex parents)? This hypothesis was exploratory.

In our final hypothesis, we expected children's attitudes about same-gender parent families to relate to their own knowledge and experiences. Based on contact theory (Pettigrew & Tropp, 2006) and research regarding intergroup contact with LGBTQ+ people (Salvati et al., 2019; Swank & Raiz, 2010), we predicted children would hold fewer prejudicial attitudes about same-gender parent families when they have more contact with those families than when they have no contact (Hypothesis 4a). Relatedly, we expected children with some understanding of what "gay" means might show less bias than children with no understanding (Hypothesis 4b).

Finally, we explored the role of several additional covariates – participant age, gender, race, and pictured child gender – based on relevant research indicating the role of these demographic characteristics in connection to attitudes about LG individuals and their families (Bos et al., 2012; Farr et al., 2019). Moderation analyses (i.e., three-way interaction between the covariate, family type, and pictured child gender) were exploratory.

Method

Power and participants

Using G*Power (Faul et al., 2009) to conduct a priori power analyses ($1\text{-}\beta = 0.80$), we determined $n = 138$ would be necessary to detect small effects ($f = 0.10$) with repeated measures (within-between interaction) ANOVA (with 3 family type groups and 6 measurements across distinct vignettes). For multiple linear regression with three predictors, $n = 550$ and $n = 77$ would be needed to detect small ($f = 0.02$) and moderate effects ($f = 0.15$), respectively. Thus, analyses were over-powered to detect moderate effects, and generally powered to detect small effects.

Participants were 151 children ($M_{age} = 7.95$ years, range = 5–11 years; 74 girls; 77 % of the sample identified as white) from 5 elementary school YMCA afterschool programs in a moderately sized city (population = ~300,000) in the Midwestern/Southern U.S. Ages were relatively evenly distributed from 5 to 11 years ($n_{5–6} = 37$, $n_{7–8} = 52$, $n_{9–11} = 56$). Regarding racial/ethnic identity, 117 participants were

white, 12 Black, 3 Hispanic, 2 Asian, and 11 "other." Six did not respond. These characteristics were representative of county population demographics and were similar to national averages related to median household income, race, and ethnicity (U.S. Census Bureau, 2018a, 2018b). We examined nesting effects by site with repeated measures mixed ANOVA. Within-subjects factors were pictured family type and pictured child gender. Program site was the between-subjects covariate. No three-way interaction was significant (with Bonferroni correction of $p = .01$ applied) for any variable of interest.

Measures and procedure

After approval from the University of Kentucky Institutional Review Board (#15–0958-F4S) and parents' written consent (of those asked, over 75 % provided permission, as with similar studies, e.g., Farr et al., 2019), participating children individually worked with trained research assistants to complete study measures (in 20–30 min) on laptops. Data were collected in 2016–2017 (materials and analysis code are not available; the study was not preregistered). Research assistants read questions and response options aloud to control for reading ability. This approach has been effectively utilized in similar research (Farr et al., 2019). Halfway through, children received a small candy. Once complete, children were debriefed and offered a small prize (e.g., stickers). Next, we describe measures in the order they appeared (see Table 1 for all constructs).

Implicit attitudes

Participants completed the Affect Misattribution Procedure (AMP; Payne et al., 2005) to evaluate implicit attitudes about female same-gender, male same-gender, and different-gender couples. The AMP is particularly well-suited for assessing children's implicit attitudes because it can be finished in under five minutes and requires one instruction set in one phase. It is highly reliable and predictive of explicit attitudes and behaviors (Payne & Lundberg, 2014). The AMP has been used effectively with children as young as five and with adults in studies of attitudes about LG parents (Herbstrith et al., 2013; Williams et al., 2016).

The AMP was run using Inquisit version 5 software such that timing parameters are specific to the millisecond. Timing parameters reflect presenting all stimuli quickly, yet visibly. As is typical with the AMP, on each trial, participants were presented with a prime photo for 300 ms, a gray screen for 100 ms, a target photo for 200 ms, and then a mask remained on the screen until a response was entered. Prime photos depicted couples (i.e., female or male same-gender, or different-gender). All prime photos used in the AMP (as well as vignettes in this study) were purchased via iStock and pre-tested to ensure they were matched on happiness and attractiveness (see Farr et al., 2019), as is typical in studies involving photo evaluations (e.g., Payne et al., 2005). Photos were rated on these dimensions by research assistants with 94 % agreement across 80 ratings and 3 photos were excluded with ratings one standard deviation outside of the mean. Target photos were Chinese symbols from the original AMP study materials (see http://bkpayne.web.unc.edu/). No participants explicitly recognized the symbols nor spoke Chinese. Following AMP protocol, participants were told to ignore prime photos and determine whether the target photo seemed more pleasant or unpleasant than the other photos. Because the Chinese symbol is ambiguous, affect toward the primes is often misattributed to the Chinese symbol. Thus, the proportion of times the participant responded "pleasant" when preceded by each prime represents an indirect estimate of participant attitudes toward this prime.

AMP scores were calculated such that higher scores (i.e., greater proportion of unpleasant to pleasant responses) reflected greater unpleasant attitudes. After 6 practice trials, participants completed 60 critical trials, with 20 trials for each couple type (i.e., female or male same-gender, different-gender). All primes and targets were randomly presented to avoid order effects. AMP instructions for children were:

Table 1
Measures used to assess explicit and implicit attitudes and stereotypes with descriptive information by couple or family type.

Attitude Construct	Measure / Item / Variable	Female Same-Gender Family	Male Same-Gender Family	Different-Gender Family	*F*(df)
Implicit	***AMP (lesbian, gay, heterosexual couples)***	0.30 (0.24)	0.33 (0.25)	0.26 (0.21)	9.75 (2286) ***
Explicit (Child)	***Likert Scale (1–4)***	*M(SD)*	*M(SD)*	*M(SD)*	
Gross	"How gross is this child?"	1.26 (0.53)	1.38 (0.70)	1.19 (0.46)	6.53 (2272) **
Normal	"How normal is this child?"	3.42 (0.72)	3.31 (0.78)	3.56 (0.60)	10.42 (2278) ***
Like	"How much do you like this child?"	3.05 (0.77)	2.91 (0.80)	3.16 (0.73)	13.00 (2272) ***
Friends	"How much do you want to be friends with this child?"	3.00 (0.80)	2.89 (0.85)	3.15 (0.76)	14.81 (2274) ***
Explicit (Family)	***Likert Scale (1–4)***	*M(SD)*	*M(SD)*	*M(SD)*	
Gross	*"How gross is the family?"*	1.29 (0.60)	1.28 (0.60)	1.17 (0.41)	5.20 (2268) **
Like	"How much do you like the family?"	3.16 (0.80)	3.09 (0.85)	3.33 (0.67)	8.49 (2274) ***
Explicit (Parents' Perception)		*M(SD)*	*M(SD)*	*M(SD)*	
Friends with family	***Likert Scale (1–4)*** "Do you think your parents would want to be friends with this family?"	3.13 (0.68)	3.10 (0.72)	3.20 (0.67)	3.24 (2266) *
Thoughts about family	***Open-ended responses*** *(codes: positive affect, negative affect, proximity, don't know): "What do you think your parents would say about this family?"*	N/A	N/A	N/A	See Table 2
Stereotypes	***Likert Scale (1–4)***	*M(SD)*	*M(SD)*	*M(SD)*	
Fashion	"How much do you think this child likes clothes and fashion for his/her dolls?"	2.24 (0.58)	2.40 (0.47)	2.31 (0.62)	8.37 (2278) ***
Trucks	"How much do you think this child likes to play with trucks?"	2.60 (0.62)	2.53 (0.59)	2.40 (0.63)	5.67 (2280) **

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

"Are you ready to play a game? This game examines how people make simple choices. You will see pictures flashed one after the other. The first picture is a real-life picture of married couples. The second is a Chinese letter. The real-life picture lets you know the Chinese letter will be next, and you should ignore it. Your job is to choose whether or not you like the Chinese letter. Put your fingers on the ☺ and ☹ of the keyboard. If

you like the Chinese letter, press ☺. If you DO NOT like the Chinese letter, press ☹."

Explicit attitudes and stereotypes

To assess children's explicit attitudes, vignettes followed by a series of questions were presented to participants with these instructions: "We are interested in how elementary school kids feel about other kids from different families. If it is okay with you, I am going to read you a few stories and then ask you questions about them. In these stories, the kids are adopted. That means that you are born into one family, and another family raises you. Are you ready?" After receiving an affirmative response, participants viewed six vignettes of female same-gender couples, male same-gender couples, and different-gender couples with either a son or daughter (vignette order was randomized in Inquisit 5). Vignettes depicted photos of a couple (with body language signaling romantic involvement, e.g., arms wrapped around one another, holding hands) next to a child. To keep race and family structure constant, all individuals portrayed were white and all children were described as adopted (given that adoption is particularly common among same-gender couples; Goldberg & Conron, 2018).

On each survey page (in Inquisit), participants were presented with a picture of a family. Before hearing a short description, children were asked one open-ended question: "What do you think your parents would say about this family?" Several trained research assistants coded these open-ended responses independently via deductive content analysis (Braun & Clarke, 2021) based on categories of "positive affect," "negative affect," and "proximity," aligning with previous quantitative constructs showing differences in children's attitudes toward same- versus different-gender parent families (Farr et al., 2019). Coders used a guide that described categories and provided example responses (Braun & Clarke, 2021). Specifically, positive affect responses included positive sentiments toward the parents, child, or both (e.g., "they're nice"), and negative affect responses involved negative sentiments toward any family members (e.g., "I don't like them"). Responses coded for proximity included sentiments of being close to or near the family (e.g., "let's play with them") or those that referenced relevance to their own family (e.g., "she is like my sister"). See Table 2 for example responses. Reliability (K-alphas) across these theme categories and the six vignettes was acceptable (Hayes & Krippendorff, 2007), averaging 0.80.

Next, children heard fictional descriptions about six families (Appendix; e.g., "This is the Lipton family. The mom on the left is named Tammy, and the mom on the right is named Christine. They have a daughter named Madison. Madison was adopted when she was a baby. Now she is seven years old, and her family likes to play with their pets on the weekends"). Descriptions included family members' first and last names (and parents labeled mom or dad), the child's age (seven or eight years old; adopted as an infant), and one typical weekend activity.

Responding to the vignettes, children answered several questions

Table 2
Frequencies of qualitative descriptions of participants' perceptions of own parents' attitudes and example responses.

	Female Same-Gender Parents		Male Same-Gender Parents		Different-Gender Parents	
Theme	Daughter	Son	Daughter	Son	Daughter	Son
Positive Affect	76.5 % "They would say that both of the moms are cute couples and that their daughter is very cute. And they think I would want to be friends with her because I do want to be friends with her."	75.8 % "They would like them because they look kind and I have two moms like he does so they would probably have a good time together."	70.5 % "Maybe they would be friends with these people and make them be happy forever."	74.6% "You are a delightful family and I hope you have a great day."	78.9 % "I think my parents would say that they really, really, really, really, really, really, really, would want to be friends with them and that's a lot of reallys."	79.3 % "I think they would be fine with being friends unless they do something mean or annoying."
	"I think they would be very happy to be friends with them and would support them when they needed it."	"They seem like a very nice family and they probably would like to be friends with some of them."	"We haven't seen a family like this before. They're amazing."	"Me and him would have a great time playing games outside together and he could come to my house sometime and climb on some of the mountains I have."	"They could be wealthy."	"They would say that we have a lot of common with them because my mom likes make up and my dad likes sports and me and Phil could go to the kids' section."
Negative Affect	11.5 % "They do not want to be friends. My mom does not like two moms."	6.8 % "The parents look nice but the little boy… no."	10.1 % "They do not like this family because there are two dads."	5.4 % "They do not want to be friends because they have 2 boys and she doesn't like that."	1.5 % "Very nice neighbors but would not enjoy their love of soccer."	3.0 % "I don't think you should be with them because you might get in trouble."
	"Probably say like they are a little bit old so maybe not be friends."	"They are probably not the best fit for my mom and dad because the parents are both girls but the boy kind of looks like me."	"Why does it have two dads?"	"They would like them as a normal family, but my parents would not get along with them for my parents hate hiking."	"They are probably not the best fit for us."	"They would think he (the kid) is a little crazy."
Proximity	25.0 % "We will see them on a Tuesday, October 5th."	31.1 % "It is fun to be with and we would have fun with the kid, and we would play a lot of games like tag and jump rope."	31.0 % "Can we get their phone number so we can hang out sometime?"	31.8 % "Certain people in my family would be great friends with this family but would definitely not be enemies."	25.2 % "They are a very nice family, and "I would love to be friends with them" my mom would say, and my dad would say "sure.""	28.9 % "Let's go to their house."
	"They would probably say "you can go over to her house sometime and play with her and her dolls.""	"We wanna move in."	"Can we have a board game with you?"	"We would move in and stay for a couple days."	"They're athletic and easy to relate to."	"Would you like to eat dinner with us?"
Don't Know	16.8 % "We don't know their address."	18.6% "I don't know."	18.6 % "IDK."	17.7 % "Still not sure."	18.9 % "We don't know that family."	16.3 % "Nothing."
	"Nothing."	"I don't know what to say."	"I'm not really sure."	"Don't know."	"I'm not sure what they would say."	"No."

about their explicit attitudes and perceptions of their parents' attitudes, adapted from earlier work about stereotypes and prejudicial attitudes regarding LGBTQ+ people and their families (Bos et al., 2012; Farr et al., 2019; Herek, 2016; Horn, 2019). Likert-style questions and response options were asked in the following order: *Do you think your parents would want to be friends with this family?* (1 = definitely not, 2 = probably not, 3 = probably, 4 = definitely), *How normal is this child?* (1 = not at all normal, 2 = a little bit, 3 = a medium amount, 4 = very normal), *How gross is this child?* (1 = not at all gross, 2 = a little bit, 3 = a medium amount, 4 = very gross), *How much do you like this child?* (1 = not at all, 2 = a little bit, 3 = a medium amount, 4 = very much), *How much do you want to be friends with this child?* (1 = not at all, 2 = a little bit, 3 = a medium amount, 4 = very much), *How much do you like this family?* (1 = not at all, 2 = a little bit, 3 = a medium amount, 4 = very much), and *How gross is this family?* (1 = not at all gross, 2 = a little bit, 3 = a medium amount, 4 = very gross). Finally, children were asked two questions about gender-based stereotypes and the pictured children: *How much do you think this child likes clothes and fashion for his/her dolls?*, and *How much do you think this child likes to play with trucks?* (1 = not at all, 2 = a little, 3 = a medium amount, 4 = a lot). Thus, children's explicit attitudes included their own evaluations of pictured children and families, and perceptions of their parents' attitudes.

Contact and knowledge

Drawing from earlier work (Farr et al., 2019), children were asked if they could describe what it means to be LG and whether they knew other children with same-gender parents. We asked, *Do you know what gay or lesbian means?* (1 = yes, 2 = no). If "yes", we asked this open-ended question: *Can you describe what it means to be gay or lesbian*? Definitions were rated by two of the authors as accurate/inaccurate (92 % agreement). Accurate definitions included reference to two people of the same gender dating, marrying, or liking each other romantically (e.g., "Gay is used for boys who like boys. Lesbian is used for girls who like girls," or "If a boy marries a boy or a girl marries a girl"). Inaccurate definitions were factually incorrect (e.g., "a boy that acts like a girl"), reflected homophobia (e.g., "gay means they're like really weird"), or referred to an alternate definition (e.g., "happy kind of"). Given that children who accurately define LG typically include mention of marriage and same-gender couples (Farr et al., 2019), we asked children about knowing same-gender parent families in this way: *Do you know kids who have two moms that are married, or two dads that are married?* (1 = yes, 2 = no).

Demographic questions

Finally, children responded to several demographic questions related to their age (i.e., *How old are you?*), racial/ethnic (i.e., *Do you identify as Black, white, Hispanic, Asian, or other?*) and gender identities (i.e., *Do you identify as a boy or a girl?*).

Transparency and openness

We report our determination of sample size and relevant power analyses. This study was not pre-registered. Data and analysis code (from SPSS 28.0; IBM Corp, 2021) are not available.

Results

First, we report children's implicit attitudes toward same-gender couples (Hypothesis 1a) and the associations between implicit and explicit attitudes accounting for age (Hypothesis 1b). Second, we describe children's explicit attitudes toward same-gender couples (Hypothesis 2a) and whether these attitudes align with children's perceptions of their parents' attitudes about pictured families (Hypothesis 2b). Following, we discuss children's gender-specific stereotypes about pictured children (Hypothesis 3). Lastly, we describe how children's knowledge and experience with same-gender families and the term "gay" related to their attitudes (Hypotheses 4a and 4b). Finally, we explore whether these and several demographic factors were associated with children's attitudes. Table 1 includes descriptive information for all variables of interest and Table 3 shows correlations between participant age and explicit as well as implicit variables.

Children's implicit attitudes

Consistent with Hypothesis 1a, children showed implicit preferences for different- versus same-gender couples. A repeated measure ANOVA with prime type as the within-subject factor indicated significant differences in implicit attitudes by prime (i.e., female same-gender, male same-gender, and different-gender couples), $F(2, 286) = 9.75$, $p < .001$, $\eta_p^2 = 0.064$ (see Fig. 1). Post hoc tests revealed that children were implicitly more positive toward different-gender couples relative to female and male same-gender couples (no group differences between the latter two were found).

Associations between implicit and explicit attitudes

To evaluate Hypothesis 1b, we ran a series of multiple linear

Table 3
Correlations between explicit and implicit attitude variables.

	Implicit Attitude Variable			
Explicit Attitude Variable	Gay AMP	Lesbian AMP	Heterosexual AMP	Participant Age
Child normal (heterosexual)	−0.112	−0.075	−0.191*	0.024
Child normal (lesbian)	−0.132	−0.076	−0.128	0.032
Child normal (gay)	−0.262**	−0.193*	−0.190*	0.162
Like child (heterosexual)	−0.157	−0.153	−0.246**	−0.103
Like child (lesbian)	−0.235**	−0.219**	−0.241**	−0.026
Like child (gay)	−0.284**	−0.273**	−0.271**	0.061
Be friends (heterosexual)	−0.185*	−0.183*	−0.259**	−0.067
Be friends (lesbian)	−0.316**	−0.330**	−0.322**	−0.003
Be friends (gay)	−0.260**	−0.301**	−0.362**	−0.066
Child gross (heterosexual)	0.191*	0.166*	0.207*	−0.133
Child gross (lesbian)	0.310**	0.278**	0.289**	−0.255**
Child gross (gay)	0.186*	0.134	0.138	−0.305**
Like family (heterosexual)	−0.187*	−0.153	−0.206*	−0.083
Like family (lesbian)	−0.382**	−0.382**	−0.256**	−0.005
Like family (gay)	−0.390**	−0.345**	−0.292**	0.009
Family gross (heterosexual)	0.211*	0.229**	0.245**	−0.226**
Family gross (lesbian)	0.368**	0.328**	0.241**	−0.236**
Family gross (gay)	0.177*	0.166*	0.133	−0.195*
Parents be friends (heterosexual)	−0.174*	−0.291**	−0.313**	0.046
Parents be friends (lesbian)	−0.289**	−0.402**	−0.299**	−0.087
Parents be friends (gay)	−0.371**	−0.380**	−0.227**	0.014
Boy stereotype (heterosexual)	−0.150	−0.240**	−0.267**	0.059
Boy stereotype (lesbian)	−0.009	−0.055	−0.128	−0.166*
Boy stereotype (gay)	−0.148	−0.176*	−0.187*	−0.118
Girl stereotype (heterosexual)	−0.011	−0.095	−0.129	−0.309**
Girl stereotype (lesbian)	−0.057	−0.078	−0.051	−0.071
Girl stereotype (gay)	−0.027	−0.172*	−0.175*	−0.172*
Participant age	−0.068	0.002	0.014	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

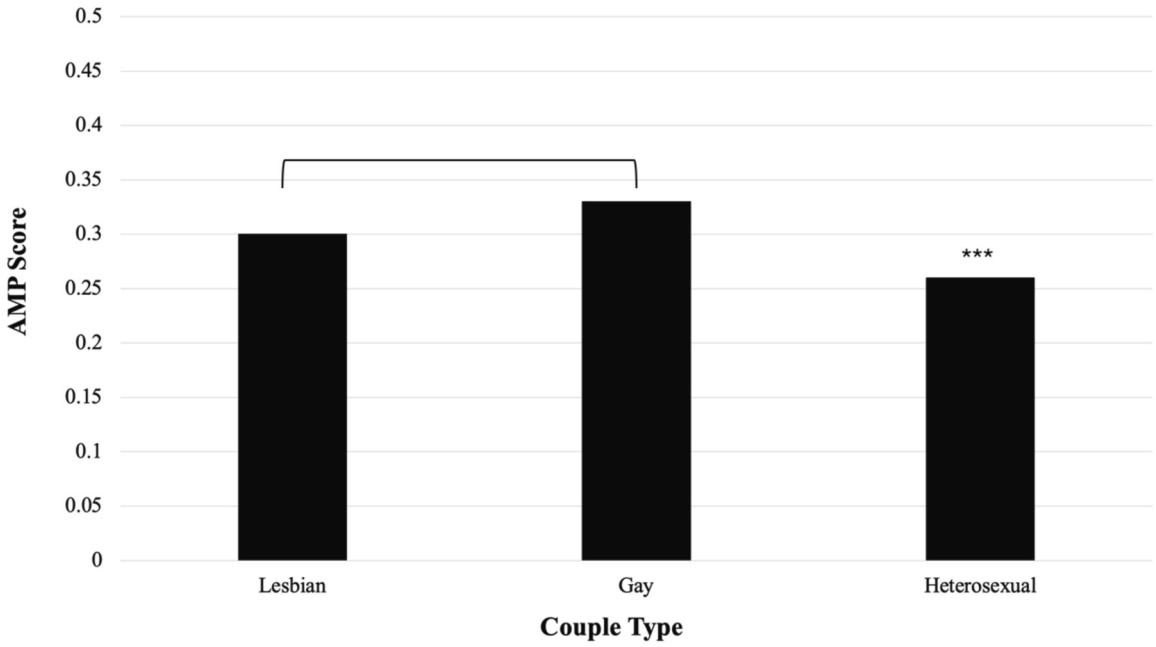

Fig. 1. Implicit attitudes toward couple type.
*$p < .05$. **$p < .01$. ***$p < .001$.
Note. This figure depicts the results of the Affect Misattribution Procedure (AMP) used to measure implicit attitudes toward female same-gender (lesbian), male same-gender (gay), and different-gender (heterosexual) couples. AMP scores were calculated such that higher scores (i.e., greater proportion of unpleasant to pleasant responses) reflected greater unpleasant attitudes. A repeated measure ANOVA with prime type as the within-subject factor indicated significant differences in implicit attitudes by prime (i.e., female same-gender, male same-gender, and different-gender couples), $F(2, 286) = 9.75$, $p < .001$, $\eta_p^2 = 0.064$.

regressions (18) separately for each quantitative explicit attitude variable to explore associations between implicit and explicit attitudes toward same-gender couples and their children and whether these associations varied by age. Each model accounted for participant age, implicit attitudes toward different-gender couples, and interaction terms between age and implicit attitudes (Table 4; correlations are provided in Table 3). Scores for explicit attitudes were averaged across pictured child gender, given the few differences that emerged in earlier analyses. Providing partial support for Hypothesis 1b, six models were significant. The most consistent pattern present in five of the significant models was in the expected direction that less positive implicit attitudes toward LG couples significantly predicted less positive explicit attitudes toward LG couples and their children (when accounting for age, implicit attitudes toward different-gender couples, and interaction terms). Interactions between implicit attitudes toward LG couples and age were significant in two of these five models. Implicit attitudes toward different-gender couples and its interaction with age emerged as the only significant predictors in one model. Thus, interactions with age were significant in three models total. Participant age was not significant in any models. The remaining 12 models were not significant or had no significant predictors (Table 4).

We next explored the simple effects for the three significant interactions between implicit attitudes and the three dependent variables of interest (i.e., "normal" child with gay fathers; parents want to be friends with lesbian mothers; children with gay fathers like fashion) at younger (−1 SD), middle (between −1 and + 1 SD), and older (+1 SD) participant ages. For these three models, interaction results were in the expected direction developmentally: negative explicit (or stereotypical) and implicit attitudes were less strongly associated at older child ages.

Children's explicit attitudes

Using a 3 (female same-gender, male same-gender, and different-gender couple) x 2 (pictured child gender: girl and boy) within-subjects ANOVA (Bonferroni corrections applied unless noted; alpha set to $p = .01$), results revealed less positive explicit attitudes about children in same-gender parent families and same-gender parent families overall (Hypothesis 2a) as compared to those about children and families with different-gender parents.

Attitudes toward pictured child

Explicit attitudes, first in reference to the child pictured in each vignette, included (1) reports of how much participants liked the pictured child, (2) how much participants would want to be friends with this child, (3) how "gross" the pictured child was, and (4) how "normal" the pictured child was. Across these items, the minimum score observed was 1.00 and the maximum score was 4.00, with only one exception: the minimum score for how normal a child was with female same-gender parents was 1.50 (see Table 1 for full descriptives). There were main effects for pictured family composition (i.e., couple type) for each of these explicit attitudes toward the pictured child, but no significant main effects for pictured child gender nor significant interaction between pictured family composition and pictured child gender. We describe each of these analyses in turn, including post hoc analyses to compare across the three family groups (see Fig. 2).

First, participants responded to how much they liked each pictured child; children were liked significantly less when pictured as having male same-gender parents as compared with female same-gender or different-gender parents, $F(2, 272) = 13.00$, $p < .001$, $\eta_p^2 = 0.087$ (with post hoc analyses revealing no differences between female same-gender and different-gender parents). Second, children rated wanting to be friends more with children pictured with different-gender parents relative to children pictured with female and male same-gender parents, $F(2, 274) = 14.81$, $p < .001$, $\eta_p^2 = 0.098$ (with no difference based on whether the pictured children had female or male same-gender parents). Third, participating children thought pictured children were significantly more gross when they had male same-gender parents as compared to different-gender parents, $F(2, 272) = 6.53$, $p = .003$, $\eta_p^2 = 0.046$. Post hoc analyses indicated no differences in this result between female same-gender and different-gender parents, nor between female and male

Table 4
Regression analyses predicting explicit attitudes from implicit attitudes, participant age, and their interactions.

	B	SE	*b*	*t*		B	SE	*b*	*t*
Variable	Child normal (lesbian)				Variable	Child normal (gay)			
L AMP	−1.85	1.76	−0.63	−1.05	L AMP	−6.00	1.69	−1.91	−3.55***
H AMP	2.24	1.86	0.67	1.21	H AMP	2.07	1.79	0.56	1.15
Child Age	0.03	0.06	0.06	0.42	Child Age	−0.08	0.06	−0.15	−1.18
L AMP x Age	0.23	0.22	0.64	1.08	L AMP x Age	0.67	0.21	1.70	3.23**
H AMP x Age	−0.34	0.23	-0.82	−1.48	H AMP x Age	−0.27	0.22	−0.59	−1.22
F(5, 138)	0.91				*F* (5, 137)	5.27***			
Adj. R^2	−0.003				Adj. R^2	0.13			
	Like child (lesbian)					Like child (gay)			
L AMP	−1.51	1.81	−0.49	−0.83	L AMP	−2.67	1.80	−0.83	−1.49
H AMP	1.20	1.91	0.34	0.63	H AMP	1.98	1.91	0.52	1.04
Child Age	−0.004	0.06	−0.01	−0.06	Child Age	0.02	0.07	0.04	0.31
L AMP x Age	0.15	0.22	0.38	0.65	L AMP x Age	0.25	0.22	0.62	1.14
H AMP x Age	0.23	0.23	−0.52	−0.96	H AMP x Age	−0.32	0.23	−0.68	−1.37
F(5, 138)	2.15*				*F*(5, 136)	3.45**			
Adj. R^2	0.04				Adj. R^2	0.08			
	Be friends (lesbian)					Be friends (gay)			
L AMP	−1.53	1.85	−0.47	−0.83	L AMP	−1.00	1.87	−0.29	−0.53
H AMP	1.66	1.95	0.45	0.85	H AMP	−0.15	1.99	−0.04	−0.08
Child Age	0.04	0.06	0.08	0.62	Child Age	−0.04	0.07	−0.07	−0.54
L AMP x Age	0.10	0.23	0.25	0.45	L AMP x Age	0.09	0.23	0.20	0.37
H AMP x Age	−0.30	0.24	−0.65	−1.25	H AMP x Age	−0.14	0.24	−0.28	−0.57
F(5, 138)	4.51***				*F*(5, 137)	4.66***			
Adj. R^2	0.11				Adj. R^2	0.11			
	Child gross (lesbian)					Child gross (gay)			
L AMP	0.03	2.22	0.02	0.03	L AMP	1.06	1.56	0.38	0.68
H AMP	1.58	1.28	0.64	1.23	H AMP	0.56	1.66	0.17	0.34
Child Age	−0.06	0.04	−0.16	−1.31	Child Age	−0.09	0.06	−0.20	−1.48
L AMP x Age	0.04	0.15	0.14	0.25	L AMP x Age	−0.09	0.19	−0.25	-0.46
H AMP x Age	−0.14	0.16	−0.47	-0.91	H AMP x Age	−0.05	0.20	−0.13	-0.26
F(5, 137)	5.35***				*F*(5, 136)	3.85			
Adj. R^2	0.13				Adj. R^2	0.09			
	Like family (lesbian)					Like family (gay)			
L AMP	−4.14	1.84	−1.25	−2.26*	L AMP	−4.67	1.81	−1.37	−2.57*
H AMP	3.07	1.94	0.82	1.58	H AMP	2.94	1.92	0.74	1.53
Child Age	−0.004	0.06	−0.01	−0.06	Child Age	−0.05	0.07	−0.09	−0.67
L AMP x Age	0.36	0.23	0.88	1.59	L AMP x Age	0.44	0.22	1.02	1.07
H AMP x Age	−0.38	0.24	−0.83	−1.61	H AMP x Age	−0.41	0.23	−0.83	−1.75
F(5, 138)	5.42***				*F*(5, 137)	6.23***			
Adj. R^2	0.13				Adj. R^2	0.16			
	Family gross (lesbian)					Family gross (gay)			
L AMP	1.49	1.38	0.60	1.08	L AMP	0.59	1.37	0.25	0.43
H AMP	0.93	1.46	0.33	0.64	H AMP	0.34	1.46	0.12	0.23
Child Age	−0.03	0.05	−0.08	−0.65	Child Age	−0.05	0.05	−0.13	−0.94
L AMP x Age	−0.10	0.17	−0.31	−0.57	L AMP x Age	−0.04	0.17	−0.12	−0.21
H AMP x Age	−0.11	0.18	−0.31	−0.61	H AMP x Age	−0.03	0.18	−0.07	−0.15
F(5, 137)	5.79***				*F*(5, 136)	1.88*			
Adj. R^2	0.14				Adj. R^2	0.03			
	Parents be friends (lesbian)					Parents be friends (gay)			
L AMP	−4.31	1.54	−1.52	−2.81*	L AMP	−3.70	1.57	−1.28	−2.37*
H AMP	2.83	1.62	0.88	1.75	H AMP	2.42	1.66	0.72	1.46
Child Age	−0.06	0.05	-0.13	−1.07	Child Age	−0.03	0.06	−0.07	−0.51
L AMP x Age	0.41	0.19	1.18	2.17*	L AMP x Age	0.33	0.19	0.91	1.72
H AMP x Age	−0.37	0.20	-0.95	−1.88	H AMP x Age	−0.31	0.20	−0.73	−1.51
F(5, 138)	6.82***				*F*(5, 137)	5.12***			

(*continued on next page*)

Table 4 (*continued*)

	Parents be friends (lesbian)					Parents be friends (gay)			
Adj. R^2	0.17				Adj. R^2	0.13			
	Girl stereotype (lesbian)					**Girl stereotype (gay)**			
L AMP	−1.82	1.36	−0.80	−1.34	L AMP	−1.22	1.05	-0.64	−1.16
H AMP	2.05	1.44	0.80	1.43	H AMP	2.48	1.11	1.12	2.23*
Child Age	−0.02	0.05	−0.07	−0.48	Child Age	−0.006	0.04	-0.02	-0.15
L AMP x Age	0.20	0.17	0.73	1.22	L AMP x Age	0.17	0.13	0.70	1.29
H AMP x Age	−0.26	0.18	−0.81	−1.45	H AMP x Age	−0.37	0.14	−1.37	-2.76*
F(5, 138)	0.81				F(5, 137)	3.69*			
Adj. R^2	−0.007				Adj. R^2	0.09			
	Boy stereotype (lesbian)					**Boy stereotype (gay)**			
L AMP	0.70	1.54	0.27	0.45	L AMP	−0.72	1.35	−0.30	−0.53
H AMP	−0.23	1.63	−0.08	−0.14	H AMP	0.82	1.44	0.30	0.57
Child Age	−0.04	0.05	−0.10	−0.71	Child Age	−0.03	0.05	−0.08	−0.54
L AMP x Age	−0.07	0.19	−0.22	−0.38	L AMP x Age	0.07	0.17	0.22	0.40
H AMP x Age	−0.04	0.20	−0.10	−0.18	H AMP x Age	−0.16	0.18	−0.45	−0.89
F(5, 138)	1.47				F(5, 137)	1.73			
Adj. R^2	0.02				Adj. R^2	0.03			

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

Note. L AMP, G AMP, and H AMP refer to the scores for implicit attitudes assessed with the Affect Misattribution Procedure toward same-gender female (i.e., L = lesbian) couples, same-gender male (i.e., G = gay) couples, and different-gender (i.e., H = heterosexual) couples, respectively. Child age reflects the age (in years) of the participating children. The parentheses with "lesbian" or "gay" following the name of each explicit attitude variable refer to which type of couple was portrayed in the family vignettes. Girl stereotypes reflected liking clothes and fashion for dolls, while boy stereotypes reflected liking to play with trucks. In 6 of these 18 models, implicit attitudes were significant predictors of explicit attitudes.

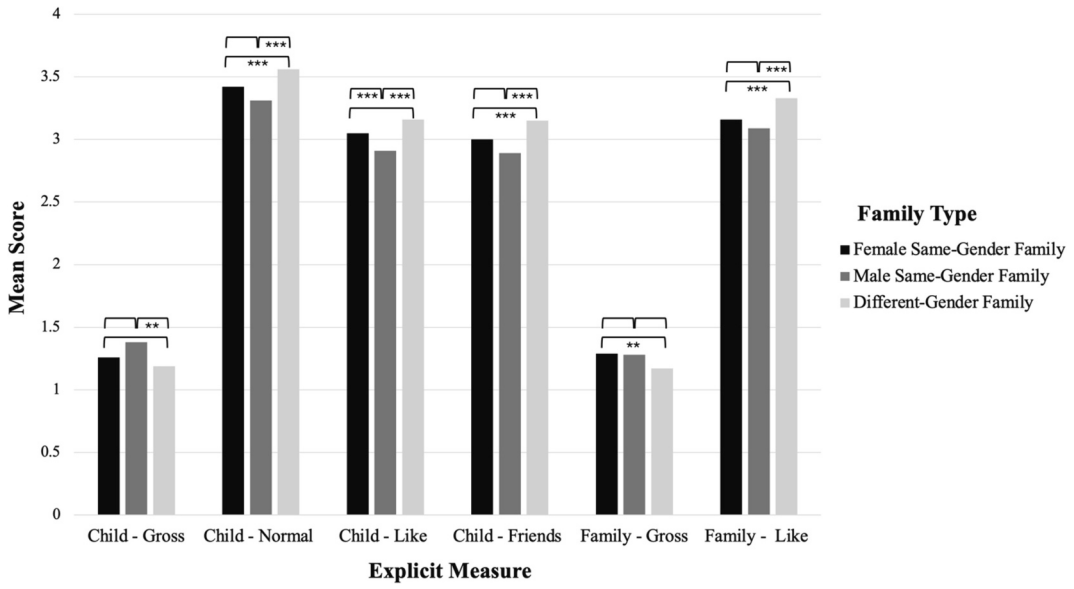

Fig. 2. Explicit attitudes toward children and families by family type.
*$p < .05$. **$p < .01$. ***$p < .001$.
Note. This figure depicts children's explicit attitudes in response to a series of vignettes. Items labeled as "Child" represent questions about the pictured child, while items labeled "Family" represent questions about the pictured family. Results were calculated using a series of 3 (female same-gender, male same-gender, and different-gender couple) x 2 (pictured child gender: girl and boy) within-subjects ANOVA with Bonferroni corrections applied.

same-gender parents. Finally, for perceived normalcy, there was a main effect of pictured family composition. Participants rated children with different-gender parents as significantly more normal than children with female and male same-gender parents, $F(2, 278) = 10.42$, $p < .001$, $\eta_p^2 = 0.070$ (with no differences between male and female same-gender parents).

Attitudes toward pictured family

Next, participating children were asked a similar set of questions regarding the entire pictured family in terms of how much they liked the family and how gross they perceived the family to be. Across these items, the minimum score observed was 1.00 and the maximum score was 4.00, with only one exception: the maximum score for how gross children perceived a family with different-gender parents was 3.00 (see Table 1 for full descriptives). Similar to the results regarding pictured children, there were main effects of pictured family structure for perceptions of family liking and family grossness. Children said they liked families significantly more when they had different-gender versus

female or male same-gender parents, $F(2, 274) = 8.49$, $p < .001$, $\eta_p^2 = 0.058$. Children also reported that families were significantly grosser when they had female same-gender parents as compared with different-gender parents, $F(2, 268) = 5.20$, $p = .007$, $\eta_p^2 = 0.037$ (with no difference between male same-gender and different-gender parents). For both results, there was no difference between female and male same-gender parents, no significant main effect of pictured child gender, and no significant interaction with pictured couple type.

Children's perceptions of their parents' attitudes

Analyses of closed- and open-ended response data revealed that children perceived their parents as favoring different- versus same-gender parent families, aligned with Hypothesis 2b. First, using the within-subjects ANOVA design noted above, there were main effects of pictured child gender and family type (no Bonferroni correction for this single variable). Participants noted their parents would be more likely to be friends with families with different-gender than male same-gender parents, $F(2, 266) = 3.24$, $p = .041$, $\eta_p^2 = 0.024$ (post hoc analyses indicated no other significant group differences). Children also reported their parents would be more likely to be friends with families with daughters (versus sons), $F(1,133) = 5.49$, $p = .021$, $\eta_p^2 = 0.040$. The interaction between pictured family composition and pictured child gender was not significant.

Content analyses of open-ended responses ("What do you think your parents would say about this family?") revealed consistent patterns with closed-ended responses. Across pictured family types, most explanations children gave were positive in expressing what their own parents would think about the pictured parents. Over a quarter of explanations included reference to proximity (i.e., physical or relational closeness; see Table 2). Using Generalized Estimating Equations (GEE) for repeated measures analyses with a binary outcome (e.g., yes or no; Ballinger, 2004), we examined effects of pictured family type and child gender on our four content analysis outcomes (i.e., positive affect, negative affect, proximity, don't know) with a Bonferroni correction applied (alpha set to $p = .01$). We found one significant result, specifically the main effect of pictured family type on negative affect, Wald $\chi^2(2, 135) = 131.29$, $p = .004$. Odds ratios were significantly greater (i.e., more negative affect) for female and male same-gender parent families (both $p = .003$) than for different-gender parent families (no main effects for pictured child gender, nor the interaction between pictured family type and child gender were significant). No group differences were found for the three other content analysis outcomes.

Gender-specific stereotypes about pictured child

Tests of competing hypotheses (Hypothesis 3) found that participating children applied gender-nonconforming stereotypes about children pictured in LG parent families. Participants believed that children with male same-gender parents would like fashion significantly more than children with female same-gender or different-gender parents, $F(2, 278) = 8.37$, $p < .001$, $\eta_p^2 = 0.057$. Children with female same-gender and different-gender parents were not perceived differently from one another. There was also a significant main effect of pictured child gender, $F(1, 139) = 878.29$, $p < .001$, $\eta_p^2 = 0.863$. Participants reported girls to like fashion more than boys. The interaction of pictured couple type and pictured child gender was also significant, $F(2, 278) = 14.34$, $p < .001$, $\eta_p^2 = 0.093$. Post hoc tests showed girls with two fathers were perceived to like fashion more than those in other families ($ps < 0.001$). Secondly, participants indicated that children with female same-gender parents would like trucks significantly more than children with different-gender parents, $F(2, 280) = 5.67$, $p = .004$, $\eta_p^2 = 0.039$. Post hoc analyses showed no significant difference between female and male same-gender parents, nor between male same-gender and different-gender parents. There was a main effect of pictured child gender, $F(1, 140) = 624.92$, $p < .001$, $\eta_p^2 = 0.817$; participants reported boys as more likely to like trucks than girls.

Knowledge about same-gender parent families and exploratory moderation analyses

Of the 151 participants, 51 (34 %) said they knew a same-gender couple, and 61 (40 %) stated that they could define gay or lesbian (seven missing). Of these 61, 43 provided accurate definitions, for a total of 28 % of the sample accurately describing the term, gay or lesbian.

To examine covariate effects on our dependent variables (Table 1), we used repeated measures mixed ANOVA for each covariate. The five covariates, tested separately across individual models to preserve power, were child gender, age, race (racial minority vs. white given small cell sizes), accurately defining LG (accurate definition vs. inaccurate definition or no response), and knowing same-gender parent families. Covariates were entered as between-subjects factors. Within-subjects factors were pictured child gender and family type (i.e., female same-gender, male same-gender, different-gender couples). To control Type I error and alpha inflation, we applied a Bonferroni correction ($p = .01$). Overall, results showed that knowing same-gender couples (Hypothesis 4a) and knowledge of LG terms (Hypothesis 4b) did not moderate children's perceptions of same-gender parent families.

Only one significant moderation emerged – a three-way interaction of participant age, pictured family type, and pictured child gender in predicting girls' fashion stereotypes, $F(2, 274) = 7.17$, $p = .001$. To decompose this result, we investigated the two-way interaction between family type and child gender at younger (−1 SD) and older (+1 SD) participant ages. Children felt girls with two fathers liked fashion more – compared to girls with two mothers, if younger, or to girls with a mother and father, if older (with no other significant group differences). Generally speaking then, participant age, gender, and race did not appear to moderate perceptions.

Discussion

Overall, results from this multi-method study indicate consistent patterns across explicit and implicit attitudes, perceptions of parents' attitudes, and stereotypes showing that elementary school-age children hold more favorable views of different-gender couples and their children as compared to same-gender couples and their children. Given significant associations between explicit and implicit attitudes in the expected direction, as well as endorsement of LG-specific stereotypes that children with same-gender parents would show gender-nonconforming preferences, our results reflect entrenched biases in elementary school-age children's attitudes about same-gender parents and their children. These biases appeared despite limited explicit knowledge of "gay" or "lesbian" among participating children. Aligned with our theoretical frameworks and hypotheses, these findings are indicative of prevalent bias against same-gender parent families among children, even with strides toward LGBTQ+ equality and cultural acceptance (Tankard & Paluck, 2017; Twenge et al., 2016), as well as growing numbers and visibility of LGBTQ+ parent families in the U.S. (Gates, 2015; Goldberg & Conron, 2018).

Children's implicit and explicit attitudes

Consistent with Hypothesis 1, our findings extend the literature in demonstrating that elementary school-age children show implicit attitudes favoring different-gender couples over female and male same-gender couples. These results add to research indicating adults' implicit attitudes favoring heterosexual versus sexual minority individuals, parents, and families (e.g., Herbstrith et al., 2013; Kille & Tse, 2017; Tan et al., 2017), and research demonstrating that children show implicit bias toward other social groups (e.g., race; Baron & Banaji, 2006; Dunham et al., 2008). Furthermore, as evident by our exploratory moderator analyses, children's age did not share significant associations

with implicit attitudes. Providing evidence of implicit attitudes (robust to age effects) about perceived sexual orientation may suggest that children have experienced negative messages (i.e., directly or indirectly) about same-gender couples repeatedly and consistently such that the associations are automatic, aligned with the APE model (Amodio, 2019; Gawronski & Bodenhausen, 2006). Rather than exposure to negative messages, it's also possible that this difference reflects disproportionate exposure to positive messaging about heterosexual couples vs. same-sex couples. Although representation has increased in recent years, romantic relationships and families portrayed in children's television programs are almost exclusively heterosexual and portray norms associated with heterosexual relationships (Kirsch & Murnen, 2015; Snyder et al., 2023). Despite similar results in previous research about children's *explicit* attitudes toward same-gender couples (Spence et al., 2018), ours are the first, to our knowledge, to show children's *implicit* attitudes about same-gender couples.

Hypothesis 1 was also supported in that explicit and implicit attitudes were associated in several ways, largely indicating that less positive implicit attitudes toward same-gender couples predicted less positive explicit attitudes toward same-gender parent families – even when accounting for participant age and implicit attitudes (and their interactions) toward different-gender couples. Other research about children's implicit and explicit biases toward various social groups (e.g., race) has indicated consistency (including additive or interactive effects) across indirect and conscious attitudes, as well as unique or independent effects (Baron, 2015; Baron & Banaji, 2006; Greenwald & Banaji, 2017; Perugini et al., 2010; Raabe & Beelmann, 2011); our results extend this work to same-gender parent families. Given that participant age did not significantly predict explicit attitudes across most models (over and above implicit attitudes), it is not clear whether social desirability effects were at play. While some explicit attitude variables were correlated with age (i.e., older vs. younger children were more positive about same-gender parent families and their children), no implicit variables shared such associations. In addition, in the three regression models with significant interaction terms, results reflected less strong ties between negative implicit and explicit or stereotypical attitudes among older participants. These findings may hint at greater social desirability as children grow older, disentangling explicit and implicit attitudes toward same-gender parent families, as with other social groups (Baron, 2015; Baron et al., 2016; Dunham et al., 2008; Rutland et al., 2005), but further study is warranted.

Not all of children's explicit and implicit attitudes were significantly associated, but the explicit attitudes that were significantly associated with implicit ones directly involved the LG couples as parents (i.e., liking the family, noting their parents would be friends with the family), rather than being specific to their children. These results suggest that explicit attitudes toward LG couples versus ones toward their children may operate primarily as independent constructs. More research should investigate this possibility, but the theoretical and practical implications are clear. Following from DIT (Bigler & Liben, 2007), these findings point to how children may develop potentially distinct cognitive schema (if at all) related to their attitudes about LGBTQ+ people (including same-gender couples or parents) as a group versus the children of LGBTQ+ people as a group. These results also indicate that efforts to reduce bias among children about LGBTQ+ parent families may benefit from targeted specificity to the children in these families (and may not be effective if LGBTQ+ people are generally or solely the focus of bias reduction).

Supporting Hypothesis 2, our results mirror those of similar studies of elementary school-age children's explicit attitudes indicating less positive (i.e., less likely to be friends or "normal") and more negative (i.e., greater disgust) affect toward LG parents and their children (Farr et al., 2019). Specifically, participants expressed lower liking, lower perceived normalcy, and greater disgust with regard to same-gender (female and male) parents and their children as compared to different-gender parents and their children. Our results run parallel to pervasive cultural messages about LGBTQ+ individuals centered on fear, disgust, and violation of norms (e.g., Herek, 2016). Our results also reflect those from studies of adults' explicit attitudes about LGBT parents and their children (Frias-Navarro et al., 2017; Herbstrith et al., 2013; Tan et al., 2017). It is important to note, however, that while significant differences emerged, the overall values for negative attitudes (e.g., fear disgust) were generally low and positive attitudes (e.g., liking, normalcy) generally high for both different and same-sex couples.

Children's perceptions of their parents' attitudes

To our knowledge, our study is the first to include both closed- and open-ended response data about children's direct perceptions of their own parents' attitudes about same-gender parent families. Aligned with Hypothesis 2, children believed their parents would be less likely to befriend families with male same-gender couples as compared with those with different-gender couples. This finding was also consistent with children's reports; participating children described being more likely to befriend children with different-gender than same-gender parents. It is important to note that participating children were generally far more positive than negative in their open-ended responses about what their parents would think about the pictured families (which also aligns with mean scores for our quantitative variables). Even so, children perceived their parents as having more negative attitudes toward same-gender parent families relative to different-gender parent families. Indeed, research has indicated the importance of parents' perceptions of social groups (including child-reported ones) in affecting children's own attitudes (Castelli et al., 2009; Degner & Dalege, 2013; Spence et al., 2018), specifically about LG individuals (Bos et al., 2012; Swank & Raiz, 2010). Our results highlight that children's perceptions of their parents' attitudes may play a role in children's own attitudes about same-gender parent families, which would be expected from DIT (Bigler & Liben, 2007), but our data do not directly address this; rather, our results may reflect children's own attitudes.

Gender-specific stereotypes about pictured child

Aligned with Hypothesis 3, children endorsed stereotypes that in some ways related to greater nonconformity in same- versus different-gender parent families. The overarching finding was participants endorsed stereotypes that were LG-specific (Horn, 2019) and ones that reflected broader gender role stereotypes (Brown & Stone, 2016). Main effects underscored gendered stereotypes across vignettes: participants reported that overall, boys would prefer trucks and girls would prefer fashion. These main effects, however, were qualified by results that reflected LG-specific stereotypes about gender norm violations for children pictured with LG parents. Participants noted that children with male same-gender parents would like fashion more than those from other family types, and relatedly, participants reported that children with female same-gender parents would prefer trucks more than those from other family groups. In addition, there was a significant interaction in the case of fashion, suggesting that daughters with male same-gender parents were perceived as most preferring fashion compared to other family groups. This interaction could reflect broader gender stereotypes about what gender-typical activities girls and boys prefer, as well as what preferences may be particularly likely for children with sexual minority parents who are culturally expected to be gender "atypical" (i.e., assumptions that gay fathers would like fashion, so their daughters might especially like fashion too).

Overall, our findings about children's endorsement of gender stereotypes run parallel to some extant research about sexual minority people and their families (Frias-Navarro et al., 2017; Horn, 2019). They align with cultural assumptions about how sexual minority people typically defy gender norms (i.e., lesbian women would prefer trucks and gay men would prefer fashion, and both would be expected to have other gender-nonconforming interests), which could affect their

children (Bos et al., 2012; Herek, 2016; Horn, 2019). The results mirror the real-life experiences of children with LGBTQ+ parents, who describe family-based microaggressions based on gender norm violations (Haines et al., 2018). Finally, our results reflect public and policy debates querying the capacity of LG parents to model "appropriate" gender role behavior for their children (Frias-Navarro et al., 2017; Haines et al., 2018; Tan et al., 2017).

Knowledge about same-gender parent families

Lastly, similar to another study of children's attitudes about same-gender parent families (Farr et al., 2019), most children here could not accurately define gay or lesbian. In contrast to our final hypothesis (Hypothesis 4), neither knowledge of sexual identity terms, nor knowing same-gender parent families, were associated with attitudes. Thus, regardless of knowledge and experience related to sexual orientation, children showed clear patterns of explicit and implicit bias, as well as LG-specific stereotyping, toward same-gender couples and their children. Also, exploratory analyses revealed that with one exception, no demographic factors (age, gender, race) were significantly associated with children's attitudes. As supported by theory and research about developmental trajectories of implicit and explicit attitudes (Baron et al., 2016), these dynamics suggest that by elementary school, children have internalized ubiquitous negative stereotypes about LGBTQ+ individuals (Herek, 2016). Potential benefits of bias reduction linked with knowledge about LGBTQ+ people and positive, intimate intergroup contact (Pettigrew & Tropp, 2006; Salvati et al., 2019; Swank & Raiz, 2010) may have gone undetected here, given that few children accurately defined gay or lesbian and few knew same-gender parent families. Indeed, LGBTQ+ people that children actually know may not be assimilated into cognitive schemas as members of a larger category, given that research has shown that children may not spontaneously categorize exemplars (Degner & Wentura, 2010; Williams & Steele, 2019). This may be one empirical reason that knowledge about and contact with LGBTQ+ people were not associated with children's attitudes, and future research could explore this possibility further.

Strengths, limitations, and future research directions

Our study involved several strengths of using a multi-method design with closed- and open-ended response data about both implicit and explicit attitudes. Although parents' perceptions (and children's actual family structures) were not directly assessed, children were asked about their attitudes and those of their parents. Indeed, other research regarding perceptions of race and gender indicates that children understand their parents' expectations and attitudes, and that child (versus parent) perceptions are more strongly tied with child outcomes (Hughes et al., 2016; Raag & Rackliff, 1998). Our implicit attitude data were limited in representing perceptions of couples, yet our explicit questions referred to families (not specifically couples). We also did not use an implicit measure specific to same-gender parenting couples with children (e.g., Tan et al., 2017). Arguably, this limitation reflects difficulty in disentangling perceptions of same-gender couples from their roles as parents. Nonetheless, our results support consistent bias across different assessments. Ordering effects of the questions also could not be ruled out, and our vignettes focused on adoptive families rather than other family forms. Additional research could reveal whether similar results would emerge about families who have children via other pathways, such as assisted reproductive technologies (ART). Future longitudinal studies on children's attitudes about LGBTQ+ parent families across different developmental stages would provide rigorous evaluations of theoretical frameworks related to implicit attitudes (Amodio, 2019; Baron et al., 2016) as well as DIT (Bigler & Liben, 2006, 2007). Lastly, while sample characteristics reflected national averages, our findings represented one geographic area; future research across the U.S. and elsewhere would be beneficial.

Conclusion and implications for practice and policy

Research underscoring linkages between social judgments and implicit theories among children also has implications for how stereotyping can be reduced through altering attitudes and beliefs (e.g., Erdley & Dweck, 1993; Levy & Dweck, 1999). This may be particularly true for changing implicit attitude formation in young children (Baron, 2015; Rutland & Killen, 2015). The consequences of stereotyping and prejudice can be especially pernicious in early childhood, but intervening in inhibiting bias formation may be much more feasible during this time than unlearning more solidly formed prejudicial attitudes at later points in development (Bigler & Liben, 2006). Thus, our findings documenting school-age children's explicit and implicit bias toward same-gender couples and their children underscores the importance of developing and attending to early intervention efforts aimed at reducing stereotyping and discrimination (Bigler & Wright, 2014). For instance, school gay-straight or gender-sexuality alliances (GSAs) are a reliably effective way to promote inclusion for all students, including LGBTQ+ students and their families (Poteat et al., 2017). Although GSAs are typically geared toward adolescent populations, they can provide useful models for programming that aim to increase LGBTQ+ visibility at a school level. Also, as implied by DIT and implicit attitude theories, positive representation of LGBTQ+ people and their families in books and media for younger children may be powerful in reducing biased attitudes (Baron, 2015; Bigler & Liben, 2007).

Although existing research has uncovered few significant differences in outcomes between children reared by same- versus different-gender parents (e.g., Patterson, 2017), there is also evidence of negative socioemotional outcomes for children with LG parents who experience stigmatization and discrimination (Bos & van Balen, 2008; Farr et al., 2016). With growing numbers of same-gender parent families in the U.S. (Gates, 2015; Goldberg & Conron, 2018), researchers and professionals who work with parents and families should afford all children with opportunities to demonstrate inclusion and to understand difference across social groups, with the ultimate goal of greater acceptance of individual and family diversity.

CRediT authorship contribution statement

Rachel H. Farr: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Ilyssa P. Salomon:** Writing – review & editing, Project administration, Investigation, Formal analysis. **Jazmin L. Brown-Iannuzzi:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Christia Spears Brown:** Writing – review & editing, Supervision, Methodology, Conceptualization.

Declaration of competing interest

None.

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Appendix A

1. Girl with Two Mothers: "This is the Lipton family. The mom on the left is named Tammy, and the mom on the right is named Christine. They have a daughter named Madison. Madison was adopted when she was a baby. Now she is seven years old, and her family likes to play with their pets on the weekends."
2. Boy with Two Mothers: "This is the Richards family. The mom on the left is named Angie, and the mom on the right is named Samantha. They have a son named Aaron. Aaron was adopted when he was a baby. Now he is eight years old, and his family likes to go to do arts and crafts on the weekends."
3. Girl with Two Fathers: "This is the Boyd family. The dad on the left is named Mark, and the dad on the right is named Landon. They have a daughter named Violet. Violet was adopted when she was a baby. Now she is seven years old, and her family likes to play board games on the weekends."
4. Boy with Two Fathers: "This is the Robson family. The dad on the left is named George, and the dad on the right is named Marcus. They have a son named Leon. Leon was adopted when he was a baby. Now he is seven years old, and his family likes to go hiking on the weekends."
5. Girl with One Mother, One Father: "This is the Smithson family. The dad is named Tom, and the mom is named Amy. They have a daughter named Shawna. Shawna was adopted when she was a baby. Now she is eight years old, and her family likes to play soccer on the weekends."
6. Boy with One Mother, One Father: "This is the Cooper family. The dad is named Craig, and the mom is named Sara. They have a son named Phil. Phil was adopted when he was a baby. Now he is seven years old, and his family likes to go to the mall on weekends."

Data availability

Data will be made available on request.

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