# Heroes and housewives: The role of gender and gender stereotypes in parenting and child development

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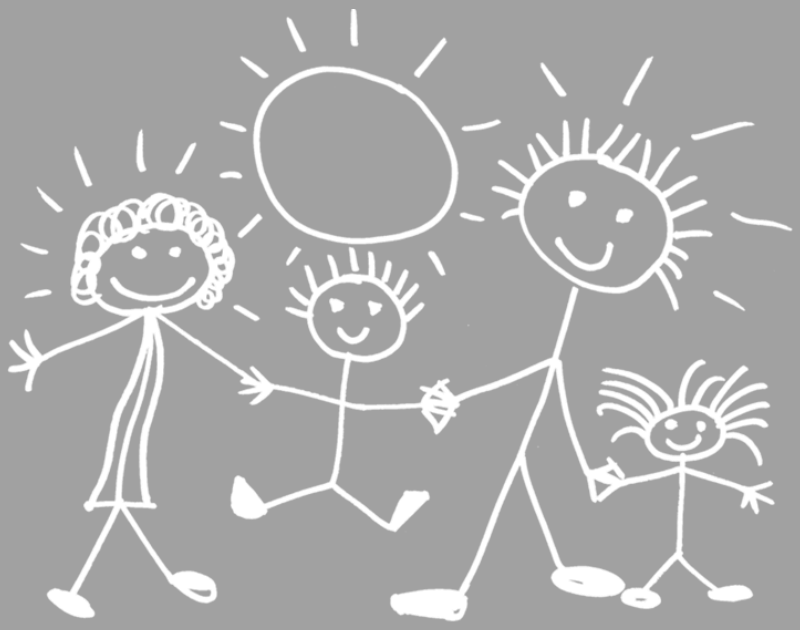

# Gender Stereotypes in the Family Context: Mothers, Fathers, and Siblings

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## ABSTRACT

Gender stereotypes of children and their parents were examined. Participants included 355 three-year-old children, their one-year-old siblings, and their mothers and fathers. Families were selected from the Western region of the Netherlands. Implicit gender stereotypes were assessed with computerized versions of the Action Inference Paradigm (AIP; both child and parents) and the Implicit Association Test (parent only). Parental explicit gender stereotypes were measured with the Child Rearing Sex-Role Attitude Scale. Findings revealed that mothers had stronger implicit gender stereotypes than fathers, whereas fathers had stronger explicit stereotypes than mothers. Fathers with same-gender children had stronger implicit gender stereotypes about adults than parents with mixed-gender children. For the children, girls' implicit gender stereotypes were significantly predicted by their mother's implicit gender stereotypes about children. This association could only be observed when the AIP was used to assess the stereotypes of both parent and child. A family systems model is applicable to the study of gender stereotypes.

*Keywords:* gender stereotypes, children, parents, siblings, implicit and explicit stereotypes, gender

## INTRODUCTION

Gender stereotypes are widely held beliefs about the characteristics, behaviors, and roles of men and women (Weinraub et al., 1984). In the preschool period family context and family experiences are important for gender stereotype development (McHale, Crouter, & Whiteman, 2003; Witt, 1997). Several, mostly U.S., studies have investigated child gender stereotypes in a family context, and demonstrated that parental gender stereotypes and the presence of siblings play an important role in the development of explicit gender stereotypes (McHale, Crouter, & Tucker, 1999; McHale et al., 2003; Turner & Gervai, 1995), but it remains unclear if these factors have the same influence on the development of more unconscious (i.e., implicit) forms of stereotyping. There is also evidence that different aspects of parental gender stereotypes (implicit or explicit) may influence parenting behavior in different ways (Nosek, Benaji, & Greenwald, 2002a, 2002b; Nosek, Greenwald, & Benaji, 2005; Rudman, 2004). To our knowledge parental implicit and explicit gender stereotypes have not yet been examined together in one study in relation to children's implicit gender stereotypes. Moreover, the literature on gender stereotypes is dominated by North-American studies, whereas it is equally important to study parent and child gender stereotypes in societies like the Netherlands, where gender equality and the participation of women in the labor market are relatively high, and fathers are generally ranked high on father involvement (Cousins & Ning, 2004, Devreux, 2007). Studying gender stereotypes in the Netherlands may also provide insights into why gender stereotypes persist and how they are transmitted across generations even in societies that no longer explicitly accept gender stereotypes.

In the current study we examine implicit gender stereotypes of Dutch preschoolers and their parents within the family context, focusing on the role of implicit and explicit parental gender stereotypes, child gender, and sibling gender. A family systems model (Bowen, 1978) is employed to incorporate the bidirectional influence of parents and their children on each other's attitudes. We also draw from social learning theories and gender schema theory, because they consider parents to be important in children's gender stereotype development. Figure 3.1 shows the model of the associations tested in this study.

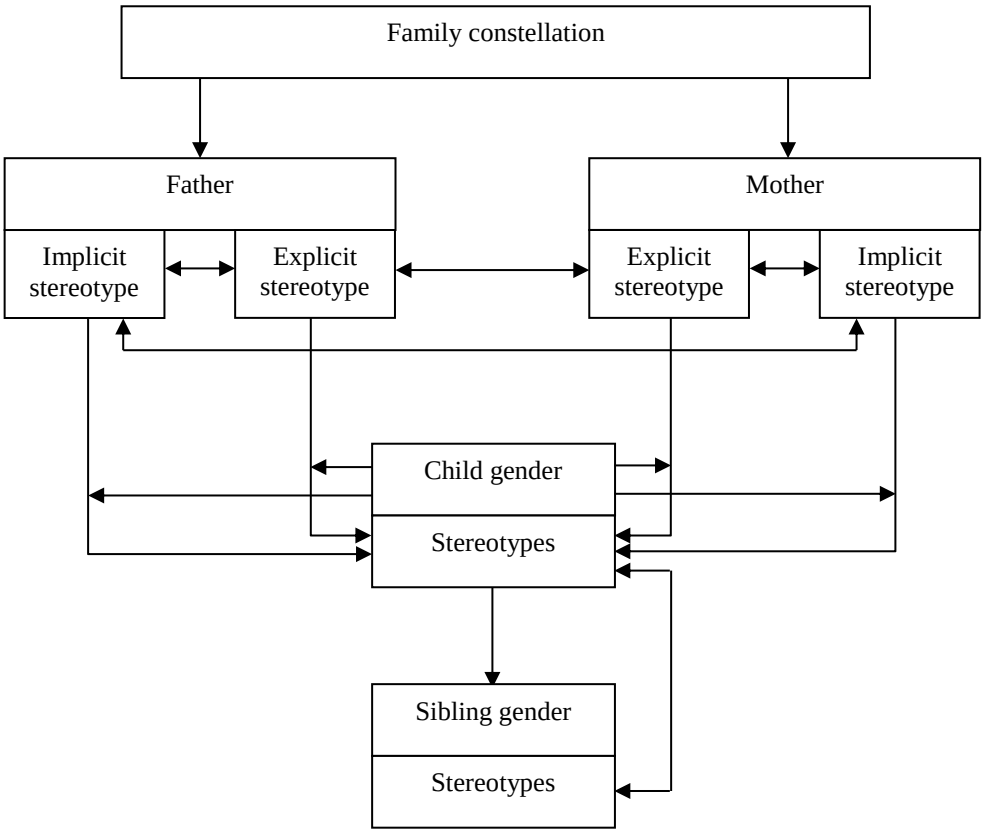


*Figure 3.1* Model of associations between parental gender stereotypes, child gender stereotypes, parent gender, child gender, sibling gender, and family constellation.

**Parental Gender Stereotypes**

Parents can hold gender stereotypes both implicitly and explicitly. Implicit stereotypes operate largely outside conscious awareness, whereas explicit gender stereotypes are directly stated or overtly expressed ideas about men and women (Benaji & Greenwald, 1995; Rudman & Glick, 2001; Rudman & Kilianski, 2000). These two types of attitudes can be different in strength and can be seen as different constructs that both operate in their own way on our behaviors, according to a U.S. study with adults (Nosek et al., 2002a). Explicit stereotypes are usually assessed using questionnaires or interviews, as in a U.S. study with adults (White & White, 2006), and implicit attitudes and cognitions about gender can be assessed by the Implicit Association Test (Nosek et al., 2002a), sentence completion or priming tasks, as in a Belgian study with adults (De Houwer, Teige-Mocigemba, Pruyt & Moors, 2009).

The major strength of implicit measures is that they are less prone to social desirability, because they are based on automatic or habitual responding. A weakness is that it is not entirely clear whether implicit tasks indeed measure a person's own stereotypes, or culturally shared attitudes (De Houwer et al., 2009). In the field of gender stereotype studies it is now common to use both measures to get a complete picture of a person's attitudes about gender. In addition, for controversial subjects like gender and race, U.S. studies with adults have shown that implicit stereotypes are better predictors of behavior than explicit self-reported stereotypes (Nosek et al., 2002a, 2002b; Nosek et al., 2005; Rudman, 2004), because explicit reports may be biased by social desirability and a lack of awareness of own stereotypes (Kunda & Spencer, 2003, White & White, 2006). Social desirability tendencies appear to be strongest among people with higher levels of education, because of their greater awareness of what are appropriate responses, according to a U.S. study with adults (Krysan, 1998). So, educational level of participants has to be taken into account when examining gender stereotypes.



**Children's Gender Stereotypes**

Children acquire gender stereotypes at an early age. A U.S study with 10- month-old children found that at this age they can already detect gender-related categories (Levy & Haaf, 1994). In the second year of life preferences for gender-stereotypical toys appear, as found in a Canadian study with 12-, 18-, and 24-month-old children (Serbin et al., 2001). According to another Canadian study explicit knowledge about gender roles emerges between the ages of 2 and 3 years (Poulin-Dubois, Serbin, Eichstedt, Sen, & Beissel, 2002). Several U.S. studies found that by the age of 4 years stereotypes are well developed (Fagot, Leinbach, & O'Boyle, 1992), but it takes until about 8 years of age for gender stereotypes to become more complex, flexible and similar to adult stereotypes (Martin, Wood, & Little, 1990; Trautner et al., 2005).

Determining gender stereotypes in children is a challenging task. It has been done in the U.S. using stories and pictures (Best et al., 1977) or sorting tasks (Martin

et al., 1990; O'Brien et al., 2000) and in Canada with preferential looking paradigms (Serbin et al., 2001). These types of measures of gender stereotypes in children have however been criticized for being too challenging or not tapping the stereotype construct (Liben & Bigler, 2002). Moreover, most studies asked children explicitly about their stereotypes, and did not include measures of implicit gender stereotyping in children. In a recent study with a sample of 5-, 8-, and 11-year-old Belgian children a computerized task has been developed that is suitable for assessing implicit gender stereotypes in very young children (Action Inference Paradigm, AIP; Banse, Gwaronski, Rebetez, Gutt, & Morton, 2010). This measure's validity is promising (Banse et al., 2010), and the AIP is used in the current study. At this point we don't know whether the same predictors are important for explicit and implicit stereotype development, but the literature does not provide any evidence that they would not be.

**Gender Differences in Gender Stereotypes**

When studying gender stereotypes of parents and children in the family context, gender of the parent and child should be taken into account. There are several studies, mostly conducted in the U.S., on the differences between men and women in gender stereotypes, but the evidence is not conclusive. Some studies do not find gender differences (Benaji & Greenwald, 1995; Swim, Aikin, Hall, & Hunter, 1995), whereas others found that men had stronger attitudes about gender than women (Burge, 1981; Jessel & Beymer, 1992), or women had stronger gender-related stereotypes than men (Osterhout, Bersick, & McLaughlin, 1997). When stereotypes are assessed explicitly men display stronger gender stereotypes, whereas the level of implicit attitudes is similar for men and women (Benaji & Greenwald, 1995; Rudman & Glick, 2001; Rudman & Kilianski, 2000) or somewhat stronger in women (Nosek at al., 2002a). A meta-analysis that focused specifically on parental gender stereotypes found that mothers hold less traditional attitudes about gender than fathers (Tenenbaum & Leaper, 2002), but it should be mentioned that most studies in this meta-analysis used explicit gender stereotype measures. A more recent U.S. study that also focused on parental explicit stereotypes found similar results, with mothers reporting less traditional attitudes about gender than fathers (Blakemore & Hill, 2008).

Several studies with samples from different countries show that a gender difference in explicit stereotype strength is also apparent in children (McHale et al., 1999; Signorella, Bigler, & Liben, 1993; Turner & Gervai, 1995), but the direction of the effect is not clear. A meta-analysis found that preschool boys and girls did not differ in gender stereotypes (Signorella, Bigler, & Liben, 1993), which is consistent with the results of a more recent U.S. study that also focused on preschool children (O'Brien et al., 2000). However, one other European study with preschool children indicated that boys hold more explicit gender stereotypes than girls (Turner & Gervai, 1995).

**The Influence of Family Gender Constellation and Sibling Gender**

Few studies examined the influence of family gender constellation on parental gender stereotypes. This is surprising, because from a family systems perspective one might expect that family gender constellation would also have an influence on parents' gender stereotypes, since this theory suggests that each family member is influenced by the other family members (Bowen, 1978). The influence of sibling gender on child gender stereotypes has been studied more often. There is evidence from U.S. studies with preschool children that siblings have a profound effect on gender role socialization and explicit gender stereotypes (McHale et al., 1999; Rust, Golombok, Hines, Johnston, & Golding, 2000; Stoneman, Brody, & MacKinnon, 1986). Some studies show that girls with older brothers and boys with older sisters display less explicit gender stereotyping than boys or girls with same-gender older siblings, a finding that has been attributed to modeling or reinforcement of opposite gender attributes in mixed-gender siblings (Rust et al., 2000; Stoneman et al., 1986). However, another U.S. study proposed that mixed-gender siblings might have the strongest explicit gender stereotypes, because parents of mixed-gender children have the opportunity for gender-differentiated parenting and these experiences will lead to stronger attitudes about gender in children (McHale et al., 1999). Although these studies focused on the influence of the older sibling one might expect that younger siblings may exert their influence on the gender stereotypes of older siblings in the more passive way proposed in the study of McHale and colleagues (1999), because infants are unlikely to be active reinforcers of gender attributes. It is unclear whether this is also the case for implicit gender stereotypes. In addition, the opportunities for gendered comparisons of parents in mixed-gender families may also increase the likelihood of stronger parental attitudes about gender.



**The Association Between Parental and Children's Gender Stereotypes**

According to social learning theory (Bandura, 1977) parents are models for gender stereotypes through their own behaviors, occupations and interests, but more importantly they reinforce gender-stereotypical behaviors in their children (McHale et al., 1999). There is considerable evidence, mostly from U.S. studies, that parents treat boys and girls differently (Chaplin, Cole, & Zahn-Waxler, 2005; Lytton & Romney, 1991; Martin & Ross, 2005). For example, according to a Canadian study with children between the ages of 5 and 25 months, parents buy their children gender-stereotypical toys and dress them in gender-specific colors (Pomerleau, Bolduc, Malcuit, & Cosette, 1990), and as found by U.S. studies play in different ways with boys and girls (Culp et al., 1983), and encourage same-gender preferred behaviors more than cross-gender preferred behaviors (Fagot, 1978).

Gender schema theory (Bem 1981, 1983) suggests that the way parents behave towards their children is guided by gender schemas that consist of gender-typed experiences. Gender stereotypes can be seen as the functional equivalent of

gender schemas (Hudak, 1993) or the result of gender-schematic processing (Bem, 1983). Thus if the gender schemas of parents consist of stereotypical associations they are more likely to show gender-differentiated parenting. Gender schema theory proposes that children will internalize these gender-typed experiences in a gender schema of their own (Gelman, Taylor, Nguyen, Leaper, & Bigler, 2004; Witt, 1997). The gender-typed associations that comprise the schema will influence the processing of subsequent gender-related information and thereby bias future actions (Bem, 1983). A meta-analysis with samples from various countries found a small influence of parental gender schemas on their child's attitudes about gender (Tenenbaum & Leaper, 2002). Most of the studies in this meta-analysis used explicit measures to assess child's gender stereotypes, thus it is unclear whether parental gender stereotypes also influence implicit stereotypes of their children. However, two U.S. studies point to a more prominent role for implicit attitudes about gender, because parents are largely unaware of their different behaviors to boys and girls (Culp et al., 1983) and many parents reject common gender stereotypes, but still apply these stereotypes implicitly as reflected by their approval or disapproval of children's toy preferences (Freeman, 2007). One might expect parental implicit gender attitudes to have a greater impact on children's gender attitudes than parental explicit stereotypes when stereotypes of children are also assessed implicitly. This may be specifically the case in Dutch society, where gender stereotypes may be mostly present on the unconscious level because of the generally high support for gender equality in the Netherlands.

Gender of the child could also have a moderating effect on the association between parent and child gender stereotypes, because preschool boys and girls may vary in their susceptibility to the rearing environment, according to a meta-analysis (Rothbaum & Weisz, 1994) and a study from the U.S. (Shaw et al., 1998). Moreover, as suggested in a review especially mothers show different interactive behaviours with sons than with daughters (Maccoby, 1990). Mothers not only talk more to girls than to boys in general, as found in a U.S. study (Leaper, Anderson, & Sanders, 1998), but they also talk more about interests and attitudes to girls than to boys, as indicated by a U.S. study (Boyd, 1989) and an Australian study (Noller & Callan, 1990). In addition, mothers have more opportunities to transmit their gender-stereotypic beliefs to girls than to boys, since mothers tend to be more engaged in play with their 6-, 9- , and 14-month-old daughters, whereas they spend more time watching boys and not interacting, as found in a U.S. study (Clearfield & Nelson, 2006). Therefore it is expected that the association between mothers' and daughters' gender stereotypes is stronger than the association between mothers' and sons' stereotypes.

### The Current Study

In the current study we test the following hypotheses. (1) Mothers have stronger implicit gender stereotypes than fathers (Nosek et al., 2002a), whereas fathers have stronger explicit stereotypes about gender (Tenenbaum & Leaper, 2002); (2) Boys will have stronger implicit gender stereotypes than girls (Turner & Gervai, 1995); (3) Parents with mixed-gender children will have stronger gender stereotypes than parents with same-gender children, and mixed-gender siblings will have stronger implicit gender stereotypes than same gender siblings (McHale et al., 1999); (4) Implicit gender stereotypes of parents and children are positively associated (Culp et al., 1983, Freeman, 2007, Tenenbaum & Leaper, 2002); (5) Mothers and daughters implicit gender stereotypes will be stronger associated than for mothers and sons (Boyd, 1989; Clearfield & Nelson, 2006; Noller & Callan, 1990).

## METHOD



### Sample

This study is part of the longitudinal study *Boys will be Boys?* examining the influence of gender-differentiated socialization on the socio-emotional development of boys and girls in the first 4 years of life. The current paper reports on data from the first wave. Families with two children in the Western region of the Netherlands were eligible for participation in the *Boys will be Boys?* study. They were selected from municipality records. Families were included if the youngest child was around 12 months of age and the oldest child was between 2.5 and 3.5 years old. Exclusion criteria were single-parenthood, severe physical or intellectual handicaps of parent or child, and being born outside the Netherlands and/or not speaking the Dutch language. Between April 2010 and May 2011, eligible families were invited by mail to participate in a study on the unique role of fathers and mothers on socio-emotional development with two home-visits each year over a period of 3 years. They received a letter, a brochure with the details of the study, and an answering card to respond to the invitation.

Of the 1,249 eligible families 31% were willing to participate ($n$ = 390). The participating families did not differ from the non-participating families in age of fathers ($p$ = .13) or mothers ($p$ = .83), educational level of fathers ($p$ = .08) or mothers ($p$ = .27), and the degree of urbanization of residence ($p$ = .77). For the current study, families with missing items due to computer failure or incomplete questionnaires were excluded, resulting in a final sample of 355 families. The 35 excluded families also did not differ from the participating families in age of fathers ($p$ = .66) or mothers ($p$ = .97), educational level of fathers ($p$ = .82), and the degree of urbanization of residence ($p$ = .46), but the mothers of the excluded families had a lower educational level than the mothers in the participating families ($p$ = .03).

In Table 3.1 the demographic characteristics of the mothers and fathers in the sample are displayed. The sample included similar numbers of the four different family constellations. Mothers were aged between 25 and 46 years and fathers were between 24 and 63 years of age. As can be seen in Table 3.1 most of the participants were married. With regard to educational level, most mothers and fathers finished academic or higher vocational schooling. There were no differences between the family types in maternal age ($p$ = .16) or paternal age ($p$ = .05), maternal educational level ($p$ = .43) or paternal educational level ($p$ = .79).

Table 3.1 *Sample characteristics (N =355)*

| | Gender children | | | | |
|---|---|---|---|---|---|
| | Boy-Boy | Girl-Girl | Boy-Girl | Girl-Boy | Total |
| Subsamples: %(*n*) | 27 (96) | 23 (83) | 25 (89) | 25 (87) | |
| Age: *M*(*SD*) | | | | | |
| Mother | 33.9 (3.9) | 33.9 (3.9) | 33.9 (3.9) | 33.9 (3.9) | 33.9 (3.9) |
| Father | 36.7 (5.1) | 36.7 (5.1) | 36.7 (5.1) | 36.7 (5.1) | 36.7 (5.1) |
| High education: %(*n*) | | | | | |
| Mother | 79 (76) | 80 (66) | 79 (70) | 87 (76) | 81 (288) |
| Father | 71 (68) | 81 (67) | 79 (71) | 75 (65) | 76 (271) |
| Married/registered[a]: %(*n*) | 93 (89) | 93 (77) | 95 (85) | 94 (82) | 94 (333) |

[a] Registered or cohabitation agreement.

Not all 355 families could be included in the analyses pertaining to child gender stereotypes because a completed AIP (Banse et al., 2010) was a requisite for both parents and their child. Families with children who did not complete ($n$ = 54) or made too many errors on the AIP (more than 50% of the trials, $n$ = 129) were excluded. Overall, 85 boys and 87 girls completed the AIP successfully. This resulted in a sample of 172 families for the analyses involving child gender stereotypes. Children not completing or making too many errors on the AIP were significantly younger ($p$ < .001, $M$=2.9, $SD$=0.3) than children who completed the task successfully ($M$=3.1, $SD$=0.3). The families not included in the analyses pertaining child gender stereotypes did not differ from the other families in terms of educational level of fathers ($p$ = .85) or mothers ($p$ = .34), or age of fathers ($p$ = .34) or mothers ($p$ = .36). The distribution of family constellations was also similar (23% boy-boy, 24% girl-girl, 27% boy-girl, 26% girl-boy).

**Procedure**

Each family was visited twice; once with the mother and the two children and once with the father and the two children, with an intervening period of about two weeks. The order in which fathers and mothers were visited was counterbalanced. Families received a payment of 30 Euros and small presents for the children. Before the first home-visit both parents were asked to individually complete a set of questionnaires. During the home visits parent-child interactions and sibling interactions were filmed, and both children and parents completed computer tests. All visits were conducted by pairs of trained graduate or undergraduate students. Informed consent was obtained from all participating families. Ethical approval for this study was provided by the Committee Research Ethics Code of the Leiden Institute of Education and Child Studies.

**Instruments**

**Implicit Association Task.** Implicit gender stereotypes of fathers and mothers were assessed by a computerized version of the Implicit Association Task (IAT); the family-career IAT (Nosek et al., 2002a). This version measures the association of female and male attributes with the concepts of career and family. The computer task was built with E-prime 2.0 (Schneider, Eschman, & Zuccolotto, 2002) based on the task on the Harvard Project Implicit demonstration website (https://implicit.harvard.edu/implicit/) and the Nosek et al. (2002a) paper. The task consists of congruent blocks in which participants are requested to sort career attributes (e.g., the word 'salary') to the male category and family attributes (e.g., the word 'children') to the female category, and incongruent blocks in which participants have to sort career attributes to females and family attributes to males. They sort the stimuli (i.e., words) by pressing a blue button that corresponds to the male category or a red button for the female category.

To reduce possible order effects of the presentation of congruent and incongruent blocks, two precautionary measures were taken (Nosek et al., 2005): the number of practice trials on the fifth of the seven blocks of the standard IAT procedure was increased, and two versions of the IAT were constructed, one in which the congruent block was first administered and one in which the incongruent block was first administered. As expected, difference scores between the congruent and incongruent blocks were significantly higher on the version that started with the congruent block for both fathers ($p < .01$) and mothers ($p < .01$). The participating families were randomly assigned to one of the two versions so that the mother and father within one family always completed the same version of the IAT. Participants conducted the IAT on a laptop computer. Reaction time and accuracy were automatically recorded for every trial.

The improved scoring algorithm by Greenwald, Nosek, and Benaji (2003) was used to determine each participant's level of implicit stereotypes. A high positive

score represented more difficulties to pair male attributes to the family concept and female attributes to the career concept than to pair female attributes to the family concept and male attributes to the career concept. In other words, higher positive scores represent stronger stereotypical ideas about the roles of men and women. Negative scores represent contra-stereotypical ideas about gender roles.

**Action Inference Paradigm.** An adapted Action Inference Paradigm (Banse et al., 2010) for assessing implicit gender stereotyping in children was used to determine implicit gender stereotypes in parents and in their oldest child, enabling comparisons between gender stereotypes of children and their parents. In the AIP presents from Santa Claus have to be divided between a boy and a girl. The AIP was built with E-prime 2.0 (Schneider et al., 2002). Similar stimulus material was used as in the Banse et al. (2010) study, but because of the lower age of the children in the current sample the task was shortened.

The current task consisted of 20 practice items with red and blue presents, two congruent blocks (e.g., asking the child to assign stereotypical girl toys to a girl) with 16 trials and five practice trials each, and two incongruent blocks (e.g., asking the child to assign stereotypical boy toys to a girl) with each 16 trials and five practice trials. The two congruent blocks alternated with the two incongruent blocks. To make the procedure more suitable to the Dutch cultural context, we changed the story from 'presents from Santa Claus' to 'presents for a birthday'. The participants had to distribute the gifts to the girl or the boy by means of pressing a red or a blue button (red for the girl, blue for the boy). The AIP was conducted on a laptop that recorded reaction times and accuracy scores.

Both parents and the oldest child completed the same task, with the only exception that children were guided through the first five trials of every block as extra practice. Furthermore, children were not required to push the buttons themselves to divide the gifts. If it was clear from the practice block that pushing the button would be too difficult, pointing to the boy or girl was enough; the experimenter pushed the corresponding button for the child. However, to ensure that we indeed assessed automatic responding, the children were told they had to point to the boy or girl as quickly as possible, because the boy and the girl were very eager to play with their birthday presents. As a result of this altered procedure a different scoring procedure had to be used for the children. Reaction time could not be used because the children had not always pushed the buttons themselves. Instead the difference in accuracy between the congruent and incongruent blocks was used. In addition, trials with very long response latencies were eliminated (e.g., 10000 ms, derived from Greenwald et al., 2003). Again, higher positive scores correspond to stronger stereotype ideas about boys and girls and negative scores mean that the child has more contra-stereotypical ideas about the appropriateness of certain toys for boys and girls.

For parents an accuracy score was also computed. Only reaction time scores were used for further analyses, because correlations between parent and child

stereotypes were the same regardless of which scoring system was used, and reaction time scores are more commonly used in the literature (Greenwald et al., 2003). The children were enthusiastic about the task. Given the similarity of the AIP and the IAT, the improved scoring algorithm of Greenwald et al. (2003) was also applicable to implicit gender stereotyping of the parent in the AIP. Higher positive scores represent stronger stereotypical ideas and negative scores represent more contra-stereotypical ideas about the appropriateness of certain toys for boys and girls.

**Child Rearing Sex Role Attitude Scale.** The Child Rearing Sex Role Attitude Scale (CRSRAS, Freeman, 2007, adapted from Burge, 1981) was used to assess the explicit attitudes of parents about gender-differentiated parenting of boys and girls. The questionnaire consisted of 19 items that were completed on a 5-point scale from 0 (strongly agree) to 4 (strongly disagree). Negatively stated items were recoded so that higher mean scores on the CRSRAS referred to stronger stereotypical attitudes about gender-specific roles of boys and girls. The questionnaire was designed in a way that the items concerned the same statements for boys and girls separately. For example: "Boys who exhibit 'sissy' behavior will never be well adjusted" and "Girls who are 'tomboys' will never be well adjusted". In the current study, Cronbach's Alphas of the CRSRAS were .69 for mothers and .78 for fathers.



### Data Inspection

All measures of gender stereotypes were inspected for possible outliers that were defined as values larger than 3.29 *SD* above the mean (Tabachnick & Fidell, 1996). Outliers ($n$ = 4) were winsorized to make them no more extreme than the most extreme value that was not yet an outlier (Tabachnick & Fidell, 1996). All variables were normally distributed. A scatter matrix was used to detect possible bivariate outliers. Regression analyses were done with and without bivariate outliers. Exclusion of bivariate outliers ($n$ = 1) did not lead to different results.

## RESULTS

### Descriptive Statistics

Descriptive statistics for the different gender stereotype measures are displayed in Table 3.2. Scores were presented for mothers, fathers, and children, by family type. The positive scores on the implicit gender stereotype measures indicate that mothers, fathers, and children on average have somewhat stereotypical ideas about gender. Mother's and father's scores on the explicit stereotype measure were low, indicating egalitarian attitudes about gender roles. Differences in scores according to parent gender, child gender, and family type are addressed in the next sections.

**Gender Differences in Parental and Child Gender Stereotypes**

To test for differences in gender stereotypes between fathers and mothers (hypothesis 1) a paired samples *t*-test was used for each gender stereotype measure, because maternal and paternal gender stereotypes were dependent variables as they refer to parents from the same families. Mothers and fathers differed significantly in implicit gender stereotypes about children, $t(354) = 3.03$, $p < .01$, $d = .24$, and adults, $t(354) = 2.65$, $p < .01$, $d = .17$, supporting the prediction that mothers had stronger implicit gender stereotypes than fathers (Hypothesis 1). Mothers and fathers also differed in their explicit stereotypes, $t(354) = -7.85$, $p < .01$, $d = .47$, indicating support for the prediction that fathers show stronger explicit gender stereotypes compared to mothers (Hypothesis 1).

A 2 (gender of the child) by 2 (gender of sibling) analysis of variance , was conducted to test for differences in implicit gender stereotype strength between boys and girls. There was no support for the second hypothesis that stated that boys would have stronger implicit gender stereotypes than girls, since no significant differences between boys and girls in gender stereotypes were found, $F(1, 168) = 0.10$, $p = .75$, *partial* $\eta^2 < .01$. The results for the main effect of and interaction with sibling gender are discussed in the next section.

Table 3.2 *Means and standard deviations for the gender stereotype measures and different family constellations (N = 355/172)*[1]

| | | Gender children | | | | Family constellation | | Total |
|---|---|---|---|---|---|---|---|---|
| | | Boy-Boy | Girl-Girl | Boy-Girl | Girl-Boy | Same-gender | Mixed-gender | |
| Instrument | Parent | *M (SD)* | *M (SD)* | *M (SD)* | *M (SD)* | *M (SD)* | *M (SD)* | *M (SD)* |
| AIP | Mother | .32 (.37) | .29 (.43) | .24 (.38) | .29 (.34) | .31 (.40) | .26 (.38) | .29 (.38)[a] |
| | Father | .16 (.40) | .19 (.34) | .21 (.36) | .24 (.40) | .17 (.37) | .23 (.38) | .20 (.38)[b] |
| | Child | 1.38 (2.14) | 1.67 (2.47) | 1.55 (2.27) | 1.49 (2.09) | 1.48 (2.26) | 1.57 (2.21) | 1.53 (2.23) |
| IAT | Mother | .40 (.43) | .33 (.40) | .36 (.43) | .27 (.46) | .37 (.42) | .31 (.45) | .34 (.43)[a] |
| | Father | .27 (.37) | .37 (.42) | .24 (.34) | .21 (.40) | .32 (.40)[c] | .22 (.37)[d] | .27 (.39)[b] |
| CRSRAS | Mother | .71 (.32) | .63 (.32) | .65 (.36) | .75 (.38) | .67 (.37) | .70 (.37) | .69 (.35)[a] |
| | Father | .97 (.42) | .80 (.43) | .84 (.42) | .83 (.40) | .89 (.43) | .85 (.41) | .87 (.42)[b] |

*Note.* Abbreviations in the table are AIP (Action Inference Paradigm), IAT (Implicit Association Task), CRSRAS (Child Rearing Sex Role Attitude Scale). Scale range AIP and IAT: -2 to +2, CRSRAS: 0 to 4, AIP child: -7 to +7.

[1] Statistics involving parent measures only are based on $N = 355$. Statistics involving the AIP for children are based on $N = 172$.

Main effect parent gender: [a] and [b] differ significantly. Main effect family constellation: [c] and [d] differ significantly.

**Parental and Child Gender Stereotypes and Family Gender Constellation**

Overall group differences between same- and mixed-gender families were tested separately for maternal and paternal gender stereotypes. Two multivariate analyses of variance with family constellation (e.g., same-gender versus mixed-gender families) as the independent variable were conducted; one for fathers' three measures of gender stereotypes and one for mothers' three measures of gender stereotypes. It was expected that mothers and fathers with mixed-gender children would have stronger gender stereotypes than parents with same-gender children (hypothesis 3).

There was an overall group difference for the stereotypes of fathers, *Pillais F* (3, 351) = 2.72, $p < .05$, *partial* $\eta^2 = .02$. This was mainly caused by a main effect on the IAT; in contrast to our hypothesis fathers with same-gender children had stronger implicit gender stereotypes about adults than fathers with mixed-gender children, $F$ (1, 353) = 5.51, $p < .05$, *partial* $\eta^2 = .02$. Post hoc analyses revealed that in the same-gender group fathers of two boys did not differ significantly from fathers with two girls, $t$ (177) = -1.71, $p = .09$, and in the mixed-gender group father with a firstborn boy did not differ from fathers with a firstborn girl, $t$ (353) = 0.53, $p = .60$. There were no differences between fathers with same-gender or mixed-gender children in implicit gender stereotypes about children, $F$ (1, 353) = 1.75, $p = .19$, *partial* $\eta^2 = .01$, or in explicit attitudes about gender, $F$ (1, 353) = 1.08, $p = .30$, *partial* $\eta^2 < .01$. Maternal implicit gender stereotypes about adults, $t$ (353) = 1.24, $p = .22$, implicit gender-related attitudes about children, $t$ (353) = 1.04, $p = .30$, and explicit gender stereotypes, $t$ (353) = -0.67, $p = .50$, did not differ between families with same-gender or mixed-gender children.

The analysis of variance with child and sibling gender as independent variables and children's implicit gender stereotypes as the dependent variable (same analysis as mentioned in section 'Gender differences in parental and child gender stereotypes') did not support the third hypothesis that gender stereotypes of children with same-gender siblings would differ from those of children with opposite-gender siblings, because the interaction between gender of the child and gender of the sibling did not reach significance, $F$ (1, 168) < 0.01, $p = .99$, *partial* $\eta^2 < .01$. The main effect for gender of the sibling was also not significant, $F$ (1, 168) = 0.23, $p = .61$, *partial* $\eta^2 < .01$.

**Predictors of Children's Gender Stereotypes: Moderation Model**

Correlations for the different gender stereotype measures of mothers, fathers, and children are displayed in Table 3.3. We found no significant associations between any of the parental implicit gender stereotypes and the explicit attitudes about gender-differentiated parenting. For the implicit gender stereotypes about adults, there was a significant association between mother and father scores. This was also the case for the explicit attitudes about gender, but not for the implicit gender-related attitudes about children. We also examined correlations with background variables like

paternal and maternal educational level, because this might be a factor to control for in the regression analysis. Significant negative correlations were found between explicit attitudes about gender-differentiated parenting (CRSRAS) of both mothers and fathers and maternal educational level. The implicit gender stereotypes about children (AIP) and adults (IAT) of mothers and fathers were not significantly associated with educational level. Paternal education level was negatively associated with children's gender stereotypes.

Table 3.3 *Correlations for the gender stereotype measures, parental educational levels and parental working hours (N = 355/172)*[1]

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1.AIP mother | | | | | | | | |
| 2.AIP father | -.01 | | | | | | | |
| 3.AIP child | .12 | .02 | | | | | | |
| 4.IAT mother | .02 | -.01 | .08 | | | | | |
| 5.IAT father | .01 | .01 | -.01 | .31** | | | | |
| 6.CRSRAS mother | .08 | .02 | .00 | .07 | -.07 | | | |
| 7.CRSRAS father | .08 | .05 | .01 | .05 | .08 | .36** | | |
| 8.Educational level mother | -.04 | .01 | -.04 | .01 | .05 | -.16** | -.11* | |
| 9.Educational level father | -.05 | .02 | -.16* | .01 | .05 | -.01 | -.06 | .45** |

*Note.* Abbreviations in the table are AIP (Action Inference Paradigm), IAT (Implicit Association Task), CRSRAS (Child Rearing Sex Role Attitude Scale).

[1] Statistics involving parent measures only are based on $N = 355$. Statistics involving the AIP for children are based on $N = 172$. * $p < .05$ ** $p < .01$.

A multiple hierarchical linear regression analysis was conducted to test whether parental implicit gender stereotypes were positively associated with child implicit gender stereotypes (Hypothesis 4), and whether the mother's and daughter's implicit gender stereotypes were more strongly associated than mother's and son's gender stereotypes (Hypothesis 5). As recommended by Baron and Kenny (1986) with regard to testing moderation effects, the centered main effect variables were entered in the first step of the regression analysis and the two-way interactions were entered in the second step. In addition we controlled for parental educational levels, by including these variables in the first step. Results for the final model are presented in Table 3.4. No main effects of paternal gender stereotypes, maternal explicit stereotypes, maternal implicit stereotypes about adults, maternal educational level, and child's gender were present. There was a significant main effect of paternal educational level on children's implicit gender stereotypes. The fourth hypothesis was partly supported, because only maternal implicit gender stereotypes about children significantly predicted children's implicit gender stereotypes.

In support of the fifth hypothesis the interaction between maternal implicit stereotypes about children and child gender ($B$ = -1.79, *S.E.* = 0.89, $\beta$ = -.22, $p < .05$) was also significant. The interaction effect is shown in Figure 3.2. For girls, gender stereotypes were positively correlated with those of their mothers ($r$ = .26, $p < .05$). When mothers showed stronger gender stereotypes, the girls also showed stronger gender stereotypes. For boys no such relation was found. The interactions between paternal gender stereotypes and child gender in the model did not significantly add to the prediction of child's gender stereotypes (AIP; $B$ = 0.36, *S.E.* = 0.92, $\beta$ = .04, $p$ = .70, IAT; $B$ = -1.18, *S.E.* = 0.99, $\beta$ = -.14, $p$ = .23, CRSRAS; $B$ = 0.47, *S.E.* = 0.91, $\beta$ = .07, $p$ = .61, step 2 $R^2$ = 1.00). The interactions between maternal implicit gender stereotypes about adults and explicit gender stereotypes with child gender also did not significantly add to the prediction of child's gender stereotypes (IAT; $B$ = 0.36, *S.E.* = 0.90, $\beta$ = .05, $p$ = .69, CRSRAS; $B$ = 0.68, *S.E.* = 1.10, $\beta$ = .07, $p$ = .54, step 2 $R^2$ = 1.00). VIF values for the predictors in the final model range from 1.04 to 2.00, indicating no problems with multicollinearity.

Table 3.4 *Hierarchical multiple regression analysis predicting child's gender stereotypes from maternal and paternal gender stereotypes and child gender (N = 172)*

| | $\Delta R^2$ | $\beta$ |
|---|---|---|
| Step 1 | .05 | |
| Maternal stereotypes (AIP) | | .28** |
| Maternal stereotypes (IAT) | | .12 |
| Maternal stereotypes (CRSRAS) | | -.03 |
| Maternal educational level | | .04 |
| Paternal stereotypes (AIP) | | .04 |
| Paternal stereotypes (IAT) | | -.08 |
| Paternal stereotypes (CRSRAS) | | .04 |
| Paternal educational level | | -.20* |
| Child gender | | -.05 |
| Step 2 | .03* | |
| Maternal stereotypes (AIP) x child gender | | -.24* |
| Total $R^2$ | .08 | |

*Note.* Used abbreviations in the table are AIP (Action Inference Paradigm), IAT (Implicit Association Task), CRSRAS (Child Rearing Sex Role Attitude Scale).
* $p < .05$, ** $p < .01$.

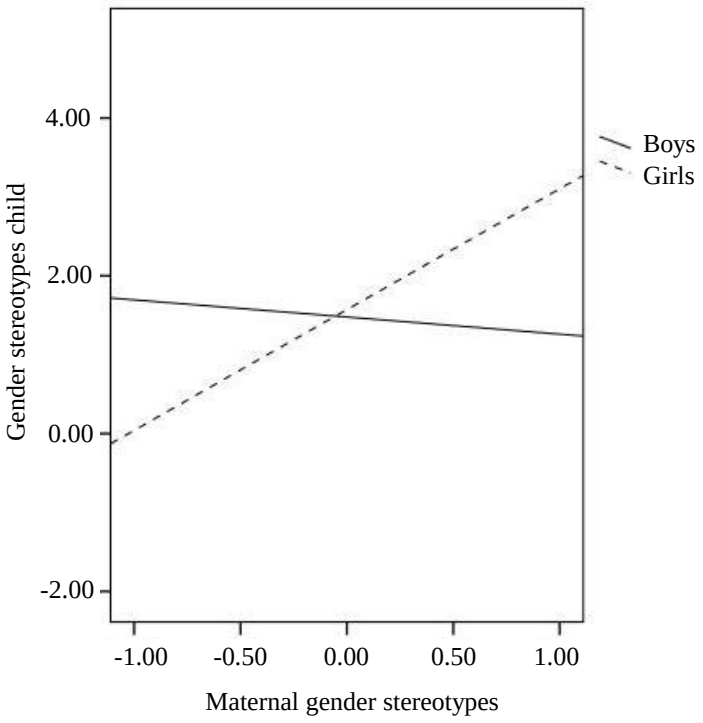


*Figure 3.2* Interaction between maternal gender stereotypes (AIP) and child's gender stereotypes.

## DISCUSSION

Mothers had stronger implicit gender stereotypes about adults and children than fathers, whereas fathers had stronger explicit gender stereotypes than mothers. Also, fathers with same-gender children had stronger implicit gender stereotypes about adults than fathers with mixed-gender children. Moreover, lower maternal educational level was related to stronger explicit attitudes about gender in both parents. When mothers showed stronger gender stereotypes, their daughters also showed stronger gender stereotypes.

As expected mothers had stronger implicit gender stereotypes about adults and children than fathers, and fathers had stronger explicit attitudes about gender than mothers. An explanation might be that explicit stereotype measures are prone to social desirability (White & White, 2006) and women generally score higher on social desirability than men, according to a U.S. study (Hebert, Clemow, Pbert, Ockene, & Ockene, 1995) and may thus report fewer explicit stereotypes. Another explanation is that cultural gender roles influence the channels that are acceptable for stereotype expression, as found in a Swedish study (Ekehammar, Akrami, & Araya, 2003),

rendering it less acceptable for women than for men to express explicit gender stereotypes. Women may have implicit gender stereotypes that are not considered appropriate to present explicitly, whereas men may use both their implicit and explicit channel in parallel. It should be noted that the implicit and explicit gender stereotypes of both mothers and fathers were not that strong (e.g., scores in the low range on the explicit level, and small positive scores on the implicit level). This is not uncommon for the Netherlands, where support for traditional gender roles is low (Williams & Best, 1990).

Boys and girls, however, did not differ from each other in the strength of their implicit gender stereotypes. Although this was not expected, this is in line with several U.S. studies that focused on explicit gender stereotype development in preschool children (O'Brien et al., 2000, Signorella et al., 1993). Apparently, gender differences in attitudes about gender start to develop later in childhood, probably during the school years where peer influence becomes more pronounced and children encounter more gender-related experiences outside the home.

With regard to family constellation, fathers with same-gender children had stronger implicit gender stereotypes about adults than fathers with mixed-gender children, which is in line with family systems theory in which child characteristics also influence parents. The direction of effect was not expected, since it was hypothesized that in families with both a boy and a girl opportunities for gendered comparisons are available (McHale et al., 1999), which may confirm gender stereotypes. However, in families with mixed-gender siblings parents also have equal opportunity to see similarities between boys and girls (which is not possible in families with same-gender children) which may make it more difficult to stick to gendered explanations for certain behaviors. Regardless of such observed gender differences between children, having both a boy and a girl may make the wish to treat the two genders equally and the desire for happy and successful futures for both of their children more important for fathers, resulting in more egalitarian attitudes. In addition, parents of same-gender children may be more likely to assign similarities between their children as gender driven and to assign differences between their children as personality driven. The effect of family constellation was only found for the implicit gender stereotypes about adults. Because explicit gender stereotypes are more prone to social desirability they may be less dependent on family experiences. It appears that family experiences are also less important for mother's gender stereotypes, since these were not related to family constellation.

Contrary to our hypothesis, no differences in implicit gender stereotypes were found between children with same-gender or opposite-gender younger siblings. Several U.S. studies have shown that the older sibling has a profound effect on gender role socialization and the development of explicit gender stereotypes in the younger sibling (Brim, 1958; McHale et al., 1999; Rust et al., 2000; Stoneman et al., 1986). In our study we examined the influence of a younger sibling who was only 1 year old. It

seems likely that sibling effects do not emerge for older siblings when the younger child is still an infant, but will exert their influence in later years. Alternatively siblings might only have an influence on children's explicit stereotypes that were not measured in this study.

Children's implicit gender stereotypes were only significantly predicted by maternal implicit gender stereotypes about children, although the association was weak. Convergent with social learning theory and gender schema theory, mothers' gender schemas may guide their behavior towards their children and this gender-typed behavior is in itself a model for gender stereotypes. This finding is also in line with meta-analytic findings showing that the impact of mothers on the development of gender stereotypes in children is somewhat stronger than that of fathers, because they spend more time with children and therefore simply have more time to create gender-related experiences for children according to their own stereotypes (Tenenbaum & Leaper, 2002). It does however not explain why fathers do not have any influence at all, especially given that two studies (with U.S. and Hungarian samples) in the meta-analysis that were similar in design to the current study found that fathers had a stronger influence than mothers on 4- and 10-year-olds' gender stereotype development (McHale et al., 1999; Turner & Gervai, 1995). It is possible that fathers' gender stereotypes become more important predictors of children's gender attitudes later in childhood. This is consistent with a U.S. study on father involvement that shows an increase in time spent with the child on teaching, household, and social activities as children grow older (Yeung, Sandberg, Davis-Kean & Hofferth, 2001).



The weak association between mother and child gender stereotypes suggests that many other factors also influence children's attitudes about gender, for example the stereotypic content of children's books, television programs, or movies, as mentioned by several U.S. researchers (Birnbaum & Croll, 1984; Gooden & Gooden, 2001; McHale et al., 2003). The finding that children's implicit gender stereotypes were only predicted by maternal implicit gender stereotypes about children indicates that it is important to measure children's and mothers' gender stereotypes with similar types of methods to uncover such relations.

As hypothesized the association between maternal gender stereotypes and child gender stereotypes was moderated by gender of the child. When mothers showed stronger implicit gender stereotypes about children, their daughters also showed stronger implicit gender stereotypes. For boys no such relation was found. This indicates that for boys other factors than paternal or maternal gender stereotypes influence their gender stereotype development. The finding that there is only mothers' and daughters' gender stereotypes are significantly interrelated is in line with studies that found that; 1) mothers talk more to girls than to boys in general (Leaper, Anderson, & Sanders, 1998), 2) mothers talk more about interests and attitudes to girls than to boys (Boyd, 1989; Noller & Callan, 1990), and 3) mothers have more opportunities to transmit their gender-stereotypic beliefs to girls than to boys, since

mothers tend to be more engaged in play with their daughters than with their sons, (Clearfield & Nelson, 2006).

**Limitations and Recommendations**

A limitation of the study is the generally high parental educational levels. Although the percentage of highly educated parents is not different from other studies about gender stereotypes in a family context (e.g., McHale et al., 1999) it reduces the generalizability of the results, especially because educational level appears to have an effect on gender stereotypes. However, in the current study educational level was only related to explicit gender stereotypes.

A second limitation lies in the scoring of the AIP for young children. Because some children were not able to push the buttons, but only pointed to the pictures (with the experimenter pushing the corresponding button for them), we could not use the response latency scoring system of the Banse et al. (2010) study. Instead we used a difference score for the accuracy in the congruent and incongruent blocks. However, we are confident that we assessed automatic/implicit responding instead of gender flexibility, because the children were under time pressure and trials with long response latencies were excluded. For older children, who can push the buttons, we recommend the additional use of the response latency score, because it is similar to the scoring of the more widely used Implicit Association Measure. If the associations between the two methods are promising, the age range of the AIP may be expanded.

Another limitation is that we did not use an explicit attitude measure for children. The inclusion of an explicit measure would have given a more complete picture of the prediction of children's gender stereotypes from parental attitudes. Future studies should explore the associations between explicit attitudes of parents and explicit stereotypes of their children, as well as the association between explicit and implicit attitudes of the children and the possible cross-associations between explicit and implicit parent and child attitudes.

Many studies about gender role socialization and gender stereotype development have been conducted in the 80s and 90s. Given the rapid changes in society regarding gender roles in the past decades it is important to conduct studies like the current study. Many mothers in the current study already had mothers that worked outside the home, and they themselves have careers more often than not. It is imperative to examine changes in the attitudes of parents about gender and how these attitudes relate to the family context. Because the present study showed that gender stereotypes of children are best predicted by implicit gender stereotypes about children, future studies should explore which specific implicit messages about gender children receive from their parents.

**Conclusion**

The association between parental gender stereotypes and children's attitudes about gender can be most readily observed with similar types of measures for parents and children. In line with family systems theory, parents influence their children's implicit gender stereotypes, and children influence their parent's gender stereotypes. Expanding the family systems model to siblings is important, though the influence of the younger sibling is not yet visible during infancy. Since explicit gender stereotypes are prone to social desirability, which can lead to differences in gender stereotypes between fathers and mothers, it is crucial to study both implicit and explicit aspects of gender stereotypes in both parents and children to get a complete picture of their attitudes about gender. Differences between implicit and explicit gender stereotypes may reflect true differences in intentional and unintentional attitudes about gender that influence behavior in different ways. The issue of gender stereotype development has been somewhat neglected in the past decades. The current study may contribute to a revival of interest in gender stereotypes in modern-day families.