



Like Parent, like Child: General and Specific Associations Between Parents' and Children's Binary Gender Identity in a Gender Egalitarian Context

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Abstract

There is ample scientific evidence for the importance of parental gender socialization in children's binary gender development. Surprisingly, little is known about the role of parents' own gender identity in the binary gender identity development of their children. Therefore, the present study investigated the association between parents' and children's binary gender identity (i.e., similarity to same- and other-gender individuals) in a sample of 142 Dutch families with a child between the ages of 6 and 12 years old. The Dutch context is characterized by relatively high gender equality. Both parents and their children answered questions about their similarity to same-gender and other-gender individuals. Generalized estimating equations revealed that parents' same-gender similarity and parents' other-gender similarity were positively associated with their children's same- and other-gender-similarity, respectively. In addition, more other-gender similarity in parents was associated with *less* same-gender similarity in girls, but *more* same-gender similarity in boys. Parents who reported high similarity with both genders were more likely to have children who also reported higher similarity with both genders. These findings indicate that parents' own binary gender identity is related in general and specific ways to their children's binary gender identity development. Parents should be made aware of their role in children's binary gender identity development. Yet, more research on different types of gender identity in parents and their children is necessary.

Keywords Binary gender identity development · Parent gender identity · Child gender identity · Gender similarity · Gender socialization

Recently, the dual identity approach defined binary gender identity as a self-identification process in which people could identify not only with their same-gender (SG) group but also with the other-gender (OG) group of peers (Martin, Andrews et al., 2017), building on the rich theoretical tradition that considered aspects of masculinity and femininity as two separate dimensions (Bem, 1981, 1985; Constantinople, 1973; Spence et al., 1975). According to the dual

identity approach, both in childhood and young adulthood, it is possible to recognize different gender identity typologies, based on the different levels of same- and other-gender similarity: (1) similarity to same-gender (high SG similarity, low OG similarity); (2) similarity to other-gender (low SG similarity, high OG similarity); (3) similarity to both-genders (high SG and OG similarity); and lastly (4) low gender similarity (low SG and OG similarity) (Andrews et al., 2019; Baiocco et al., 2021; Endendijk et al., 2019; Nielson et al., 2020). Contrary to other more uni-dimensional perspectives on gender identity typicality (Egan & Perry, 2001), the dual identity approach views similarity to same-gender and other-gender individuals as separate dimensions of binary gender identity (Andrews et al., 2019; Baiocco et al., 2021; Endendijk et al., 2019; Martin, Andrews et al., 2017; Martin, Cook et al., 2017).

Binary gender identity has been studied from different theoretical perspectives (Bem, 1981; Constantinople, 1973;

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Egan & Perry, 2001; Martin, Andrews et al., 2017; Martin, Cook et al., 2017) and at among different age groups (Andrews et al., 2019; Baiocco et al., 2021; Carver et al., 2003; Endendijk et al., 2019; Nielson et al., 2020; Zosuls et al., 2016). This body of research revealed a consistent link between binary gender identity and child and adolescent psychological adjustment and well-being (Carver et al., 2003; DiDonato & Berenbaum, 2013; Jewell & Brown, 2014; Ueno & McWilliams, 2010). Specifically, different studies highlighted that gender typical identity (i.e., feeling typical of one's own gender group) is related to a higher level of popularity, more gender-typed attitudes, fewer experiences of victimization, and weaker gender-egalitarian attitudes (Carver et al., 2003; DiDonato & Berenbaum, 2013; Lee & Troop-Gordon, 2011; Menon & Hannah-Fisher, 2019; Nielson et al., 2020; Ueno & McWilliams, 2010; Zosuls et al., 2016). Other studies have shown that children who feel similar to both-genders report higher gender norm resistance, higher peer acceptance and more egalitarian gender attitudes (Bukowski et al., 2017; Martin, Andrews et al., 2017; Martin, Cook et al., 2017; Nielson et al., 2020). Conversely, children who feel typical of the other-gender are more often victimized and excluded by peers (Blakemore, 2003; Carver et al., 2003; Lee & Troop-Gordon, 2011). Because of the importance of gender identity for child mental health and well-being, more research is needed into the factors related to children's gender identity development. The current study, therefore, examined the associations between children's gender identity and the gender identity of parents, using a dual identity approach.

Role of Parents' Gender Similarity in Children's Self-Perceived Gender Similarity

The role of parents as a central socialization agent for children's gender development is well established in the literature (Blakemore et al., 2009; Cook et al., 2019; Endendijk et al., 2016; Lemelin et al., 2021; Menon et al., 2017; Perry & Pauletti, 2011; Tobin et al., 2010; Turner & Gervai, 1995), but less is known about the parental role in children's binary gender identity development. Several theoretical frameworks offer different explanations about children's gender identity development, varying in their proposed processes (i.e., social, biological, cognitive), but all stress how parents might play an essential role in children's gender identity development (Leaper, 2015).

Predictions from Social Learning Theory

Based on social learning theory, one could argue that children develop their gender identity by observing and imitating

their parents' gender identity (i.e., how they look, dress, and behave) through observational learning (Bussey & Bandura, 1999). According to this perspective, parents are considered gender-role models for children, representing an essential source of information about what it means to be a man or a woman. Indeed, different studies demonstrated how gender expression via one's appearance represented a crucial element for gender self-identification (Halim et al., 2013, 2014; Lan & Isacoff, 2022). Appearance provides a critical way to communicate one's identity to others and is highly salient and important for children (Halim et al., 2014). In addition, how similar one feels to their own-gender and the other-gender group also depends on comparing one's appearance to individuals of the own- and other-gender group (Martin, Andrews et al., 2017). Therefore, parents' gender identity could be linked to children's gender identity, via the ways in which parents express their gender identity through their appearance. In other words, parents might express their gender identity via their appearance and by observing this gender expression of parents children learn how to express themselves as a boy or a girl, which in turn might be internalized into how similar they feel to individuals of the same or the other gender.

Predictions from Gender Schema Theory

Gender schema theories highlight that children actively develop their gender schemas based on their own experiences with gender in their social environment, including parents, which allow them to assimilate and categorize themselves and others according to gender (Bem, 1981). Gender schemas encompass different types of schemas (e.g., gender stereotypes, gender attitudes, gender identity, gender self-concept), but the common element is that they concern how people think about themselves and each other in terms of gender (Tenenbaum & Leaper, 2002). There is also ample evidence that parents' gender schemas are related to their children's gender schemas, indicating that parents with traditional gender schemas are likely to have children with traditional gender schemas as well (Endendijk et al., 2013; McHale et al., 2003; Tenenbaum & Leaper, 2002). Because gender identity can be considered a type of gender schema, that is, how people think about themselves in terms of gender (Tenenbaum & Leaper, 2002), it seems likely that gender identity of parents and children might be associated as well.

Predictions from the Multidimensional Perspective on Gender Identity

Other research that might explain a link between parents' gender identity and children's gender identity has focused

on the pressure felt from parents to conform to gender norms. According to the multidimensional perspective on gender identity (Egan & Perry, 2001), both gender identity typicality as well as perceived pressure to conform to gender norms (i.e., from oneself, parents, peers) are dimensions of one's gender identity. Different studies have highlighted that more felt gender pressure from parents is related to more gender typicality in children and adolescents (Cook et al., 2019; Egan & Perry, 2011; Jackson & Bussey, 2020; Jackson et al., 2021). Because different gender identity dimensions appear to be related to each other (Egan & Perry, 2001), it might be that parents with a more gender typical identity themselves enact more pressure on their children to conform to gender norms, which in turn might be related to a more typical gender identity in children as well.

Predictions from a Biological Perspective

From a biological perspective it can also be argued that parents' gender identity and children's gender identity might be associated, because gender identity has a hereditary component. Heritability studies on gender identity aspects generally show heritability estimates of 32–77% (Coolidge et al., 2002; Polderman et al., 2018). These estimates demonstrate the role of innate genetic factors in the development of both cisgender and transgender identities, a negligible role for shared environmental factors, and a small role for unique environmental factors (Polderman et al., 2018). Based on these findings, one could again assume that a more gender typical identity in parents is associated with a more gender typical identity in children.

The Moderating Roles of Parent Gender and Child Gender

Associations between parent and child gender identity might however be of different magnitude depending on the gender of the parent and the gender of the child. The same-gender modeling hypothesis states that children predominantly adopt the qualities and characteristics of the same-gender parent (Bussey & Bandura, 1999). Same-gender parents seem to be of particular importance as they serve as role models for the behaviors of one's own gender group. Thus, the association between gender identity typicality of parents and children might be stronger for same-gender parent-child dyads (i.e., mother-daughter, father-son) than for other-gender parent-child dyads (i.e., mother-son, father-daughter). There is some evidence of a same-gender modeling effect between parents and children, for instance in the association between parents' gender-typical career and family involvement and children's gender-typical views about future career

and family involvement, which was most salient in same-gender parent-child dyads (Endendijk & Portengen, 2022; Fulcher & Coyle, 2011; Polavieja & Platt, 2014; Oliveira et al., 2020). There are, however, also studies that do not find evidence for children's more pronounced modeling of same-gender parents (Gonzalez et al., 2022; Hu, 2015). It remains to be studied whether the same-gender modeling hypothesis also applies to the association between parents' and children's gender identity.

Binary Gender Identity in a Gender Egalitarian Context

It might be particularly compelling to examine associations between parents' and children's binary gender identity in a gender egalitarian context like the Netherlands. The Netherlands generally scores high on worldwide indices of gender equality (United Nations Development Program, 2020; World Economic Forum, 2021). In addition, in terms of gender-role attitudes (e.g., seeing men as breadwinners, women as homemakers) people in the Netherlands are fairly egalitarian, with only Scandinavian countries scoring consistently more egalitarian (Fortin, 2005). In such a context children might be developing their gender identity more freely and with less social pressures impacting on this development.

Binary Gender Identity in Middle Childhood

An important period for children's binary gender identity development is middle childhood (usually defined as ages 6–12). In this period crucial developments in children's gender cognitions take place and parents still play an important role in this gender development (Schroeder & Bámaca-Colbert, 2019). Specifically, in middle childhood children develop a more complex and multidimensional gender identity (Halim & Ruble, 2010). At the same time children begin to develop gendered self-concepts, with boys seeing themselves as less communal and more agentic than girls (Block et al., 2018). Moreover, children's gender-role stereotypes become more flexible and adult-like after a period of strict rigidity in adherence to stereotypes (Trautner et al., 2005). Finally, in middle childhood parents' gender-role behavior (i.e., career, work hours, task division) is associated with how their children envision their own future gender roles (Endendijk & Portengen, 2022). All these developments make middle childhood an appealing setting for studying the associations between parent and child gender identity.

Table 1 Sample Characteristics

Family Characteristics (n=142)	
Number of children, range (<i>M</i>)	1–5 (2.35)
Gender composition children, <i>n</i> (%)	
All girls	26 (18)
All boys	33 (23)
Mixed gender composition	83 (59)
Family structure, <i>n</i> (%)	
Dual-parent family	127 (90)
Single parent or divorced	15 (10)
Child Characteristics (n=210)	
Age, <i>M</i> (<i>SD</i>)	9.80 (1.48)
Female gender, <i>n</i> (%)	125 (60%)
Same-gender similarity, <i>M</i> (<i>SD</i>)	
Girls	3.88 (0.94)
Boys	4.16 (0.76)
Other-gender similarity, <i>M</i> (<i>SD</i>)	
Girls	2.28 (0.77)
Boys	1.88 (0.78)
Mothers' Characteristics (n=138)	
Age, <i>M</i> (<i>SD</i>)	42.41 (4.92)
Educational level ^a , <i>n</i> (%) ^a	
Primary education	1 (1)
Lower secondary education	10 (7)
Higher secondary education	39 (28)
Higher vocational education	47 (34)
University	41 (30)
Same-gender similarity, <i>M</i> (<i>SD</i>)	3.68 (0.74)
Other-gender similarity, <i>M</i> (<i>SD</i>)	2.61 (0.60)
Fathers' Characteristics (n=107)	
Age, <i>M</i> (<i>SD</i>)	44.48 (5.14)
Educational level ^a , <i>n</i> (%) ^a	
Primary education	-
Lower secondary education	7 (7)
Higher secondary education	30 (28)
Higher vocational education	38 (35)
University	32 (30)
Same-gender similarity, <i>M</i> (<i>SD</i>)	3.99 (0.68)
Other-gender similarity, <i>M</i> (<i>SD</i>)	2.25 (0.56)

Note. ^aEducational levels are sorted from lowest to highest level.

The Current Study

The current study used the dual identity approach to examine the association between parents' gender identity typicality (i.e., high same-gender similarity, low other-gender similarity) and children's gender identity typicality. We also examined possible differences in this association between same-gender and other-gender parent-child dyads. We hypothesized that (1) higher same-gender similarity felt by parents would be associated with higher same-gender similarity felt by their children, (2) higher other-gender similarity felt by parents would be associated with higher other-gender similarity felt by their children, (3) gender-identity typologies of parents would be associated with

gender-identity typologies of their children (e.g., parents feeling similar to both genders are more likely to have children who feel similar to both genders as well), and (4) associations between parents' and children's same-gender and other-gender similarity would be stronger for same-gender dyads than for other-gender dyads.

Method

Participants

Student assistants (BA and MA students in Clinical, Child, Family, and Education studies at Utrecht University, The Netherlands) used their personal networks to recruit Dutch families with at least one child between the ages of 6 and 12 years old for participation in this study. The only exclusion criteria was not being able to understand or read Dutch instructions. Families were contacted through information letters (in person or via e-mail). The recruitment and data collection took place between September 2018 and June 2021 and finally student assistants recruited 142 families (children: *n*=210, parents: *n*=245). A-priori power calculations using G*Power (Faul et al., 2009) revealed that a sample size of approximately 150 families would have sufficient power (0.80) to detect a small-to-medium sized effect ($f^2=0.05$) in a regression-based model with 9 predictors ($\alpha=0.05$, two-tailed).

Of the included families either one parent (*n*=39; 35 mothers, 4 fathers) or two parents (*n*=103) participated. In total, 138 mothers and 107 fathers participated. All parents were heterosexual. Regarding the number of children participating per family, in about half of the families (55%, *n*=78), only one child was between the ages of 6–12. In 42% (*n*=60) of the families, two children were in the target age range, and in 3% (*n*=4) of the families, three children were in the target age range. Table 1 presents the background characteristics of the sample. Parents and children indicated their gender as boy/man, girl/woman, or other (with room to specify their response). None of the parents or children chose the option 'other'. Generally, the majority of the parents in the sample were highly educated.

Procedure

The present study is a part of a larger study on the role of parents on children's career expectations (Endendijk & Portengen, 2022). The student assistant who recruited the family visited them at their home. At the beginning of the home visit, participants provided written informed consent for their participation. Each family member subsequently

completed questionnaires via LimeSurvey on a laptop or desktop (duration: approximately 15 min). Parents completed the questionnaires independently while children completed the questionnaires under the supervision of the student assistant who gave the child verbal instructions. All children understood the instructions and none failed to complete the survey. Families did not receive any compensation for their participation. The Ethics Committee of the Faculty of Social and Behavioral Sciences at Utrecht University approved the study (number FETC18-097).

Measures

Similarity to Same- and Other-Gender

Similarity to same-gender and other-gender individuals was assessed using Martin and colleagues' dual gender identity measure (Martin, Andrews et al., 2017; Martin, Cook et al., 2017). This scale was used both for parents and children. Children responded to 10 items indicating how similar they felt to both boys and girls (e.g., "How similar do you feel to [girls/boys]?"). Parents responded to 10 items indicating how similar they felt to both men and women (e.g., "How similar do you feel to [women/men]?"). Responses ranged from 0 (*not similar at all*) to 4 (*very similar*). The original scale presents a two-factor solution in which similarity to same-gender and similarity to other-gender are distinct variables. In the current study, reliability of the two scales was good for each group of participants (children's Cronbach's alphas = 0.85, 0.82, respectively for same-gender and other-gender similarity; parents' Cronbach alphas = 0.82, 0.74, respectively for same-gender and other-gender similarity). All items clearly loaded on two scales (same-gender and other-gender similarity) for parents as well as children (Please see Table S1 and S2 in the online supplement for more information on the factor analysis).

Data Analytic Plan

Non-hierarchical k-means clustering was implemented to identify binary gender-identity typologies among both parents and children. Before implementing the k-means clustering analysis, we converted the same-gender and other-gender similarity variables to z-scores (e.g., Akse et al., 2004; Scholte et al., 2005). The number of clusters was set to four, according to previous work that identified and replicated a four-cluster solution for same- and other-gender similarity (e.g., Andrews et al., 2019; Baiocco et al., 2021; Endendijk et al., 2019; Martin, Andrews et al., 2017; Martin, Cook et al., 2017). Subsequently, to test whether

the identified typologies differed in standardized same- and other-gender similarity scores, univariate analyses of variance with subsequent Duncan post-hoc tests were performed, considering the level of significance of $p < .001$ (e.g., Akse et al., 2004; Endendijk et al., 2019).

To answer our research questions, Generalized Estimating Equations (GEE) in SPSS (version 20) were used to examine associations between parents' and children's same- and other-gender similarity as well as between parents' and children's binary gender identity typologies (Homish et al., 2010). GEE models are regression-based models that are more flexible for missing data compared to others (Zeger et al., 1988) and are therefore suitable for our family data with different family composition. In addition, GEE models consider dependency between variables which is the case with family data (Homish et al., 2010). Another advantage of GEE over multilevel models include easier model computation and interpretation, more robustness to model misspecification, and no need to model random effects that are not of interest for the research question (McNeish et al., 2017). Moreover, GEE has been used to analyze family data in samples ranging from as small as 47 families (Abraham et al., 2021) up to 191 families (Rossen et al., 2018).

Three separate GEEs were conducted: (1) one for children's same-gender similarity, (2) one for children's other-gender similarity, (3) and one for children's binary gender identity typology. Each model included main effects of child and parent gender, as well as parents' same- and other-gender similarity. In addition, we added two-way interactions to the first two models to examine whether the associations between child gender and parents' same- and other gender similarity were different for boys and girls. Two-way interactions between parent gender and parents' same- and other gender similarity were also included to examine whether associations were driven by mothers or fathers. Finally, three-way interactions between child gender, parent gender, and parents' same- and other gender similarity were included to test whether associations were stronger for same-gender parent-child dyads than for other-gender dyads. Non-significant interactions were deleted to arrive at the most parsimonious final model. Interactions with parent and child gender were not added to the GEE for children's binary gender identity typology to prevent issues with empty cells in this multinomial logistic model (Greenland et al., 2000).

The first two GEE models (for children's same- and other-gender similarity) were specified with a Gaussian distribution with an identity link for each family, as the dependent variable was continuous (Homish et al., 2010). An exchangeable correlation structure was considered to be most appropriate for family data (Homish et al., 2010; McNeish et al., 2017). The third GEE model was specified with a Multinomial distribution with cumulative logit

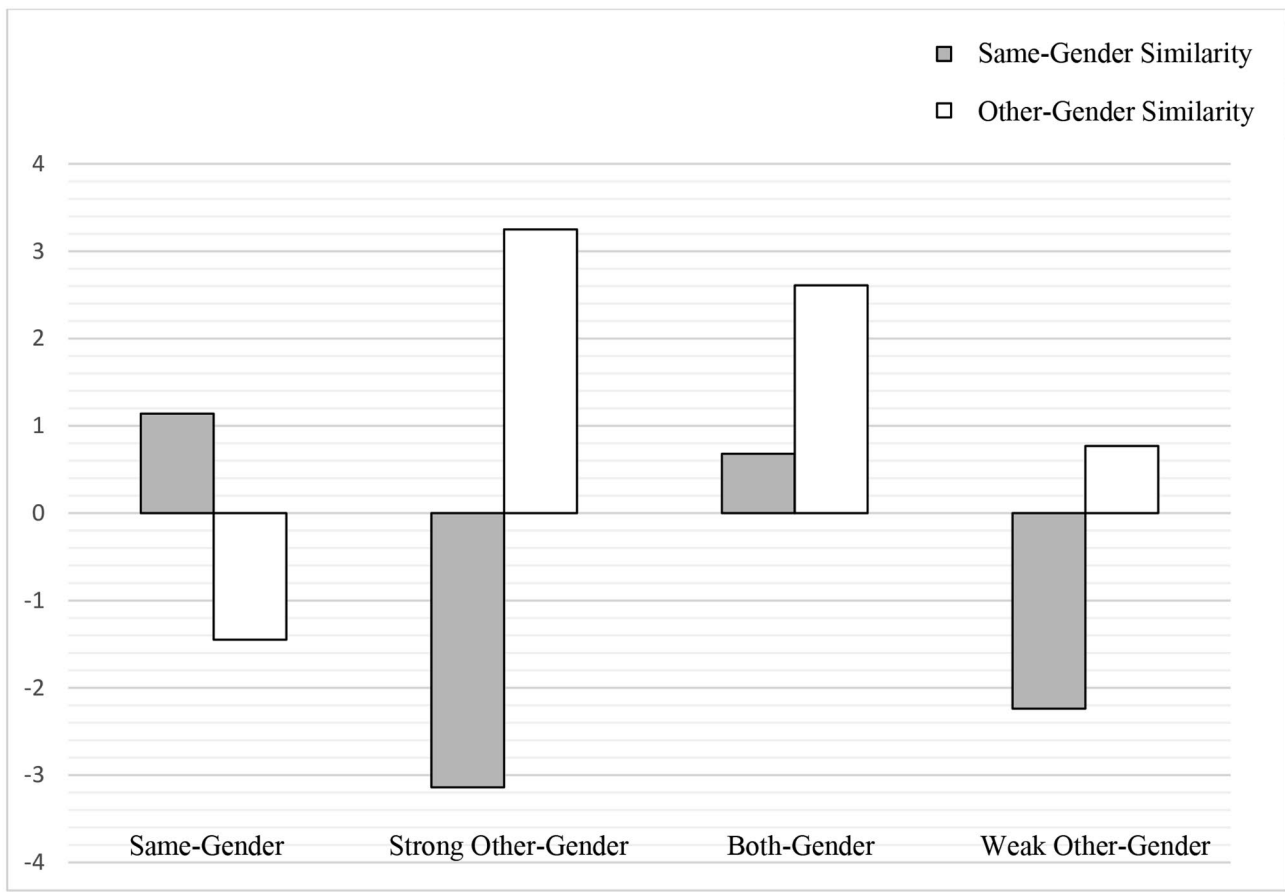


Fig. 1 Graphical Representation of Children's Gender Typologies on Same-/Other-Gender Similarity

Note. Subgroup n -values: $n=118$ (Same-Gender Similarity), $n=8$

(Strong Other-Gender Similarity), $n=31$ (Both-Gender Similarity), $n=53$ (Weak Other-Gender Similarity). Standardized scores are used. Differences between the groups are all significant.

link because the dependent variable was categorical. In all three models, robust standard errors (Hubert/White Sandwich Estimators) were computed to ensure valid estimations even in case of a mis-specified correlation structure. Parameter estimates were presented as regression coefficients, so that the analyses could be interpreted as general regression models. For each GEE analysis, we tested whether different covariates needed to be included in the models (i.e., age of parents, age of children, education level, single-parent vs. dual-parent family structure) based on the change-in-estimate method, > 5% change criterion (Rothman et al., 2008). In the end, none of the covariates needed to be included as they did not change the estimates of interest by more than 5%.

Results

Gender-Identity Typologies

For children, four different gender identity typologies were identified based on children's same- and other-gender similarity, as follows: (1) a *same-gender* profile ($n=118$; 56%), scoring above average on same-gender similarity and below average on other-gender similarity; (2) a *strong other-gender* profile ($n=8$; 4%), scoring above average on other-gender similarity and below average on same-gender similarity; (3) a *both-gender* profile ($n=31$; 15%), scoring above average on both same- and other-gender similarity; and (4) a *weak other-gender* profile ($n=53$; 25% of the sample), scoring below average on same-gender similarity and above average on other-gender similarity, but not as pronounced as the *strong other-gender* profile. Figure 1 shows the graphical representation of the four-typologies solution (z-scores).

The univariate analysis of variance revealed that each typology significantly differed from the other typologies

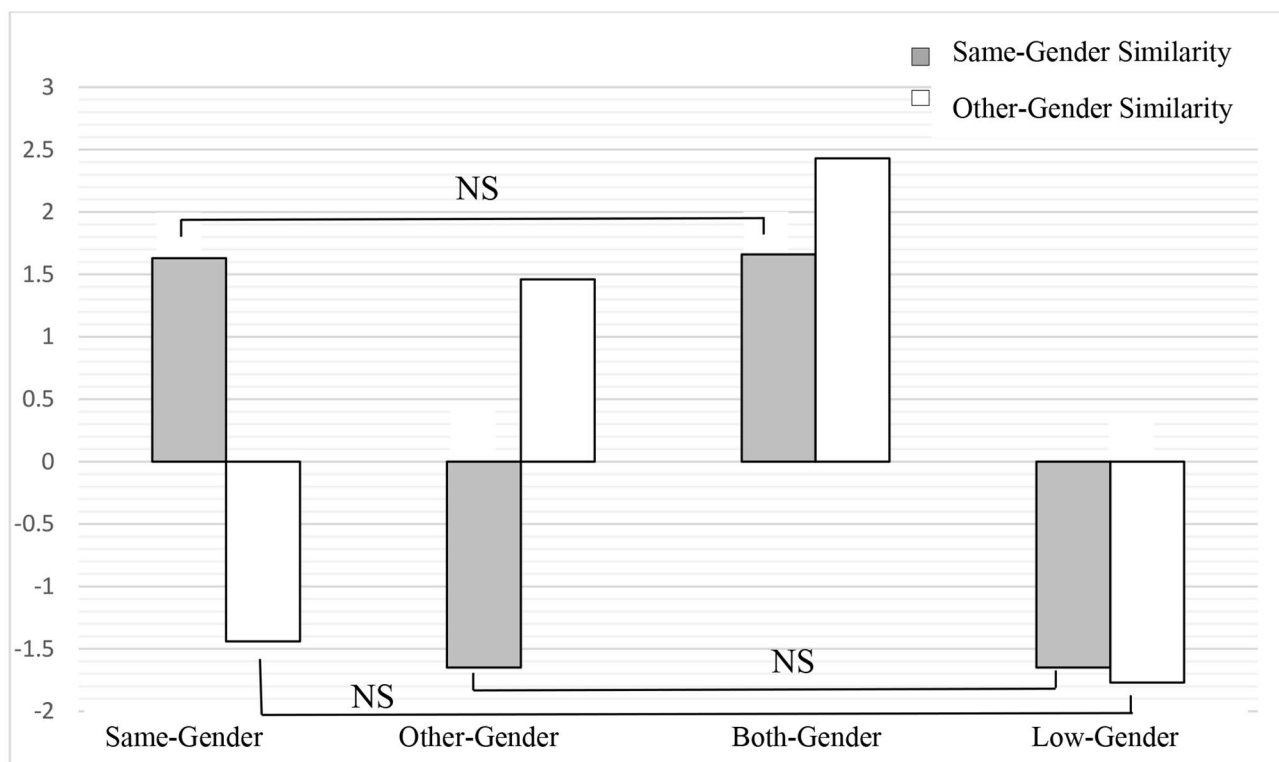


Fig. 2 Graphical Representation of Parents' Gender-Similarity Typologies on Same-/Other-Gender Similarity

Note. Subgroup n -values: $n=113$ (Same-Gender Similarity), $n=59$ (Other-Gender Similarity), $n=37$ (Both-Gender Similarity), $n=36$

in same-gender similarity ($F(3,207)=333.59$; $p<.0001$; $\eta^2=0.735$) and other-gender similarity ($F(3,207)=322.85$; $p<.0001$; $\eta^2=0.728$). More specifically, children in the *strong other-gender* typology showed the lowest levels of same-gender similarity, followed by (in significantly increasing order) the *weak other-gender* profile, the *both-gender* profile, and the *same-gender* profile. Similarly, the *same-gender* typology displayed the lowest levels of other-gender similarity, followed by (in significantly increasing order) the *weak other-gender* typology, the *both-gender* typology, and the *strong other-gender* typology.

Regarding parents' gender identity, cluster analysis showed four gender similarity typologies as well: (1) a *same-gender* profile ($n=113$; 46%), scoring above average on same-gender similarity and below average on other-gender similarity; (2) an *other-gender* profile ($n=59$; 24%), scoring above average on other-gender similarity and below average on same-gender similarity; (3) a *both-gender* profile ($n=37$; 15%), scoring above average on both same- and other-gender similarity; and (4) a *low-gender* profile ($n=36$; 15%) scoring below average on both same- and other-gender similarity. Figure 2 displays the graphical representation of the four-typologies solution (z-scores).

(Low-Gender Similarity). Standardized scores are used. Only nonsignificant differences between groups are labeled (NS); all other differences between groups are significant at $p<.01$.

The univariate analysis of variance revealed that each parent gender identity typology significantly differed from the other typologies on same-gender similarity ($F(3,242)=249.13$; $p<.0001$; $\eta^2=0.674$) and other-gender similarity ($F(3,242)=267.14$; $p<.0001$; $\eta^2=0.689$). More specifically, parents in the *low-gender* and the *other-gender* typology displayed the significantly lowest levels of same-gender similarity, whereas the *same-gender* and the *both-gender* typologies showed the highest levels of same-gender similarity. At the same time, the *same-gender* and the *low-gender* typologies showed the lowest levels of other-gender similarity, followed by (in significantly increasing order) the *other-gender* and the *both-gender* profiles.

Associations Between Parent and Child Similarity to the Same Gender and Other Gender

Table 2 shows the results of the final GEE model for children's same-gender similarity. Results showed that parents' same-gender similarity is positively associated with same-gender similarity of children, indicating that more same-gender similarity in parents is associated with more

Table 2 Generalized Estimation Equation Predicting Same-Gender Similarity in Children

	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>Wald</i>	<i>p</i>
Child gender	0.85	0.40	[0.06, 1.64]	4.48	0.034
Parents' same-gender similarity	0.24	0.08	[0.09, 0.40]	9.83	0.002
Parents' other-gender similarity	0.24	0.10	[0.05, 0.42]	6.01	0.014
Child gender*parents' other-gender similarity ¹	-0.45	0.15	[-0.74, -0.16]	9.32	0.002

Note. ¹ Girls are reference category

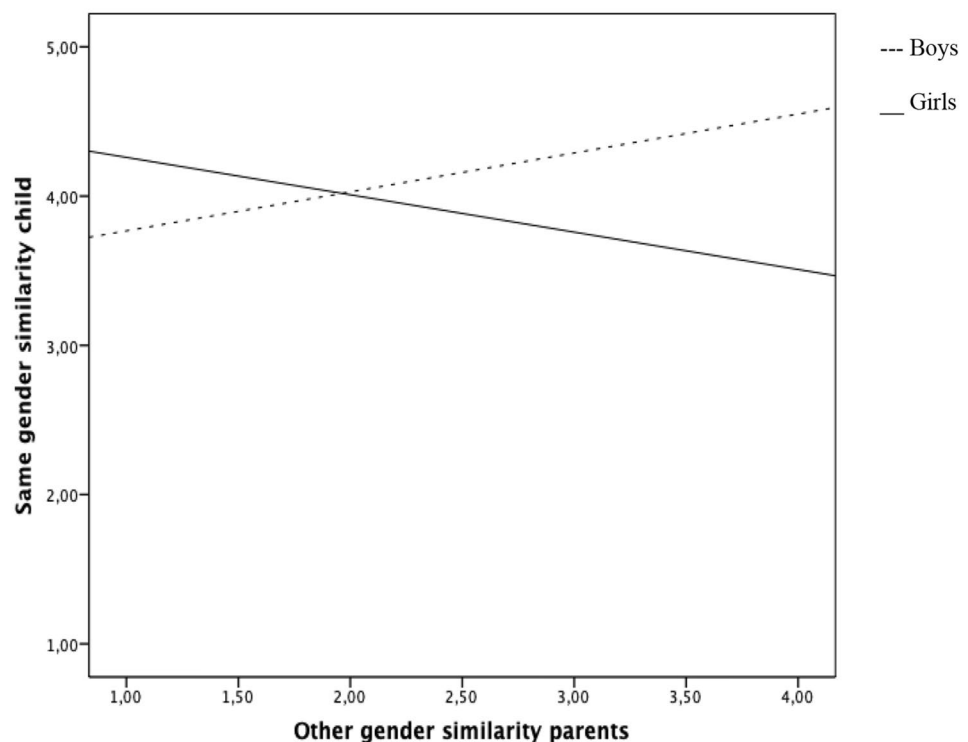
same-gender similarity in children. Additionally, child gender was also a significant predictor, indicating that boys scored higher than girls on same-gender similarity ($t(341.59) = -2.89, p = .004$; see Table 1 for means of boys and girls). The association between parents' other-gender similarity and same-gender similarity in children was also significant but subsumed by an interaction between child gender and parents' other-gender similarity. To interpret the interaction separate regression lines for boys and girls were plotted (see Fig. 3). More other-gender similarity in parents was associated with *less* same-gender similarity in girls ($B = -0.21$; $SE = 0.12$; 95% $CI [-0.44, 0.02]$; $Wald = 3.10$; $p = .079$), but with *more* same-gender similarity in boys ($B = 0.24$; $SE = 0.10$; 95% $CI [0.05, 0.43]$; $Wald = 6.11$; $p = .013$). None of the other two-way interactions or three-way interactions

Table 3 Generalized Estimation Equation Predicting Other-Gender Similarity in Children

	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>Wald</i>	<i>p</i>
Child gender	0.37	0.11	[0.16, 0.58]	12.05	0.001
Parents' same-gender similarity	-0.01	0.07	[-0.15, 0.14]	<0.01	0.947
Parents' other-gender similarity	0.21	0.09	[0.03, 0.39]	5.41	0.020

were significant (Please see Table S3 in the online supplement for this information).

In addition, Table 3 displays the results of the final GEE model for children's other-gender similarity. Results showed a positive association between parents' other-gender similarity and children's other-gender similarity, indicating that more other-gender similarity in parents is associated with more other-gender similarity in children. Moreover, child gender was also a significant predictor, highlighting that girls reported more other-gender similarity than boys ($t(365) = 4.30, p < .001$, see Table 1). Parents' same-gender similarity was not associated with children's other-gender similarity. None of the two-way interactions or three-way interactions were significant (Please see Table S4 in the online supplement for this information).

Fig. 3 Graphical Representation of Interaction Between Parents' Other-Gender Similarity and Children's Same-Gender Similarity

Associations Between Parent and Child Gender Typologies

Finally, we tested a third GEE model to investigate the association between the four gender identity typologies in parents and the four gender identity typologies in children. Results show a significant association between parents' gender identity typologies and children's gender identity typologies, $Wald(3)=8.92$, $p=.030$. To decompose this association, we used a contingency table with adjusted standardized residuals. Adjusted residuals above 2.0 (or below -2.0) indicated that the number of cases in a cell is significantly larger (or smaller) than would be expected by chance (Agresti, 2002). Particularly, results showed that children with a *both-gender* typology more likely had parents with a *both-gender* typology as well ($res_{adj} = 3.2$), but less likely to have parents with an *other-gender* typology ($res_{adj} = -2.8$). Children with *same-gender* typologies more likely had parents who are in the *same-gender* profile as well ($res_{adj} = 3.5$). Finally, children with *weak other-gender* typologies were more likely to have parents who were in the *other-gender* typology ($res_{adj} = 2.4$). Associations between other gender identity typologies did not yield adjusted residuals above 2.0 (or below -2.0).

Discussion

This study examined the association between parents' and children's binary gender identity typicality, using the dual identity approach. The study also investigated differences in this association between same-gender and other-gender parent-child dyads. Results showed that higher same-gender similarity felt by parents was associated with higher same-gender similarity felt by their children, and higher other-gender similarity felt by parents was associated with higher other-gender similarity felt by their children. In addition, an interaction with child gender was found, indicating that more other-gender similarity in parents was associated with *less* same-gender similarity in girls, but *more* same-gender similarity in boys. Finally, parents dual gender-identity typologies and children's gender-identity typologies were associated as well. Specifically, parents with a both-gender identity typology (i.e., reporting high similarity to both genders) more likely had children with a both-gender identity typology. Parents with a same-gender typology (i.e., scoring high on same-gender similarity, low on other-gender similarity) more likely had children with a same-gender identity typology and parents with a other-gender typology (i.e., scoring high on other-gender similarity, low on same-gender similarity) more likely had children with a weak other-gender typology.

Support was found for the hypotheses that same-gender similarity and other-gender similarity felt by parents were positively associated with respectively same-gender similarity and other-gender similarity in children. These findings indicate that when parents feel more similar to either the same- or the other-gender group, this is associated with comparable feelings of similarity to the same- or the other-gender group in their children. In other words, when parents have a more typical gender identity (i.e., feeling more similarity to same-gender, less similarity to other-gender) this is associated with a more typical gender identity in their children. Findings for the association between parents' and children's gender identity typologies corroborate this interpretation, demonstrating that same-gender, both-gender, and other-gender similarity typologies of parents and children were linked.

We can only speculate about explanations for the associations between parent and child binary gender identity based on previous theories and research on gender identity, as this study could not test underlying mechanisms. First, as people can express their gender identity via their appearance (Halim et al., 2013, 2014; Lan & Isacoff, 2022), parental gender identity might provide children with a model of what it means to be a man or a woman, which children might observe and influence how similar they feel to same- and other-gender individuals (Bussey & Bandura, 1999). This mechanism seems plausible as the felt gender similarity questionnaire also includes items regarding how similar one looks like same-gender and other-gender individuals (Martin, Andrews et al., 2017). Importantly, in some previous studies with adults these appearance items did not load very well on the total same- and other-gender similarity scales (Andrews et al., 2019; Baiocco et al., 2021). However, in our study all items clearly loaded on two scales for parents as well as children.

Second, according to gender schema theory (Bem, 1981) there is supposed to be a link between parents' gender schemas, such as binary gender identity, and children's gender schemas, because children actively construct gender schemas based on gender-related input from their environment (e.g., parents). If parents provide children with a highly gender schematic family environment (e.g., highlighting gender differences, gendered communication) because they have strong gender schemas, it seems likely that their children will develop strong gender schemas as well (Bem, 1981). Indeed, there is ample evidence that parents' gender schemas are associated with children's gender schemas (Endendijk et al., 2013; McHale et al., 2003; Tenenbaum & Leaper, 2002). Yet, associations are generally small and more consistently found when the same type of gender schema is assessed in parents and children (Endendijk et al., 2013; Tenenbaum & Leaper, 2002). The more pronounced associations for the

same type of gender schemas are also demonstrated in the current study with associations between parents and children being primarily found for either same-gender similarity or other-gender similarity. The current study also extends previous research by showing that the gender schema link between parents and children is also present for binary gender identity.

A third mechanism that could explain the link between parents' binary gender identity and children's binary gender identity is the pressure children feel from their parents to conform to gender norms. Parents with a more gender typical identity might enact more pressure on their children to conform to gender norms (Egan & Perry, 2001), which in turn might be related to a more typical gender identity in children (Cook et al., 2019; Egan & Perry, 2011; Jackson & Bussey, 2020; Jackson et al., 2021). Alternatively, both parents and children could have been experiencing similar levels of social pressure from the broader community to conform to gender norms which could contribute to the similarity between parents' and children's binary gender identity.

A final mechanism that could underly the association between gender identity typicality of parents and children is a more passive type of transmission, via the genes that parents share with their children. Gender identity has a considerable hereditary component (32–77%; Coolidge et al., 2002; Polderman et al., 2018), so it seems likely that there is at least some similarity in the gender identity typicality of parents and children. However, it should be mentioned that previous heritability studies on gender identity, examined heritability of cisgender and transgender identities. The heritability component may be different for variability in gender identity within cisgender populations that was the focus of the current study.

Unexpectedly, no evidence was found for the same-gender modeling hypothesis (Bussey & Bandura, 1999) stating that the association between gender identity typicality of parents and children would be stronger for same-gender parent-child dyads than for mixed-gender parent-child dyads. It appears that both parents might play an equally important modeling role for children's perceived similarity to same-gender and other-gender individuals. Feeling similar to one's mother and father (or not) might be the first experience of children's perceived similarity with the same-gender and other-gender group.

Instead of evidence for same-gender modeling, an interaction with child gender was found although the direction of this finding was unforeseen. A less gender typical identity of parents (i.e., more other-gender similarity) was associated with a *less* gender typical identity in girls as well (i.e., less same-gender similarity), but with a *more* gender typical identity in boys (i.e., more same-gender similarity). This

result could be interpreted considering the higher social pressure to conform to gender norms for boys than for girls, and boys' tendencies to feel more similar to their same-gender group than girls (Martin, Andrews et al., 2017; Martin, Cook et al., 2017; Nielson et al., 2020; Zosuls et al., 2016). Several studies reported that boys experienced more social pressure to conform to a masculine model avoiding feminine identity and all feminine things, also because feminine activities, behaviors and identity are devaluated in our society (Connell & Messerschmidt, 2005; Braun & Davidson, 2017; Halim et al., 2011; Sidanius et al., 2000). So, in case of a less gender typical identity of parental role models, boys may have started to de-identify with their parents, in order to prevent social repercussions of gender nonconformity.

Relatedly, we found that girls display less same-gender similarity and more other-gender similarity compared to boys. This confirms previous research that found similar gender differences and highlighted that the influence of social experiences and social pressure to conform to gender norms may differ for boys and girls (Martin, Andrews et al., 2017; Martin, Cook et al., 2017; Trautner et al., 2005). The higher scores of boys on same-gender similarity (i.e., similarity to other boys) and the higher scores of girls on other-gender similarity (i.e., similarity to boys) might also be due to masculine attributes typically being more valued in society than feminine attributes (Donnelly & Twenge, 2017). So, it might be that boys and girls both experience social pressure to for instance act like boys or do the same things like boys, which could explain the respectively higher same-gender similarity in boys and other-gender similarity in girls.

Other noteworthy findings to discuss are the binary gender identity typologies that were identified in the current study for parents and were comparable to the typologies found in previous research with adults (Andrews et al., 2019; Baiocco et al., 2021; Endendijk et al., 2019). Although the dual identity approach has been validated in children, adolescents, and emerging adults, it has to the best of our knowledge not been used before with parents. This study shows that the dual identity approach can be used successfully with parents. Yet, there were some differences in the type, profile and prevalence of the binary gender identity typologies in parents and children. First, for children a low-gender typology could not be identified, although this typology was present in adults. Instead, in children, next to a clear other-gender typology, a somewhat less pronounced other-gender typology was identified, with children scoring above average on other-gender similarity, but below average on same-gender similarity. This finding contrasts earlier research with US children in middle childhood and early adolescence in which a clear low-gender typology was identified next to an other-gender typology (Martin, Andrews et

al., 2017; Nielson et al., 2020). Differences between the child typologies found in the current study and in previous research might be due to cross-national differences in gender equality or due to differences in data collection procedure (i.e., assessment in small groups or classrooms, versus individual assessment with a research assistant).

A second difference in the binary gender identity typologies of parents and children was that the strong other-gender profile in children was more pronounced than the other-gender profile in parents (i.e., child similarity scores deviated more strongly from the average than parent similarity scores). Yet, the standardized scores of the weak other-gender profile in children and the other-gender profile in parents were highly similar. Considering this similarity in score profiles it is not surprising we found that children in the weak other-gender typology more likely had parents with an other-gender typology.

A third difference in the binary gender identity typologies of parents and children was that the same-gender typology was more prevalent in children than in parents. This fits with previous research indicating that children might more strongly identify themselves with the same gender than adults (Endendijk et al., 2019; Martin, Andrews et al., 2017), possibly because of reduced cognitive and perspective-taking skills (Moshman, 2011). Indeed, in middle childhood and early adolescent US samples same-gender identity profiles have been found to be most prevalent (Martin, Andrews et al., 2017; Nielson et al., 2020). On the other hand, in a community sample of Dutch adults and a US sample of university students the both-gender similarity profile was most prevalent (Andrews et al., 2019; Endendijk et al., 2019). Furthermore, in a diverse sample of Italian adults (LGB+ and heterosexual) the other-gender typology was most prevalent (Baiocco et al., 2021).

Limitations and Future Directions

Even though the results are mainly in line with previous studies on the link between parents' gender schemas and children's gender schemas (Endendijk & Portengen, 2022; McHale et al., 2003; Tenenbaum & Leaper, 2002), our findings must be read in light of some limitations. First, our sample might have been too small to optimally utilize the dual identity approach and examine how different gender typologies in parents are related to different gender typologies in children. Second, the study was conducted in a WEIRD (Western Educated Industrial Rich and Democratic) country, as the majority of the studies on gender typicality (Andrews et al., 2019; Baiocco et al., 2021; Endendijk et al., 2019; Martin, Andrews et al., 2017; Martin, Cook et al., 2017; Nielson et al., 2020). Since self-perceptions of

gender typicality differ across cultures and intergroup-context, cross-cultural research is needed to better understand the development and predictors of gender identity typicality in non-western countries. Future studies could also more deeply investigate the implications of how gender typicality is viewed across different cultures and their associations with country-specific levels of gender (in)equalities.

Third, the present study had a correlational design, so we could not draw conclusions about the direction of effects. It could be possible that parents' gender identity not only has an influence on children's gender identity, but that children's gender identity may have influenced parents' gender identity as well. Future longitudinal research could investigate how gender typicality of children may influence gender typicality in parents, particularly for children who identify as less gender typical.

Furthermore, as this study was part of a larger study on children's gender-typical career aspirations, we have rather limited information on parents' and children's gender identity and the mechanisms underlying the parent-child gender identity associations. Gender identity is a multidimensional construct (Egan & Perry, 2001), so more research is necessary on how other aspects and types of parent and child gender identity, such as gender contentedness or felt pressure toward gender conformity, are associated. Such research could also investigate whether felt pressure from parents might be a mechanism underlying the association between parent and child gender identity.

Moreover, the children in this study cover a rather wide age range (6–12 years). We did check whether controlling for child age changed our results, which was not the case. Yet, crucial developments in gender identity complexity and flexibility take place throughout middle childhood (Halim & Ruble, 2010), as well as increasing peer socialization of children's gender development (Schroeder & Bámaca-Colbert, 2019). Thus, it is important for future research to examine whether the association between parent and child gender identity aspects might be different across different ages.

Finally, through the dual identity approach, we investigated gender typicality, considering it in a broader way that includes different elements of feeling similar to specific gender group(s) (i.e., expression, behavior, interests). One element of gender similarity that could be more deeply investigated in future research is gender expression, as it is assumed to play a central role in gender self-identification (Halim et al., 2013, 2014; Lan & Isacoff, 2022). More research on the interplay between gender identity typicality and gender expression in parent-child dyads is needed to better understand its role in perceived gender similarity.

Practice Implications

The findings of the current study could have practical implications. First, consider the relevance of parents' gender identity for children's gender identity; it stresses the need to make parents aware of their influence on their children's binary gender identity development. In order to allow children to define and express their gender identity freely by themselves without external pressure, parents could encourage children to explore all their characteristics, both masculine and feminine. Second, particular attention should be paid to boys' gender identity development because they tend to be more similar to their same-gender group than girls, even when their parents have more atypical gender identities. According to this finding, increasing parental awareness of boys' higher pressure to conform to gender roles may help them encourage their sons to explore feminine activities, toys, and behaviors and not discourage this exploration. Developing one's gender identity without external pressure is of great importance considering that felt pressure to conform to gender norms has been linked to maladjustment (for a review, see Perry et al., 2019), especially for gender-atypical individuals (Egan & Perry, 2001; Younger et al., 2004).

Conclusion

In summary, in line with previous research on gender schemas, there is an association between parents' binary gender identity and children's binary gender identity (Endendijk & Portengen, 2022; McHale et al., 2003; Tenenbaum & Leaper, 2002). Both biological (e.g., heritability) and social processes (e.g., modeling, pressure to conform to gender norms) might explain the similarity in the binary gender identity of parents and their children, but future research is necessary to actually test these underlying mechanisms. Finally, our findings indicate that even in the Netherlands, a cultural context with high gender equality, parents serve as powerful agents of gender socialization in the lives of their children.

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Declarations

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Informed consent All participants provided informed consent at the beginning of the study.

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