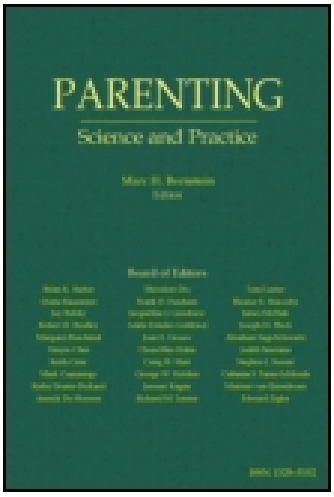

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Boys Don't Play with Dolls: Mothers' and Fathers' Gender Talk during Picture Book Reading

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SYNOPSIS

Objective. This study examines mothers' and fathers' gender talk with their daughters and sons and investigates the association between parental gender talk and parental implicit gender stereotypes. ***Design.*** Mothers' and fathers' gender talk was examined in 304 families with two children aged 2 and 4 years old, using the newly developed *Gender Stereotypes Picture Book*. Parental implicit gender stereotypes were assessed with the action inference paradigm. ***Results.*** The picture book elicited different forms of gender talk, including use of gender labels, evaluative comments related to gender, and comments about gender stereotypes. Mothers used positive evaluative comments more than fathers to convey messages about gender, but fathers made more comments confirming gender stereotypes than mothers. Fathers with two boys were more inclined to emphasize appropriate male behavior in their gender talk than fathers in other family types. Implicit gender stereotypes were associated with gender talk to the children only for mothers. ***Conclusion.*** The assessment of gender talk with the *Gender Stereotypes Picture Book* can provide insights into the roles of mothers and fathers in child gender socialization.

INTRODUCTION

The intergenerational transmission of gender stereotypes has interested researchers for decades (e.g., McHale, Crouter, & Whiteman, 2003; Perloff, 1977; Repetti, 1984), but the mechanisms underlying this process are not fully understood (e.g., McHale et al., 2003). To date, only weak associations between the gender-related beliefs of parents and their children have been found (Tenenbaum & Leaper, 2002). Parental gender talk may have a stronger influence on children's attitudes about gender (Gelman, Taylor, & Nguyen, 2004) because it is a direct way of transmitting ideas about gender and because language is an important route to gender socialization (e.g., Lanvers, 2004; Leaper, Anderson, & Sanders, 1998). Gender talk is defined as the way parents talk to their children about gender, for example, by contrasting females and males or emphasizing gender categories (Gelman et al., 2004).

There has been very little research exploring the role of parental gender talk in early childhood, even though gender typically becomes a salient developmental issue at this time (Lanvers, 2004). Moreover, most studies with a focus on gender talk have been conducted in English-speaking countries, whereas gender talk in the Dutch language

might be especially interesting because it makes more use of gender-neutral nouns and pronouns than English (Audring, 2009).

Because gender talk often happens unconsciously and infrequently, it is difficult to examine it with self-report questionnaires or in brief observation periods (Gelman et al., 2004). An alternative way of studying gender talk is via book reading. In the current study, a picture book was specifically designed to elicit parental statements about gender. We examine mothers' and fathers' gender talk toward their young daughters and sons and investigate the association between parental gender talk and parental implicit gender stereotypes (attitudes about gender that operate largely outside conscious awareness).

Theoretical Background of Parental Gender Talk

This research is inspired by social learning theories (Bandura, 1977), the Sapir-Whorf hypothesis (Kay & Kempton, 1984), and gender schema theory (Bem, 1983). Social learning processes are particularly relevant to the study of gender talk, as parents are a potential source of gender stereotypical linguistic information in several ways. First, parents often create gender-typical environments for their children by the toys, activities, and chores they choose for them (Pomerleau, Bolduc, Malcuit, & Cossette, 1990). These activities, in turn, shape at least partly the way parent and child communicate with each other (Leaper & Gleason, 1996). Second, parents reinforce gender-typed behavior by their differential treatment of girls and boys (Chaplin, Cole, & Zahn-Waxler, 2005; Fagot, 1978). For example, parents are more likely to talk about emotions in general, and specifically more about sadness and negative emotions, with daughters than with sons (Fivush, 1998; Fivush, Brotman, Buckner, & Goodman, 2000). Third, the way parents talk to their children about gender may communicate their underlying attitudes about gender (Gelman et al., 2004).

Gender schema theory (Bem, 1983) provides rationales for the way parents talk to their children about gender, although this theory mostly focuses on child processes. This theory proposes that gender-related behavior or the perception of gender-related information is guided by the content of children's gender schemas. Extending gender schema theory to parental gender talk, the way parents talk to their children about gender might be guided by gender schemas that consist of gender-typed information and experiences. Two previous studies have shown that mothers' gender talk is related to their explicit gender stereotypes (Friedman, Leaper, & Bigler, 2007; Gelman et al., 2004).

More specifically, parents with gender schemas consisting of strong stereotypical notions about gender roles might be more likely to socialize their girls and boys in a gender-role consistent way. To date, the empirical evidence for the link between parents' gender-related attitudes and actual gender socialization of their children is surprisingly weak, with most studies finding no associations (e.g., Fagot, Leinbach, & O'Boyle, 1992; Tenenbaum & Leaper, 2002). The lack of evidence for a gender attitude-behavior link may be partly because parents' gender attitudes are often assessed explicitly, whereas for controversial subjects like gender, implicit stereotypes may be better predictors of behavior than explicit self-reported stereotypes (Nosek, Benaji, & Greenwald, 2002). The latter may be biased by social desirability and a lack of awareness of one's own stereotypes (White & White, 2006). In the current study, we therefore used an implicit measure to assess parental attitudes about gender.

Regarding the influence of parental gender-talk on early gender development, the Sapir-Whorf hypothesis suggests that language shapes the way children conceptualize their world (Kay & Kempton, 1984), which according to gender schema theory influences cognitive processes such as the formation of gender schemas (Bem, 1983). Children whose parents frequently provide linguistic information about gender will be acutely aware of gender categories, which shape children's construction of their own gender concepts (Liben & Bigler, 2002), which in turn guide their future behavior (Bem, 1983).

It has been shown that frequent use of gender labels by adults in combination with other gender emphasizers (i.e., gendered organization and physical separation in classrooms) makes gender salient, leading to stronger gender stereotypes in children (Hilliard & Liben, 2010). In addition, there is empirical evidence that children who can use gender labels accurately generally display more knowledge of gender stereotypes, play more with sex-typed toys, and show more gender-role consistent behavior (e.g., Fagot et al., 1992; Zosuls et al., 2009). Furthermore, social categories such as gender are not grounded on biological or objectively visible facts (i.e., clothing, appearance) but are instead culturally constructed (i.e., due to socialization), providing evidence for the power of the use of category labels in creating awareness of social categories in children (Diesendruck & Deblinger-Tangi, 2014). Moreover, it has been shown that children play an active role in learning language in general (Akhtar, Jipson, & Callanan, 2001; Rogoff, Paradise, Arauz, Correa-Chávez, & Angelillo, 2003) and acquiring gender concepts in particular (Gelman et al., 2004).

Previous Research on Parental Gender Talk

To our knowledge, only three studies have systematically examined gender socialization via parent-child communication about gender (DeLoache, Cassidy, & Carpenter, 1987; Gelman et al., 2004; Friedman et al., 2007). Picture book reading was used in all three studies. DeLoache and colleagues (1987) examined gender labeling (i.e., an indirect form of gender talk) of gender-neutral bears in female and male activities by English-speaking mothers. They found a male bias in mothers' labeling, and the use of gender labels was related to the female or male activities the bears were doing. For example, an inattentive character at a distance was referred to as a male, and a close, attentive, interactive one was referred to as a female (DeLoache et al., 1987). In the current study, we examined gender labeling by using pictures with gender-neutral children in stereotypical feminine or stereotypical masculine activities.

The second study by Gelman and colleagues (2004) had a broader focus, including various aspects of gender talk (e.g., gender labeling, applying gender contrasts, confirming and rejecting gender stereotypes, expressing gender equality). They examined mothers and children discussing pictures with a mix of adults and children in stereotypical and counter-stereotypical gendered activities, using written prompts (e.g., "Who can play with dolls?"). The inclusion of prompts may have increased participants' awareness of the purpose of the task, resulting in less spontaneous gender talk than they would normally use. Parents expressed gender stereotypes in indirect ways (i.e., gender labeling, contrasting females versus males). The authors also pointed out that gender messages can be present in evaluative comments on gender-stereotypical behaviors and activities (e.g., girls playing with dolls, boys playing with cars) or behaviors and activities that are not consistent with gender stereotypes (e.g., a woman repairing a car, a male vacuuming). By making positive or negative comments about these behaviors, parents

indirectly express the belief that certain behaviors are more appropriate for either girls or boys (Gelman et al., 2004).

Friedman and colleagues (2007) focused on more explicit and generalizing messages about gender, comments that confirm gender stereotypes (e.g., "Boys like soccer.") or reject these stereotypes (e.g., "Girls can also play baseball."). Parental generalizing stereotypical statements may directly convey to the child that there are differences between girls and boys and that within these categories members are alike, whereas counter-stereotypical comments convey more egalitarian ideas about the behaviors of girls and boys. Friedman and colleagues (2007) found that mothers made more direct counter-stereotypical comments than stereotypical comments in response to a storybook with equal numbers of pictures depicting girls and boys in gender-typed or cross-gender-typed behaviors, especially when mothers had gender-egalitarian attitudes.

All three studies only used pictures with positive activities. However, parents seem to be particularly prone to gender-differentiated responses to negative or disruptive behaviors, with more discouragement of such behaviors in girls than in boys (Zahn-Waxler, Crick, Shirtcliff, & Woods, 2006). Parents' proneness to gender-differentiated responses to negative behavior may be because bad behavior generally leads to more and stronger reactions than good behavior (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), or because disruptive behavior does not fit with the gender-typical behavior of girls (Archer, 2004).

Fathers' Gender Talk

The role of fathers has been ignored in previous studies on gender talk, even though there appear to be differences between mothers and fathers in interactive styles (Walker & Armstrong, 1995; differential experience hypothesis). Fathers use more directive and informative speech and less supportive speech than mothers, and they also talk less to their children in general than mothers (Leaper et al., 1998). Moreover, mothers use more emotion words and emotional utterances than fathers when discussing past events with their children (e.g., Fivush et al., 2000; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003). Fathers also have more explicit gender stereotypes than mothers, whereas mothers have more implicit stereotypes than fathers (Endendijk et al., 2013; Nosek et al., 2002; Rudman & Glick, 2001). These findings suggest that fathers may also convey their messages about gender more directly to their children than mothers do (e.g., comments about gender stereotypes), and mothers may talk more indirectly about gender than fathers (e.g., gender labeling, evaluative comments).

Effects of Sibling Gender Constellation

There is evidence that the sibling gender composition within a family might also influence parental interactional style (Lanvers, 2004; McHale, Crouter, & Tucker, 1999). There are, to our knowledge, no empirical studies of the effect of sibling gender constellation on parent gender talk. However, gender effects of parental talk about gender might be stronger in families with same-gender children, because these parents focus on socializing only one gender, whereas parents with mixed-gender children must focus their gender socialization on both girls and boys. Therefore, mixed-gender families may constitute a less gender-stereotypical environment than same-gender families (Endendijk et al., 2013). However, one study found evidence of mixed-gender families as a more gender-stereotypical environment, especially when fathers had traditional

gender-role attitudes, possibly because of the opportunity for these fathers to emphasize differences between girls and boys (McHale et al., 1999). These two competing hypotheses are tested in the current study. In the studies of Endendijk and colleagues (2013) and McHale and colleagues (1999), sibling gender constellation only influenced fathers' and not mothers' gender-related behaviors or attitudes.

The Current Study

The aims of the current study were twofold. First, we examined mothers' and fathers' gender socialization of their two children via reading a picture book specifically designed for this purpose. Gender talk was examined toward two children from four types of families (with two girls, two boys, the older a boy and the younger a girl, or the older a girl and the younger a boy). With this design, as opposed to designs comparing same- and mixed-gender siblings, differences due to birth order can be controlled by comparing first boy-second girl families with first girl-second boy families. Controlling for birth order is important because firstborn children are generally parented differently than laterborns (Van IJzendoorn et al., 2000). We expected that (1a) mothers would use more indirect forms of gender talk (i.e., gender labeling, evaluative comments) and that fathers would talk more directly about gender stereotypes (i.e., direct expression of gender stereotypes); and (1b) fathers', and not mothers', interactions would be influenced by the sibling gender composition of the family, with the largest differences to be found between families with same-gender (boy-boy, girl-girl) and mixed-gender compositions.

Second, we wanted to evaluate the methodology of the picture book. Based on the literature, we expected that different picture types would elicit different forms of gender talk. We expected that (2a) parents would describe gender-neutral characters in stereotypical masculine activities more often with a masculine label than with a feminine label, whereas they would use the feminine label more often than the masculine label in stereotypical feminine activities; (2b) parents would respond more positively to behaviors that are expected based on gender stereotypes than to behaviors or activities that are counter-stereotypical; and (2c) parents would make more stereotypical comments than counter-stereotypical comments. We also had one final hypothesis that related to both aims of the study: (3) Parents' gender talk would be related to their implicit attitudes about gender, with stronger implicit gender stereotypes associated with more stereotypical gender talk.

It is especially interesting to study gender talk with families in the Netherlands. In the Dutch (as opposed to English) language, gender-neutral pronouns are available and used more often (Audring, 2009). We examined whether Dutch parents use gender labels for gender-neutral characters in a gender-role consistent way. The use of stereotypical gender labels when gender-neutral labels are readily available would provide evidence for the implicit transmission of gender roles from parents to their children. However, parents' strong implicit gender stereotypes might also have an influence on the unconscious gender talk toward their children. Indeed, even in languages with gender-neutral conventions that offer the possibility to refrain from using gendered nouns and pronouns (such as Dutch), gender distinctions are still expressed linguistically (see Prewitt-Freilino, Caswell, & Laakso, 2012). For example, gender-neutral nouns and pronouns can be interpreted with an implicit male bias (Stahlberg, Braun, Irmen, & Sczesny, 2007), or the use of gender-symmetrical terms, like he/she, might even enhance the salience of gender as a social category (Prewitt-Freilino et al., 2012).

METHOD

Sample

This study is part of the longitudinal study, *Boys will be Boys?*, examining the influence of gender-differentiated socialization on the socioemotional development of girls and boys in the first four years of life. The current article reports on data from the second wave, in which parental gender messages were assessed.

Families with two children in the western region of the Netherlands selected from municipality records (2010–2011) were eligible for participation in the *Boys will be Boys?* study. Families were included in Wave 1 if the younger child was around 12 months of age and the older child was between 2.5 and 3.5 years old. For more information about the selection procedure, see Endendijk and colleagues (2013). Of the 1,249 eligible families, 31% were willing to participate ($n = 390$). In the second wave of the study (youngest child 24 months old, oldest 3.5–4.5 years old), five families dropped out. For the current study, families with missing items due to computer failure or skipped pictures in the gender stereotype picture book were excluded, resulting in a final sample of 304 families. The 81 excluded families did not differ from the participating families in age of mothers ($p = .53$) or fathers ($p = .29$), educational level of mothers ($p = .35$) or fathers ($p = .65$), or the degree of urbanization of residence ($p = .14$). The sample included the following family types: boy-boy: 26%, girl-girl: 24%, boy-girl: 26%, girl-boy: 24%. Mothers were aged 26–45 years ($M = 35.1$, $SD = 3.8$) and fathers 25–54 years ($M = 37.6$, $SD = 4.9$). Most of the participants (93%) were married or had a registered agreement. Most mothers and fathers finished academic or higher vocational schooling (mothers: 80%, fathers: 78%). At the time of Wave 2, a third child had been born in 26 (9%) of the families, and parents of two families were divorced. Analyses with and without these families yielded similar results, so these families were retained in the current dataset.

Procedure

Each family was visited twice, once with the mother and the two children and once with the father and the two children, separated by about 10 days (days: $M = 9.97$, $SD = 9.55$). The order in which mothers and fathers were visited was counterbalanced. Parents were told that they would participate in a study of the unique roles of mothers and fathers in the socioemotional development of their children. One of the tasks was talking about the *Gender Stereotypes Picture Book* with both children at the same time, which mimics a common real-life situation and allows us to look at the effect of sibling gender composition on gender socialization. Parents were told to "look at all the pictures in the book and talk to both children about what you see in the pictures," with a maximum of 10 min to talk about the 12 pictures ($M = 5.33$ min, $SD = 1.84$). The interaction was filmed. At the end of the home visit, parents completed a computer task. All visits were conducted by pairs of trained female graduate or undergraduate students ($n = 20$).

Instruments

The Gender Stereotypes Picture Book. A picture book was developed to elicit parental comments about gender (picture book and coding system are available from the authors). We used two versions, one called "Winter" and one called "Summer," which

had the same format, the same children, and different but comparable activities. One version was read by mother and the other by father. The order of presentation as well the Summer or Winter versions read by mother or father were counterbalanced. The book contained no storyline. The order and types of pictures in the Summer book are presented in Table 1.

The pictures were piloted on 98 university students (53 males, 45 females, age: $M = 22.1$, $SD = 3.0$) to examine if the activities and children in the pictures were interpreted as they were intended. The students must determine whether the child in the picture was a girl or a boy. Boys were labeled as boys in 99.5% of the cases, and the girls were labeled as girls by all respondents. The children intended to be gender-neutral were labeled girl or boy equally often ($p = .13$–$.23$). The students also rated each activity on a 3-point scale (1 = *mostly seen as boy activity*, 2 = *neutral*, 3 = *mostly seen as girl activity*). Mean scores were different ($p < .01$) for activities intended as stereotypically masculine ($M = 1.45$, $SD = .24$), activities intended as stereotypically feminine ($M = 2.82$, $SD = .16$), and activities intended to be gender neutral ($M = 2.01$, $SD = .13$). The mean scores show that the intention of the depicted activities was congruent with the respondents' evaluation of the activities.

A coding system was developed for coding parental gender talk during book reading. It consists of the following scales: (1) *Use of gender labels* refers to using feminine (e.g., "her," "she," "girl," "Sandra") or masculine (e.g., "boy," "he," "his," "Nick") labels for the children in the pictures (dichotomous: 1 = *label used*, 0 = *label not used*). Parents' use of gender-neutral names was coded as if they did not use a gender label in that particular picture. Codes were given per picture (see Table 1). We coded only the presence versus absence of gender labels per picture, because a pilot study showed that the distributions of the frequencies of gender labels used were highly negatively skewed. Moreover, the nature of our question (i.e., whether parents label gender-neutral characters depending on the masculine or feminine activity) does not necessarily require a frequency score but can be answered with a dichotomous score as well.

(2) *Evaluative comments* about the activities in the pictures were coded, which could be positive (e.g., "Building a snowman is fun."), neutral (e.g., "They are playing with dolls."), or negative (e.g., "Throwing sand into another child's face is not nice.") (1 = *negative*, 2 = *neutral*, 3 = *positive*). The coding of parents' evaluations of the activities in the pictures included evaluations of girls' and boys' behavior, and more general descriptions about the picture with a positive or negative valence, as these indirectly convey the message that a situation or activity can be evaluated differently depending on whether a girl or a boy is involved. A single rating scale was used to reduce the number of analyses. If parents made both positive and negative evaluations in one picture ($n = 4$), the evaluative comment was coded as neutral. Each page was coded with a 1, 2, or 3. Codes were added and averaged for each picture type (see Table 1).

(3) *Comments about gender stereotypes* were also recorded: confirming (e.g., "Boys never play with dolls.") and contradicting comments (e.g., "Girls can also build igloos."). The absence or presence of the two types of comments was rated separately (dichotomous: 1 = *confirming or contradicting gender comment made*, 0 = *no gender comment made*). We coded the absence versus presence of confirming or contradicting comments about gender stereotypes because a pilot study showed that the distributions of the frequencies of comments about gender stereotypes were highly negatively skewed. Codes were given per picture and summed for the congruent and incongruent pictures and for the whole book. The confirming and contradicting variables were highly skewed (range

TABLE 1
Picture Types Used and Types of Gender Talk Assessed in the *Gender Stereotypes Picture Book* Summer Version

	Description	Activity	Child Gender	Picture Type	Type of Gender Talk
1	Building sandcastle	Neutral	Boy & girl	Filler[1]	–
2	Bodyboarding in the sea	Masculine	Boy & girl	Filler	–
3	Picnicing with dolls	Feminine	Neutral[2]	Gender-neutral child in feminine activity	Label boy Label girl
4	Making somersaults	Feminine	Boy & girl	Filler	–
5	Playing with water guns	Masculine	Neutral	Gender-neutral child in masculine activity	Label boy Label girl
6	Playing with hula hoops	Feminine	Boy	Incongruent	Evaluative comments Comments about gender stereotypes
7	Harshly pushing in pool	Negative	Boys	Negative behavior	Evaluative comments
8	Hand-clapping game	Feminine	Girls	Congruent	Evaluative comments Comments about gender stereotypes
9	Playing in a pool	Neutral	Neutral	Filler	–
10	Skateboarding	Masculine	Boys	Congruent	Evaluative comments Comments about gender stereotypes
11	Throwing sand into face	Negative	Girls	Negative behavior	Evaluative comments
12	Playing soccer	Masculine	Girls	Incongruent	Evaluative comments Comments about gender stereotypes

[1]To divert attention away from the gender focus of the book.
[2]Created in such a way that they could be either a boy or a girl (i.e., ambiguous gender, clothes in neutral colors, half-long hair).

confirming: 0–5, more than 50% of parents made no comment; range contradicting: 0–8, more than 60% of parents made no comments) and dichotomized (i.e., score of 1 or above 1 was coded as 1), because transformation did not sufficiently reduce skewness.

Four trained and reliable coders coded the videos according to this system. Coders agreement was 95%–98% (kappa = .80–.94) for use of gender labels, 90%–93% (kappa = .71–.96) for evaluations of activities, and 92%–95% (kappa = .66–.73) for comments about gender stereotypes. Percentages of agreement for subtypes of pictures (e.g., congruent, incongruent, negative behavior pictures, pictures with gender-neutral children) were 87%–100% (kappa = .62–1.00).

Action inference paradigm. An adapted action inference paradigm (AIP; Banse, Gawronski, Rebetez, Gutt, & Morton, 2010) for assessing implicit gender stereotyping in children was used to determine gender stereotypes in parents. This task was chosen because of conceptual similarity with the picture book (e.g., children playing and children's toys). The usefulness of this task for assessing gender stereotypes in parents was determined in a previous study showing meaningful associations between parent and child gender stereotypes, and differences between mothers' and fathers' stereotypes (Endendijk et al., 2013).

In the AIP, presents must be divided between a girl and a boy (originally from Santa Clause but changed to "birthday present" to fit the non-U.S. cultural context). The task started with 20 practice items with red and blue presents (to get used to the red and blue buttons connected to the laptop), followed by two congruent blocks (e.g., assigning feminine toys to a girl) with 16 trials each and two incongruent blocks (e.g., assigning masculine toys to a girl) with 16 trials each. The two congruent blocks alternated with the two incongruent blocks. The participants must 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). Parents were told that the boy and the girl liked certain types of toys (i.e., feminine- or masculine-stereotyped toys depending on congruent or incongruent block). Gender was not made explicit in the instructions; the girl and boy were referred to with their names (i.e., Linda, Peter). The AIP was conducted on a laptop that recorded reaction times and accuracy scores.

The improved scoring algorithm of Greenwald, Nosek, and Benaji (2003) for the implicit association test was used to determine the level of implicit stereotypes of the parent on the AIP. A high positive score represented more difficulties (e.g., longer reaction times) pairing masculine toys to girls and feminine toys to boys compared to pairing masculine toys to boys and feminine toys to girls, indicating stronger stereotypical ideas about the appropriateness of certain toys for girls and boys. The task was programmed in E-prime 2.0 (Schneider, Eschman, & Zuccolotto, 2002).

Analysis Plan

All variables were inspected for possible outliers, defined as values more than 3.29 *SD* under or above the mean (Tabachnick & Fidell, 1996). No outliers were present. The activity evaluation variables were normally distributed. Because book version was not a significant covariate in preliminary analyses, the results are presented without control for book version.

Analyses of variance with repeated measures and Wilcoxon signed ranks tests were used to examine (1) differences *between* mothers and fathers in gender talk and (2) differences *within* parents gender talk on the various picture types. In all repeated

measures analyses, Picture Type or Parent Gender were within-subjects factors, and Family Type (i.e., two boys, two girls, boy-girl, girl-boy) was the between-subjects factor. Repeated-measures analyses of variance (RM-ANOVA) were used to take into account the non-independence of parents and of picture types. Overall group differences were examined with a series of 2 (Gender of the parent) by 4 (Family Type) RM-ANOVAs, separately for the different forms of gender talk. Correlations and *t*-tests were used to examine associations between gender talk and gender stereotypes. For the dichotomous gender talk variables (i.e., use of gender labels, comments about gender stereotypes), we checked our significant results with the highly conservative McNemar's chi-square test that takes into account the dependency between variables (Haviland, 1990).

RESULTS

Descriptive statistics for mothers' and fathers' gender talk are displayed in Table 2. When examining parental comments across all the pictures in the book, most parents

TABLE 2
Mothers' and Fathers' Gender Talk in the Total Book and the Picture Types of Interest

	Mother *M* (*SD*)	Father *M* (*SD*)
Use of gender labels[1]		
Total book	.96 (.20)	.92 (.27)
Gender-neutral child in masculine activity		
Label boy	.11 (.32)[c]	.09 (.29)[c]
Label girl	.03 (.18)[d]	.03 (.18)[d]
Gender-neutral child in feminine activity		
Label boy	.08 (.28)	.08 (.28)
Label girl	.12 (.32)	.10 (.29)
Evaluative comments		
Total book	2.07 (.18)[a]	2.03 (.02)[b]
Congruent pictures	2.25 (.35)[a,c]	2.18 (.35)[b]
Incongruent pictures	2.19 (.31)[d]	2.17 (.31)
Boys' negative behavior pictures	1.32 (.50)	1.36 (.52)
Girls' negative behavior pictures	1.38 (.50)	1.36 (.50)
Comments about gender stereotypes[2]		
Total book		
Stereotypical	.53 (.50)[c]	.53 (.50)[c]
Counter-stereotypical	.41 (.49)[d]	.38 (.49)[d]
Total comments	.65 (.48)	.61 (.49)
Congruent pictures		
Stereotypical	.03 (.16)[c]	.01 (.11)
Counter-stereotypical	.00 (.00)	.00 (.06)
Incongruent pictures		
Stereotypical	.00 (.00)[a,d]	.02 (.14)[b]
Counter-stereotypical	.01 (.10)	.01 (.08)

Note. Means labeled [a] and [b] refer to significant differences between mothers and fathers. Means labeled [c] and [d] refer to significant differences within parents regarding comments about different picture types or stereotypical versus counter-stereotypical comments.

[1]The statistics refer to the absence (0) versus presence (1) of the use of a masculine or feminine gender label separate for the masculine- and feminine-stereotyped pictures.

[2]The statistics refer to the average of the absence (0) or presence (1) of comments about gender stereotypes, separate for the stereotypical and counter-stereotypical comments, and the picture types.

made use of at least one gender label (i.e., masculine *or* feminine) in the pictures, and more than half the parents made at least one gender comment (i.e., confirming *or* contradicting). Regarding evaluative comments, parents were on average neutral about the pictures in the book, as indicated by their scores of around 2 with small standard deviations. There were no differences between mothers and fathers in implicit gender stereotypes (Mother: $M = .41$, $SD = .02$; Father: $M = .39$, $SD = .02$), gender labeling, and total comments about gender stereotypes, but mothers were more positive about the pictures in the book than fathers. The effect size was small, *Pillais F* $(1, 300) = 6.47$, $p < .05$, $\eta_p^2 = .02$. There were no differences between family types.

Differences between Mothers and Fathers in Gender Talk

Results of the analyses testing Hypothesis 1a, that mothers were expected to use more indirect forms of gender talk than fathers and fathers were expected to talk more directly about gender stereotypes than mothers, are presented in Table 2 (differences between columns).

Use of gender labels. For each picture type, 2 (Gender of the parent) by 4 (Family Type) RM-ANOVAs showed that mothers and fathers did not differ in their use of feminine or masculine labels.

Evaluative comments. Four 2 (Gender of the parent) by 4 (Family Type) RM-ANOVAs (one for congruent pictures, one for incongruent pictures, one for girls' negative behavior, one for boys' negative behavior) revealed that there was a main effect of parent gender on the evaluation of congruent pictures, *Pillais F* $(1, 300) = 4.68$, $p < .05$, $\eta_p^2 = .02$ (McNemar test: $p < .05$). Mothers made more positive comments about girls and boys doing activities congruent with gender stereotypes than fathers. Mothers and fathers did not differ in their evaluation of incongruent pictures and pictures with girls' and boys' negative behavior.

Comments about gender stereotypes. Wilcoxon signed-rank tests showed that mothers and fathers did not differ in their overall use of comments that confirm gender stereotypes, *Wilcoxon* $Z = -.17$, $p = .87$, or contradict stereotypes, *Wilcoxon* $Z = -.67$, $p = .51$. With regard to the stereotype-congruent pictures, there was no difference between mothers' and fathers' use of gender messages (Stereotypical comment: *Wilcoxon* $Z = -1.16$, $p = .25$; Counter-stereotypical comment: *Wilcoxon* $Z = -1.00$, $p = .32$). However, more fathers than mothers made comments confirming gender stereotypes when discussing pictures showing girls and boys doing activities that were incongruent with gender stereotypes, *Wilcoxon* $Z = -2.45$, $p < .05$ (McNemar test: $p < .05$).

Summary. Mixed results were found for Hypothesis 1a. Expected differences between mothers and fathers were found for evaluative comments about congruent pictures and confirming comments about gender stereotypes in incongruent pictures. However, mothers and fathers did not differ in their use of gender labels or evaluations or comments about gender stereotypes in other picture types. McNemar's chi-square tests confirmed these results.

Differences within Parents' Gender Talk for the Different Picture Types

Results of the analyses testing differences within parents' gender talk are displayed in Table 2 (differences between rows). Hypothesis 1b that fathers', and not mothers', interactions would be influenced by the sibling gender composition of the family, and the largest differences were expected to be found between families with same-gender (boy-boy, girl-girl) and mixed-gender compositions, was tested for all aspects of gender talk.

Use of gender labels. Differences between the use of feminine or masculine labels in the masculine-stereotyped or feminine-stereotyped activity pictures were examined with 2 (Gender Label: girl or boy) by 4 (Family Type) RM-ANOVAs, separately for mothers and fathers. It was expected that parents would describe gender-neutral characters in stereotypical masculine activities more often with a masculine label than with a feminine label, whereas they would use the feminine label more often than the masculine label in stereotypical feminine activities (Hypothesis 2a). We found that in the pictures with a masculine-stereotyped activity, mothers and fathers labeled the gender-neutral children more often masculine than feminine (McNemar test: $p < .01$). For fathers, there was also an interaction with family type, *Pillais F* $(3, 300) = 2.92$, $p < .05$, $\eta_p^2 = .03$, demonstrating that when fathers of two boys discussed the gender-neutral children in pictures with a masculine-stereotyped activity, they used the masculine label ($M = .14$, $SD = .35$) more often than the feminine label ($M = .00$, $SD = .00$), *Wilcoxon* $Z = -3.32$, $p < .01$, which was not found in other family types. For mothers, there was no interaction with family type. In the pictures with the feminine-stereotyped activity, there were no differences in the use of the feminine and masculine labels, and there were no interactions with family type.

Evaluative comments. It was expected that parents respond more positively to behaviors that are expected based on gender stereotypes than to behaviors or activities that are counter-stereotypical (Hypothesis 2b). Two (one for mothers, one for fathers) 2 (Picture Type: Congruent versus Incongruent) by 4 (Family Type) RM-ANOVAs revealed that mothers were more positive about congruent pictures than about incongruent pictures, *Pillais F* $(1, 300) = 6.61$, $p < .05$, $\eta_p^2 = .02$. Fathers did not differ in their evaluation of congruent and incongruent pictures, *Pillais F* $(1, 300) = .32$, $p = .57$, $\eta_p^2 < .01$. There were no interactions with family type.

Regarding girls' and boys' negative behavior, two (one for mothers, one for fathers) 2 (Picture Type: Congruent versus Incongruent) by 4 (Family Type) RM-ANOVAs indicated that for both parents the evaluation of girls' and boys' negative behavior was not different (Mothers: *Pillais F* $(1, 300) = 2.46$, $p = .12$, $\eta_p^2 = .01$; Fathers: *Pillais F* $(1, 300) = .06$, $p = .81$, $\eta_p^2 < .01$). For fathers, there was an interaction with family type, *Pillais F* $(3, 300) = 2.79$, $p < .05$, $\eta_p^2 = .03$, demonstrating that fathers with two boys were less negative about the picture with boys' negative behavior ($M = 1.49$, $SD = .57$) than about the picture with girls' negative behavior ($M = 1.35$, $SD = .51$), whereas this was not found in other family types. The interaction between mothers' evaluation and family type was not significant.

Comments about gender stereotypes. Wilcoxon signed-rank tests were used to examine differences between mothers and fathers in comments about gender stereotypes and differences in comments about gender stereotypes between congruent and incongruent

pictures. It was expected that parents would make more stereotypical comments than counter-stereotypical comments (Hypothesis 2c). Throughout the book, both mothers and fathers made more stereotypical comments than counter-stereotypical comments (Mothers: *Wilcoxon* $Z = -3.40$, $p < .01$, McNemar $p < .05$; Fathers: *Wilcoxon* $Z = -4.75$, $p < .01$, McNemar $p < .01$). Mothers made more stereotypical comments when discussing congruent pictures than when discussing incongruent pictures, *Wilcoxon* $Z = -2.83$, $p < .01$ (McNemar test: $p < .01$). For fathers, this difference was not significant.

Summary. Regarding the support for Hypothesis 1b, family gender composition had an effect on fathers' use of gender labels and the differential evaluation of girls' and boys' negative behavior, which was strongest in families with two boys. Expected differences in the use of gender labels were only found for the picture with a masculine-stereotyped activity (Hypothesis 2a). More positive evaluation of congruent activities compared to incongruent activities was only found for mothers, and less negative evaluation of boys' negative behavior compared to girls' negative behavior was only found for fathers with two boys (Hypothesis 2b). Both parents made more comments confirming gender stereotypes than comments contradicting gender stereotypes (Hypothesis 2c). McNemar's chi-square tests confirmed these results.

Associations between Gender Talk and Gender Stereotypes

Independent samples *t*-tests were used to examine differences in implicit gender stereotypes between parents who used or did not use gender labels, or parents who made or did not make comments about gender stereotypes. Correlations were computed between the activity evaluation variables of the picture book and the implicit gender stereotypes on the AIP. Descriptive statistics for the associations between parental gender talk and gender stereotypes are presented in Table 3. For fathers, there were no associations between any form of gender talk in the picture book and the implicit gender stereotypes ($p = .12$–$.83$). Therefore, only results for mothers are described in the next sections.

Use of gender labels. Mothers who used the feminine label to describe the gender-neutral children in the masculine-stereotyped activity picture had less strong implicit gender stereotypes on the AIP (i.e., shorter reaction times when assigning masculine toys to girls and feminine toys to girls, compared to assigning masculine toys to boys and feminine toys to girls) than mothers who did not use the feminine label in these pictures, $t(302) = 2.47$, $p < .05$, $d = .67$. Mothers' use of the masculine label in the masculine-stereotyped activity pictures was unrelated to mothers' implicit gender stereotypes. Mothers' use of gender labels in the pictures with gender-neutral children in a feminine-stereotyped activity was not related to mothers' implicit gender stereotypes, either.

Evaluative comments. There was a significant negative association between mothers' evaluation of incongruent pictures and the strength of their implicit gender stereotypes, $r(304) = -.13$, $p < .05$, indicating that mothers with stronger implicit gender stereotypes evaluated pictures with girls and boys doing activities incongruent with gender stereotypes more negatively. Mothers with stronger implicit gender stereotypes also evaluated pictures with boys' negative behavior more positively, $r(304) = .15$,

TABLE 3
Differences in Gender Stereotypes between Parents Who Used and Did Not Use Gender Labels or Comments about Gender Stereotypes during Picture Book Reading

	Mothers' Stereotypes *M* (*SD*)	Fathers' Stereotypes *M* (*SD*)
Use of gender labels		
Label boy for gender-neutral child in masculine activity		
Used	.35 (.40)	.31 (.36)
Not used	.41 (.41)	.43 (.39)
Label girl for gender-neutral child in masculine activity		
Used	.11 (.52)[a]	.33 (.47)
Not used	.42 (.40)[b]	.43 (.38)
Label boy for gender-neutral child in feminine activity		
Used	.35 (.49)	.39 (.35)
Not used	.41 (.40)	.43 (.39)
Label girl for gender-neutral child in feminine activity		
Used	.35 (.44)	.46 (.41)
Not used	.41 (.41)	.42 (.38)
Comments about gender stereotypes		
Stereotypical comments		
Used	.44 (.40)[a]	.42 (.41)
Not used	.36 (.41)[b]	.43 (.36)
Counter-stereotypical comments		
Used	.39 (.40)	.40 (.43)
Not used	.41 (.41)	.44(.36)

Note. Means labeled [a] and [b] refer to significant differences in gender stereotypes between parents who used and did not use a type of gender talk, within each label or comment and separately for mothers and fathers.

$p < .05$. The associations between mothers' implicit gender stereotypes and evaluations of congruent pictures, and pictures with girls' negative behavior were not significant.

Comments about gender stereotypes. There was a significant difference in gender stereotypes between mothers who made comments confirming gender stereotypes and those who did not, $t(302) = -2.00$, $p < .05$, $d = .22$. Mothers who made stereotypical comments had stronger implicit gender stereotypes than those who did not. Mothers' use of counter-stereotypical comments was unrelated to mothers' implicit gender stereotypes.

Summary. Expected associations with gender stereotypes were found for mothers' use of the label girl in masculine-stereotyped activities, evaluation of incongruent pictures and boys' negative behavior, and comments confirming gender stereotypes (Hypothesis 3). For fathers, there was no support for Hypothesis 3.

DISCUSSION

We examined mothers' and fathers' gender socialization of their daughters and sons via picture book reading, and the association between parents' gender-related attitudes and gender-socializing behaviors. We also evaluated the newly developed picture book and found that it was successful in eliciting multiple forms of gender talk from parents to their children, including gender labels, evaluative comments, and comments

about gender stereotypes. Parents' gender talk was associated with implicit gender stereotypes, at least for mothers. Moreover, effects of parent gender and sibling gender constellation on gender talk were found.

As expected, both parents used gender labels that were in line with the gender-role stereotypes conveyed by the activities in the pictures with gender-neutral children (e.g., using the masculine label for gender-neutral children playing with water guns), thus indirectly communicating to a child that certain activities are more appropriate for girls or for boys (DeLoache et al., 1987; Gelman et al., 2004). These results are the more compelling because they are found in Dutch-speaking parents. In the Netherlands, gender equality and the participation of women in the labor market are relatively high, and fathers are generally ranked highly on father involvement (Cousins & Ning, 2004; Devreux, 2007). It is common to use neutral pronouns to describe objects, animals, and characters of indiscriminate gender in Dutch as opposed to English, which makes less use of gender-neutral nouns and pronouns when gender is unclear (Audring, 2009). Even though parents had the option of using a gender-neutral pronoun to describe the gender-neutral characters in the pictures, some nevertheless labeled the characters in a gender-role consistent way, thereby transmitting information about the gender appropriateness of certain roles and activities to their children.

Fathers with two boys described the gender-neutral children in pictures with a masculine-stereotyped activity more often as boys than as girls, a difference that was not found in other family types. That fathers specifically provide their sons, and not their daughters, with gender labels highlighting appropriate male behavior might have something to do with the more restrictive nature of stereotypes about male roles than stereotypes about female roles (Hort, Fagot, & Leinbach, 1990; Leaper, 2000). By using gender labels in this way, some Dutch fathers may prepare their sons for a society in which they feel it is more important for boys to conform to gender stereotypes than for girls (even though gender equality is relatively high in the Netherlands).

Additionally, fathers with two boys were less negative about pictures showing boys' negative behavior than about pictures showing girls' negative behavior. Fathers seem to suggest that negative behavior is more appropriate for boys than for girls. It may be that fathers with two boys consider negative boy behavior as less negative, because they are more used to these behaviors in the home (Archer, 2004; DiPietro, 1981). More experience with negative behaviors of boys may lead to a gendered expectation of boys in general showing more negative behavior, which may lead fathers to refrain from discouraging negative behavior in boys, which in turn may influence boys' behavior. Similarly, fathers may consider this behavior normal and acceptable for boys, because they probably see their two boys showing these behaviors more often than fathers in other family constellations and may therefore be less inclined to discourage such behavior (Martin & Ross, 2005).

These two findings suggest that the most gender-stereotypical environment with regard to gender talk was created by fathers in families with two boys. It appears that at least when you are a boy, having an opposite-gender sibling may work as a gender-neutralizer on gender talk in the family environment (Endendijk et al., 2013), as opposed to the idea that having an opposite-gender sibling works as a gender-intensifier in the family system (McHale et al., 1999).

The congruent and incongruent pictures also elicited the expected form of gender talk but only for mothers. They were more positive about stereotype-congruent activities than about stereotype-incongruent activities. Fathers were overall less positive

but did not distinguish between the congruent and incongruent activities in their evaluations. Apparently, mothers prefer children doing activities that are expected based on stereotypes, emphasizing the appropriateness of these stereotype-congruent activities (Gelman et al., 2004), which may reinforce gender-typed behaviors (Fagot, 1978). These findings converge with role congruency theory, which states that people tend to view deviations from expected gender roles negatively (Eagly & Diekman, 2005).

This finding also provides some evidence for an effect of parent gender on evaluative comments. Mothers were more positive than fathers about pictures showing girls and boys in activities that are in line with gender stereotypes, indirectly endorsing the stereotypes. This finding converges with the differential experience hypothesis (Walker & Armstrong, 1995) and with previous research showing that women hold their stereotypes more implicitly or unconsciously than men (Endendijk et al., 2013; Nosek et al., 2002; Rudman & Glick, 2001) and might therefore also be more likely to express them in indirect ways.

As expected, both mothers and fathers made more stereotypical comments about gender than counter-stereotypical comments about gender. However, this finding did not correspond with the finding of Friedman and colleagues (2007) that mothers made more counter-stereotypical comments than stereotypical comments. The lack of correspondence between the findings of the two studies may be due to the higher salience of gender in the Friedman and colleagues (2007) study, because in their study only pictures were depicted with girls and boys in stereotypical and counter-stereotypical activities, resulting in more socially desirable comments. With our book, which included filler pictures (i.e., both girls and boys in the same activity), it may have been less obvious to parents that we examined gender talk or gender-related attitudes. However, differences might also be due to sampling. The Friedman and colleagues study had an even higher-educated sample than our study, which may have led to more egalitarian attitudes with regard to gender (Krysan, 1998).

We found some evidence in support of the hypothesis that fathers would use the more direct forms of gender talk than mothers, especially in pictures with children showing stereotype-incongruent behavior. For example, fathers were more likely than mothers to say things like "Girls cannot play ice hockey." or "Boys don't play with dolls." It might be that fathers want to compensate for the incongruence in the pictures through a comment that confirms the gender stereotype, consistent with findings that men are more concerned with gender-typed behavior and conforming to gender roles than women (Leaper, 2000). That fathers emphasized more than mothers how children should not behave converges with studies showing that compared to mothers, fathers use more parenting strategies that discourage undesirable behaviors as opposed to strategies that promote preferred behavior (Kerr, Lopez, Olson, & Sameroff, 2004; Russel et al., 1998).

Although we found some effects of parent and child gender on parental gender talk, mothers and fathers in our upper-middle class sample were generally very similar in their gender talk to girls and boys. Consistent with our expectations, mothers did not adapt their gender talk to the gender composition of both their children (DeLoache et al., 1987; Gelman et al., 2004). The finding that fathers did tailor some aspects of their gender talk to the gender composition of both their children was also expected, because men are more inclined to maintain gender boundaries in social interactions (Maccoby, 1998). However, our data were organized on family level, which dictated separate analyses for fathers and mothers (i.e., with picture type as within-subjects factor instead of parent gender as within-subjects factor). As a result, we cannot conclude that fathers show more gender differentiation in their gender talk than mothers.

Regarding the association between parental gender talk and gender stereotypes, we found that mothers with more egalitarian implicit gender stereotypes were also more likely to communicate to their children that stereotypically masculine activities could very well be done by girls too, that stereotype-incongruent behavior is appropriate for both girls and boys, and that negative behavior is inappropriate for both girls and boys. These findings are consistent with gender schema theory (Bem, 1983) and previous findings that mothers' gender talk to their children reflects mothers' gender stereotypes (Gelman et al., 2004), and gender talk therefore might be a mechanism underlying the intergenerational transmission of gender stereotypes. That fathers' implicit gender stereotypes were not associated with gender talk to their children might be due to the implicit nature of the task assessing parental gender stereotypes. It is possible that fathers' explicit gender stereotypes are more related to their gender talk than are their implicit stereotypes, because men express their stereotypes more explicitly than women (Endendijk et al., 2013).

Limitations and Future Directions

This study has some limitations. First, not all parents used a lot of gender talk, talking more about other aspects of the picture. The low frequency of gender talk by some parents might be because of the inclusion of filler pictures to reduce the focus on gender, the option of labeling gender-neutral characters with gender-neutral pronouns in the Dutch language, and the high number of highly educated parents in the sample who are generally less explicit in their gender talk (Krysan, 1998). However, it is likely that the picture book elicited more gender talk than would be expected in naturalistic play situations, given the implicit gender-related prompts that the book provides. Second, we did not code children's utterances about gender. Parents generally led the conversations, but sometimes the children made comments first and thus may have influenced their parents' gender talk. Future studies could examine children's gender talk to investigate the relation between parent and child gender talk. Studies focusing on both parent and child gender talk can also test if gender talk shapes the way children conceptualize their world with regard to gender (i.e., Sapir-Whorf hypothesis; Kay & Kempton, 1984) and if gender talk is an important aspect of gender socialization (i.e., social learning theories; Bandura, 1977), which we could not do in the current study. Third, because of the highly skewed gender talk variables, we were not able to use frequency or proportion scores, whereas it seems likely that a frequent exposure to gender labels or comments confirming or contradicting gender stereotypes made by parents has consequences for the development of children's gender concepts. Moreover, the frequency of parents' gender talk might better explain individual differences in children's gender-related attitudes. Fourth, we only included pictures with disruptive behavior and not of prosocial behavior of girls and boys in the picture book. It would be interesting to examine if parents gender talk focuses more on prosocial behaviors in girls than in boys, because there is some evidence that parents tend to encourage prosocial behavior more in girls (Hastings, McShane, Parker, & Ladha, 2007).

Conclusions

Our study shows that parents are likely to communicate their views about gender to their children already at an early age. They use both indirect means like gender labeling and evaluations of activities and direct expressions of gender stereotypes to highlight

gender as a salient issue and to communicate the appropriateness of certain behaviors for girls and boys. We also found that the way mothers, and not fathers, socialize their children reflects their implicit gender stereotypes. This link between mothers' attitudes about gender and actual gender socializing behaviors has not been shown before and provides support for the assumptions of gender schema theory (Bem, 1983).

The newly developed *Gender Stereotypes Picture Book* also demonstrated its usefulness as meaningful associations were found between parents' gender talk and their implicit gender stereotypes. In addition, the book was successful in uncovering direct and indirect aspects of gender talk. The different picture types elicited the expected responses, which have their own impact on the socialization of gender. Mothers and fathers were found to differ in their gender talk, and families with different sibling gender compositions displayed different interaction patterns. Thus, the assessment of parental gender talk with the picture book can provide important insights into the roles of mothers and fathers in gender socialization. With the *Gender Stereotypes Picture Book*, a new easy-to-use instrument, we hope to spark renewed interest in the role of language in gender socialization within the family context.

IMPLICATIONS FOR PRACTICE AND APPLICATION

Some practical implications emerge from the perspective that gender socialization practices leading to negative outcomes for females or males must be reduced (Hyde, 2014; Zahn-Waxler, Shirtcliff, & Marceau, 2008). The first step toward behavior change is creating awareness. Therefore, it might be important to inform parents about the impact of gender-related language on the development of girls and boys. Creating awareness is especially relevant for fathers in all-boy families, because our results show that fathers in all-boy families provide their children with the most gender-stereotypical linguistic environment. Parents should be made aware mostly of their unconscious and frequent use of indirect forms of gender talk (i.e., gender labeling, evaluative comments), which have important consequences for the way children conceptualize their worlds (i.e., Kay & Kempton, 1984; Sapir-Whorf hypothesis) and how they behave in the future (Bem, 1983). Gender-related behaviors appear to be sensitive to change when people are made aware of the presence of their own specific gender-related behavior patterns and the consequences of these behaviors for others (Gawronski & Bodenhausen, 2006).

ADDRESSES AND AFFILIATIONS

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Emotion

Fathers' and Mothers' Emotion Talk With Their Girls and Boys From Toddlerhood to Preschool Age

Lotte D. van der Pol, Marleen G. Groeneveld, Sheila R. van Berkel, Joyce J. Endendijk, Elizabeth T. Hallers-Haalboom, Marian J. Bakermans-Kranenburg, and Judi Mesman

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Goals of the current study were to examine fathers' and mothers' emotion talk from toddlerhood to preschool age, and to test whether parents socialize emotions differently in girls and boys. In a sample of 317 families, we observed both parents' emotion talk and their use of gender labels, while discussing a picture book with drawings of children displaying 4 basic emotions (anger, fear, sadness, and happiness), with their first- and second-born children when the children were 4 and 2 years of age, respectively, and again 12 months later. Findings revealed that parents generally elaborated more on emotions with the second-born children when the children were 3 years of age than when they were 2 years old. With their firstborn children parents elaborated less on emotions when the children were 5 years old than when they were 4 years of age. Further, mothers elaborated more on emotions than fathers. Parents' use of gender labels for the children in the pictures showed that parents associated anger more with boys, whereas they associated sadness and happiness more with girls. These findings suggest that parents adjust their emotion socialization strategies to their child's level of emotion understanding, and that both parents convey stereotypical gender messages during parent–child discussion of emotions.

Keywords: parental emotion talk, fathers, mothers, gender socialization

A central element of early childhood parenting is emotion socialization, providing children with the basic skills to understand, regulate, and express emotions (Eisenberg, Cumberland, & Spinrad, 1998). One important aspect of emotion socialization that enhances children's emotion understanding and perspective taking, is the degree to which parents elaborate on emotions during parent–child discussions (Thompson, 2002). Given that children's ability to recognize emotions on the basis of subtle facial cues increases with age (Saarni, 1999), both the type of emotions being discussed and the level of input of the parent during the discussion may change from toddlerhood to preschool age. However, to our knowledge there are no studies that examined the change in parental emotion talk regarding different emotions over time. In addition to child age, gender of both parent and child may play a role in early child emotion socialization. For example, fathers have been found to talk less about emotions with their children than mothers do (e.g., Zaman & Fivush, 2013), and there is evidence that parents elaborate more on sad and fearful events with girls than with boys (e.g., Fivush & Buckner, 2000). Most studies that examined parents' gender-typed emotion socialization focused on the degree to which parents emphasize specific emotions to girls and boys. A more implicit way in which parents can convey gender messages to their children is through their use of gender labels (Gelman, Taylor, & Nguyen, 2004). However, parental gender labeling has not been studied yet in relation to early child emotion socialization. In this study we observed fathers and mothers discussing a picture book about four basic emotions (anger, fear, sadness, and happiness) with their two children using a longitudinal design to examine the change in parental emotion talk and to test parents' potentially gender-typed use of emotion talk.

Parental Emotion Socialization and Child Development

In early childhood, emotion socialization is an important aspect of parenting and has been found to play an essential role in different domains of child social-emotional development (e.g., Luebbe, Kiel, & Buss, 2011; Taylor, Eisenberg, Spinrad, Eggum, & Sulik, 2013; Warren & Stifter, 2008). Emotion socialization includes parents' own emotional expressiveness in the presence of their children, their reactions to child emotions, and parent–child discussions of emotions (Eisenberg et al., 1998). Whereas during infancy parents primarily shape their children's emotion understanding and regulation through their emotional expressiveness and through their direct responses to child emotions, parent–child discussions of emotions start playing an important role from toddlerhood onward (Howe, 2013). The frequency in which parents (mostly mothers) discuss emotions with their children has been found to be positively associated with children's own emotion talk

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(e.g., Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003), their ability to recognize and understand emotions (e.g., Aznar & Tenenbaum, 2013; Perez Rivera & Dunsmore, 2011), and their social skills (e.g., Garner, Dunsmore, & Southam-Gerrow, 2008).

In addition to parents' tendency to talk about emotions, the quality of parent–child discussions of emotions is likely to play an important role in children's social-emotional development (Eisenberg et al., 1998). One important aspect of the quality of parental emotion talk is the degree to which parents elaborate on the emotions being discussed (Thompson, 2002). An elaborative conversational style is characterized by not only labeling an emotion, but also referring to the expression and cause of the emotion. Further, parental attempts to increase children's active participation in the discussion by posing questions and referring to the child's own experiences are part of an elaborative conversational style (Thompson, 2002). The degree to which parents elaborate on emotions during parent–child discussions has been found to be particularly important for the development of emotion understanding and perspective taking skills in young children (e.g., Laible, 2004; Laible & Song, 2006).

From toddlerhood to preschool age, children's ability to recognize and understand emotions increases considerably (Saarni, 1999). By the age of 2 years, most children are able to correctly identify basic emotions with clear facial cues such as happiness and sadness, but they show a limited understanding of emotions coupled with more subtle facial expressions, such as anger, fear, disgust, and shame. The ability to accurately classify emotions with subtle facial expressions increases with age and from the age of 5 years most children are able to identify more complex emotions such as anger (Saarni, 1999). It is conceivable that parents adjust the amount of attention they pay to specific emotions during parent–child discussions to their child's level of emotional understanding. In that case, parents of toddlers would focus on basic emotions with clear facial characteristics, but would shift their attention to more complex emotions when children approach preschool age. Further, from age 3 to 5 years, children's ability to verbally reflect on emotions improves in terms of accuracy, clarity, and complexity (Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986). This may lead parents to limit their level of verbal input during discussions of emotions with their child in favor of the preschooler's increased use of emotion talk, and to facilitate the input of the child.

The Role of Parent and Child Gender

To date, studies examining the influence of parental emotion socialization on child social-emotional development focused mainly on mothers and their children, even though there is evidence that fathers' emotion socialization behaviors are related to child outcomes in a similar fashion as found for mothers (Baker, Fenning, & Crnic, 2011; Carson & Parke, 1996; Slatcher & Trentacosta, 2012). However, there are several reasons to believe that fathers and mothers differ in both the quantity and content of their emotion socialization behavior. According to role theory, men are traditionally seen as economic providers of the family, whereas women are considered as caregivers (Lamb & Lewis, 2010). Despite the increase in paternal involvement in child rearing in recent decades, mothers are still the primary caregivers in most families (e.g., Huerta et al., 2013). This role division may lead to less frequent father–child interactions compared with mother–child interactions, providing fathers with fewer opportunities to discuss emotions with their children. Furthermore, sex role theory suggests that fathers and mothers differ in their parenting behavior as a result of internalized gender role standards (Holt & Ellis, 1998). In Western cultures women are expected to be more relationship-oriented than men, whereas men are supposed to focus more on dominance striving (McIntyre & Edwards, 2009). Consistent with these gender roles, there is evidence that women are more competent in decoding subtle emotional expressions than men (Hoffmann, Kessler, Eppel, Rukavina, & Traue, 2010), which may give mothers an advantage over fathers in involving emotions in parent–child conversations. Indeed, several United States studies have found that mothers elaborate more on emotional experiences during parent–child conversations than fathers (e.g., Fivush, Brotman, Buckner, & Goodman, 2000; Zaman & Fivush, 2013).

Apart from parent gender, child gender appears to play a role in early parental emotion socialization. Because gender roles in many cultures convey rules about the behavioral expression of emotions, parents' emotion socialization behaviors toward girls and boys are likely to be influenced by their gender stereotypes (Brody, 2000). In Western societies females are often expected to express more submissive emotions that support social interactions (e.g., sadness), whereas males are expected to display more disharmonious emotions (e.g., anger) that assert their own interests over others' (Brody, 2000; McIntyre & Edwards, 2009). Consistent with these gender stereotypes, parents have been found to tolerate anger expressions more in boys than in girls (e.g., Chaplin, Casey, Sinha, & Mayes, 2010; Martin & Ross, 2005), while sadness and fear are more strongly discouraged in boys than in girls (e.g., Fivush & Buckner, 2000). Further, United States studies have shown that parents elaborate more on sad and fearful events with daughters than with sons during conversations (e.g., Adams, Kuebli, Boyle, & Fivush, 1995; Fivush & Buckner, 2000).

In line with the traditional role division between fathers and mothers, social role theory suggests that fathers are more likely than mothers to socialize children into traditional gender roles to sustain the advantages in power and social status for males (Eagly, Wood, & Diekman, 2000). Indeed, there is evidence from United States studies that fathers are more likely than mothers to respond to girls' and boys' emotions consistent with prevailing gender stereotypes (Chaplin, Cole, & Zahn-Waxler, 2005; Denham, Bassett, & Wyatt, 2010; Leaper, 2002). However, other studies found no differences between fathers' and mothers' gender-typed emotion socialization behavior (e.g., Adams et al., 1995; Fivush et al., 2000; Kuebli & Fivush, 1992). These mixed findings may be explained by the various ways in which emotion socialization was measured. Generally, studies that found differences in gender-typed emotion socialization between fathers and mothers examined more implicit elements of emotion socialization (e.g., parental encouragement of emotion expression) during unstructured or semistructured observation tasks, whereas studies that found no father–mother differences used structured tasks to prompt specific emotion-related parenting behaviors. This suggests that differences in the degree to which fathers and mothers convey gender messages to their children are very subtle and that these differences may only emerge when implicit aspects of emotion socialization are studied in naturalistic settings.

One of the more implicit ways in which parents can emphasize gender categories in emotional expression to their children is through their use of gender labels (Gelman et al., 2004). For example, while reading a book or watching a movie with their child, parents may label ambiguous characters (e.g., animals) expressing submissive emotions more frequently as female and characters expressing disharmonious emotions more as male. In this way parents provide their children with the implicit message that certain emotions are more common and, thus, more accepted in girls or in boys. There is some evidence that parents indeed convey stereotypical information about gender roles to their children by using gender labels (DeLoache, Cassidy, & Carpenter, 1987; Endendijk et al., 2014). For example, while discussing a picture book with their children, fathers and mothers have been found to refer to gender-neutral characters doing male-typed play activities such as skateboarding more often as males than as females (Endendijk et al., 2014). However, to our knowledge there are no studies that examined parents' use of gender labels while discussing emotions with their children.

To date, the role of parent and child gender in emotion socialization has been studied mainly in United States samples and to a much lesser extent in West-European samples. Although gender stereotypes about male-typed and female-typed behaviors appear to be quite robust across Western cultures (Costa, Terracciano, & McCrae, 2001), data on the gender gap (e.g., gender differences in health, life expectancy, access to education, etc.) indicate that gender equality is larger in West-European countries than in North American countries (World Gender Gap Index, 2013). Because the level of gender (in)equality in a country may influence gender roles and parents' gender-typed parenting behaviors, research with samples from West-European countries is needed to examine gender-typed emotion socialization in societies with relatively high gender equality.

The Current Study

The first aim of this study is to examine the change in parental emotion talk from early toddlerhood to late preschool age using a longitudinal design. The second aim of this study is to examine differences between fathers' and mothers' emotion talk and to shed light on parents' gender-typed emotion socialization in a Dutch sample. To elicit parental emotion talk regarding different types of emotions a picture book was developed with drawings of gender-neutral children displaying anger, fear, sadness, and happiness. In addition to parental emotion talk, we examined parents' use of gender labels for the pictured children in the book. Based on the literature we tested four hypotheses. First, we expected that parents would show an increase in emotion talk particularly regarding more complex emotions such as anger and fear from age 2 to 3 years, and that they would show an overall decrease in emotion talk from age 4 to 5 years, but especially when discussing basic emotions with clear facial cues like happiness and sadness. Second, we expected that mothers would elaborate more on emotions during parent–child discussions than fathers. Third, we hypothesized that both parents would show gender-differentiated emotion socialization by emphasizing submissive emotions that support harmonious interactions (i.e., happiness) or signal a need for help (i.e., fear, sadness) as female-typed emotions, and disharmonious emotions that assert one's own interests over others' (i.e., anger) as male-typed. Finally, we hypothesized that fathers would show more gender-differentiated emotion socialization than mothers. Both the degree to which parents vary in their emotion talk with daughters and sons, and their use of gender labels were examined as indicators of gender-typed emotion socialization.

Method

Sample

This study is part of the longitudinal research project "Boys will be boys?" that examines the influence of gender-differentiated socialization on the social-emotional development of girls and boys in the first years of life. This article reports on data from the second wave, when the children were on average 2 ($SD = 0.03$) and 4 ($SD = 0.30$) years of age, respectively, and the third wave, when the mean age of the children was 3 ($SD = 0.06$) and 5 years ($SD = 0.30$). Wave 1 was not included in this study because no data on parental emotion socialization were available for that wave.

Families with two children in the Western region of the Netherlands were selected from municipality records. Families were eligible if the youngest child was around 12 months of age and the oldest child was around 2 years older at the time of recruitment. Exclusion criteria were single parenthood, severe physical or intellectual impairments of parent or child, and having been 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 the study. Both parents were asked to participate in one home visit each per year for a period of 4 years. In addition to the home observations, participation in the study included computer testing and filling in questionnaires. Of the 1,249 eligible families, 31% ($n = 390$) agreed to participate. The participating families did not differ from the nonparticipating families on age of fathers ($p = .13$) or mothers ($p = .83$), the educational level of fathers ($p = .10$) or mothers ($p = .17$), and the degree of urbanization of the place of residence ($p = .77$).

At Wave 3, 18 families had dropped out of the study because of emigration, family issues, or because families considered participation as too demanding. For the current analyses, 55 families were excluded because one or both of the parents did not read the entire Emotion Picture Book with either child at either wave. This resulted in a sample of 317 families. The participating families did not differ from the families that were excluded and the families that had dropped out of the study on any of the background variables ($ps > .26$).

At Wave 2, fathers were between 26.8 and 64.0 years old ($M = 37.8$, $SD = 5.1$) and mothers were aged between 26.1 and 45.6 years ($M = 34.9$, $SD = 3.9$). Most of the parents had obtained a higher educational or academic degree (fathers: 77%, mothers: 79%). At each wave, most of the participating parents were married or had a registered partnership or cohabitation agreement (>91%). At the time of the third wave, six couples were divorced. The sibling gender configurations were as follows: 75 girl-girl (24%), 81 girl-boy (26%), 85 boy-boy (27%), and 76 boy-girl (24%).

Procedure

At both waves, each family was visited twice within about 2 weeks, once with the father and the two children and once with the mother and the two children. The order of father and mother visits was counterbalanced. Which parent was visited first varied between waves. The participating families received a yearly gift of 30 Euros and small presents for the children. During the home visit parent–child interactions and sibling interactions were filmed. All visits were conducted by pairs of trained students. Informed consent was obtained from all participating families. Ethical approval for this research was provided by the Research Ethics Committee of the Institute of Education and Child Studies of Leiden University.

Instruments

Emotion talk and gender labeling. To measure fathers' and mothers' emotion talk the Emotion Picture Book was developed. This book consists of eight pictures without text or storyline with drawings of children showing the emotions anger, fear, sadness, and happiness. Each emotion was shown twice; once within a context indicating the cause of the emotion (e.g., presents causing happiness and a broken toy causing sadness) and once displaying only the face of the child. The children on the pictures without context were drawn in such a way that they were gender neutral (i.e., ambiguous gender, half-long hair). Because the parents and children would read the Emotion Picture Book twice (once with each child and once with each parent), two versions of the Emotion Picture Book were developed that included drawings of the same children but with different hair colors and clothes in each version, and comparable context-pictures (e.g., a broken swing or a broken scooter causing sadness). The four emotions as shown on the face-pictures in the Emotion Picture Book are presented in the Appendix.

To examine whether the emotions in the Emotion Picture Book were interpreted as they were intended, we asked 67 respondents (36% male) between 20 and 63 years of age (M = 34.0, SD = 12.9) with a similar background as the participants in the main study to label the emotions of the children in the pictures. All pictures were labeled correctly in the vast majority of the cases (79%–99%, mean: 92%). Furthermore, to check whether parents' use of gender labels could not be influenced by other facial characteristics than the emotion being expressed we conducted a second small-scale study with another group of 71 respondents (34% male) between 20 and 61 years of age (M = 34.9, SD = 12.6). Each child from the Emotion Picture Book was shown four times displaying the four emotions in randomized order. The results supported the notion that our main findings with respect to parents' use of gender labels (see Results) were not because of other facial characteristics (e.g., hair style).

During the home-visits, fathers and mothers were asked to discuss the pictures in the Emotion Picture Book with each child separately without further directives to observe parents' natural tendency to elaborate on emotions with their children. Five minutes were allotted for this discussion, but the task could be ended earlier if the parent had finished the book. A coding system was developed for coding parents' emotion talk, focusing on three aspects of emotion talk: (a) *Talking about emotion*, referring to parental comments about the emotions shown in the pictures. (b) *Talking about emotion behavior*, indicating parental statements about the bodily (e.g., stamping feet) and facial (e.g., crying) emotional expressions of the children in the pictures. (c) *Talking about the cause* of the emotion, referring to comments about contextual factors that can elicit an emotion. For each of these three aspects we coded the presence (Score 1) versus absence (Score 0) of the following types of comments per picture: asking questions, labeling, referring to the child's experiences, referring to others' experiences (see Table 1 for examples). The potential score range for each picture was 0–12 with a score of 12 referring to the presence of each of the four types of emotion talk for each of the three aspects of emotion talk. In the current study we focused on parental emotion talk. However, we did code whether the child initiated talking about emotions or emotion-related behaviors for each picture as a measure of child input.

Table 1
Examples of Emotion Talk and Gender Labeling

Variable of interest	Example
Emotion talk	
Talking about emotion	
Asking	"How does she feel?"
Labeling	"This child is angry."
Involving child	"You got angry too yesterday."
Involving other	"Your sister is sad sometimes."
Talking about emotion behavior	
Asking	"Is he crying?"
Labeling	"She's smiling."
Involving child	"He looks just like you, always smiling."
Involving other	"He's screaming, just like John."
Talking about the cause	
Asking	"Why is he screaming?"
Labeling	"Her swing is broken, that's why she's so sad."
Involving child	"Are you afraid of the deep water?"
Involving other	"Lisa gets angry too when she isn't allowed to eat candy."
Gender labeling	"boy," "girl," "he," "she," "his," "her," "Sophie," "John"

Note. Gender labeling was only coded for the children on the face-pictures in the Emotion Picture Book.

In addition to emotion talk, parents' use of the labels "boy" and "girl" was coded per picture without context (see Table 1). We decided to exclude the emotion fear from the analyses of gender labeling because this was the only emotion in the book that was first presented on a picture with context (i.e., a child wearing swimming pants being afraid of jumping into the water) and, subsequently, on a face-picture. Therefore, we could not rule out the possibility that parents' use of gender labels with respect to the face-picture of the emotion fear was influenced by the appearance of the child on the context-picture.

Two groups of 28 students in total rated the 2536 film fragments (four dyads at two waves in 317 families) on parental emotion talk and gender labeling. After being trained on a set of 20 (Wave 2) or 26 (Wave 3) film fragments coded by the first three authors, each student in each group completed a reliability set ($n = 30$) with 50% overlap between the two sets. Intercoder reliability was adequate, intraclass correlations (single rater, absolute agreement) were higher than .70 for parental emotion talk and Cohen's κs were higher than .60 for gender labeling. All dyads within the same family were coded by different coders who had not visited the family at home to guarantee independent ratings. Further, no coder rated a dyad twice across the two waves.

Data Analysis

All measures were inspected for possible outliers that were defined as values more than 3.29 *SD* above or below the mean (Tabachnick & Fidell, 2012). Outliers were winsorized by giving them a marginally higher value than the most extreme not outlying value. Because the mean number of child initiatives for parental emotion talk throughout the Emotion Picture Book was positively skewed for the second-born sibling in Wave 2, and negatively skewed for the firstborn sibling in Wave 3, we used inversed transformations and reflected logarithmic (Log_{10}) transformations, respectively (Tabachnick & Fidell, 2012).[1]

Before the analyses of within-family and between-family differences on parental emotion talk, correlations were inspected between both parents' overall emotion talk and the children's initiatives for emotion talk. Regarding the second-born sibling, fathers' emotion talk was positively related to child initiatives at Wave 2, $r = .19$, $p < .01$, and mothers' emotion talk was negatively related to child initiatives at Wave 3, $r = -.14$, $p < .05$. Regarding the firstborn sibling, fathers' and mothers' emotion talk was negatively related to child initiatives at the second wave (father: $r = -.21$, $p < .01$, mother: $r = -.23$, $p < .01$) and the third wave, $r = -.23$, $ps < .01$. Because of this pattern of associations, child initiatives were controlled for in further analyses on parental emotion talk. In addition, because duration of the observation task was positively related to both parents' emotion talk with both siblings at both waves, $r = .37$–$.60$, $ps < .01$, duration of the task was controlled for in all further analyses.

To compare parents' emotion talk at the second and third wave regarding each of the four emotions, and to examine differences between fathers' and mothers' emotion talk, two repeated-measures multivariant analyses of variance (MANOVAs; one for the second-born sibling, one for the firstborn sibling) were conducted with gender of the parent and research wave as within-subjects factors and gender of the child as between-subjects factor. Further, to compare parents' emotion talk between the different emotions at both waves, two repeated-measures MANOVAs were conducted with emotion type as within-subjects factor and gender of the child as between-subjects factor for the second-born and firstborn sibling. Finally, to examine parental use of the labels girl and boy for each of the four emotions at both waves, two repeated-measures MANOVAs were conducted (one for each sibling) with type of gender label and gender of the parent as within-subjects factors and child gender as between-subjects factor.

Results

Emotion Talk

In Table 2 both parents' mean scores on emotion talk for each separate emotion are presented for the firstborn and the second-born child for each wave. We found a main effect of research wave for the second-born sibling, Pillai's trace $V = 0.53$, $F(4, 304) = 85.05$, $p < .01$, $\eta_p^2 = .53$, Cohen's $d = 2.12$, 95% CI [1.80, 2.40], and for the firstborn sibling, Pillai's trace $V = 0.29$, $F(4, 304) = 31.26$, $p < .01$, $\eta_p^2 = .29$, Cohen's $d = 1.28$, 95% CI [1.02, 1.54]. Figure 1 shows the change in fathers' and mothers' emotion talk for each of the four emotions from Wave 2 to Wave 3 for both children. Regarding the second-born child, separate univariate analyses showed that parents elaborated *more* on the emotions anger, fear, and happiness, and *less* on sadness when the children were 3 years old than when they were 2 years of age. Regarding the firstborn child, univariate analyses showed that parents elaborated less on anger, sadness, and happiness when the children were on average 5 years old, than when the children were on average 4 years old. Furthermore, we found a main effect of parent gender for parental emotion talk for both children, second-born: Pillai's trace $V = 0.05$, $F(4, 304) = 4.23$, $p < .01$, $\eta_p^2 = .05$, Cohen's $d = 0.47$, 95% CI [0.25, 0.70]; firstborn: Pillai's trace $V = 0.08$, $F(4, 304) = 6.18$, $p < .01$, $\eta_p^2 = .08$, Cohen's $d = 0.57$, 95% CI [0.34, 0.80], with mothers elaborating more on emotions during book reading than fathers. No significant interaction between research wave and parent gender was found for both children. Further, no main effects of child gender were found as well as no interactions between child gender and research wave and between child and parent gender.

Regarding the comparison of parents' emotion talk between the four separate emotions for each sibling at each wave, we found a main effect of emotion type for the second-born child, Pillai's trace $V = 0.57$, $F(12, 2760) = 53.68$, $p < .01$, $\eta_p^2 = .19$, Cohen's $d = 0.97$, 95% CI [0.71, 1.21], and the firstborn child, Pillai's trace $V = 0.36$, $F(12, 2760) = 31.24$, $p < .01$, $\eta_p^2 = .12$, Cohen's $d = 0.74$, 95% CI [0.50, 0.97]. Regarding the second-born sibling, contrasts showed that in Wave 2 fathers and mothers elaborated more on sadness and happiness than on anger and fear, while in Wave 3 both parents elaborated more on sadness and anger in comparison to happiness and fear (see Table 2). Regarding the firstborn sibling, contrasts revealed that both parents elaborated more on the emotion anger in comparison with the other three

[1] Both inversed transformations and reflected logarithmic (Log_{10}) transformations result in a reversed order of the original means regarding child initiatives for emotion talk. To facilitate interpretation, correlations between parental emotion talk and child initiatives based on the nontransformed variables are presented.

Table 2
Means and SDs on Fathers' and Mothers' Emotion Talk at Wave 2 and 3 (n = 317)

	Anger *M* (*SD*)	Fear *M* (*SD*)	Sadness *M* (*SD*)	Happiness *M* (*SD*)	*F*	η_p^2
Wave 2						
Father—second-born	2.07 (0.99)[b]	1.65 (0.94)[d]	2.77 (0.86)[a]	2.19 (0.92)[b]	134.55**	.31
Mother—second-born	2.21 (1.05)[c]	1.68 (0.99)[d]	2.93 (0.88)[a]	2.34 (0.92)[b]	148.67**	.33
Father—firstborn	2.42 (0.99)[a]	2.04 (0.97)[c]	2.23 (0.99)[b]	1.95 (0.94)[c]	24.37**	.07
Mother—firstborn	2.62 (0.95)[a]	2.27 (0.96)[b]	2.25 (1.03)[b]	2.05 (0.95)[c]	28.92**	.09
Wave 3						
Father—second-born	2.71 (1.02)[a]	2.28 (1.04)[b]	2.63 (0.98)[a]	2.32 (1.01)[b]	22.34**	.07
Mother—second-born	2.77 (1.02)[a]	2.30 (1.04)[c]	2.78 (1.00)[a]	2.49 (1.00)[b]	24.91**	.08
Father—firstborn	2.33 (0.99)[a]	2.01 (0.98)[b]	1.67 (1.03)[c]	1.67 (0.93)[c]	61.19**	.17
Mother—firstborn	2.50 (1.03)[a]	2.13 (0.98)[b]	1.70 (1.05)[d]	1.88 (1.07)[c]	55.88**	.15

Note. Different superscripts indicate significant differences between columns.
* $p < .05$. ** $p < .01$.

emotions at both waves. No main effect of child gender was found and no interaction was found between child gender and emotion type for either sibling.

Gender Labeling

In Table 3 both parents' mean scores on gender labeling per emotion are presented for each sibling at each wave. Regarding the second-born child, we found a main effect of type of gender label, Pillai's trace $V = 0.43$, $F(6, 306) = 38.03$, $p < .01$, $\eta_p^2 = .43$, Cohen's $d = 1.71$, 95% CI [1.43, 2.02]. Univariate analyses for each emotion separately showed that at both waves parents used the label boy more often than the label girl when talking about anger, and that they used the label girl more often than the label boy when talking about sadness and happiness. Neither main effects of parent and child gender were found nor significant interactions with type of gender label.

Regarding the firstborn child, a main effect of type of gender label was found, Pillai's trace $V = 0.39$, $F(6, 306) = 32.13$, $p < .01$, $\eta_p^2 = .39$, Cohen's $d = 1.59$, 95% CI [1.30, 1.87], as well as interaction effects between type of gender label and gender of the parent, Pillai's trace $V = 0.09$, $F(6, 306) = 4.71$, $p < .01$, $\eta_p^2 = 09$, Cohen's $d = 0.61$, 95% CI [0.38, 0.84], and between type of gender label and gender of the child, Pillai's trace $V = 0.08$, $F(6, 306) = 4.34$, $p < .01$, $\eta_p^2 = 08$, Cohen's $d = 0.58$, 95% CI [0.35, 0.81]. Univariate analyses for each separate emotion showed that at either wave, regardless of gender of the child, both parents used the label boy more often than the label girl for the angry child in the book, and they used the label girl more often than the label boy when discussing sadness. In addition, we found that fathers at Wave 2 and mothers at Wave 3 used the label girl more often than the label boy with daughters but not with sons when discussing happiness (see Figure 2). Finally, we found that, compared with

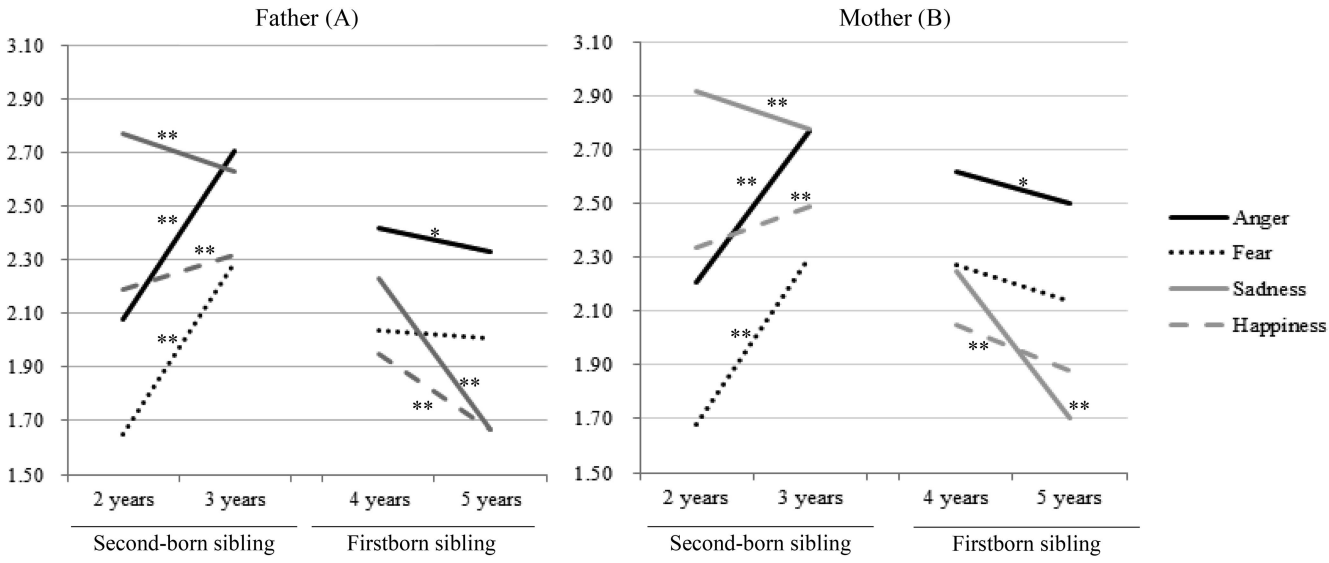

Figure 1. (A, B). Change in fathers' (A) and mothers' (B) emotion talk with the second-born and firstborn sibling from Wave 2 to Wave 3 ($n = 317$). At Wave 2, the two children were on average 2 and 4 years of age, respectively; at Wave 3, the two children were on average 3 and 4 years old. Estimated marginal means for fathers' and mothers' emotion talk are presented in the figure (*SE*s: 0.05–0.06). * $p < .05$. ** $p < .01$.

Table 3
Means and SDs on Fathers' and Mothers' Use of Gender Labels at Wave 2 and 3 (n = 317)

	Wave 2			Wave 3		
	Anger *M* (*SD*)	Sadness *M* (*SD*)	Happiness *M* (*SD*)	Anger M (*SD*)	Sadness *M* (*SD*)	Happiness *M* (*SD*)
Second-born sibling						
Father label Boy	0.34 (0.48)	0.16 (0.37)	0.09 (0.28)	0.40 (0.49)	0.16 (0.37)	0.13 (0.34)
Father label Girl	0.13 (0.34)	0.27 (0.44)	0.32 (0.47)	0.15 (0.36)	0.23 (0.42)	0.22 (0.42)
Mother label Boy	0.30 (0.46)	0.18 (0.38)	0.09 (0.29)	0.35 (0.48)	0.15 (0.36)	0.15 (0.36)
Mother label Girl	0.15 (0.36)	0.19 (0.39)	0.25 (0.44)	0.14 (0.35)	0.22 (0.42)	0.24 (0.43)
F	50.88**	5.45*	75.94**	67.94**	9.62**	15.07**
η_p^2	.14	.02	.20	.18	.03	.05
Contrasts	boy > girl	girl > boy	girl > boy	boy > girl	girl > boy	girl > boy
Firstborn sibling						
Father label Boy	0.41 (0.49)	0.17 (0.38)	0.12 (0.33)	0.31 (0.46)	0.11 (0.32)	0.12 (0.33)
Father label Girl	0.11 (0.31)	0.27 (0.45)	0.17 (0.38)	0.09 (0.28)	0.16 (0.37)	0.16 (0.37)
Mother label Boy	0.32 (0.47)	0.16 (0.37)	0.07 (0.26)	0.28 (0.45)	0.10 (0.30)	0.08 (0.27)
Mother label Girl	0.16 (0.37)	0.19 (0.39)	0.22 (0.42)	0.10 (0.31)	0.14 (0.35)	0.21 (0.41)
F	70.39**	9.06**	28.84**	70.53**	5.66*	17.02**
η_p^2	.19	.03	.09	.19	.02	.05
Contrasts	boy > girl	girl > boy	girl > boy	boy > girl	girl > boy	girl > boy

Note. The emotion fear was not included in the analyses on gender labeling (see Instruments).
* $p < .05$. ** $p < .01$.

mothers, fathers more often used the label boy than the label girl when talking about anger at Wave 2, whereas mothers more often used the label girl than the label boy when discussing happiness at either wave.

Discussion

We found that fathers and mothers generally showed an increase in emotion talk with their second-born children from the age of 2 to 3 years, and that they showed a decrease in emotion talk with their firstborn children from the age of 4 to 5 years. Furthermore, we found that mothers elaborated more on emotions than fathers. No differences were found in parents' use of emotion talk toward their sons and daughters, but both parents used the label boy more often when talking about pictures depicting angry children, and they used the label girl more often when discussing pictures depicting sad and happy children.

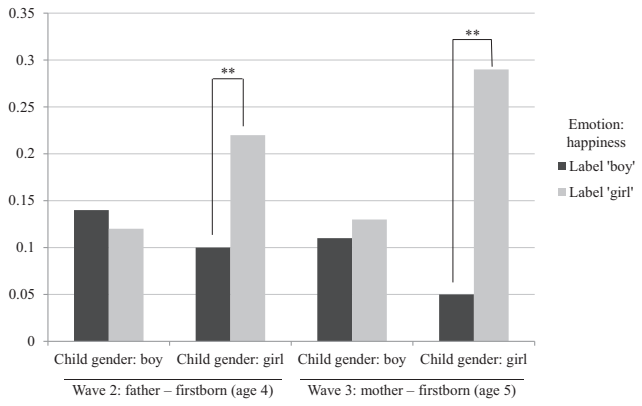

Figure 2. Fathers' and mothers' use of gender labels when discussing happiness with their firstborn daughters and sons ($n = 317$). Estimated marginal means for fathers' and mothers' use of gender labels are presented in the figure. * $p < .05$. ** $p < .01$.

In line with our first hypothesis we found that fathers and mothers changed their emotion socialization strategies with their children. Regarding the second-born children, parents elaborated more on anger, fear, and happiness during book reading at age 3 years than at age 2 years, but they elaborated less on sadness. From the age of 3 years, children start to develop theory of mind (Wellman, Cross, & Watson, 2001), which enables them to make more accurate inferences about others' emotions and to understand that one's own emotions may differ from others' (Cole, Armstrong, & Pemberton, 2010). This increased understanding of others' internal state may stimulate parents to elaborate more on emotions during parent–child discussions. The fact that parents elaborated less on the emotion sadness with their 3-year-olds compared with a year earlier may be because of the unmistakable expressive facial characteristics of this emotion in the form of tears. From toddlerhood onward, children become better at inferring basic emotions in others on the basis of clear facial cues (e.g., Saarni, 1999), which may lead parents to elaborate less on sadness with 3-year-olds than with 2-year-olds as children need less help in recognizing and naming this emotion when they grow older.

Regarding the firstborn children, parents elaborated less on the emotions anger, sadness, and happiness when their children were on average 5 years old compared with when their children were around 4 years old. Given that by the age of 5 years most children are able to reliably distinguish between various emotions (Saarni, 1999), parents may feel less inclined to elaborate on these emotions during parent–child discussions. Further, the negative association we found between both parents' emotion talk and the number of times their firstborn children initiated talking about emotions suggests that parents elaborate less on emotions when their children start talking more about emotions themselves. Furthermore, parents may facilitate their child's contribution to the discussion by limiting their own level of verbal input. Previous

research has shown that during the preschool years children start elaborating more on emotions during discussions (e.g., explaining the causes and consequences of different emotions, reflecting on individual differences in emotional experiences; for a review see Bretherton et al., 1986), which may lead parents to reduce their level of input with their 5-year-olds compared with a year earlier. Parents did not show a decrease in emotion talk when discussing fear with their firstborns, which may be explained by the fact that fear is a more complex emotion that encompasses subtle facial cues. Children tend to confuse these with other emotions like sadness up to the age of 7 (e.g., Camras & Allison, 1985).

Consistent with our second hypothesis, we found that mothers elaborated more on emotions while reading a picture book with their children than fathers did. Because mothers generally spend more time in one-on-one interaction with their children than fathers (e.g., Bittman & Wajcman, 2000), mothers may be more experienced in talking about emotions with their children. The difference in emotion talk between fathers and mothers may also reflect differences in internalized gender role standards between men and women (Epstein & Ward, 2011) given that a large body of research suggests that women not only report and express more emotions than men do, but also talk more about their emotional experiences with others (for a review see Brody & Hall, 2008). In a related vein, women are often expected to be more nurturing and empathic than men (Brody, 2000; McIntyre & Edwards, 2009). This focus on others' wellbeing in females may lead mothers to elaborate more on emotions while talking with their children than fathers. It has also been suggested that mothers simply talk more with their children than fathers regardless of the topic being discussed (Tamis-Lemonda, Baumwell, & Cabrera, 2013). However, in the current study we found no significant differences between fathers and mothers in duration of the observation task.

Contrary to our third hypothesis, we found no differences in parental emotion talk toward girls and boys regarding any of the four emotions. It is possible that although parents were not given any directives during the observation, they were prompted to talk about emotions by the content of the Emotion Picture Book, which may have stimulated fathers and mothers to use emotion talk irrespective of the gender of the child. In everyday parent–child interactions gender differences in emotion socialization are likely to be very subtle (Fivush, 1998). Rather than using overt and straightforward strategies to shape girls' and boys' expression of emotions according to gender stereotypes, parents are more likely to pay slightly more attention to specific emotions in daily conversations or to use different evaluative comments of emotions with girls and boys. These subtle differences in the socialization of girls' and boys' emotions may be harder to detect when parents are stimulated to talk about emotions with their children. Indeed, we did find evidence for a more subtle role of gender in emotion socialization in that both fathers and mothers were more likely to label gender-neutral children displaying sadness and happiness as girls, whereas they used the label boy more often for children showing anger. By emphasizing submissive emotions like sadness as female-typed emotions and disharmonious emotions like anger as male-typed emotions during parent–child discussions, parents may not only shape girls' and boys' emotional expressivity and understanding, they may also affect children's long-term emotional development. For example, it has been suggested that parents' encouragement of submissive emotions in girls (e.g., reminiscing extensively on sad and fearful events) and parents' tendency to suppress disharmonious emotions in their daughters may heighten girls' internalized distress (Fivush & Buckner, 2000; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). Over time, this may result in internalizing psychopathology symptoms such as self-blame, rumination, and low self-esteem, which are more common in adult women than in men.

We found no evidence for our fourth hypothesis that fathers show more gender-differentiated emotion socialization than mothers. Although compared with mothers, fathers labeled the angry child in the Emotion Picture Book more often as a boy than a girl with their firstborn children at age 4 years, mothers labeled the happy child in the book more often as a girl than a boy with their firstborns at 4 and 5 years of age. Further, no differences were found in fathers' and mothers' use of gender labels with their second-born child. It could be that differences between fathers and mothers in gender-typed emotion socialization are less prominent in countries with high gender equality like the Netherlands compared with societies with a larger gender gap like North American countries. From the perspective of social role theory (Eagly et al., 2000), one might argue that in societies where gender differences in power and social status are large, fathers may be more likely than mothers to socialize their children according to gender stereotypes to maintain the social advantages for boys later in life, while in countries with high gender equality fathers may not be disposed to secure their sons' favored position.

This study extends previous research by observing the extent to which mothers and fathers elaborate on different aspects of emotions (e.g., the behavioral expression and cause of an emotion) as well as different types of parental emotion talk (e.g., posing questions, involving the child's experiences) rather than examining just the amount of emotion talk and studying emotion talk in mothers only. The degree to which parents elaborate on an emotion may be more critical for the development of emotion understanding and perspective taking in children than the mere frequency with which parents talk about emotions (Thompson, 2002). In addition, to our knowledge there are no studies that examined the change in parental emotion talk over time with respect to specific emotions within families. Our findings provide a first insight in the way parents adjust the degree to which they elaborate on specific emotions during parent–child discussions as children grow older. To conclude, this study extends the existing literature on parental gender-typed emotion socialization by not only examining differences in fathers' and mothers' emotion talk with respect to girls and boys, but also observing parents' implicit tendency to associate specific emotions more with females or males as evidenced by their use of gender labels for gender-neutral characters.

The present study has some limitations. First, the coding did not take emotion-related comments of the child into account, although we coded whether children initiated parental emotion talk. Given that children start talking about emotions almost as soon as they are able to talk (Bretherton et al., 1986), future research may consider the input of the child in emotion discussions. Furthermore, we used a dichotomous scoring system for each type of parental emotion talk instead of coding emotion talk on a continuous scale. Because the aim this study was to examine the degree to which parents elaborate on emotions with their children rather than just the quantity of parental emotion talk, it was important that parents who showed different types of emotion talk regarding

different aspects of emotions were given higher scores than parents who simply repeated the same emotion-related statement several times. Second, most parents had a high educational level. Because parent–child interactions and parents' gender stereotypes may differ by social status and educational background (e.g., Endendijk et al., 2013; Martin et al., 2010), parental emotion talk and parents' gender-typed emotion socialization need to be studied further in samples with lower educated families. Third, the structure and setting of the Emotion Picture Book needs to be reconsidered before it can be used in further research for two reasons. First, although the Emotion Picture Book was designed to elicit different emotion-related comments from parents, mean scores on emotion talk were quite low, which may be because of the input of the child during the discussion and the fact that only 5 min were allotted for this task. Second, the order of the pictures prevented us from examining parents' use of gender labels regarding the emotion fear.

To conclude, we found support for the hypotheses that parents adjust their emotion socialization strategies from early toddlerhood to late preschool age, and that mothers elaborate more on emotions while talking with their children than fathers. Furthermore, fathers and mothers appeared to be influenced by gender stereotypes because they associated anger more with boys and sadness and happiness more with girls as evidenced by differential gender labeling. Our findings highlight the importance of examining separate emotions when studying the change in parental emotion socialization as children grow older, and emphasize the salience of implicit aspects of emotion talk through which parents transmit their gendered ideas about emotions to their children.

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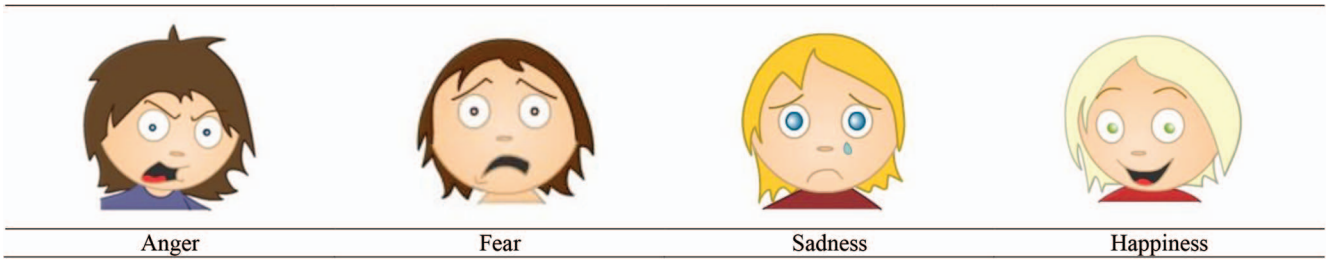
(*Appendix follows*)

Appendix

Emotions Shown in the Emotion Picture Book (Book Version 1)



Note. Color of hair and clothes of the children in the Emotion Picture Book varied between the two book versions. Reprinted with permission. See the online article for the color version of this figure.

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RESEARCH ARTICLE

Gender-Differentiated Parenting Revisited: Meta-Analysis Reveals Very Few Differences in Parental Control of Boys and Girls

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Abstract

Although various theories describe mechanisms leading to differential parenting of boys and girls, there is no consensus about the extent to which parents *do* treat their sons and daughters differently. The last meta-analyses on the subject were conducted more than fifteen years ago, and changes in gender-specific child rearing in the past decade are quite plausible. In the current set of meta-analyses, based on 126 observational studies (15,034 families), we examined mothers' and fathers' differential use of autonomy-supportive and controlling strategies with boys and girls, and the role of moderators related to the decade in which the study was conducted, the observational context, and sample characteristics. Databases of Web of Science, ERIC, PsychInfo, Online Contents, Picarta, and Proquest were searched for studies examining differences in *observed* parental control of boys and girls between the ages of 0 and 18 years. Few differences were found in parents' use of control with boys and girls. Parents were slightly more controlling with boys than with girls, but the effect size was negligible ($d = 0.08$). The effect was larger, but still small, in normative groups and in samples with younger children. No overall effect for gender-differentiated autonomy-supportive strategies was found (d = 0.03). A significant effect of time emerged: studies published in the 1970s and 1980s reported more autonomy-supportive strategies with boys than toward girls, but from 1990 onwards parents showed somewhat more autonomy-supportive strategies with girls than toward boys. Taking into account parents' gender stereotypes might uncover subgroups of families where gender-differentiated control is salient, but based on our systematic review of the currently available large data base we conclude that in general the differences between parenting of boys versus girls are minimal.

Introduction

One of the mechanisms proposed to explain gender differences in children's behavior is that parents treat boys and girls differently [1]. Several theoretical models suggest mechanisms that

Competing Interests: The authors have declared that no competing interests exist.

are consistent with the differential treatment of boys and girls, including biosocial theory [2], [3], and gender schema theories [4], [5]. However, to date there is no consensus in the literature about the extent to which parents *do* treat their sons and daughters differently, in which areas of parenting this mostly occurs, and whether fathers and mothers differ in the extent of gender differentiation [6], [7], [8]. We conducted a series of meta-analyses to examine whether parents use different control strategies with boys than with girls. We focused on *observed* parental control, to minimize social desirable responding by parents and because differential parenting occurs mostly at an unconscious level and is therefore more likely to be captured using observation methods than with self-report measures [9].

Gender-Differentiated Control: Theoretical Perspectives

Self-determination theory. Parental control strategies can be defined as any strategy that a parent uses to alter, change, or influence their child's behavior, thoughts, or feelings [10], [11]. Self-determination theory [12] provides a framework for different types of parental control that promote optimal or less optimal child development. Central to this theory is the distinction between behaviors that a person willingly endorses (i.e., autonomously regulated behavior) and behaviors that are enacted because of pressure from, for example, the social environment (i.e., controlled behavior). Self-determination theory assumes that two types of parental control play an important role in children's development of autonomous or controlled regulation of behavior [13], [14], i.e., autonomy-supportive and controlling strategies [15].

Autonomy-supportive strategies provide the child with an appropriate amount of control, a desired amount of choice, acknowledge the child's perspectives, and provide the child with meaningful rationales when choice is constrained [14]. These strategies are thought to foster autonomous regulation and child well-being, because they adhere to children's basic needs for competence, relatedness, and autonomy [12]. Autonomy-supportive strategies are conceptually similar to the construct of parental sensitivity as formulated within attachment theory, as sensitivity is also concerned with child-centered responding and promoting autonomy through support [16], [17]. Examples of autonomy-supporting strategies are induction (i.e., providing explanations for commands and prohibitions), empathy for the child ("I know this is difficult for you"), approval, support, and encouragement (see [11], [18]). Meta-analyses have shown that maternal and paternal autonomy-supportive strategies tend to be associated with lower levels of child disruptive behaviors such as oppositional, aggressive, and hyperactive behaviors [19], [20], [21]. Furthermore, a previous study has also shown that an intervention to promote mothers' use of autonomy-supportive strategies (i.e., sensitive discipline) was effective in decreasing children's disruptive (i.e., overactive) behavior [22].

Controlling strategies undermine the child's ability for autonomous regulation, and press the child to think, behave, or feel in particular ways [14], [15]. These strategies are thought to foster controlled regulation and behavioral maladjustment, because they do not support children's basic needs for competence, relatedness, and autonomy [12]. Controlling strategies are conceptually similar to the parenting practices described within coercion theory [23]. Coercive parenting also refers to strategies that force rather than motivate a child to comply without fostering the child's autonomy. There are two ways in which parents can be controlling [15], that is, via internal and external pressure. External pressure refers to harsh, explicit, or tangible control, such as spanking, hitting, grabbing with force, or forcefully taking the child out of the situation (i.e., harsh discipline/power assertion; [24]). Internal pressure refers to parental behaviors that intrude upon the child's psychological world (i.e., thoughts and feelings) as a pressure to comply, and includes manipulative parenting techniques, such as guilt

induction, shaming, criticism, invalidation of the child's feelings, and love withdrawal (i.e., psychological control; [10]). There is ample empirical evidence that maternal and paternal controlling behavior in general is related to an increase in disruptive behavior in children of different ages (see meta-analyses [19], [25]). Moreover, both mothers' and fathers' use of psychological control is associated with internalizing problems in children and adolescents [10], [15], [26], [27], [28], and with girls' relational aggression in middle childhood [29]. Mothers' and fathers' harsh physical discipline is more often associated with externalizing problems in children [30] and adolescents [31].

Self-determination theory cannot be applied to the study of gender-differentiated parental control as one of its fundamental assumptions is the universality of its psychological constructs across gender. Therefore, in the current meta-analysis the hypotheses with regard to the direction of gender-differentiated control (i.e., used more with boys or girls) were guided by theoretical frameworks addressing socialization and gender development, including biosocial theory [2], [3], and gender schema theories (e.g., [4], [5]).

Biosocial theory. Biosocial theory of sex differences provides rationales for differential control of boys and girls [2], [3]. According to this theory, gender differences in social behavior arise from societies' division in gender roles, and particularly on the female role of homemaker and the male role of economic provider. This division is still visible in present-day societies; mothers are more likely to be the primary caregivers of young children [32], [33], females are overrepresented in educational and nurturing occupations, and males are overrepresented in occupations that are associated with power, physical strength, status, and agentic personality characteristics (i.e., management, engineering) [34].

Biosocial theory proposes the following cycle in which gender roles and the characteristics associated with these roles lead to beliefs and expectancies about the different nature and behavior of men and women (i.e., gender stereotypes), which will lead to differential treatment of men and women, and boys and girls [3]. Mothers and fathers are expected to use different control strategies with boys than with girls in accordance with the gender roles defined in their society. Parental control of girls would be characterized by kindness, consideration of others' perspectives, empathy, and interpersonal closeness (e.g., using autonomy-supportive strategies), whereas parental control of boys would be characterized by power, assertiveness, aggressiveness, and dominance (e.g., using controlling strategies). The link between gender roles and the differential treatment of boys and girls by parents is reflected, for example, in the finding that aggressiveness is promoted in boys, and not in girls, through harsh parenting practices in societies at war [35]. Since women are less accepting than men of social hierarchies that subordinate women [36], mothers may be less likely than fathers to socialize their children into societies' gender roles using gender-differentiated parenting practices.

Gender schema theories. It seems unlikely that all parents in a given society would use gender-differentiated control strategies in accordance with the gender roles of that society. According to gender schema theories [4] parents' gender-differentiated use of controlling and autonomy supportive strategies is likely to be influenced by parents' gender-role stereotypes. When parents have traditional attitudes about gender roles, they are more likely to show gender-differentiated parenting that reinforces gender-role consistent behavior (e.g., more harsh or physical control of boys than girls, more gentle control and guidance of girls than of boys). When parents have counter-stereotypical ideas about the roles of males and females (i.e., female as economic provider, male as caretaker), they might be more likely to show gender-differentiated parenting that reinforces behavior that is inconsistent with gender roles (e.g., more gentle control and guidance of boys than of girls, more harsh or physical control of girls than of boys).

Gender-Differentiated Parental Control: Previous Findings

There is some meta-analytic evidence that parents use different control strategies with boys and girls, and that the extent to which this happens differs for fathers and mothers. For example, Lytton and Romney [8] demonstrated in their meta-analysis that in Western countries other than North America, parents use more physical punishment with boys than with girls. They also found some evidence for fathers to differentiate more between boys and girls than mothers. In their meta-analysis, Leaper and colleagues [7] found that mothers used more supportive speech with daughters than with sons, with greater effects for older than younger children. They also found a negligible effect for mothers' use of directive speech (i.e., slightly more with girls than with boys).

Both meta-analyses are cited broadly, but they were not without limitations [7], [37]. First, both meta-analyses did not disentangle child gender effects on parenting from effects of temperament or gender-specific behavioral differences, probably because too few studies included pertinent data. Second, the Lytton and Romney meta-analysis [8] has been criticized for using categories of socialization behaviors that were too broad [37], and combining constructs that were too divergent. However, choosing a construct that is too specific harbors the risk of ending up with only a few studies on fathers, as was the problem in the Leaper, Anderson, and Sanders meta-analysis [7]. Third, both meta-analyses did not include psychological control. To our knowledge the literature on psychological control has not yet been systematically reviewed with regard to the differential use of psychological control with boys and girls.

Some recent observation studies have found similar results as the meta-analyses, with parents using more sensitive or autonomy-supportive strategies with girls than with boys (e.g., [38], [39]) and more harsh or controlling strategies with boys than with girls (e.g., [39], [40]). These findings indicate a tendency for controlling strategies (i.e., focused on dominance, negativity, and power) to be used preferably with boys, and autonomy-supportive strategies (i.e., focused on warmth, affiliation, and interpersonal closeness) to be used more with girls.

However, there is also a large number of recent studies that does not find evidence for parents' gender-differentiated use of control (e.g.,[41], [42], [43], [44]). Additionally, some studies even show that parents use more autonomy-supportive strategies with boys than with girls (e.g., [45], [46]), and are more controlling of girls than of boys (e.g., [46], [47]). The evidence with regard to parents' differential use of psychological control is especially inconsistent, indicating that parental psychological control is higher among boys than girls [29], [48], or that there are no gender differences in the use of psychological control [49].

Factors Related to Gender-Differentiated Parenting

Observational context. An important question with regard to the magnitude of gender differences in parental control is whether this difference is context-specific. In the meta-analysis by Leaper et all [7] less structured and more naturalistic situations and activities yielded the greatest gender differences. Leaper and colleagues suggest that this might be due to the fact that in highly structured situations the demand characteristics of the task will lead to a smaller range of possible behaviors, which minimizes naturally occurring differences in parenting and child behavior. In the current meta-analysis, we expected the naturalistic context–in which parent and child are allowed to behave as they would normally do–to yield the greatest gender differences because it is the least structured situation, followed by free play, followed by more structured tasks such as problem-solving tasks, and discipline tasks (e.g., "Clean up", "Don't touch", delay of gratification)[50]. The distinction between these four types of activities is quite common in studies on observed parenting practices [50]. In fact, they reflect a continuum of structured to non-structured activities.

Child behavior. Differential control of boys and girls may not, or not only, result from parental attitudes about how to treat boys versus girls, but as a reaction to pre-existing gender differences in child behavior. Large longitudinal studies with ethnically and socioeconomically diverse samples provide ample evidence for the bidirectional association between parental controlling or autonomy-supportive strategies on the one hand and child disruptive behaviors at the other hand (see [51], [52], [53]). Similarly, large population-based longitudinal twin studies from the US and UK have shown that cooperative and/or prosocial children (aged 2–12 years old) are more likely to elicit positive reactions from their mothers and fathers, whereas children with tendencies toward disruptive behavior elicit negative reactions from their mothers and fathers (evocative rGE, [51], [54], [55]). Given this evidence and the fact that boys have been found to show more disruptive behavior problems than girls during childhood and adolescence [56], [57], [58], [59], and because boys have shown more genetic liability for disruptive behavior problems than girls [60], [61]), they may also be more likely to elicit controlling behavior from their parents.

There is at least one study showing that it is not only a gender difference in child behavior that elicits the different treatment of boys and girls. In this 10-year longitudinal population-based study of approximately 1,000 US children between the ages of 1 and 20 years it was found that mothers and fathers were harsher with boys than with girls [62]. Boys and girls in this study did not differ in terms of temperament, so the harsher treatment of boys was not because they were more difficult to begin with. As a response to this harsh treatment, especially by mothers, boys appeared to become more difficult and noncompliant. However, it should be noted that this is a single study, relying on questionnaires and interviews, without observational data. Thus, potential effects of child temperament or behavior on gender-differentiated parenting cannot be ruled out conclusively.

In the current meta-analysis we tried to take the child's behavior during the task into account (e.g., using proportion scores, or including child behavior as a covariate in the analyses), to disentangle differences in parental control toward boys and girls from differences in behavior of boys and girls. We expected effect sizes to be larger in studies that did not control for child behavior, because in these studies the child effect on gender-differentiated parenting is not controlled for. In a related vein we expected parents' differential use of controlling or autonomy-supportive strategies to be less pronounced in clinical or at risk samples (e.g., child has some disorder, or shows high or clinical levels of problem behavior) compared to healthy samples. In these samples boys and girls show more similar levels of problem behavior, and are thus unlikely to elicit differential reactions by their parents based on their behavior. Alternatively, the similar level of child problems in boys and girls in these families may be the consequence of parents' similar use of controlling and autonomy-supportive practices with boys and girls that may have caused the problem behaviors in the first place.

Child age. Variation in effect sizes for gender differences in parental control may also be related to developmental level. The evidence with regard to developmental level is, however, inconclusive. Biosocial theory does not explicitly incorporate child age effects [2], [3]. However, pressures to conform to gender roles increase with child age, and the pressure to conform might be highest in adolescence [63]. Gender-specific parenting may increase as children get older in order to prepare children for the greater pressures toward gender role conformity [64]. There is also meta-analytic evidence convergent with these propositions; Leaper and colleagues [7] found that gender differences in mothers' directive speech were greater with older children than with younger children. However, Lytton and Romney [8] found that gender differences actually decreased with age, specifically for disciplinary strictness. With regard to parental control, one might argue that gender differences in parental control decrease with child age, because parental control generally decreases over time due to increases in children's self-

control [65]. These generally lower levels of parental control with older children may reduce the statistical power to detect differential treatment of boys and girls, leading to smaller effect sizes. Therefore, we tested two competing hypotheses; 1) parents' gender-differentiated control increases with child age; 2) parents' gender-differentiated control decreases with child age.

Socioeconomic status (SES) and culture. Parents' SES and cultural backgrounds may also be a moderator of the differential control of boys and girls. There is ample evidence that higher SES (i.e., education, salary) is associated with less traditional views on gender roles [66], [67], [68]. Similarly, there is evidence that lower-SES families show more gender-differentiated parenting than middle-class families [69]. This is indeed what would be expected in light of biosocial theory [2], [3], because the more traditional views about gender roles in lower-SES families would lead to a bigger differentiation between boys and girls. In the current meta-analysis, we expected the differential control of boys and girls to be greater in lower-SES families compared to middle-class families.

There may also be cultural variation in the way parents treat boys and girls. From the perspective of biosocial theory [2], [3], one might argue that in cultures with big differences in the gender roles of men and women (i.e., big gender gap), parents will differentiate more between their sons and daughters to prepare them for adult life in a culture with big differences in gender roles. Data on the gender gap (gender differences in health, life expectancy, access to education, economic participation, salaries, job type, and political engagement) showed that Scandinavian and Western European countries generally have the lowest gender gap in the world [70], and that North-American countries have a somewhat bigger gender gap. Latin-American and Asian societies have intermediate levels of gender inequality. The largest gender inequality can be found in Middle-East and North-African societies. Thus, with regard to the ethnicity of the sample, we expected gender differences in control of boys and girls to be smaller in cultures where there are small differences in the roles of men and women (e.g., Western vs Eastern countries).

Publication year. In recent decades the division of gender roles has become less strict in most modern Western societies [71], [72], which according to biosocial theory would lead to more egalitarian attitudes about gender, and consequently less differentiation between boys and girls [2], [3]. Moreover, gender equality has increased in most Western societies over the decades [73]. Therefore, we expected that effect sizes would be smaller in recent studies compared to older studies.

Other moderators. We also examined some moderators in an explorative way, because they were also examined or proposed in previous meta-analyses [7], [8]; observation length, home versus lab setting, verbal versus nonverbal behavior, gender of the coders of parenting behavior, gender of the first author, percentage of male authors, and publication outlet. No clear predictions could be made for these moderators.

The Current Study

The current meta-analysis was conducted to determine the extent to which parents control their sons and daughters differently. We tested the following hypotheses based on biosocial theory and previous meta-analyses: (a) mothers and fathers use more controlling strategies, including psychological control and harsh physical discipline, with their sons than with their daughters [2], [3], [8], [48]; (b) mothers and fathers use more autonomy-supportive strategies with their daughters than with their sons [2], [3], [7]; (c) fathers' controlling and autonomy-supportive strategies are more gender-differentiated than mothers' controlling and autonomy-supportive strategies [2], [3], [8]. A conceptual analysis with expert raters was used to classify parental control variables as controlling and autonomy-supportive.

Aspects of the current meta-analyses that extend previous meta-analytic work include: 1) a focus on parental control as a specific construct to examine gender-differentiated parenting, including psychological control and harsh physical control, 2) a comparison between mothers' and fathers' parental control, 3) an examination of the effect of procedural moderators, 4) a comparison of studies that control and do not control for child behavior, thus addressing alternative explanations for gender-differentiated parental control, and 5) the inclusion of studies that have been conducted during the past two decades.

Methods

Literature Search

The PRISMA guidelines were used for conducting and reporting the current meta-analysis [74] (see S1 Text). There is no review-protocol for the current meta-analysis. Three search methods were used to identify eligible studies published up until June 1st, 2015. First, the electronic databases of Web of Science (WOS), ERIC, PsychInfo, Online Contents, Picarta, and Proquest Dissertations and Theses were searched for empirical, peer-reviewed articles using the keywords for parental control in observational settings (see S2 Text). For WOS, additional restrictions were used based on WOS categories. These restrictions are listed in S1 Table.

Studies were included if they: a) examined differences in parental control of boys and girls between the ages of 0 and 18 years; b) used observations of parental control (e.g., free play, problem solving, discipline setting, naturalistic). Control was defined as "strategies parents use to alter the child's behavior". Studies were excluded if parental control was assessed in relation to gender socialization (e.g., parental control of sex-typed play), as this was considered to be a different socialization area. There were no restrictions with regard to the language of the paper, as long as an English abstract was available for screening purposes. During the full-text screening phase, papers that were written in languages other than English (one Turkish, one Chinese, three Spanish, one French, and two German) were translated by native speakers. Of the included publications, one was published in German and one in Spanish.

First, we checked whether the search terms yielded all discipline-related articles included in the Lytton and Romney [8] meta-analysis. This was indeed the case. Second, we searched the reference lists of relevant reviews and meta-analyses on parental control [7], [20], [25], [75]. Third, the reference lists of the articles and dissertations that met our inclusion criteria were also searched for eligible studies. We applied a very broad strategy with this reference search, including all articles that mentioned any of our search in the title terms, or one of the following more general constructs: parenting, socialization, parent-child interaction/speech, parental behavior/behaviour. The database search and reference list search together yielded 7739 hits. Fig 1 depicts the flow chart of the literature search.

Agreement between the first and second authors on the inclusion of studies was determined on a random subset of 100 studies, oversampling included studies. Studies were first screened only on the basis of their abstracts, followed by a full-text screening of the selected studies. Agreement was satisfactory for both the abstract screening (agreement 92%) and the full-text screening (agreement 100%). Disagreements between the authors were resolved by discussion until consensus was achieved. After the reliability assessment, the first author screened the remainder of the articles, but consulted the second author in cases of doubt.

To ascertain the independence of samples in the meta-analysis, several precautions were taken. First, for studies conducted on the same sample, the publication with the maximum or most relevant information was included. Second, when a publication separately reported gender-differentiated control for more than one sample (e.g., different age groups, different ethnicities), these sub-samples were treated as independent samples, but only if the sub-sample was

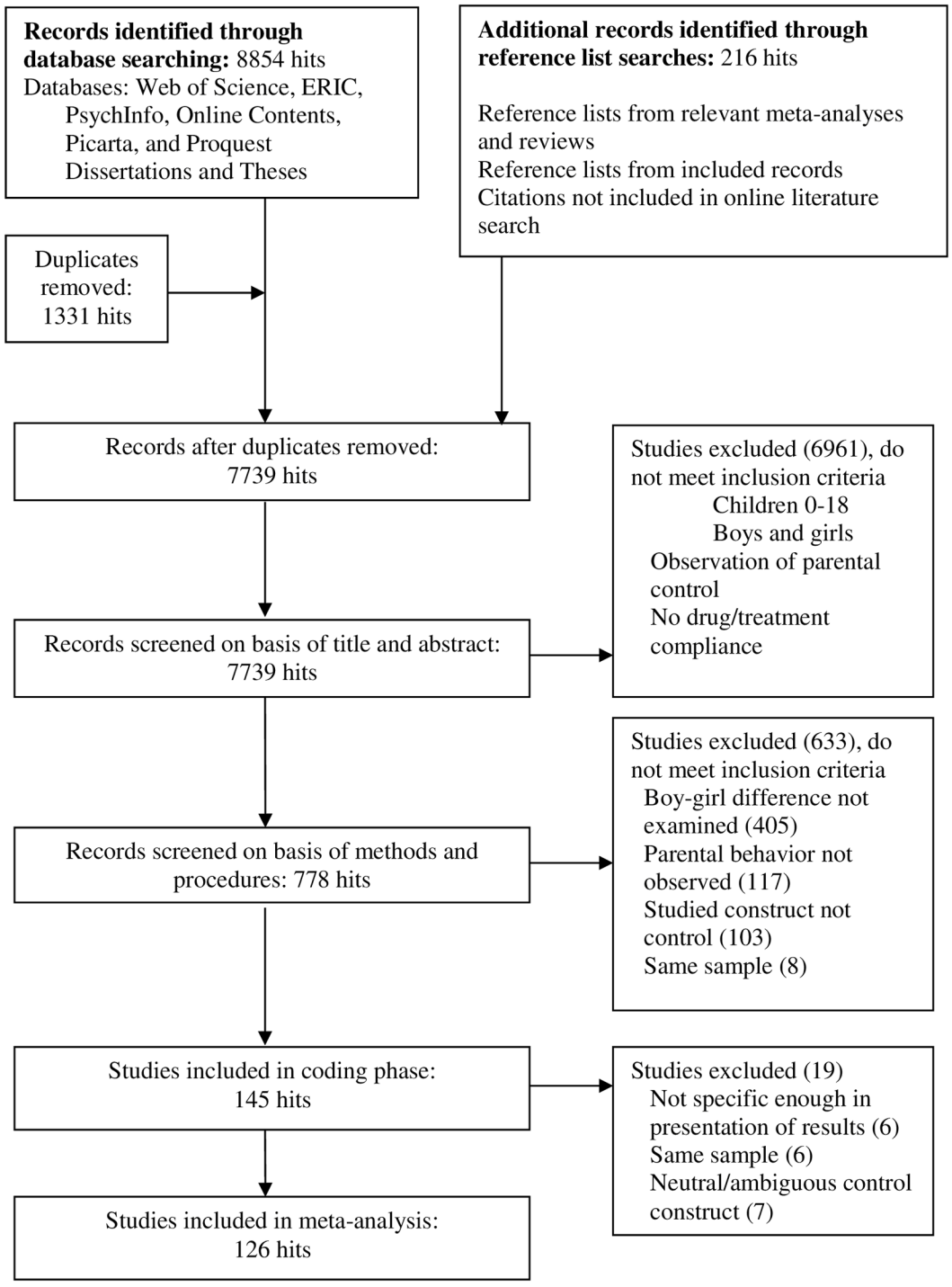

Fig 1. Flow-Chart of Literature Search Process.

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relevant to one of the moderators of the current study (e.g., age, normative sample, observation setting). For other sub-samples (e.g., long divorced vs. recently divorced) a combined effect size was calculated. Third, when a publication reported different outcomes on the same sample, they were averaged if they concerned the same type of parental control (e.g., praise and

guidance averaged for autonomy-supportive strategies). If they reported outcomes on different observation settings (e.g., free play, teaching task, discipline task) they were averaged for the overall meta-analysis, but for the analyses with task setting as moderator one of the settings was randomly selected. This procedure yielded 126 publications with data from 146 independent samples encompassing a total of 15,034 families. The studies that were included in the meta-analyses are presented in Table 1.

Conceptual Analysis: the Sorting Task

Because the grouping of dependent variables may have an important effect on the outcome of a meta-analysis, a sorting task with experts was used (see [19], [188]). Experts were defined as persons who had been trained and actively involved in research on parenting for several years and who were at least participating in a relevant graduate program. A total of 10 experts were asked. Five of the coders had a doctoral degree; the others were advanced graduate students.

Overall, 313 parental control constructs were identified from the selected publications. Because some of the 313 constructs were almost identical, the first, second, and third authors together grouped the constructs that were obviously (near-)identical. Any differences were resolved through discussion and consensus. The grouping resulted in a set of 147 different constructs. Each construct was printed on a separate card, including the definition that was given in the paper and examples of the specific parenting construct. Any information about the source of the construct was left out. Separate sets of cards were made for the four settings in which parental control was observed (e.g., free play, problem solving, discipline setting, naturalistic). This was done because certain aspects of parental control may be evaluated differently depending on the setting in which it was observed [29]. Experts were asked to sort the constructs into three groups of parental control (appropriate/positive, not-appropriate/negative, and neutral, with regard to optimal child development), separately for the four different observation settings. The appropriate/positive and not-appropriate/negative categories correspond with the autonomy-supportive and controlling strategies as proposed by self-determination theory [12]. A neutral category was included only for the sorting task, because we wanted to examine only the most pure forms of controlling and autonomy-supportive strategies in the actual meta-analysis.

Agreement between the experts was satisfactory (kappas .66–.82, average .75). For 117 of the constructs, at least 8 out of 10 experts agreed on sorting the construct in the appropriate/positive, not-appropriate/negative, or neutral control category. The 30 remaining constructs with 70% agreement or less were discussed by the first and last authors. For 12 of these 30 constructs the two authors reviewing the experts' sorts agreed on one of the existing categories. The remaining 18 constructs were ambiguous or contained both positive and negative elements in one composite score, and therefore could not be grouped under autonomy-supportive or controlling strategies. The outcomes of the expert sort can be found in S2 Table.

Further, the constructs that were identified by the experts as controlling (n = 60) were divided in psychological control and harsh physical discipline by the first and second authors. This search was guided by the content of questionnaires and observation scales that are widely used to assess psychological control (i.e., Child Report of Parental Behavior Inventory; [189], Parental Psychological Control measure; [28], Psychological Control Scale; [10]). The psychological control concepts that are assessed with these instruments are: love withdrawal (i.e., parental attention, love, and care is contingent upon children's compliance with parental requests), erratic emotional behavior (i.e., inconsistent emotional behavior directed at the child), invalidation of the child's feelings (i.e., tell the child how to feel or think), constraining verbal expressions (i.e., speaking for the child), negative criticism (i.e., shame, disappointment,

Table 1. Studies Included in the Meta-Analysis.

Study	Parent[a]	Control type[b]	Sample size		% ♀	Age (in years)	Ethnicity[c]	Task[d]	Sample normative	SES[e]	Setting[f]	Only verbal	Other moderators[g]					
													1	2	3	4	5	6
Ahl et al. 2013 [45]	M	+	8 ♀	8 ♂	50	1.0	-	F	Yes	4	H	No	28	-	1	1	50	1
Barkley 1989 [76]	M	+, -	20 ♀	20 ♂	50	6.0	-	F, T, M	No	4	L	No	20	-	1	1	100	1
Barnett et al. 1998 [77]	M	-	38 ♀	31 ♂	55	4.6	AA	F	Yes	1	L	No	7	-	2	1	67	1
Baumrind 1971 [78]	M, F	+, -	69 ♀	80 ♂	46	4.2	-	N	Yes	4	H	No	-	-	1	2	0	1
Befera et al. 1985 [79]	M	+, -	30♀	30 ♂	50	8.6	-	F, T, M	Yes, No	4	L	No	10	-	1	2	50	1
Belden et al. 2007 [80]	M	+, -	133 ♀	144 ♂	48	4.0	-	D	No	3	L	No	8	-	1	1	33	1
Bellinger et al. 1982 [81]	M, F	-	5 ♀	5 ♂	50	3.9	-	T	Yes	3	L	Yes	30	-	1	1	50	1
Bernstein et al. 2005 [82]	M	+	332 ♀	351 ♂	49	4.0	Mixed	T	Yes	1	L	No	-	-	2	1	20	1
Blackwelder et al. 1986 [83]	M	+, -	12 ♀	12 ♂	50	5.9	-	T	Yes	4	L	No	-	-	2	1	100	1
Braungart-Rieker et al. 1997 [18]	M	+, -	29 ♀	28 ♂	51	2.5	Mixed	D	Yes	2	L	No	2	-	2	2	0	1
Bright et al. 1984 [84]	M, F	+, -	13 ♀	16 ♂	45	4.7	-	F	Yes	2	L	No	10	2	1	2	0	1
Brody et al. 1985 [85]	M	+, -	20 ♀	14 ♂	42	5.2	-	N	Yes	2	H	No	40	-	2	1	100	1
Brody et al. 1986 [86]	M, F	+, -	23 ♀	37 ♂	38	6.5	NAC	T	Yes	3	L	No	5	-	2	1	100	1
Brody et al. 1992 [87]	M, F	+, -	53 ♀	56 ♂	49	7.5	NAC	T	Yes	3	H	No	-	-	2	1	33	1
Bronstein 1984 [88]	M, F	+, -	24 ♀	30 ♂	43	9.0	SA	N	Yes	1	H	No	60	-	1	2	0	1
Bronstein et al. 2007 [89]	C	+, -	51 ♀	42 ♂	55	10.7	NAC	N	Yes	4	H	No	60	-	1	2	0	1
Caldera et al. 1989 [90]	M, F	+	20 ♀	20 ♂	50	1.7	-	D	Yes	-	L	Yes	24	-	1	2	0	1
Calkins et al. 1998 [91]	M	+, -	35 ♀	30 ♂	54	2.0	Mixed	T	Yes	2	L	No	11	-	2	2	0	1
Campbell et al. 1986 [92]	M	+, -	27 ♀	41 ♂	40	2.9	-	F	No	-	L	No	15	-	2	2	0	1
Campbell 1999 [93]	M	+, -, H	66 ♀	73 ♂	47	10	Mixed	T	Yes	2	L	Yes	20	-	1	2	0	2
Celano et al. 2008 [94]	M	+	29 ♀	72 ♂	29	8.6	Mixed	T	No	1	L	No	15	-	2	2	33	1
Chaplin et al., 2014 [95]	M	+, -	32 ♀	26 ♂	55	15.1	Mixed	T	Yes	3	L	No	10	-	2	2	17	1
Chen et al. 2000 [96]	M	+, -	84 ♀	82 ♂	51	2.0	C	F	Yes	4	L	No	19	-	2	2	100	1
Chen et al. 2001 [41]	M, F	+, -	40 ♀	28 ♂	59	4.2	C	T	Yes	4	H	No	30	-	2	1	50	1
Cherry et al. 1976 [97]	M	-	6 ♀	6 ♂	50	2.0	-	F	Yes	-	L	Yes	15	-	1	2	50	1
Christopoulou 1988 [98]	M	-	36 ♀	32 ♂	53	7.3	Mixed		Yes	2	L	No	10	-	2	2	0	2
Ciarrocchi 1983 [99]	M	+, -	31 ♀	27 ♂	53	5.2	-	T	Yes	3	H	No	3	-	2	1	100	2
Cipriano et al. 2010 [100]	M	+	63 ♀	63 ♂	50	2.0	Mixed	D	Yes	4	L	No	4	-	2	2	0	1
Copeland 1985 [101]	M	+, -	30 ♀	31 ♂	49	8.5	-	T	Yes	-	L	No	50	-	1	2	0	1
Coulson 2002 [102]	M, F	P	61 ♀	52 ♂	54	4.0	Mixed		Yes	4	L	No	12	-	2	2	0	2
Crockenberg et al. 1990 [103]	M	+, -	39 ♀	56 ♂	41	2.0	Mixed	N, T, M	Yes	4	H,L	No	21	-	2	2	0	1
Cyr et al. 2014 [104]	M	+, -	45 ♀	37 ♂	55	4.5	Mixed	M	Yes	1	L	No	25	-	2	2	50	1
Deater-Deckard 2000 [105]	M	+, -	120 ♀	120 ♂	50	3.6	Mixed	T	Yes	4	H	No	20	-	2	1	100	1
Dekovic et al. 1992 [106]	C	+, -	113		-	8.9	WEC	T	Yes	4	H	No	20	-	1	2	50	1
Dennis 2006 [107]	M	+, P	55 ♀	58 ♂	49	4.0	Mixed	D, F, M	Yes	4	L	No	8	-	2	2	0	1
Domenech et al. 2009 [46]	C	+, -	57 ♀	38 ♂	58	6.6	Mixed	T	Yes	1	L	No	18	3	1	2	0	1
Donovan et al. 2000 [108]	M	+, -	29 ♀	28 ♂	51	2.0	NAC	D	Yes	3	L	No	15	-	2	2	67	1
Dumas et al. 1995 [109]	M	+, -	69 ♀	57 ♂	55	4.2	Mixed	T	No	4	L	No	18	-	2	1	67	1
Eddy et al. 2001 [42]	M, F	-	201 ♀	195 ♂	51	5.0	Mixed	N	Yes	4	L	No	60	-	1	1	33	1
Eiden et al. 2001 [110]	M, F	+, -	107 ♀	108 ♂	50	1.5	Mixed	F	No	4	L	No	10	2	1	2	67	1
Eley et al. 2010 [111]	M	-	296 ♀	234 ♂	56	8.0	Mixed	T	No	4	L	No	8	-	2	2	0	1
Emmons 2001 [112]	M, F	+	49 ♀	63 ♂	41	1.6	Mixed	D	Yes	4	L	No	5	-	1	2	0	2
Fagot 1985 [113]	M, F	+, -	18 ♀	18 ♂	50	1.9	-	N	Yes	-	H	No	420	3	1	2	0	1
Fagot et al. 1993 [114]	M, F	+, -	65 ♀	72 ♂	46	1–1.5	Mixed	N	Yes	4	H	No	60	-	1	2	0	1
Fagot et al. 1996 [115]	M	+, -	46 ♀	47 ♂	49	2.5	Mixed	T	Yes	1	L	No	-	-	1	2	0	1
Falender et al. 1975 [116]	M	+, -, H	19 ♀	20 ♂	49	5.0	AA	T	Yes	1	L	No	20	-	2	2	50	1

(*Continued*)

Table 1. (*Continued*)

Study	Parent[a]	Control type[b]	Sample size		% ♀	Age (in years)	Ethnicity[c]	Task[d]	Sample normative	SES[e]	Setting[f]	Only verbal	Other moderators[g]					
													1	2	3	4	5	6
Feldman et al. 1986 [117]	M	-	46 ♀	48 ♂	49	2.5	I	D	Yes	-	L	No	13	-	2	2	0	1
Feldman et al. 2003 [118]	M, F	+	16 ♀	16 ♂	50	2.2	I	D	Yes	2	H	No	8	-	2	2	0	1
Fisher et al. 1993 [119]	M, F	-	90 ♀	102 ♂	47	5.0	-	N	Yes	-	H	No	120	-	1	1	50	1
Frampton 2012 [120]	M	+, -	743		-	2.8	Mixed	T	Yes	4	H	No	15	-	2	2	0	2
Frankel et al. 1983 [121]	M, F	+, -	9 ♀	9 ♂	50	6.1	-	F, T, M	Yes	-	H	No	8	1	1	1	100	1
Frodi et al. 1985 [122]	M	-	17 ♀	24 ♂	41	1.0	NAC	T	Yes	4	L	No	6	-	2	2	0	1
Gaertner et al. 2008 [123]	M	+	115 ♀	141 ♂	45	1.5	Mixed	D	Yes	4	L	No	-	-	2	2	0	1
Gjerde et al. 1991 [124]	M, F	+, -	46 ♀	42 ♂	53	5.0	Mixed	T	Yes	4	L	No	-	-	1	1	67	1
Gordon 1983 [125]	M	+, -	39 ♀	35 ♂	54	3.5	Mixed	T	Yes, No	4	L	No	10	-	1	2	0	1
Gross et al. 2009 [126]	C	+, -	112 ♀	141 ♂	44	3.0	-	F, T, M	Yes	1	L	No	10	3	2	2	33	1
Gunnoe et al. 1999 [127]	M, F	+, -	217 ♀	240 ♂	49	12.9	Mixed	T	Yes	-	H	No	10	-	2	2	33	1
Gustafsson et al. 2012 [128]	M	-	338 ♀	367 ♂	48	1.3	Mixed	F	Yes	-	H	No	30	-	2	2	0	1
Henderson 2007 [129]	M	+, -	35 ♀	20 ♂	64	2.0	Mixed	D	Yes	1	H	No	5	-	1	2	0	2
Hess et al. 1984 [130]	M	-	33 ♀	34 ♂	43	4.0	NAC	T	Yes	4	L	Yes	-	-	2	1	50	1
Higgins 2008 [131]	M, F	+, -	50 ♀	50 ♂	50	2.0	Mixed	M	Yes	4	L	No	35	-	2	2	0	2
Holt 2008 [132]	M	-	53 ♀	58 ♂	48	2.0	Mixed	T	Yes	4	L	No	10	-	1	2	0	2
Huang et al. 2014 [133]	M	+, -	45 ♀	45 ♂	50	6.0	C, WEC	D	Yes	3	H	No	-	-	2	2	50	1
Huber 2012 [134]	M	-	39 ♀	41 ♂	49	0.9	SA	F	Yes	1	L	No	4	-	1	2	0	1
Hughes et al. 1999 [135]	M	+, -	138 ♀	100 ♂	58	3.6	Mixed	T	Yes	4	H	No	20	-	1	2	33	1
Inoff-Germain et al. 1988 [136]	M, F	-	30 ♀	30 ♂	50	12.3	NAC	T	Yes	2	H	No	45	-	1	2	0	1
Janssens et al. 1997 [137]	M, F	+	62 ♀	63 ♂	50	4–8	-	T	Yes	4	H	Yes	20	-	2	1	50	1
Kagan et al. 1963 [138]	M	-, P	20 ♀	30 ♂	40	4.3	-	N	Yes	4	H	No	180	-	2	1	50	1
Kalpidou et al. 1998 [139]	M	+,-, P,H	22 ♀	22 ♂	50	4.0	Mixed	D	Yes	3	L	No	27	2	2	2	33	1
Kapungu et al. 2006 [140]	M	+, -	157 ♀	117 ♂	57	11.0	AA	T	Yes	1	L	No	60	-	1	2	33	1
Kauffman 1985 [141]	M, F	-	17 ♀	23 ♂	43	5.0	-	T	Yes	4	H	Yes	5	-	1	2	0	2
Kenny-Benson et al. 2005 [142]	M	-	52 ♀	52 ♂	50	8.2	Mixed	T	Yes	3	L	No	15	-	2	2	0	1
Kerig et al. 1993 [143]	M, F	+, -	19 ♀	19 ♂	50	3.6	Mixed	F	Yes	2	L	Yes	10	2	1	2	33	1
Kochanska 1995 [144]	M	+, -,H	51 ♀	52 ♂	50	2.7	Mixed	D	Yes	4	Mix	No	80	-	2	2	0	1
Kochanska et al. 2003 [145]	M	-	53 ♀	55 ♂	49	1.2	Mixed	D	Yes	4	L	No	58	-	2	2	0	1
Kochanska et al. 2009 [40]	M, F	-	50 ♀	50 ♂	50	2.0	Mixed	D	Yes	4	L	No	45	-	2	2	25	1
Kok et al. 2012 [146]	M	+, -	214 ♀	222 ♂	49	3.1	WEC	D	Yes	4	L	No	2	-	2	2	56	1
Kuczynski 1984 [147]	M, F	+, -	32 ♀	32 ♂	50	4.0	-	T	Yes	4	L	No	9	-	1	1	100	1
LaFreniere et al. 1992 [148]	M	+, -	66 ♀	60 ♂	52	3.9	NAC	T	Yes	-	L	No	18	-	2	1	100	1
Laosa 1978 [149]	M	+, -, H	23 ♀	20 ♂	53	5.8	SA	T	Yes	4	H	No	10	2	2	1	100	1
Lengua et al. 2007 [150]	M	+, -	80		-	3.0	Mixed	T	Yes	4	L	No	-	-	2	2	0	1
Lengua et al. 2014 [151]	M	+, -	103 ♀	103 ♂	50	3.1	Mixed	M	Yes	4	L	No	24	-	2	2	0	1
Li and Lee 2013 [152]	C	+, P	150		-	7.4	Mixed	D	No	-	L	No	20	-	2	1	100	1
Lindsey et al. 2005 [153]	M	+, -	27 ♀	28 ♂	49	1.2	Mixed	T	Yes	4	H	Yes	-	-	1	1	50	1
Linver et al. 2002 [47]	M	+, -	256 ♀	237 ♂	52	2.5	Mixed	F	No	4	L	No	8	-	2	2	0	1
Liu et al. 2010 [154]	M	+, -	42 ♀	37 ♂	53	5.2	C, NAC	F	Yes	3	L	No	30	-	2	2	50	1
Lloyd 2010 [155]	M	-	13 ♀	13 ♂	50	1.0	Mixed	F	Yes	4	L	No	5	-	1	2	0	1
Loeb 1980 [156]	M, F	+, -	51 ♀	47 ♂	52	10.0	NAC	T	Yes	2	H	No	7	-	1	1	33	1
Longeway 1983 [157]	M	+, -	20 ♀	20 ♂	50	9.0	-	T	Yes	4	L	No	30	-	1	2	0	2
Maccoby et al. 1984 [52]	M	+, -	29 ♀	28 ♂	51	1.3	-	T	Yes	-	Mix	No	17	-	1	2	0	1
Mandara et al. 2012 [38]	M	+, P	55 ♀	44 ♂	56	11.5	AA	T	Yes	4	L	No	10	-	1	2	40	1
Margolin et al. 1975 [158]	M, F	+, -	14 ♀	14 ♂	50	8.4	-	N	Yes	-	H	No	45	2	1	2	50	1
Martinez 1988 [159]	M	+, -, H	28 ♀	19 ♂	60	5.3	SA	T	Yes	1	H	No	10	-	1	2	0	1

(*Continued*)

Table 1. (*Continued*)

Study	Parent[a]	Control type[b]	Sample size		% ♀	Age (in years)	Ethnicity[c]	Task[d]	Sample normative	SES[e]	Setting[f]	Only verbal	Other moderators[g]					
													1	2	3	4	5	6
McFadyen-Ketchum 1996 [160]	M	-	69 ♀	74 ♂	45	5.0	Mixed	N	Yes, No	4	H	No	120	-	1	1	100	1
McLaughlin et al. 1980 [161]	M, F	-	12 ♀	12 ♂	50	5.0	-	T	Yes	2	L	Yes	23	-	1	1	100	1
McLaughlin 1983 [162]	M, F	-	12 ♀	12 ♂	50	2.5	NAC	F	Yes	2	H	Yes	16	-	1	1	100	1
Michnick et al. 1979 [163]	M, F	+, -	6 ♀	6 ♂	50	1.6	-	F, T, M	Yes	4	L	Yes	20	-	1	2	0	1
Minton et al. 1971 [164]	M	+, -, H	41 ♀	49 ♂	46	2.3	-	N	Yes	4	H	No	300	-	2	2	33	1
Morrell et al. 2003 [165]	M	+, -	28 ♀	31 ♂	47	5.0	-	M	Yes	4	Mix	No	-	-	2	1	50	1
Mullis et al. 1985 [166]	M, F	-	16 ♀	16 ♂	50	9.4	-	T	Yes	2	H	Yes	17	-	1	1	50	1
Neppl et al. 2009 [167]	C	+, -	55 ♀	102 ♂	29	2.3	NAC	T	Yes	2	H	No	5	-	1	2	25	1
O'Brien et al. 1987 [168]	M, F	+, -	10 ♀	10 ♂	50	1.9	NAC	T	Yes	2	L	Yes	12	-	1	2	50	1
Oldershaw et al. 1986 [169]	M	+, -,P,H	20 ♀	20 ♂	50	3.0	-	D	Yes, No	2	L	No	40	-	2	2	33	1
Power 1985 [170]	M, F	+, -, H	12 ♀	12 ♂	50	7–13	NAC	F	Yes	3	L	No	5	-	2	1	100	1
Roberts 1983 [171]	M, F	-	19 ♀	11 ♂	63	4.3	-	N	Yes	4	H	No	-	-	2	1	100	2
Robinson et al. 1981 [172]	M, F	+	16 ♀	26 ♂	38	5.2	-	T	Yes, No	4	L	No	5	3	2	2	0	1
Russell et al. 1996 [173]	C	+, -	28 ♀	29 ♂	49	6.8	A	N	Yes	4	H	No	90	-	1	1	100	1
Scaramella et al. 2008 [174]	M	+, -	20 ♀	20 ♂	50	1.5	Mixed	D	Yes	-	Mix	No	-	-	2	2	20	1
Shaw et al. 1998 [175]	M	-	42 ♀	61 ♂	41	2.0	Mixed	D	Yes	1	L	No	-	-	1	1	50	1
Silverman et al. 1995 [176]	M	+, -, P	15 ♀	18 ♂	45	1.5	Mixed	F, T, M	Yes	4	H	No	12	-	2	1	50	1
Smith et al. 1977 [177]	C	+, -	16 ♀	16 ♂	50	1.5	WEC	N	Yes	4	H	No	60	3	1	1	50	1
Smith et al. 1997 [178]	M	-, H	372 ♀	343 ♂	52	2.0	Mixed	N	No	4	H	No	-	-	1	2	0	1
Smith et al. 2004 [53]	M	-	67 ♀	58 ♂	54	4.5	Mixed	T	No	4	L	No	22	-	1	2	20	1
Smith 2010 [179]	M	-	68 ♀	72 ♂	49	2.7	Mixed	F	Yes	4	L	No	8	-	2	2	0	1
Tam et al. 2003 [180]	M, F	+, -	41 ♀	40 ♂	51	9.8	C	T	Yes	-	L	No	20	-	2	2	0	1
Tamis-LeMonda et al. 2009 [39]	M	+, -	53 ♀	66 ♂	45	6.5	AA	D	Yes	4	-	No	20	-	1	2	50	1
Thomson et al. 2014 [181]	M	+, -	49 ♀	111 ♂	31	1.0	Mixed	T	Yes	4	L	No	4.3	-	2	2	44	1
Trautmann-Villaba et al. 2006 [182]	F	-	45 ♀	43 ♂	51	2.0	WEC	F	Yes	-	L	No	5	-	1	2	67	1
Tulananda et al. 2001 [183]	M, F	+, -, H	31 ♀	22 ♂	58	3.9	Thai	N	Yes	2	H	No	120	2	1	2	50	1
Van Zeijl et al. 2007 [44]	M	+, -	107 ♀	127 ♂	46	2.3	WEC	D	No	4	L	No	10	-	2	2	25	1
Webster-Stratton et al. 1999 [43]	M, F	P	32 ♀	88 ♂	27	5.7	Mixed	N	No	4	H	No	30	-	2	2	0	1
Wilson 1980 [184]	M	+, -	30 ♀	30 ♂	50	3.5–7.5	NAC	T	Yes	3	L	No	10	-	1	2	0	2
Yagmur et al. 2014 [185]	M	+, -	31 ♀	45 ♂	41	2.6	T	D	Yes	-	H	No	9	-	2	2	0	1
Yaman et al. 2010 [186]	M	+, -	58 ♀	82 ♂	41	2.0	WEC, T	D	No	-	H	No	4	-	2	2	20	1
Zevalkink et al. 2001 [187]	M	+, -	36 ♀	40 ♂	47	3.2	In	T	Yes	1	L	No	15	2	2	2	0	1

[a] M = mother; F = father; C = combined sample.

[b] + = autonomy-supportive strategy;— = controlling strategy; P = psychological control; H = harsh physical discipline

[c] AA = African-American; C = Chinese; NAC = North-American Caucasian; SA = South-American; WEC = Western-European Caucasian; I = Israeli; In = Indonesian; A = Australian; T = Turkish.

[d] D = discipline task; F = free play; N = naturalistic setting; T = teaching/problem-solving task; M = mixed

[e] SES; 1 = low; 2 = middle; 3 = high; 4 = mixed

[f] Setting: H = Home; L = Lab

[g] Other moderators: 1) observation length in minutes; 2) gender of coders (1 = male, 2 = female, 3 = mixed); 3) study goal (1 = examine gender differences, 2 = not examining gender differences), 4) gender first author (1 = male, 2 = female), 5) percentage male authors, 6) publication type (1 = journal, 2 = dissertation).

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personal attack), guilt induction (i.e., continually reminding the child of all the sacrifices parents have made to pressurize the child to comply with parents' requests).

Of the 60 controlling constructs that were examined, only five controlling strategies could be considered indices of psychological control: contingent emotional support (i.e., withdrawal of emotional support after child failure), critiquing/humiliating (i.e., expressing disappointment or criticizing when the child fails to meet expectations), parental negativity (i.e., critical or hostile comments, negative commands, sarcastic and condescending remarks), negatives/negativity (i.e., cold, neglect, reprimands, criticism, corrections), and criticism/critical statements. Five constructs were considered indices of harsh physical discipline: harsh physical discipline, physical power, negative physical control, physical punishment, physical force. The remaining constructs contained a mix of physical, psychological and verbal control (e.g., [81], [145], [146], [175]) or were not defined specifically enough (e.g.,[129]; harsh-intrusive parenting), and were therefore not included in the meta-analyses on psychological control and physical discipline.

Data Extraction

Three types of moderators were coded: sample characteristics, procedural moderators, and publication moderators (S3 Table). Sample characteristics included the child's age at the time of the assessment (continuous and categorical; 0–2 years, 2–4 years, 4–18 years), the percentage of girls in the sample (continuous), the socioeconomic background (high, middle, low, mixed), the ethnicity of the sample (African-American, Chinese, North-American Caucasian, West-European Caucasian, South-American, mixed), and the clinical/at-risk status of the sample. Regarding the ethnicity of the sample, samples that were heterogeneous in terms of ethnicity were coded as mixed. Ethnicities other than the ones mentioned above were too uncommon to form a separate category for moderator analyses (i.e., one Australian sample, one Turkish sample, one Indonesian sample, two Israeli samples, one Thai sample). The sample was considered clinical/at risk if the child's score on a clinical instrument was in the clinical range, if a clinical diagnosis was established, or when a sub-sample of a normal sample with highest/lowest scores on a clinical screening instrument was distinguished. Sample size was also coded, in order to assign weight to the effect sizes. Outcomes were included in the form of, in hierarchical order: (a) mean and standard deviation for parental use of control in boys and girls; (b) correlations between child gender and parental control; (c) *p*-values; (d) statements that there were no differences.

Procedural moderators regarding the measurement of parental control were the setting of the observation (home or laboratory), the observation context (free play, problem solving, discipline task, or naturalistic), the observation length (continuous and categorical; 0–10 minutes, 10–60 minutes, more than 60 minutes), whether the behavior observed was mainly verbal or a mix of verbal and nonverbal behaviors (verbal, mixed), the coders' gender (100% male, 100% female, mixed), and whether the frequency of parental control behaviors was controlled for the frequency of child behaviors (e.g., proportion scores, analysis with child behavior as covariate) or not.

Publication moderators were gender of the first author, percentage of male authors (continuous and categorical; 0–30%, 31–70%, more than 70%), publication outlet (journal, dissertation), and year of publication (continuous and categorical; before 1980, 1981–1990, 1991–2000, after 2000).

To assess intercoder reliability, 30 publications were coded by the first and the second author. Agreement between the coders was satisfactory for both the moderators and outcome variables (kappas for categorical variables between .63 and 1.00, average .86, and agreement

between 85% and 100%, average 96%; intraclass correlations for continuous variables between .98 and 1.00, average .996). Coders reached complete agreement in the reliability set on whether or not test statistics were present. Disagreements between the authors were resolved by discussion. After the reliability assessment, the first author coded the remainder of the articles, but consulted one or more of the other authors in cases of doubt.

Meta-Analytic Procedures

The meta-analyses were performed using the Comprehensive Meta-Analysis (CMA) program [190]. For each study, an effect size (standardized mean difference, *d*) was calculated. In general, when studies reported analyses with and without covariates, statistics from the analysis without covariates were used. Effect sizes indicating a difference between parental control of boys and girls that was in line with our hypotheses (e.g., more controlling with boys than with girls, more autonomy-supportive strategies with girls than with boys) were given a positive sign, differences that were not in line with our hypotheses were given a negative sign. According to Cohen [191], effect sizes of $d = 0.20$ are considered small, $d = 0.50$ is a medium-sized effect, and $d = 0.80$ is a large effect.

Statistical analyses. Combined effect sizes were computed in CMA. Significance tests and moderator analyses were performed through random-effect models, which are more conservative than fixed-effect models. In the random-effect model, the true effect could vary between studies, depending on characteristics of the specific sample. Because of these different characteristics, there may be different effect sizes underlying different studies [192]. To test the homogeneity of the overall and specific sets of effect sizes, we computed Q-statistics [192]. In addition, we computed 95% confidence intervals (CIs) around the point estimate of each set of effect sizes. Q-statistics and *p*-values were also computed to assess differences between combined effect sizes for specific subsets of study effect sizes grouped by moderators. Contrasts were only tested when at least two of the subsets consisted of at least four studies each [193]. Different meta-analyses were conducted for autonomy-supportive and controlling strategies, and for mothers and fathers. Differences in (absolute values of) combined effect sizes between mothers and fathers for specific subsets of study effect sizes grouped by moderators were examined by comparing the 85% CIs. Non-overlapping CIs indicate a significant difference [194], [195], [196], [197].

Funnel plots for each subset were examined in order to detect possible publication bias. A funnel plot is a plot of each study's effect size against its standard error (usually plotted as 1/SE, or precision). It is expected that this plot has the shape of a funnel, because studies with smaller sample sizes (larger standard errors) have increasingly big variation in estimates of their effect size as random variation becomes increasingly influential, representing the broad side of the funnel, whereas studies with larger sample sizes have smaller variation in effect sizes, which represents the narrow end of the funnel [198], [199]. However, smaller studies with non-significant results or with effect sizes in the non-hypothesized direction are less likely to be published, whereas for large studies, publication of small or non-significant effect sizes or effect sizes in the non-hypothesized direction is more likely because large studies are generally deemed more trustworthy. Therefore, a funnel plot may be asymmetrical around its base (i.e., for small studies no effect sizes for non-significant results or results in the non-hypothesized direction). The degree of asymmetry in the funnel plot was examined by estimating the number of studies which have no symmetric counterpart on the other side of the funnel [198], [200].

We checked for outlying effect sizes and sample sizes separately for the different subsets of studies. *Z*-values below 3.29 or greater than 3.29 were considered outliers [201]. Five outlying effect sizes were detected ([117] fathers' autonomy-supportive strategies; [143] both mothers'

and fathers' autonomy-supportive and controlling strategies) and seven studies had outlying sample sizes [47], [82], [120], [127], [128], [146], [178]. Analyses were conducted with and without studies with outlying effect sizes. The outliers with regard to sample size were winsorized (highest non-outlying number + difference between highest non-outlying number and before highest non-outlying number).

Results

Parents' Differential Use of Controlling Strategies with Boys and Girls

The combined effect size for the difference in parental controlling of boys and girls was non-significant (d = 0.05, 95% CI [-0.01, 0.11], p = .08). The set of studies was highly heterogeneous (Q = 498.64, $p < .01$). Excluding outlying effect sizes (k = 2), the combined effect size was significant but small (d = 0.08, 95% CI [0.05, 0.12], $p < .01$; Table 2) in a heterogeneous set of studies (Q = 224.94, $p < .01$). The effect size was positive, indicating that parents used more controlling strategies with boys than with girls. Moderator analyses were conducted without outliers.

The combined effect size for the normative group (d = 0.11, 95% CI [0.08, 0.15], $p < .01$, k = 140, n = 12,181) was larger than the combined effect size for the group with clinical or at-risk samples (d = -0.03, 95% CI [-0.16, 0.10], p = .66, k = 21, n = 3,498; $Q_{contrast}$ (1) = 4.33, $p < .05$), indicating that the differential controlling of boys and girls was larger in normative groups than in clinical and at-risk groups, where the gender difference was absent. Child age was also a significant moderator ($Q_{contrast}$ (2) = 6.01, $p < .05$), indicating that the combined effect size was largest in the youngest age group (0–2 years; d = 0.16, 95% CI [0.10, 0.22], $p < .01$, k = 41, n = 3,525), followed by the oldest age group (> 4 years; d = 0.08, 95% CI [0.04, 0.13], $p < .01$, k = 80, n = 7,050) and the middle age group (2–4 years; d = 0.04, 95% CI [-0.06, 0.13], p = .44, k = 40, n = 5,104). The contrast between the youngest age group and the two older groups was also significant ($Q_{contrast}$ (1) = 5.86, $p < .05$). None of the other moderators were significant. Continuous moderators were tested using meta-regression analyses, but none of them were significant.

Differences between mothers' and fathers' gender-differentiated use of controlling strategies. To test whether mothers' and fathers' differential controlling of boys and girls was dependent on different moderators, two meta-analyses were conducted, separately for mothers and fathers. The combined effect size for mothers' differential controlling of boys and girls was small but significant (d = 0.07, 95% CI [0.03, 0.12], $p < .01$) in a heterogeneous set of studies (Q = 173.58, $p < .01$). The combined effect size for fathers was also significant (d = 0.12, 95% CI [0.06, 0.19], $p < .01$) in a heterogeneous set of studies (Q = 30.33, $p < .01$). Although the effect size for fathers was slightly higher than that for mothers, the 85% confidence intervals of mothers (85% CI [0.04, 0.11]) and fathers (85% CI [0.08, 0.17]) overlapped, indicating that mothers and fathers did not differ in the extent of their differential treatment of boys and girls; both were more controlling with their boys more than with their girls. For mothers, observation time was a significant moderator ($Q_{contrast}$ (1) = 3.91, $p < .05$), next to child age and normativity of the sample. Mothers used more controlling strategies with boys than with girls but this effect could only be detected with observation longer than 10 minutes (0–10 minutes: d = 0.01, 95% CI [-0.10, 0.11], p = .91; > 10 minutes: d = 0.12, 95% CI [0.07, 0.16], $p < .01$). All 85% CIs for moderators tested in mothers and fathers were overlapping, indicating no differences between mothers and fathers for the effects of the moderators.

Parents' differential use of psychological and harsh physical control with boys and girls. Separate meta-analyses were conducted for two types of controlling strategies: studies specifically examining psychological control (k = 15, n = 1,226), and studies examining harsh

Table 2. Parents' Controlling Behaviors.

Characteristics	*k*	*N*	*d*	95% CI	*Q*
Total set	161	15,679	0.082**	[0.045, 0.120]	224.94**
Sample					
Parent gender					1.59
Father	35	2,633	0.124**	[0.058, 0.190]	30.33
Mother	118	12,238	0.077**	[0.044, 0.109]	173.58**
Mixed	8	808	0.058	[-0.070, 0.186]	19.29**
Child age					6.01*
0–2 years	41	3,525	0.158**	[0.099, 0.217]	28.05
2–4 years	40	5,104	0.037	[-0.058, 0.132]	97.20**
> 4 years	80	7,050	0.081**	[0.035, 0.127]	89.67
Normative sample					4.33*
Yes	140	12,181	0.111**	[0.078, 0.145]	142.63
No	21	3,498	-0.029	[-0.156, 0.099]	69.84**
SES					1.86
Low	16	1,323	0.073	[-0.061, 0.207]	23.22
Middle	27	2,841	0.119**	[0.049, 0.190]	27.02
High	26	1,232	0.029	[-0.083, 0.142]	5.42
Mixed	72	9,220	0.086**	[0.025, 0.146]	153.72**
Ethnicity					5.61
African-American	4	529	0.278**	[0.050, 0.506]	4.49
N-A Caucasian	28	1,461	0.085	[-0.014, 0.184]	7.65
Chinese	5	452	0.127	[-0.033, 0.286]	2.08
W-E Caucasian	7	1,002	0.185	[-0.028, 0.398]	14.36*
South-American	5	224	0.162	[-0.210, 0.534]	9.28
Procedure					
Verbal					0.64
Only	17	458	0.001	[-0.203, 0.204]	18.50
Mixed	144	15,221	0.085**	[0.047, 0.123]	205.87**
Setting					0.51
Home	67	7,652	0.098**	[0.058, 0.138]	58.70
Lab	88	7,561	0.071*	[0.009, 0.133]	153.89**
Task					2.82
Free play	30	2,887	0.089	[-0.054, 0.233]	78.00**
Naturalistic	33	3,164	0.111**	[0.054, 0.168]	23.29
Teaching	69	7,019	0.057*	[0.007, 0.108]	77.71
Discipline	25	2,515	0.136*	[0.028, 0.243]	38.03*
Observation length					1.91
0–10 minutes	52	5,704	0.036	[-0.049, 0.121]	103.14**
11–60 minutes	76	7,336	0.099**	[0.052, 0.146]	86.05
> 60 minutes	15	922	0.113*	[0.013, 0.213]	7.64
Coders gender					0.01
Female	13	981	0.023	[-0.084, 0.130]	9.05
Mixed	4	199	-0.008	[-0.524, 0.507]	8.93*
Control child behavior					1.17
Yes	14	1,000	0.156*	[0.030, 0.283]	17.78
No	99	7,794	0.083**	[0.042, 0.125]	85.21
Publication					

(*Continued*)

Table 2. (*Continued*)

Characteristics	*k*	*N*	*d*	95% CI	*Q*
Gender first author					1.29
Male	53	3,797	0.049	[-0.010, 0.108]	52.88
Female	108	11,882	0.093**	[0.047, 0.139]	170.16**
% male authors					1.37
0–30	72	7,987	0.064*	[0.004, 0.124]	125.52**
31–70	59	6,227	0.109**	[0.055, 0.163]	71.36
> 70	30	1,465	0.067	[-0.024, 0.158]	29.90
Publication outlet					0.14
Journal	142	14,038	0.084	[0.042, 0.126]	214.38**
Dissertation	19	1,641	0.067	[-0.014, 0.148]	10.35
Publication year					1.66
< 1980	17	757	0.150**	[0.042, 0.257]	19.09
1981–1990	54	2,083	0.098*	[0.021, 0.174]	43.10
1991–2000	33	4,340	0.072*	[0.017, 0.126]	24.47
> 2000	56	8,499	0.088*	[0.018, 0.158]	136.02**

Note. Statistics displayed are from analyses without outliers. Abbreviations stand for North-American (N-A), Western-European (W-E), number of samples (*k*), sample size (*N*), standardized mean difference (*d*), 95% confidence interval (CI), heterogeneity (*Q*).

* $p < .05$,

** $p < .01$

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physical discipline ($k = 18$, $n = 1{,}190$). The gender difference for psychological control was not significant ($d = -0.00$, 95% CI [-0.12, 0.11], $p = .98$) in a homogeneous set of studies ($Q = 4.04$, $p = .99$). The combined effect size for the difference in harsh physical discipline with boys and girls was not significant either ($d = 0.10$, 95% CI [-0.01, 0.22], $p = .07$) in a homogeneous set of studies ($Q = 7.38$, $p = .98$). With regard to the differences between mothers and fathers in the gender-differentiated use of harsh physical discipline, mothers used more harsh discipline with boys than with girls ($d = 0.12$, 95% CI [0.01, 0.24], $p < .05$, $k = 14$, $n = 1{,}190$). Parent gender was however not a significant moderator of the gender-differentiated use of harsh physical discipline ($Q_{contrast}$ (1) = 1.22, $p = .27$). The subsets of studies on psychological control and harsh physical discipline were too small to conduct further moderator analyses.

Parents' Differential Use of Autonomy-Supportive Strategies with Boys and Girls

The results of the meta-analysis on differential autonomy-supportive strategies with boys and girls indicated that the gender difference was not significant ($d = 0.03$, 95% CI [-0.00, 0.07], $p = .06$) in a homogeneous set of studies ($Q = 139.09$, $p = .46$). Excluding the outlying effect sizes ($k = 3$) did not change the results ($d = 0.03$, 95% CI [-0.00, 0.07], $p = .07$; Table 3), again, the set of studies was homogeneous ($Q = 108.10$, $p = .96$). Further analyses were conducted without outliers. Although the set of studies was not significantly heterogeneous, the value of the *Q* statistic indicated a moderate to large degree of heterogeneity [202]. We therefore conducted moderator analyses to examine this heterogeneity. None of the sample or procedural moderators were significant.

However, publication year was a significant moderator ($Q_{contrast}$ (3) = 9.00, $p < .05$), which was confirmed in a meta-regression ($B = 0.01$, 95% CI [0.00, 0.01], $p < .05$). Test of time-related trends showed a significant positive correlation between year of publication (1971–

Table 3. Parents' Autonomy-Supportive Strategies.

Characteristics	*k*	*N*	*d*	95% CI	*Q*
Total set	136	12,182	0.032	[-0.002, 0.066]	108.10
Sample					
Parent gender					1.33
Father	29	2,027	0.001	[-0.075, 0.076]	15.75
Mother	98	9,094	0.035	[-0.005, 0.075]	88.22
Mixed	9	1,061	0.081	[-0.040, 0.203]	2.80
Child age					1.48
0–2 years	39	2,675	0.007	[-0.062, 0.075]	11.42
2–4 years	34	4,762	0.060	[-0.006, 0.125]	39.80
> 4 years	63	4,745	0.014	[-0.040, 0.068]	54.43
Normative sample					1.24
Yes	118	9,976	0.032	[-0.005, 0.069]	70.54
No	18	2,206	-0.049	[-0.187, 0.089]	37.54**
SES					1.66
Low	13	1,852	-0.011	[-0.101, 0.079]	5.93
Middle	18	1,804	-0.011	[-0.104, 0.081]	7.28
High	23	1,108	0.023	[-0.095, 0.142]	3.40
Mixed	64	6,403	0.045	[-0.011, 0.100]	78.72
Ethnicity					0.66
N-A Caucasian	22	1,185	0.073	[-0.042, 0.187]	4.00
Chinese	6	452	0.024	[-0.135, 0.182]	0.99
W-E Caucasian	6	758	0.109	[-0.039, 0.256]	5.14
South-American	4	144	0.115	[-0.215, 0.446]	1.07
Procedure					
Verbal					0.97
Only	13	449	0.123	[-0.062, 0.309]	2.82
Mixed	123	11,733	0.029	[-0.006, 0.063]	104.32
Setting					1.34
Home	54	4,556	0.006	[-0.049, 0.061]	30.49
Lab	75	6,322	0.049*	[0.002, 0.096]	72.11
Mixed	4	255	0.032	[-0.213, 0.278]	0.25
Task					3.33
Free play	21	1,705	0.092*	[0.002, 0.183]	15.49
Naturalistic	20	1,218	0.009	[-0.097, 0.115]	11.44
Teaching	62	6,136	0.009	[-0.040, 0.059]	45.53
Discipline	27	2,550	0.062	[-0.010, 0.134]	13.57
Observation length					0.26
0–10 minutes	49	4,797	0.039	[-0.017, 0.095]	48.74
11–60 minutes	63	4,895	0.020	[-0.032, 0.071]	51.52
> 60 minutes	10	701	0.032	[-0.107, 0.172]	0.70
Coders gender					0.81
Female	13	981	-0.057	[-0.174, 0.059]	5.79
Mixed	9	536	0.038	[-0.134, 0.210]	0.89
Control child behavior					2.13
Yes	12	708	-0.135	[-0.334, 0.063]	24.57*
No	91	5,702	0.017	[-0.032, 0.065]	42.76
Publication					

(*Continued*)

Table 3. (*Continued*)

Characteristics	*k*	*N*	*d*	95% CI	*Q*
Gender first author					0.01
Male	42	3,283	0.033	[-0.030, 0.097]	18.77
Female	94	8,899	0.031	[-0.009, 0.071]	89.32
% male authors					0.26
0–30	61	5,725	0.041	[-0.009, 0.091]	45.68
31–70	53	5,291	0.024	[-0.030, 0.077]	52.66
> 70	22	1,166	0.024	[-0.073, 0.120]	9.49
Publication outlet					0.03
Journal	124	11,111	0.031	[-0.005, 0.067]	103.30
Dissertation	12	1,071	0.040	[-0.060, 0.140]	4.77
Publication year					9.00*
< 1980	13	609	-0.004	[-0.145, 0.137]	4.88
1981–1990	44	1,585	-0.076	[-0.162, 0.009]	31.66
1991–2000	30	3,406	0.032	[-0.034, 0.097]	22.22*
> 2000	49	6,582	0.070**	[0.023, 0.117]	40.35

Note. Statistics displayed are from analyses without outliers. Abbreviations stand for North-American (N-A), Western-European (W-E), number of samples (*k*), sample size (*N*), standardized mean difference (*d*), 95% confidence interval (CI), heterogeneity (*Q*).

* $p < .05$,

** $p < .01$.

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2014) and Cohen's *d* ($r = 0.22$, $p = 0.01$). Fig 2 displays the relation between year of publication and standardized Cohen's *d*. In the 70s and 80s, effect sizes are negative, indicating that boys received more autonomy-supportive parenting than girls. From 1990 onward, the positive effect sizes indicate that girls received more autonomy-supportive parenting than boys. Because the scatter plot suggested possible non-linearity in the association between year of publication and Cohen's *d*, a quadratic function was also tested but this did not fit the data

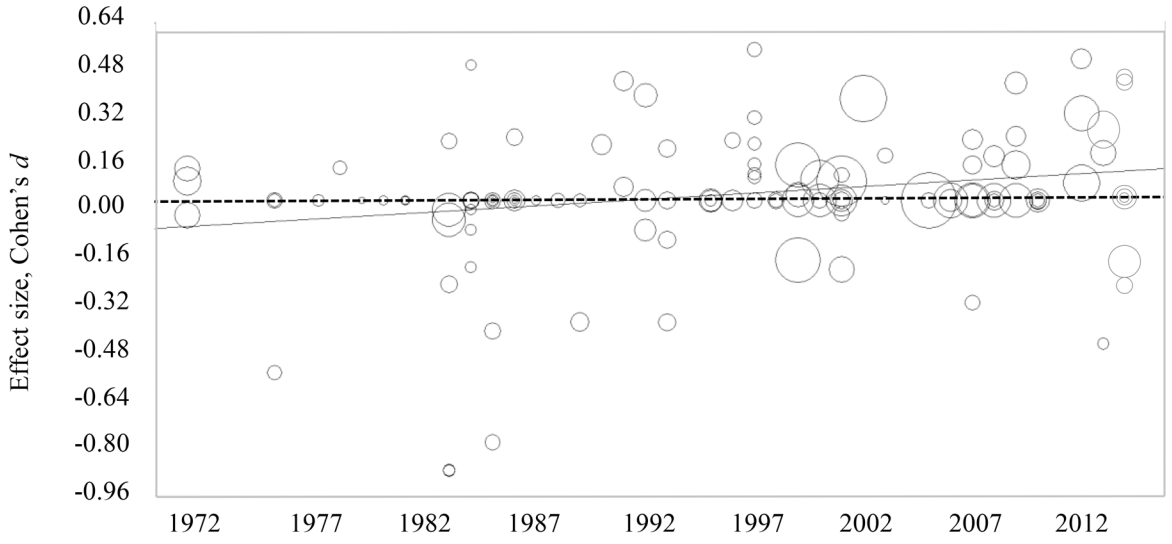

Fig 2. Scatterplot showing the relation between year of publication and Cohen's d of autonomy-supportive strategies. Note. Solid line represents regression line, dashed line represents Cohen's d = 0.00.

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better than the linear function (both models $z = 2.56$). Because publication year was significantly associated with the moderator observation time ($r = -.18$, $p < .05$) and percentage male authors ($r = -.17$, $p < .05$) a multivariate regression analysis was also conducted, but publication year was the only significant moderator ($B = 0.01$, 95% CI [0.00, 0.01], $p < .01$).

Differences between mothers' and fathers' gender-differentiated use of autonomy-supportive strategies. To test whether mothers' and fathers' use differential autonomy-supportive strategies with boys and girls was dependent on different moderators, two meta-analyses were conducted separately for mothers and fathers. The combined effect size for mothers' differential autonomy-supportive strategies with boys and girls was not significant ($d = 0.04$, 95% CI [-0.01, 0.08], $p = .09$) in a homogeneous set of studies ($Q = 88.22$, $p = .73$). The combined effect size for fathers was also not significant ($d = 0.00$, 95% CI [-0.08, 0.08], $p = .99$) in a homogeneous set of studies ($Q = 15.75$, $p = .97$). For both mothers and fathers, none of the moderators were significant.

Publication Bias

There was no evidence for publication bias in the funnel plots (see S1 and S2 Figs). Using the trim and fill method [198], [200], asymmetries (missing studies in the non-hypothesized direction) were not found in the meta-analyses on controlling and autonomy-supportive strategies.

Discussion

Surprisingly few differences were found in parents' use of control with boys and girls. Of the four different types of observed parental control (including autonomy-supportive strategies, overall controlling strategies, psychological control, and harsh physical control), parents only differentiated between boys and girls with regard to overall controlling strategies. Parents were slightly more controlling with boys than with girls, but the effect size can be considered negligible. Some significant but very small moderator effects were found. First, the combined effect size for controlling strategies was larger for younger children than for older children and larger in normative groups than in at-risk and clinical groups. Second, parents showed more autonomy-supportive strategies with boys than with girls before 1990, whereas in studies from 1990 onward, parents showed more autonomy-supportive strategies with girls than with boys. Contrary to our expectations, mothers and fathers did not differ in the extent to which they used differential parental control with boys and girls.

The nonsignificant and small effect sizes for gender-differentiated parental control imply that there is considerable similarity in parents' control of boys and girls. As parental control plays an important role in children's development of autonomous or controlled regulation of behavior [13], [14], parents appear to use similar levels of autonomy-supportive parenting and controlling parenting with boys and girls to support optimal development in both sons and daughters. These findings argue against the propositions of biosocial theory that parents use gender-differentiated parenting as a means of gender-role socialization. Apparently, mothers and fathers do not use different control strategies with boys and with girls to prepare them for their future gender roles in society. It is possible that parents do not regard child outcomes associated with parental control (e.g., self-regulation) as relevant to masculinity or femininity, and therefore do not socialize boys and girls differently with regard to control [203]. Parents might use more specific and subtle gender socialization practices to influence their children's gender-role behavior. There is evidence that gender differentiation and discrimination has become less blatant and increasingly subtle in many contemporary societies [204]. In addition, larger and more consistent differences in the treatment of boys and girls are found with regard to parents' encouragement of gender-typical activities [8], parental gender talk [205], and

parents' toy, clothing, and chore choices for children [206]. Moreover, two large longitudinal studies focusing on gender-specific emotion socialization [95] and physical discipline in response to boys' and girls' noncompliance [207] have found that fathers differential socialization of boys and girls was related to larger gender differences in child behavior a year later [95]. In the current meta-analysis we did not find evidence for parents using the specific strategies harsh physical control and psychological control differently with boys and girls, which might be due to a lack of power.

Our findings are not necessarily discordant with the argument of gender schema theories [4] that parents' gender-differentiated use of controlling and autonomy supportive strategies is likely to be influenced by parents' gender-role stereotypes. In the current meta-analysis we were unable to examine whether parents' gender stereotypes influenced gender-differentiated parenting practices, as hardly any studies provided pertinent data. Parents with traditional attitudes about gender roles might have been more likely to show gender-differentiated parenting that reinforces gender-role consistent behavior (e.g., more harsh or physical control of boys than girls, more gentle control and guidance of girls than of boys) than other parents.

Some significant moderators of parents' gender-differentiated use of control were found, but the effect sizes were very small. First, the effect size for controlling strategies was largest in studies with children between 0 and 2-years-old, a time in which gender differences in disruptive behavior or difficult temperament are generally less pronounced [59], [208], [209]. This finding argues against parents' gender-differentiated use of controlling strategies being elicited by pre-existing gender differences in behavior (i.e., child-elicited effect). Second, the finding that differential controlling of boys and girls was detected in studies that used normative samples rather than clinical or at-risk samples might indicate specific interaction dynamics in families experiencing problems. Third, with regard to autonomy-supportive strategies, we found that in earlier studies parents used more autonomy-supportive strategies with boys than toward girls, whereas from 1990 onward, parents used more autonomy-supportive strategies with girls than toward boys. These findings might be attributable to historic changes in child rearing, with a strong parental preference for and involvement with sons in the 70s and 80s changing to a greater preference for and involvement with daughters after 1990 [210], [211], [212], [213], [214].

The majority of the moderators were not significant. Most importantly, mothers and fathers did not differ in the extent of their differential use of controlling or autonomy-supportive strategies with boys and girls. This was unexpected based on biosocial theory [2], [3] and previous findings of more gendered parenting by fathers than mothers [6], [8]. It is possible that mothers and fathers differ in their gender-differentiated parenting practices only with regard to very specific socialization areas, which were not represented in general measures of parental control. Further, we did not find any moderating effect for the observed task or the observational setting. Apparently, the demand level of the observational setting do not influence gendered patterns of parental control. Last, differential control toward boys and girls was not dependent on the socioeconomic status of the family, the ethnicity of the sample, the gender of the first author, the percentage of male authors, or the publication outlet. Especially the null findings with regard to ethnicity and socioeconomic status of the sample were unexpected in light of biosocial theory [2], [3]. It may be that the relatively small number of studies with homogeneous ethnicities or low-SES parents decreased the power to detect effects of ethnicity and SES on gender-differentiated parenting. However, these results could also indicate that the strictness of the gender roles in a family, which is closely linked to ethnicity and SES, are not related to the level of gender-differentiated discipline.

Limitations and Future Directions

Despite the strengths of the present meta-analytic study, some limitations need to be addressed. First, although we identified several significant moderators of differential control toward boys and girls, there was still considerable variation in effect sizes in some sets of studies. This points to other factors, such as the strength of parents' gender stereotypes, which may account for variations in gender-differentiated parenting. Lumping together parents with traditional and counter-stereotypical gender attitudes in empirical studies and in the current meta-analysis may have obscured any systematic differences in the differential control of boys and girls. This would also contribute to large differences between studies and individual differences within studies. Future research on gender-differentiated parenting should take parents' gender stereotypes into account, to further elucidate why some parents do use different parenting strategies with boys and girls and others do not. These studies should also longitudinally investigate the consequences of gender-differentiated parenting for gender differences in child behavior, as very few studies have actually examined parents' role in the development of gender differences in children's behavior [38], [39], [95]. Second, the sorting of the parental control constructs was necessary because of conceptual problems with the control construct (i.e., very dependent on the situation), but it has the disadvantage of losing information with regard to behaviors that were grouped under the neutral control category.

Third, it is important to note that almost all studies in this meta-analysis adopted a between-family design to examine differences in parenting boys and girls. This is an approach where parental control in families with boys is compared with the control practices in families with girls. An important limitation of this approach is that differences between boys and girls in parenting practices do not necessarily reflect a gender difference, but can also be caused by other underlying differences in family characteristics, such as family-interaction patterns. It is of vital importance to examine gender-differentiated parenting within families to account for such factors. In the current meta-analysis it was not possible to compare studies that used a between-family design with studies that employed a within-family design, simply because there were too few studies with within-family comparisons. More studies with a within-family design are needed to disentangle the effect of child gender on parenting practices from between-family effects. Such studies also enable testing whether gender-differentiated socialization is more pronounced in families that include both boys and girls compared to families with all girls or all boys [215].

Last, very few observation studies included a focus on harsh physical discipline or psychological control. In most studies the controlling strategies included a mix of physical, psychological, or negative verbal strategies. More studies with a focus on observed psychological control or harsh physical discipline are needed to examine whether parents use these excessive control strategies differently with boys and girls (as opposed to milder controlling strategies). This is especially important because psychological control and harsh physical discipline might be prone to social desirability in self-report studies [216], and because of their detrimental effects on child development [10], [15], [26], [27], [28], [30], [31]. Although psychological control and harsh discipline are difficult to observe in short observation periods, previous research has shown that it can be done reliably and with meaningful results (see [10], [217]). Relatedly, conducting a meta-analysis on studies using questionnaires to assess parental control might have resulted in different findings than the current meta-analysis. Questionnaires can assess a broad range of naturalistic behaviors but have the disadvantage of reporter bias, whereas observations, albeit more objective, focus on specific behaviors in a structured setting with an experimenter present. However, the literature on (self-) reported gender-differentiated parental control is as inconsistent as the literature on observed parental control. Some studies found no

differences between boys and girls (e.g., [75], [218]), others showed that girls received more autonomy support (e.g., [219]) or controlling parenting (e.g., [220]) than boys, or that boys received more autonomy support (e.g., [221]) or controlling (e.g., [222]) than girls.

Conclusion

The current meta-analytic study extends previous meta-analytic work from the 1990s on parents' differential behavior toward boys and girls by focusing on observations of verbal and physical parental control in a variety of settings and contexts, and by providing a contemporary update. Overall, the effects of child gender on parents' use of control were very small, indicating large similarities in parents' control strategies with boys and girls. These findings question the importance of gender-differentiated parental control as a means of gender socialization and as a mechanism underlying gender differences in child behavior. However, the large differences between studies and the individual differences within studies suggest that some parents do treat their sons and daughters differently with regard to parental control. Parents' gender stereotypes might explain why some parents do treat their sons and daughters differently and others do not, but this mechanism has yet to be confirmed empirically.

Supporting Information

S1 Fig. Funnel plot for meta-analysis on controlling strategies.
(TIF)

S2 Fig. Funnel plot for meta-analysis on autonomy-supportive strategies.
(TIF)

S1 Table. Additional Restrictions in the Literature Search in Web of Science.
(DOCX)

S2 Table. Outcomes of Expert Sort for Parental Control Constructs. 1. Less than 80% agreement, consensus through discussion. 2. Contains positive and negative elements or composite score. 3. Dependent on tone of voice and/or situation.4. Too few information to judge.
(DOCX)

S3 Table. Coding System for Meta-Analysis.
(DOCX)

S1 Text. PRISMA checklist.
(DOC)

S2 Text. Search strategy.
(DOCX)

Author Contributions

Conceived and designed the experiments: JJE MGG MJBK JM. Performed the experiments: JJE MGG MJBK JM. Analyzed the data: JJE MJBK. Contributed reagents/materials/analysis tools: JJE MGG MJBK JM. Wrote the paper: JJE MGG MJBK JM. Literature search, screening, and coding of articles: JJE MGG.

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CHILD DEVELOPMENT PERSPECTIVES

Gendered Parenting in Early Childhood: Subtle But Unmistakable if You Know Where to Look

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ABSTRACT—***Gendered parenting refers to parental messages and behaviors that convey information about how girls and boys are supposed to behave. In this article, we show that although gendered socialization is rarely found in broad parenting styles or explicit parenting practices, it is present in implicit parenting practices. Such implicit practices can be directed to the child (direct messages) and take the form of exposing children to different products and responding to children's behaviors differently depending on gender. Implicit gendered parenting practices can also be directed to others or reflect general gendered expressions that are conveyed to the child (indirect messages); these can take the form of gendered evaluations of others' behaviors in the child's presence and modeling gendered roles. We argue that studying these subtle forms of gendered parenting is important to understand gendered child development in light of the changing societal backdrop of gender roles and values.***

KEYWORDS—*gendered parenting; gender stereotypes; early childhood*

Children's sex is a powerful factor shaping their social experiences in terms of parenting, peer relations, and interactions with teachers (1). The earliest nonbiological origins of children's gendered behavior are likely to lie in their first social experiences —interactions with their parents. From the decision to paint a baby's room pink or blue onward, many parents take their young children's sex as a guiding principle for minor and major socialization decisions regardless of their children's individual characteristics and behaviors (2). This is referred to as gendered parenting—the messages children receive from their parents related to how boys and girls should and should not behave—and vary as a function of children's sex. Research has examined gendered parenting in early childhood over the past 40 years, with varying results and conclusions.

DIMENSIONS OF GENDERED PARENTING

Most parents use similar broad parenting styles with sons and daughters (3). A meta-analysis that examined broad parenting categories indicative of parenting styles (4) revealed few differences in how boys and girls were parented. Effect sizes decreased with age, suggesting more gendered parenting in early childhood, but effects in young children were mostly small or absent. Studies conducted since that meta-analysis show similar results, generally reporting no differences in broad parenting styles toward boys and girls regarding warmth (5), sensitive responsiveness (6), or parental control (7). Indeed, one would not expect to find sex differences in these areas of parenting because they reflect dimensions of socialization that are generally relevant to children's development regardless of their sex.

Theories on parents' role in fostering gendered child development focus on more specific parenting practices (rather than broad styles) that express expectations and evaluations related to gender. As soon as a child is identified as a boy or a girl, parents form expectations about the child's interests, skills, and behaviors, and these expectations appear in gendered parenting practices (8). However, when researchers ask parents explicitly whether they would treat their sons and daughters differently, most are not inclined toward gendered parenting practices (9).

Furthermore, our observational research has taught us that explicit messages to children (e.g., dolls are for girls) are rare in societies that value gender equality. This is consistent with the fact that gender stereotypes are mostly implicit and unconscious (10). When gender egalitarianism is dominant in a society, parents are reluctant to report that they have gender-stereotypical

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ideas because they think that such ideas would not be accepted (11).

FOCUSING ON IMPLICIT GENDERED PARENTING PRACTICES

The lack of evidence for sex differences in broad parenting styles or explicit gendered parenting practices has apparently led researchers to assume that gendered parenting is uncommon in families today (4). In this article, we aim to show that gendered socialization is expressed primarily in specific parenting practices (rather than broad parenting styles) and mostly implicitly (rather than explicitly). Implicit gendered parenting practices are covert behaviors and statements by parents that convey messages about differential expectations of girls and boys without stating these messages overtly. These implicit parenting practices can be divided further into direct and indirect messages. Direct messages concern the child and his or her behaviors, skills, and interests. Indirect messages convey information that concerns others or reflects general observations regarding gender that reach the child vicariously. (See Figure 1 for an overview of these distinctions.)

We focus on early childhood because key milestones in gender-related development happen in the first years of life (1), such as distinguishing between males and females (infancy), using gender labels (toddlerhood), and stereotyping by gender (preschool). This means that influences of gendered socialization are particularly relevant in early childhood when children begin to understand major principles of gender as they govern their social worlds.

Direct Messages

Direct gendered parenting practices convey messages about parents' expectations of the child by treating him or her in a certain way based on sex. Research on channeling or shaping examines parenting choices such as the films, books, and commercial products to which they expose their children and that convey gendered messages even if the parents do not endorse such messages explicitly. Especially in early childhood, parents control most of this input. When parents consistently buy female-stereotyped toys (e.g., dolls, tea sets) for their daughters, and male-stereotyped toys (e.g., trains, dinosaurs) for their sons, they implicitly link their children's sex to particular gender roles that are then encouraged as the children play with these toys. Popular commercial products for children are highly gender stereotyped (12), and exposure to such stereotyped products fosters children's gendered cognitions and behaviors (13). By being exposed to different toys and activities through parents' purchasing choices, boys and girls practice different skills, which may partly affect sex differences in later development.

Another line of research examines observations of parents' responses to specific behaviors in their children. Parents' evaluative feedback of children's behaviors—those that are stereotypical versus those that go against stereotype—is a form of gendered parenting that affects children's gender development (14). Generally, mothers respond less negatively to a son's risky and disruptive behaviors (15–17), and are less encouraging of a son's prosocial behaviors (18, 19). This is consistent with the stereotype that boys are risk takers and challenging, but girls are nice to others.

Similarly, in the meta-analysis mentioned earlier (4), the only parenting domain in which effect size was significant was encouragement of sex-typed activities. Inborn sex differences in children's behavior may cause these gendered parenting practices. For example, parents are more likely to use some physical force to discipline boys than girls because boys are more physically active or challenging and therefore elicit such responses from adults (20).

However, sex differences in children's behavior are absent or small in infancy (21) and emerge slowly in early childhood (1).

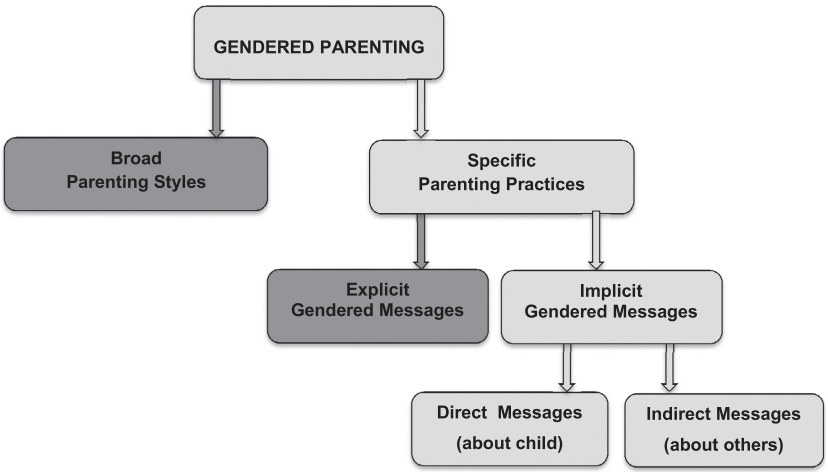

Figure 1. Evidence for (light gray) and against (dark gray) gendered parenting at different levels of parent–child interaction.

In several domains, gendered parenting precedes behavioral differences between boys and girls. In now-classic research, actor babies were treated differently by adults (who had a baby of the same age) based on the pink or blue color of the infants' clothes (i.e., perceived sex) rather than their actual sex (22), showing that parents' gender stereotypes rather than babies' behaviors guide adults' patterns of interaction. In these studies, the parents were largely unaware of their gendered interactions (22). Furthermore, even when sex differences in children's behaviors are absent or accounted for, parents still respond differently to the same behaviors in girls and boys (23, 24).

This work points toward gendered patterns of parental expectations and demands regarding how sons and daughters should or should not behave regarding specific areas of functioning, sending differential messages of approval or disapproval. Consistent with the notion of vicarious social learning (25), children not only pick up on such evaluations when they refer to their own behaviors, they also notice salient social models of gendered behavior as well as gendered evaluative messages regarding others' actions. Next, we discuss indirect gendered evaluative messages by parents.

Indirect Messages

Indirect gendered parenting practices convey gender-stereotyped messages to children about others or about general gendered expectations or opinions. In capturing such processes, researchers often observe parents' responses to materials that contain stimuli that are stereotypical and go against stereotypes. The most frequent way to measure such implicit indirect gendered messages is by asking parents to read books with their children that contain pictures designed to elicit gender-relevant talk. Several types of books have been used, including those featuring gender-neutral animal characters (26) and human characters engaging in gender-related activities that are stereotypical and counterstereotypical (27, 28).

Analyses of mothers' responses when reading these books with their young children reveal clear patterns of gendered messages. For example, in one study, mothers who read to their toddlers commented more positively about drawings of children doing stereotypical activities than about those doing the opposite, and fathers commented more often than mothers to confirm gender stereotypes. Fathers with two boys made fewer negative comments about drawings of boys being mean than about drawings of girls being mean (29). In the same study, both mothers and fathers were more likely to label sad children as female and angry children as male, even though the children were drawn in a gender-neutral way (30). These results show that even though parents rarely make explicit gendered comments to children, they send gendered messages more subtly, by differentially evaluating and labeling stereotypical and counterstereotypical behaviors.

Another form of indirect gendered messages is modeling. Parental modeling is an important source of information about gender roles for children (14). How parents divide tasks within the family influences children's notions of what is typically male or female even when children are not told explicitly about such roles. Because children generally identify more with their same-sex parent, they are motivated to imitate that parent's interests and activities. These processes generalize beyond simple imitation because children infer higher order patterns and behavioral rules from the actions they observe, which may then spark new behaviors that they have not observed directly but that fit the overall picture of gendered behavioral patterns (14). In other words, children develop general ideas and expectations based on observations they not only imitate but use as guidelines for behavior in similar situations. For example, a girl may imitate her mother's household cleaning in play, and then conclude that cleaning is a task for women and assume those chores in other situations, even when this behavior has not been modeled in the other settings. In addition, these inferred patterns guide children's expectations about others and influence their social behavior toward others accordingly. Indeed, children from families with traditional gender roles have more gender-stereotypical expectations (31).

This research describes parenting patterns that are largely independent of behavioral cues from children, such as gendered responses to characters in books and modeling of gender roles. Therefore, these forms of gendered socialization are more likely driven by parents' gendered beliefs than by children's behavioral patterns. According to gender schema theory, parents' gender stereotypes predict the extent to which they engage in gendered parenting, which in turn predicts children's gender stereotypes and gendered behaviors (32). Indeed, in early childhood, parents' gender stereotypes may be associated with gendered parenting (7, 27, 29). Furthermore, in one study with toddlers, fathers with more stereotypical gender attitudes used more physical control (typically seen as appropriate for boys) with sons than with daughters, and this pattern predicted stereotypically greater aggression in sons than in daughters (33).

WHERE TO GO FROM HERE?

Based on the studies we have reviewed, we recommend several directions for research, including looking at methods; the interplay between implicit and explicit gendered parenting; and cognitive, ideological, and sociocultural mechanisms underlying gendered parenting. Gendered parenting in early childhood occurs mainly in implicit parenting practices, either directly through gendered behaviors and evaluations concerning the child or indirectly through gendered messages about others or general gendered messages conveyed to the child. Studies using picture books highlight the hidden nature of gendered parenting practices: Not only are they mostly implicit (not overtly stated), they are also indirect in that they seemingly do not concern the child but nonetheless contain clear messages about parents' expectations and evaluations of gendered behaviors that

children pick up (25). Therefore, uncovering such subtle patterns requires examining parents' responses to carefully designed stimuli that are not about the target child, but are processed within the context of parenting and convey subtle but salient gendered messages to the child.

Contemporary models of children's gendered development acknowledge both biological and socialization influences, and would be strengthened by considering larger scale societal changes in how gender is viewed, how gender influences how people behave, and how gender is represented in research. These issues feed back into choices regarding dimensions of parenting that are or are not investigated as potential influences on children's gendered development, and as we have suggested, such choices in turn can influence whether gendered socialization processes can be uncovered and dictate the nature of the scientific knowledge that emerges.

Because implicit parenting practices are largely unconscious, they are paradoxically easier to capture than explicit messages, especially in contexts where parents are being observed, directly or indirectly via self-report. In fact, parents are more likely to endorse gender equality explicitly but model and implicitly reinforce behaviors along gendered lines. The impact of explicit teaching is mitigated if other modes of communication convey a different message (14). Few studies have addressed the balance and match between explicit and implicit gendered parenting; exploring this further could provide a more comprehensive understanding of such complex processes.

The mismatch between explicit and implicit messages raises questions about parents' motives for gendered parenting practices. Parents might believe that boys and girls need to be socialized in a way that prepares them for adult gender roles and society's gendered expectations. This explanation seems unlikely as this type of belief suggests an explicit parenting goal that generally does not emerge in explicit measures of parenting practices. However, parents may not want to reveal this goal if they believe it contradicts society's ideology of gender equality. In that case, the belief is not unconscious but may be consciously suppressed in interviews.

Alternatively, parents may not have gendered parenting goals but be victims of unconscious gender stereotypes pervasive in many societies (34). Such stereotypes unconsciously guide perceptions, interpretations, and evaluations of events and may lead to unconscious gendered parenting practices. Indeed, in one study, implicit gender stereotypes in mothers were associated with gendered talk in mother–child interactions (29). However, this association was small in size (as it has been in similar studies), suggesting room for other explanations for the origins of gendered parenting practices. Exploring the different mechanisms underlying gendered socialization is an important next step in this research.

At least as important as knowledge about the origins of sex differences and what they mean for theoretical frameworks of gendered development is acknowledging different conceptualizations of gender that link to different values underlying opinions (35). This means that we must study the origins of those conceptualizations and values to understand how and why public and scientific interest in gendered socialization waxes and wanes across the decades. Thus, we advocate for a revival in studying gendered parenting because up-to-date knowledge about this topic is crucial to understanding the behavioral development of children who grow up in societies that periodically undergo various evolutions and revolutions regarding gender roles.

We know little about generalizing findings on gendered parenting beyond Western cultures. Few studies have used observational measures to examine gendered parenting of young children in non-Western cultures or ethnic-minority families of non-Western backgrounds. This is a large gap in the literature, given that gender roles are influenced strongly by cultural and societal contexts. Parents' socioeconomic status also plays a role in the development of gender stereotypes, with people from lower income backgrounds more likely to endorse more traditional gender roles (36) than people from higher income backgrounds. However, because most studies examine primarily middle- to upper-income individuals, they are unlikely to capture the full scope of gendered parenting.

Finally, there are different ideologies about the costs and benefits of gendered parenting. On the positive side, one could argue that gendered parenting teaches children about the reality of gender role expectations in their social environment, which prepares them for socially adaptive functioning and may promote greater well-being. On the negative side, when children are parented based on stereotypes instead of actual abilities and interests, talent may be wasted and people may be forced into lifestyles and careers that deny personal identities, which also affects well-being. Although generally seen as an ideological issue, the question of outcomes of gendered parenting is also an empirical one. Therefore, we hope to see an increase in scientific efforts to understand the origins, nature, and outcomes of gendered parenting in diverse populations, which will contribute to optimal development in both boys and girls.

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Journal of Marriage and Family

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Does Parenthood Change Implicit Gender-Role Stereotypes and Behaviors?

This study examined whether parenthood changes gender-role behavior and implicit gender-role stereotypes as assessed with an Implicit Association Test in Dutch parents. In a cross-sectional sample, parents were found to have more traditional gender-role stereotypes than nonparents with a wish to have a child and nonparents without the wish to have a child. This suggests that gender-role stereotypes increase after the transition into parenthood. In a longitudinal sample, parents were followed for 4 years after the first birthday of their youngest child. The authors found that implicit gender-role stereotypes and behavior became increasingly traditional over time in most parents, except for the following two groups: (a) Fathers with highly traditional gender-role stereotypes did not show change over time and (b) older, highly educated mothers who worked relatively many hours outside the home and who had an egalitarian task division at home, remained egalitarian in their gender-role stereotypes over time.

Becoming a parent is a life-changing moment in which the gender-role behavior of men and women appears to become more traditional. For example, after the arrival of a baby, mothers are more likely to decrease work hours outside the home (Paull, 2008) and increase the time they spend on housework and child care (Yavorsky, Kamp Dush, Schoppe-Sullivan, 2015), whereas fathers' work hours and income tend to remain stable or even increase (Kaufman & Uhlenberg, 2000). Because more traditional gender roles negatively impact career success in women (Mayrhofer, Meyer, Schiffinger, & Schmidt, 2008) and promote gender inequality and traditional gender stereotypes in children (Turner & Gervai, 1995), it is important to study processes underlying this change. In the current investigation, we examined whether parenthood experiences lead to more traditional implicit gender-role stereotypes in Dutch men and women and whether these changes are associated with changes in gender-role behavior (hours in paid work, perceived task division). Using a cross-sectional design, we first tested whether implicit gender-role stereotypes and gender-role behavior are more traditional among parents than nonparents. Using a longitudinal design, we then tested whether implicit gender-role stereotypes and gender-role behavior of parents

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Key Words: fathers, gender roles, longitudinal, mothers, parenthood, stereotypes.

with young children become increasingly more traditional during the first years of parenthood. We studied changes in implicit gender stereotypes in the Netherlands, which scores high on gender equality, and here one might not expect gender roles to still have such an impact.

Background

Work–Family Conflict and Gender-Role Stereotypes

Many new parents find it challenging to balance the competing demands of paid work and family life (Blair-Loy, 2009). How parents solve work–family conflicts and determine the division of labor depends on many factors, including economic factors (Becker, 1991) and national family policies (Sjöberg, 2004), but also on pervasive gender-role norms, particularly women's role of homemaker and men's role of economic provider (Wood & Eagly, 2002). There are, however, individual differences in adherence to societal gender roles, known as "gender flexibility" (Gerson, 2009, p. 10). More fixed, rigid stereotypes that clearly define separate roles for men and women would lead to less gender flexibility in breadwinning and caretaking than more flexible or egalitarian views of gender roles. In line with these propositions, fathers' stronger adherence to traditional gender-role stereotypes predicts more time in paid work (Kaufman & Uhlenberg, 2000), less time in household work (Coltrane & Ishii-Kuntz, 1992), and less time with their children (Bulanda, 2004). Similarly, mothers' stronger adherence to traditional gender-role stereotypes is associated with lower earnings and less time in paid work (Christie-Mizell & Erickson, 2007; Stickney & Konrad, 2007).

The Importance of Studying Implicit Gender-Role Stereotypes

The gender-role stereotypes that new parents report do not always align with the actual division of labor in a family (Coltrane, 1990). One explanation for this difference might lie in the power differential in income within couples, which reduces women's power to bargain out of domestic labor (Bittman, England, Sayer, Folbre, & Matheson, 2003) and makes acting in accordance with egalitarian attitudes difficult. Another reason for this difference could be people's lack of awareness of their gender-role stereotypes or an unwillingness to express their actual stereotypes. Social desirability bias is a common problem when assessing explicit or self-reported stereotypes (Greenwald, Poehlman, Uhlmann, & Banaji, 2009), especially in higher educated samples (Krysan, 1998) and societies that value gender equality. Explicit gender stereotypes reflect directly stated or overtly expressed ideas. Implicit gender-role stereotypes, on the other hand, operate largely outside conscious awareness and are most often assessed with the Implicit Association Test (IAT; Gawronski & Bodenhausen, 2006). The IAT paradigm is based on automatic and fast or habitual responding, which makes it less prone to social-desirability bias. Therefore, in the current investigation we focus on implicit rather than explicit gender-role stereotypes. Discrepancies found between implicit egalitarian gender-role stereotypes and actual gender-role behavior are likely to reflect a difficulty with acting in accordance with one's egalitarian values.

Although widely used, the IAT has also been criticized. For example, it is not entirely clear whether implicit tasks measure a person's own stereotypes or knowledge of culturally shared attitudes (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009). Moreover, test–retest reliability has been found to be low to moderate, ranging from .25 to .69 (Lane, Banaji, Nosek, & Greenwald, 2007), indicating that the IAT is sensitive to context effects. Furthermore, the IAT is not valid for making inferences about individuals and should only be used as a research tool for increasing awareness of implicit stereotypes and its consequences (Greenwald et al., 2009). However, the value of the IAT in light of these critiques is most clearly shown in that it has meta-analytically been found to outperform explicit stereotype measures in the prediction of actual behavior, in particular for controversial subjects such as gender and race (Greenwald et al., 2009).

We used the family–career IAT, which assesses how strongly a person automatically associates the concepts of career and family with masculine and feminine gender (Nosek, Banaji, & Greenwald, 2002). Stereotypes can range from strong traditional (i.e., faster and less errors responding to career–men, family–women associations) to counter stereotypical (i.e., faster and less errors responding to career-women, family–men associations; Nosek et al., 2002). Previous work has demonstrated

the reliability and validity of the family–career IAT as a measure of parental implicit gender-role stereotypes. Moderate positive correlations were found between mothers' and fathers' gender-role stereotypes (Endendijk et al., 2013). Furthermore, parents' traditional implicit stereotypes were associated with traditional gender-socialization practices with their children and traditional implicit stereotypes and career aspirations of their children (Croft, Schmader, Block, & Baron, 2014; Endendijk et al., 2013, 2014, 2017). Also, parents' implicit gender-role stereotypes did not correlate with explicit stereotypes about rearing boys and girls or implicit stereotypes about appropriate toys for boys and girls, indicating that they could be considered a distinct aspect of gender stereotypes (Endendijk et al., 2013).

Parenthood and Implicit Gender-Role Stereotypes and Behavior

Theoretical background. Several theories and hypotheses have offered explanations for (a) why parents might have more traditional implicit gender-role stereotypes than nonparents, (b) whether gender-role stereotypes might change in the first years after parenthood, and (c) the association between gender-role stereotypes and behavior. They can roughly be divided in the following two competing groups of hypotheses: the stereotypes-as-traits hypothesis and the stereotypes-as-states hypothesis.

With regard to the stereotypes-as-traits hypothesis, cohort replacement theory (Brewster & Padavic, 2000) and scholars in social psychology who view implicit stereotypes as traits (Baron, 2015) state that implicit stereotypes are formed during childhood and are stable and difficult to change once formed, propositions that are supported by empirical evidence (Baron, 2015; Dunham, Baron, & Banaji, 2006). As such, similar to the influence of personality traits, implicit stereotypes are thought to guide gender-role behavior such as becoming a parent or work–family arrangements and the division of labor within a family. Similarly, rational planning models (Hakim, 2000) and scholars such as Blair-Loy (2009) suggest that adherence to gendered cultural stereotypes of career and family guide future behavior such as becoming a parent. According to these models, traditional individuals are simply more likely to become parents than nontraditional individuals.

The stereotypes-as-states hypothesis reflects the cognitive reinterpretation perspective (Kroska, 1997), theories of intracohort attitude change (Brooks & Bolzendahl, 2004), and social psychology perspectives suggesting that implicit stereotypes can change in response to repeated exposure to information that is inconsistent with current stereotypes (Baeyens, Field, & De Houwer, 2005). This inconsistency may lead to a state of psychological discomfort that can be defined as *cognitive dissonance* (Festinger, 1962), which is generally reduced by changing one's attitudes (for a review, see Gawronski & Bodenhausen, 2006). Thus, these models predict that after becoming a parent, implicit gender-role stereotypes change when an individual's stereotypes conflict with their postnatal work–family experiences and division of labor. Furthermore, parents' implicit gender-role stereotypes might continue to change in the years after the transition into parenthood, when gender-role stereotypes remain discrepant with work–family arrangements.

It is of both theoretical and practical importance to directly examine whether implicit gender-role stereotypes change over time as a result of work–family arrangements. If gender-role stereotypes are indeed stable and trait-like, intervention efforts aimed at preventing the before mentioned negative consequences of implicit gender-role stereotypes (e.g., traditional gender stereotypes in children, gender differences in aggression) should then focus on early childhood. Another avenue of intervention in this case could be increasing self-awareness of gender-role stereotypes (Gawronski & Bodenhausen, 2006). Instead, if implicit gender-role stereotypes are state-like and change in response to work–family arrangements associated with parenthood, stereotypes could be open to change by interventions. This could then also explain the low test–retest reliability that is often found with the IAT, suggesting that the IAT measures states rather than traits and is sensitive to context effects (Teige-Mocigemba, Klauer, & Sherman, 2010).

Empirical evidence. In line with the stereotypes-as-traits hypothesis, more traditional individuals were more likely to make traditional life choices such as getting married or becoming a parent (Cunningham, Beutel, Barber, & Thornton, 2005). However, there is more longitudinal evidence for the stereotypes-as-states hypothesis.

For example, entry into parenthood is associated with more traditional self-reported explicit gender-role attitudes (e.g., Baxter, Buchler, Perales, & Western, 2015; Corrigall & Konrad, 2007; Fan & Marini, 2000). Interestingly, Schober and Scott (2012) found that although most parents reported stable explicit gender-role stereotypes, specific groups of parents became either more egalitarian or more traditional. Women who decreased their working hours after becoming a mother have been found to become more traditional in their explicit gender-role attitudes over time (Berrington, Hu, Smith, & Sturgis, 2008; Schober & Scott, 2012). Moreover, the use of formal child care while mothers work was associated with a change over time toward more explicit egalitarian attitudes (Fan & Marini, 2000; Schober & Scott, 2012). These findings show that explicit stereotypes change, in either a more traditional or egalitarian direction, in response to experiences that are inconsistent with current stereotypes. This is consistent with the stereotypes-as-states hypothesis.

However, all the studies noted previously used self-report questionnaires of explicit stereotypes, mostly resulting in highly egalitarian responses. This highlights the importance of studying implicit gender-role stereotypes with the IAT as is proposed in the current study. Furthermore, most studies were conducted in the United States, and some in the United Kingdom or Australia. These are all countries that score substantially lower (between rank 20 and 50) than the Netherlands (rank 3) on gender equality (United Nations Development Program, 2017). In addition, none of these studies have examined gender-role stereotype change for several years after the transition into parenthood.

Educational Level, Age, Marital Status, and Family Type

Changes in implicit gender-role stereotypes might not be related only to gender-role behaviors (i.e., task division, work hours), but also to several demographic characteristics. Higher education can expose people to different perspectives about gender (Bolzendahl & Myers, 2004) and has been found to be related to more egalitarian gender-role patterns in a family (Fan & Marini, 2000). Older age when having the first child is also related to more egalitarian gender-role patterns (Fan & Marini, 2000). Older parents have had more time to build stable careers, which allow more flexibility to engage in household and child-care tasks. Also, entry into marriage, as the most traditional type of union formation, is associated with more traditional gender-role stereotypes, than nonmarital cohabitation (Cunningham et al., 2005; Fan & Marini, 2000). Furthermore, regarding family type, there is recent evidence that a mixed-gender sibling configuration in a family has a gender-neutralizing effect on parental gender-role stereotypes (Endendijk et al., 2013). The proposed mechanism is that opposite-gender siblings reinforce opposite-sex behavior in each other, creating experiences for parents that might contradict traditional gender-role stereotypes.

Gender Differences

It is important to examine gender differences in implicit gender-role stereotype change and in the association between gender-role stereotypes and behavior. The stereotypes and behavior of fathers might be less influenced by parenthood than those of mothers because fathers experience less work–family conflict than mothers (Blair-Loy, 2009). However, the empirical evidence regarding this issue is inconsistent. Some studies show that becoming a parent has less effect on fathers' employment or housework (Morgan & Waite, 1987; Sanchez & Thomson, 1997), whereas others show that mothers and fathers become more traditional in their explicit gender-role attitudes after the transition into parenthood (Baxter et al., 2015; Cunningham et al., 2005; Fan & Marini, 2000). Yet there is also evidence from a qualitative study that fathers might even be more likely to fall back in traditional gender roles after becoming a parent than mothers, especially when reality fails to live up to their egalitarian ideals (Gerson, 2009). Finally, explicit gender-role attitudes have been found to predict career outcomes in women more consistently than in men (Corrigall & Konrad, 2007; Schober, 2013).

Parenthood and Implicit Gender-Role Stereotypes in the Netherlands

Studying gender-role stereotype changes associated with parenthood in the Netherlands is interesting because there is a discrepancy between gender-egalitarian ideals and actual

gender-equal sharing of child-care responsibilities in the Netherlands. For example, the participation of Dutch mothers with 3- to 5-year-old children in the labor market is relatively high compared to other countries at 80% (Huerta et al., 2013). However, the Netherlands has the highest percentage of part-time working mothers in the world (61% compared to 19% of fathers; Organization for Economic Cooperation and Development [OECD], 2016) even though partly subsidized high-quality child care is readily available. This high level of part-time work creates a "mommy track" that may reduce mothers' career success (Mayrhofer et al., 2008) and power to bargain out of domestic labor (Bittman et al., 2003). Moreover, not many fathers make use of government-financed "daddy days" or partially paid paternity leave (allowing 26 weeks of leave before the child's eighth birthday; Huerta et al., 2013). Based on the possibilities to resolve work–family dilemmas that are available in the Netherlands, one could suggest that gender-role stereotypes might not necessarily change in Dutch parents. However, if gender-role stereotypes and division of labor become more traditional over time in Dutch parents, the Dutch work–family policies are apparently not sufficient to promote gender-egalitarian work–family arrangements.

Current Study

The aims of this study were twofold. First, in a cross-sectional sample we examined parental status (i.e., parents vs. nonparents) in relation to implicit gender-role stereotypes and gender-role behavior concerning career and task division in the family. We expected parents to have more traditional implicit gender-role stereotypes and behaviors than nonparents (e.g., Baxter et al., 2015; Corrigall & Konrad, 2007).

Second, in a longitudinal sample we examined whether implicit gender-role stereotypes changed over time in parents with young children and whether the direction of this change could be explained by the gender-role experiences parents were exposed to in their family. We expected that, similar to the explicit gender-role stereotypes, the following three specific trajectories of implicit-stereotype change could be discerned: parents with stable stereotypes, parents with stereotypes that become more egalitarian, and parents with stereotypes that become more traditional (Schober & Scott, 2012). Furthermore, we hypothesized (in line with the stereotypes-as-states hypothesis) that implicit gender-role stereotypes would only change when parents are repeatedly exposed to gender-role experiences in the family that are inconsistent with their implicit gender-role stereotypes (Berrington et al., 2008; Schober & Scott, 2012). In other words, we expected that the direction of implicit gender-role stereotype change would be related to the traditionality of gender-role behaviors in the family, such as perceived division of household and child-care tasks, and working hours of mothers and fathers outside the house. Relatedly, we expected lower educated parents, younger parents, families with mixed-gender siblings, and married parents to be more likely to show a change toward more traditional stereotypes. Finally, in both samples, we examined gender differences in parenthood effects on gender-role stereotypes and behavior and the association between gender-role stereotypes and behavior in an explorative way because of inconsistent empirical evidence.

Method

Sample

For the current study the following two samples were used: (a) a cross-sectional sample with Dutch adults from the Harvard Project Implicit data set of the gender–career IAT (2005–2015; retrieved from osf.io/y9hiq/) and (b) a longitudinal sample of Dutch parents from the "Boys Will Be Boys?" Study (see Endendijk et al., 2013).

Sample 1 consisted of nonparents and parents in the Netherlands aged between 25 and 40 years. We excluded people who (a) conducted the IAT before, (b) had incomplete IAT data, or (c) did not complete background questions. This resulted in a sample of 672 participants; 251 men (with a child younger than age 18, $n = 57$; without child, $n = 194$) and 421 women (with a child younger than age 18, $n = 114$; without child, $n = 307$). The background information of these subsamples can be found in Table 1. Most participants were highly educated. We could not select a sample with a narrower child-age range than 0 to 18 years because participants only reported whether they had a child aged younger than 18 years. By selecting a sample of participants aged between 25 and 40 we most likely included participants with young children, as mothers' and fathers' mean age at birth of first child in the

Table 1. *Descriptive Statistics of Background and Study Variables in Men and Women With or Without a Child Younger Than Age 18, Who Plan or Do Not Plan to Have a Child*

		Parent of child younger than age 18		Nonparent	
Variables	Range	Men, $n = 57$ *M* (*SD*)	Women, $n = 114$ *M* (*SD*)	Men, $n = 194$ *M* (*SD*)	Women, $n = 307$ *M* (*SD*)
Background variables					
Age in years[a]		34.77 (3.17)	35.18 (3.17)	30.43 (3.61)	30.52 (3.36)
Educational level[a]	1–10[b]	8.74 (1.34)	8.87 (1.22)	8.60 (1.29)	8.85 (1.14)
Study variables					
Gender-role stereotypes IAT	−2 to 2	0.50 (0.40)	0.52 (0.32)	0.44 (0.37)	0.44 (0.36)
Contribution to income[c]	1–11	8.16 (2.12)	6.61 (2.08)	7.68 (3.47)	7.34 (3.05)
Child-care tasks performed[d]	1–7	3.18 (0.89)	4.73 (1.06)	-	-

Note. IAT = Implicit Association Test.

[a]Analyses of variance revealed that parents were older than nonparents, $F(1, 668) = 203.01$, $p < .01$, partial $\eta^2 = .23$. Educational level did not differ between parents and nonparents, $F(1, 668) = 0.46$, $p = .50$. There were no differences between men and women in age, $F(1, 668) = 0.60$, $p = .44$, or educational level, $F(1, 668) = 2.92$, $p = .09$. The interaction between parental status and gender was not significant for age, $F(1, 668) = 0.26$, $p = .61$, or educational level, $F(1, 668) = 0.30$, $p = .59$. [b]Educational levels: 1 = "elementary school," 2 = "junior high," 3 = "some high school," 4 = "high school graduate," 5 = "some college," 6 = "associate's degree," 7 = "bachelor's degree," 8 = "some graduate school," 9 = "master's degree," 10 = "advanced degree, such as J.D., M.D., Ph.D." [c]Contribution to income ranged from 1 = *0%* to 11 = *91–100%*. [d]Child-care tasks performed ranged from 1 = *none* to 7 = *all of it*.

Netherlands is 29.6 and 32.5, respectively (Central Bureau of Statistics, 2017).

Sample 2 consisted of 390 Dutch two-parent families with a youngest child who was around 12 months of age and an oldest child who was between 2.5 and 3.5 years old. This family type is most common in the Netherlands. Included families participated in two home visits each year during a period of 3 years (2010–2014). This article reports on data from four time points (Time 1 [T1]–Time 4 [T4]: home visits around the first, second, third, and fourth birthdays of the youngest child). At Time 1, the oldest children were on average 3.02 years old ($SD = 0.30$), mothers were aged between 22 and 46 years ($M = 33.94$, $SD = 3.97$), and fathers were between 25 and 63 years of age ($M = 36.78$, $SD = 5.07$). At Time 1, most participating parents were married or had a cohabitation agreement or registered partnership (93%), and the remaining 7% lived together without any kind of registered agreement. With regard to educational level, most mothers (79%) and fathers (76%) had a high educational level (academic or higher vocational schooling). The sample included similar numbers of the following four different family constellations: families with two boys (27%), families with two girls (23%), families with a male oldest child and a female youngest child (26%), and families with a female oldest child and a male youngest child (24%).

Procedure

Participants in Sample 1 signed up for this study by themselves and completed an online survey that consisted of the gender-role stereotypes IAT (see later) followed by background questions. They did not receive any compensation for their participation. Participants in Sample 2 were recruited between April 2010 and May 2011. The families were eligible if they were two-parent households, none of the parents or children had a severe physical or intellectual handicap, children were born in the Netherlands, and both parents and children were fluent in the Dutch language. The eligible families were invited by mail to participate in a longitudinal study on the role of fathers and mothers in child socioemotional development in the first 4 years of life. They received a letter, a brochure with the details of the study, and an answering card to respond to the invitation. Participating mothers and fathers were separately visited at home each year, with an intervening period of about 2 weeks. The order in which fathers and mothers were visited was counterbalanced. Families received a payment of 30 Euros each year and

small presents for the children. Each year before the first home visit, both parents were asked to individually complete a set of questionnaires (e.g., about task division). During the home visits parents completed the gender-role stereotypes IAT on a laptop computer. Reaction time and accuracy were automatically recorded for every trial. All visits were conducted by 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.

Materials

Gender-role stereotypes. In both samples implicit gender-role stereotypes were assessed by a computerized gender–career IAT (Nosek et al., 2002). This task measures the association of female and male attributes (i.e., Julia, Michelle, Anna, Emily, Rebecca, Ben, John, Daniel, Paul, Jeffrey) with the concepts of career and family (Dutch translations of management, professional, corporation, salary, office, business, career, home, parents, children, family, marriage, wedding, relatives). The task consists of congruent blocks in which participants should sort both career attributes and male names to one category and family attributes and female names to the other, and incongruent blocks in which participants should sort career and female attributes to one category and family and male attributes to the other. They sort the stimuli (i.e., words) by pressing a button that corresponds to the male category or a button for the female category. To reduce possible order effects of the presentation of congruent and incongruent blocks, the order of the blocks is varied between respondents. In both samples the participants were randomly assigned to one of the two IAT versions (i.e., congruent first, incongruent first). In Sample 2, a mother and father within one family always completed the same version of the IAT. The improved scoring algorithm by Greenwald, Nosek, and Banaji (2003) was used to determine each participant's level of implicit stereotypes. A high positive score represented more difficulties (i.e., a combination of longer reaction times and more errors) 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 (traditional) attitudes about the roles of men and women, negative scores represent counter-stereotypical attitudes about gender roles, and scores around zero represent egalitarian attitudes.

Parental status. In Sample 1, parental status was determined based on the answers to the following two questions: (a) Are you currently the parent or guardian of a child (or children) younger than age 18 living in your home? (yes/no), (b) Do you plan to have children? (when they did not have a child, yes/no).

Gender-role behavior. In Sample 1, two questions were asked that were considered aspects of gender-role behavior. First, the participant's contribution to annual household income was assessed with the question "What percentage of your family's annual household income do you contribute?" Answering options ranged from 1 to 11 (1 = "0%," 2 = "1%–10%," 3 = "11%–20%," 4 = "21%–30%," 5 = "31%–40%," 6 = "41%–50%," 7 = "51%–60%," 8 = "61%–70%," 9 = "71%–80%," 10 = "81%–90%," 11 = "91%–100%"). Second, the perceived amount of child-care tasks performed by the participant was assessed with the question "Overall, how much of the caregiving duties do you perform for the child/children living in your home?" Answering options ranged from 1 to 7 (1 = "none," 2 = "very little," 3 = "somewhat less than half," 4 = "half," 5 = "somewhat more than half," 6 = "a lot," 7 = "all of it").

In Sample 2, two similar aspects of parents' gender-role division were considered. First, mothers and fathers were asked to report their working hours (i.e., for paid work) every year when they were contacted by phone to schedule the home visits. Second, at T2 to T4, we asked mothers and fathers separately to fill in a 15-item questionnaire on their perception of the division of labor regarding small household tasks (e.g., buying groceries, cooking dinner, cleaning) and child-care tasks (e.g., bring children to bed, bathe children, bring children to school) during the past week. The questionnaire was based on previous survey measures assessing division of labor in the family (Press & Townsley, 1998; Yavorsky et al., 2015). Parents could answer on a five-point scale (1 = *I exclusively/almost exclusively performed this task*, 5 = *my partner*

exclusively/almost exclusively performed this task). Separate scales were constructed for the division of small household tasks and the division of child-care tasks. The internal consistencies (Cronbach's alpha, range across time points, separate for mothers and fathers) for the division of small household tasks were .75 to .79 for fathers and .79 to .82 for mothers. The internal consistencies for division of child-care tasks were lower than for the small household scale: .62 to .63 for fathers and .61 to .65 for mothers. This might be because the child-care scale has fewer items. For both questionnaires, mean scores around 3 represent an egalitarian task division. Scores above 3 represent a nontraditional task division for mother report and a traditional task division for father report. Scores below 3 represent a traditional task division for mother report and a nontraditional task division for father report.

Father reports were used for analyses with fathers, mother reports were used for analyses with mothers (results are similar when father reports are used in mother analyses and mother reports are used in father analyses). Across all time points, mothers' perceived task division correlated moderately with fathers' perceived task division ($rs = .48–.66$, $p < .01$). Mothers' perceived task division was, however, more traditional than fathers' (see Tables 2 and 3, $ps < .01$), but both parents reported on average that mothers were slightly more responsible for child-care and small household tasks. We focused on perceived task division in both samples because these personal experiences are most likely to be associated with an individual's endorsement of gender-role stereotypes (Kroska, 1997).

Covariates and missing values. In both samples, the following variables were considered potential confounders of gender stereotypes: task division and working hours (e.g., Cunningham et al., 2005; Fan & Marini, 2000; Schober & Scott,

Table 2. *Pooled Descriptive Statistics in Five Imputed Data Sets for Mothers' Study Variables Separate for Mothers' Gender-Role Stereotype Trajectories*

	Mothers' gender-role stereotype trajectory			
Variables	1. Traditional-increasing *M* (*SE*)	2. Intermediate-increasing *M* (*SE*)	3. Low-decreasing *M* (*SE*)	Significant contrasts
n (%)	39 (10)	254 (65)	97 (25)	
Mother age	29.46 (0.63)	33.74 (0.35)	36.29 (0.33)	C1 < C2 < C3
Partner age	33.36 (1.31)	36.68 (0.33)	39.39 (0.50)	C1 < C2 < C3
Working hours mother				
T1	21.74 (2.46)	25.60 (0.60)	27.01 (0.87)	C1 < C3
T2	19.84 (2.52)	25.01 (0.65)	26.27 (0.89)	C1 < C2,C3
T3	19.72 (2.16)	24.69 (0.67)	26.06 (0.89)	C1 < C2,C3
T4	18.80 (2.51)	24.35 (0.67)	25.80 (0.94)	C1 < C2,C3
Working hours partner				
T1	39.22 (1.36)	37.58 (0.37)	36.25 (0.63)	C1 > C3
T2	38.72 (1.67)	37.45 (0.39)	36.65 (0.60)	C1 > C3
T3	38.73 (1.71)	37.39 (0.40)	36.57 (0.60)	C1 > C3
T4	38.28 (1.84)	37.09 (0.45)	36.29 (0.66)	-
Division of child-care tasks				
T2	2.49 (0.11)	2.66 (0.04)	2.54 (0.06)	-
T3	2.34 (0.09)	2.58 (0.04)	2.47 (0.06)	C1 < C2
T4	2.22 (0.13)	2.54 (0.04)	2.36 (0.07)	C1 < C2
Division of small household tasks				
T2	1.96 (0.10)	2.29 (0.04)	2.31 (0.07)	C1 < C2,C3
T3	1.96 (0.12)	2.31 (0.05)	2.31 (0.07)	C1 < C2,C3
T4	1.96 (0.13)	2.28 (0.05)	2.23 (0.08)	C1 < C2,C3

Note. Significant contrasts represent contrasts between the three gender-role stereotype trajectories (C1,C2,C3). T1 to T4 represent measurement waves around the first, second, third, and fourth birthday of the youngest child in the family. Task division variables represent task division as reported by mothers. (Scores above 3 represent a nontraditional task division. Scores below 3 represent a traditional task division.) Working hours of partner are partner reported.

Table 3. *Pooled Descriptive Statistics in Five Imputed Data Sets for Fathers' Study Variables Separate for Fathers' Gender-Role Stereotype Trajectories*

	Fathers' gender-role stereotype trajectories			
Variables	1. Stable-traditional *M* (*SE*)	2. Intermediate-increasing *M* (*SE*)	3. Egalitarian-increasing *M* (*SE*)	Significant contrasts
n (%)	46 (12)	250 (64)	94 (24)	
Father age	35.79 (0.67)	35.42 (0.29)	40.83 (0.70)	C1,C2 < C3
Partner age	33.62 (0.58)	33.50 (0.27)	35.25 (0.42)	C1,C2 < C3
Working hours partner[a]				
T1	25.14 (1.51)	24.95 (0.63)	26.94 (0.91)	C1,C2 < C3
T2	25.07 (1.61)	24.09 (0.70)	26.60 (0.89)	C1,C2 < C3
T3	25.01 (1.61)	23.70 (0.73)	26.48 (0.89)	C1,C2 < C3
T4	24.93 (1.56)	23.30 (0.72)	26.03 (0.97)	C1,C2 < C3
Division of child-care tasks				
T2	3.18 (0.08)	3.20 (0.04)	3.16 (0.05)	–
T3	3.25 (0.08)	3.25 (0.03)	3.26 (0.05)	–
T4	3.28 (0.09)	3.22 (0.04)	3.23 (0.06)	–
Division of small household tasks				
T2	3.35 (0.10)	3.38 (0.05)	3.25 (0.06)	–
T3	3.40 (0.11)	3.34 (0.04)	3.27 (0.06)	–
T4	3.32 (0.12)	3.37 (0.05)	3.30 (0.06)	–

Note. Significant contrasts represent contrasts between the three gender-role stereotype trajectories (C1,C2,C3). T1 to T4 represent measurement waves around the first, second, third, and fourth birthday of the youngest child in the family. Task division variables represent task division as reported by fathers. (Scores above 3 represent a traditional task division. Scores below 3 represent a nontraditional task division.)

[a]Fathers own working hours do not differ between groups or over time. Pooled means for fathers' working hours are T1 = 37.43, T2 = 37.40, T3 = 37.34, T4 = 37.04. Working hours of partner are partner reported.

2012); parents' age, educational level, family type (boy–boy, girl–girl, boy–girl, girl–boy), and IAT task order (congruent first, incongruent first). These variables are included in the model when they were consistently related to the study variables. In Sample 2, there were 59 fathers and 45 mothers with missing values for gender-role stereotypes on one or more time points. With regard to work hours, 20 fathers and mothers had missing data on one or more time points. On the task division questionnaire, 104 fathers and 92 mothers had missing data on one or more time points. A total of 248 mothers and 221 fathers had complete data on all variables.

Analyses

Sample 1. Analyses of variance with gender and parental status (either parent vs. nonparent or plan to have child vs. do not plan to have child) as between-subject variables and age, educational level, and IAT order as covariates were conducted to examine differences in gender-role stereotypes between parents and nonparents and between nonparents who plan to have a child versus those who did not plan to have a child. We then performed two regression analyses to assess gender differences in the effects of parenthood (parent vs. nonparent) on gender-role behavior and associations between gender stereotypes and gender-role behavior. The following variables were entered in the first analysis predicting the contribution to family income: age, educational level, gender, gender-role stereotypes, parental status (Step 1), and two-way interactions between gender, gender-role stereotypes, and parental status (Step 2). The following variables were entered in the second analysis predicting the division of child-care tasks in parents: age, educational level, gender, gender-role stereotypes (Step 1), and interaction between gender and gender-role stereotypes (Step 2).

Sample 2. We employed latent growth mixture modeling (GMM) using full information

maximum likelihood estimation in Mplus (Muthén & Muthén, 1998–2012) to model the individual gender-role stereotypes trajectories. We tested these models separately for mothers and fathers. With GMM it is possible to classify individuals in distinct groups based on their individual gender-role stereotype trajectories during parenthood. The classification is made so that individuals within a group are more similar than individuals between groups. GMM is a person-centered approach that allows for different groups of individual growth trajectories instead of conventional growth modeling that assumes that a single growth trajectory can adequately approximate an entire population (Jung & Wickrama, 2008). The multiple imputation (Markov chain Monte Carlo) method with five imputations and 10 iterations was used to compute missing values on the gender-role stereotypes and behavior variables and covariates. We fitted a series of linear GMMs, which ranged from one to five latent growth trajectory classes. Quadratic growth curves were examined because gender-role stereotypes were assessed at four time points. GMM models in which only between-class variation was allowed led to models that converged. We selected the number of latent growth classes on the basis of several criteria, with the Bayesian Information Criterion (BIC) and Bootstrapped Likelihood Ratio Test (BLRT) being the most important (Nylund, Asparouhov, & Muthén, 2007). Smaller BIC values and significant BLRT indicate a better model fit than the model with one class less. Furthermore, each class had to contain >1% of the sample, and entropy had to be around .70 or higher (Jung & Wickrama, 2008; Nylund et al., 2007).

We examined the different classes of gender-role stereotype change from the GMM in relation to several possible moderators of gender-role stereotype change. Therefore, we conducted analyses of variance or chi-square tests to compare the gender-role stereotype trajectories with regard to several background variables (i.e., mothers' and fathers' age, mothers' and fathers' educational level, family type, marital status). In addition, we tested class differences in gender-role behavior (i.e., mothers' and fathers' work hours, small household and child-care task division) and gender-role behavior change over time with repeated-measures analyses of variance. A chi-square test was used to examine the association between mothers' and fathers' gender-role stereotype classes.

Results

Cross-Sectional Differences Between Parents and Nonparents

Table 1 shows descriptive characteristics of background and study variables separate for gender and parental status.

Implicit gender-role stereotypes. Implicit gender-role stereotypes were significantly higher in parents when compared with nonparents (see Table 1), $F(1, 665) = 4.31$, $p < .05$, *partial* $\eta^2 = .01$. Moreover, gender-role stereotypes did not differ between nonparents who were planning to have a child ($n = 377$, $M = 0.45$, $SD = 0.36$) and nonparents who were not planning to have a child ($n = 105$, $M = 0.40$, $SD = 0.36$), $F(1, 475) = 1.35$, $p = .25$. There were no differences between men and women.

Association between gender-role stereotypes and behavior. Regarding contribution to annual household income, there was a significant interaction between gender and parental status ($B = -1.17$, $SE = 0.55$, $\beta = -.15$, $p < .05$, 95% CI = [−2.243, −0.102]). Simple group comparisons showed that mothers contributed less to the annual household income than nonmothers (see Table 1), $t(295.30) = 2.79$, $p < .01$, $d = .28$, a difference that was not found between fathers and nonfathers, $t(151.74) = -1.29$, $p = .20$. The interaction between implicit gender-role stereotypes and gender was also significant, $B = -1.34$, $SE = 0.64$, $\beta = -.12$, $p < .05$, 95% CI = [−2.588, −0.084], indicating that, regardless of parental status, in men more traditional implicit gender-role stereotypes were associated with a higher contribution to annual household income ($r = .12$, $p = .06$), whereas in women more traditional implicit gender-role stereotypes were associated with a lower contribution to annual household income ($r = -.09$, $p = .06$). Mothers performed significantly more child care tasks than fathers, $B = 1.60$, $SE = 0.16$, $\beta = .61$, $p < .01$, 95% CI = [1.281, 1.908]. Implicit gender-role stereotypes were not significantly related to performance of child-care duties, $B = -0.20$, $SE = .22$, $\beta = -.05$, $p = .37$, 95% CI = [−0.624, 0.234]. The other effects did not reach significance.

Longitudinal Changes in Parents' Implicit Gender-Role Stereotypes and Behavior

In the whole sample, gender-role stereotypes increased over time in mothers—in all imputed data sets, range: $F(2.32–2.37, 907.16–923.89) = 15.83–17.14$, $p < .01$, partial $\eta^2 = .04$, Huynh-Feldt correction for sphericity—and in fathers—in all imputed datasets, range: $F(2.84–2.87, 1104.74–1113.92) = 9.98–12.88$, $p < .01$, partial $\eta^2 = .03$, Huynh-Feldt correction. Implicit gender-role stereotypes were correlated between measurement waves for mothers ($rs = .16–.40$, $ps < .01$) and fathers ($rs = .32–.35$, $ps < .01$). At separate measurement waves, implicit gender-role stereotypes did not correlate with gender-role behavior.

Mothers' Gender-Role Stereotype Trajectories

See Table 4 (top) for results of the GMM analyses for one to five classes of maternal gender-role stereotype trajectories. For mothers' gender-role stereotypes, a three-class solution fit the data best (i.e., largest decrease in BIC, entropy >0.70, significant BLRT, and sufficient mothers in each group). As can be seen in Figure 1A, mothers in Class 1 (labeled "traditional-increasing") had strong traditional gender-role stereotypes that became even more traditional over time. Mothers in Class 2 (labeled "intermediate-increasing") had slightly traditional gender-role stereotypes that became more traditional over time (but increase leveled off from T2 to T4). Mothers in Class 3 (labeled "egalitarian") could be characterized by egalitarian gender-role stereotypes that became even less traditional over time, with a slight increase in traditionality from T3 to T4. Table 2 shows descriptive statistics for the three groups on relevant background variables and gender-role behavior.

Gender-role stereotype trajectories associated with age, educational level, marital status, and family type. A significant class difference was found for mothers' age, indicating that traditional-increasing mothers were the youngest followed by intermediate-increasing mothers and egalitarian mothers—in all imputed data sets, range: $F(2, 389) = 45.44–62.89$, $p < .01$, partial $\eta^2 = .19–.25$. The same difference was found for the age of the partner, indicating that traditional-increasing mothers had the youngest partners followed by intermediate-increasing mothers and egalitarian mothers—in all imputed data sets, range: $F(2, 389) = 12.27–17.01$, $p < .01$, partial $\eta^2 = .06–.08$. Traditional-increasing mothers were more likely to have lower education ($res_{adj} = 2.5$), whereas egalitarian mothers were more likely to have higher education, $res_{adj} = 1.8$, significant in one imputed data set, range: $\chi^2(2) = 2.82–8.49$, $p = .014–.244$. No class differences were found on the partner's educational level ($ps > .09$), marital status ($ps > .38$), or family type ($ps > .19$).

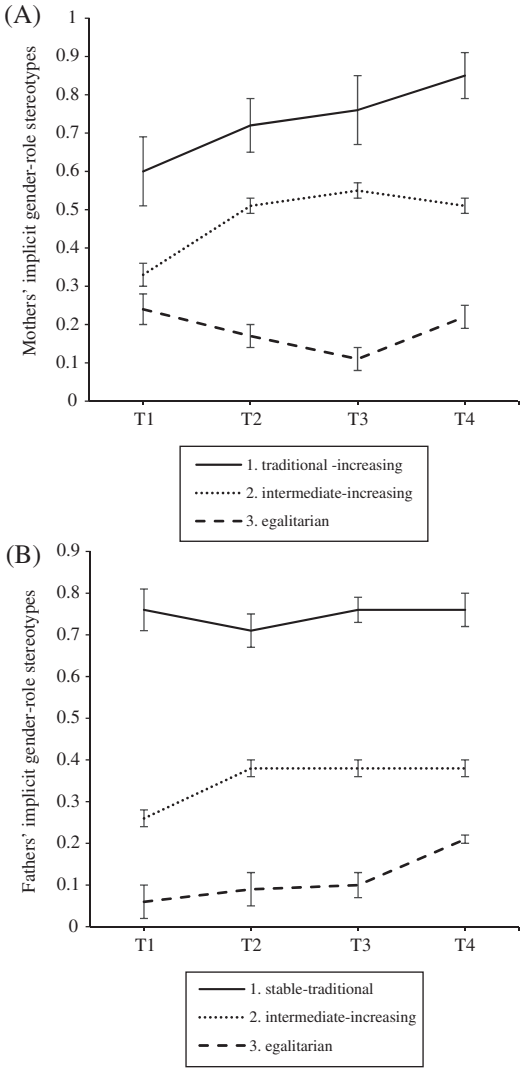
Gender-role stereotype trajectories associated with gender-role behavior. No significant class differences were found in gender-role behavior change over time (i.e., nonsignificant interactions between class and gender-role behavior change). However, main effects were

Table 4. *Class Solutions for Growth Mixture Modeling Models for Gender-Role Stereotypes*

	Number of classes				
Gender-role stereotypes	1	2	3	4	5
Mother					
BIC	928.10	816.23	812.78	816.08	826.92
BLRT	—	<.01	< .01	—	—
Entropy	1.0	0.69	0.72	0.73	0.78
Father					
BIC	975.65	844.19	832.40	853.11	868.25
BLRT	—	<.01	< .01	—	—
Entropy	1.0	0.66	0.69	0.65	0.64

Note. BIC, Bayesian Information Criterion; BLRT, Bootstrapped Likelihood Ratio Test; N/A, not available because no convergence. Shaded areas represent best fitting models. Models include following covariates: age and gender-role stereotype task version.

Figure 1. Three Trajectories of Implicit Gender-Role Stereotype Change in Mothers (A) and Fathers (B).



Note. Error bars represent standard errors of the mean.

found of gender-role stereotype class on working hours—in all imputed data sets, range: $F(2, 387) = 5.34–7.71$, $p < .01$, partial $\eta^2 = .03–.04$—involvement with small household tasks—in four of five imputed data sets, range: $F(2, 387) = 2.82–7.21$, $p = .001–.061$, partial $\eta^2 = .01–.04$—and child care tasks—in all imputed data sets, range: $F(2, 387) = 4.92–6.48$, $p < .01$, partial $\eta^2 = .03$. Across time points, intermediate-increasing and egalitarian mothers worked more and were less involved with small household tasks than traditional-increasing mothers. In addition, traditional-increasing mothers were more involved with child care tasks than intermediate-increasing mothers. The work hours of the partner were also significantly different between the mothers with different gender-role stereotype trajectories—in two of five imputed data sets, range: $F(2, 387) = 1.47–4.01$, $p = .019–.231$, partial $\eta^2 = .01–.02$. Traditional-increasing mothers had partners who worked more than egalitarian mothers. Also, main effects of time were found in all classes for working hours—in all imputed data sets, range: $F(2–2.03, 771.88–784.70) = 6.19–12.96$, $p < .01$, partial $\eta^2 = .02–.04$, Greenhouse–Geisser correction—and child-care tasks, indicating that mothers worked less and became more involved with child-care tasks over time—in all imputed data sets, range: $F(1.94–1.98, 750.39–765.92) = 12.45–20.77$, $p < .01$, partial $\eta^2 = .03–.05$, Huynh-Feldt correction.

Fathers' Gender-Role Stereotype Trajectories

See Table 4 (bottom) for results of the GMM analyses for one to five classes of paternal gender-role stereotype trajectories. For fathers' gender-role stereotypes, a three-class solution fit the data best (i.e., largest decrease in BIC, entropy >0.70, significant BLRT, and sufficient fathers in each group). As can be seen in Figure 1B, fathers in Class 1 (labeled "stable-traditional") had strong traditional gender-role stereotypes that were stable over time. Fathers in Class 2 (labeled "intermediate-increasing") had intermediate gender-role stereotypes that became more traditional over time (but increase leveled off from T2 to T4), and fathers in Class 3 (labeled "egalitarian") had egalitarian gender-role stereotypes that also became more traditional over time. Table 3 shows descriptive statistics for the three groups on relevant background variables and gender-role behavior.

Gender-role stereotype trajectories associated with age, educational level, marital status, and family type. A significant class difference was found for fathers' age, indicating that egalitarian fathers were older than stable-traditional and intermediate-increasing

fathers—in all imputed data sets, range: $F(2, 389) = 45.41–52.21$, $p < .01$, partial $\eta^2 = .19–.21$. The same effect was found for age of the partner, indicating that egalitarian fathers had older partners than stable-traditional and intermediate-increasing fathers—in all imputed data sets, range: $F(2, 389) = 6.29–8.43$, $p < .01$, partial $\eta^2 = .03–.04$. No class differences were found for fathers' educational level ($ps > .11$), partner's educational level ($ps > .08$), marital status ($ps > .67$), or family type ($ps > .12$).

Gender-role stereotype trajectories associated with gender-role behavior. Egalitarian fathers had partners with higher working hours than other fathers—in two of five imputed data sets, range: $F(2, 387) = 1.45–3.48$, $p = .032–.236$, partial $\eta^2 = .01–.02$. No class differences were found for fathers' own working hours ($ps > .16$) or involvement with small household ($ps > .16$) or child-care tasks ($ps > .43$). Fathers' work hours did not decrease over time—in four of five imputed data sets, range: $F(1.88, 729.62–733.50) = 1.66–3.15$, $p = .047–.19$, partial $\eta^2 = .00–.01$, Greenhouse–Geisser correction. Mother classes were related to father classes, indicating that egalitarian fathers were more likely to be partnered with egalitarian mothers ($res_{adj} = 2.5$)—in one of five imputed data sets, range: $\chi^2(4) = 4.14–11.48$, $p = .02–.39$.

Discussion

The goal of this study was to examine, longitudinally and cross-sectionally, whether parenthood is associated with changes toward more traditional implicit gender-role stereotypes and whether this change is associated with one's gender-role behavior in the family. First, implicit gender-role stereotypes were more traditional in parents than in nonparents. Second, three specific trajectories of implicit gender-role stereotype change in the first years of parenthood could be discerned for mothers and fathers: egalitarian, traditional, and intermediate trajectories. The direction of gender-role stereotype change was related to individual differences in gender-role behavior (i.e., working hours, perceived task division regarding child-care tasks and small household tasks) and background variables (i.e., age, educational level). Third, parenthood was, for the most part, similarly associated with mothers' and fathers' implicit gender-role stereotypes. However, in terms of behavior there were some differences: Mothers spent more time on child care than fathers, mothers' contribution to annual household income was lower than nonmothers', and mothers decreased their work hours over time, whereas fathers did not. Associations between gender-role stereotype change and own gender-role behavior were found in mothers, but not in fathers. Finally, fathers' gender-role stereotype trajectories were only associated with mothers' working hours.

Parents indeed had more traditional implicit gender-role stereotypes than nonparents, which is consistent with previous evidence for explicit stereotypes (Baxter et al., 2015; Corrigall & Konrad, 2007; Fan & Marini, 2000). This finding could indicate the following: First, parents were already more traditional in their gender-role stereotypes before they became parents and that was the reason they became parents in the first place, and, second, parents became more traditional in their gender-role stereotypes after they became parents. It is not possible to draw firm conclusions about this issue because of the cross-sectional data. However, gender-role stereotypes did not differ between nonparents who planned to have a child and nonparents who did not plan to have a child. This could suggest that gender-role stereotypes change after the transition into parenthood and not because of people's wish to have children. Our findings also show that this change might be truly longitudinal because for most parents implicit gender-role stereotypes were found to continue increasing at least during the first years of parenthood. It is possible that changes in gender-role stereotypes level off or return to pre-parenthood levels sometime after children go to school. Especially when children reach the school age parental time in child care generally decreases and mothers return to work or to more working hours (Bianchi, 2000), which is likely to result in fewer traditional gender-role stereotypes. However, it is also possible that the traditional gender-role stereotypes that develop in the first year of parenthood remain a strong influence on the work–family task division within couples, acting as a self-maintaining cycle. Future research on changes in implicit gender-role stereotypes and task division between couples in later phases of parenthood is needed to examine these possibilities.

Interestingly, not all parents showed an increase in traditional gender-role stereotypes during the first years of parenthood; only

mothers with traditional gender-role stereotypes, parents with intermediate level gender-role stereotypes, and fathers with egalitarian gender-role stereotypes. Gender-role stereotypes of mothers with egalitarian gender-role stereotypes became even more egalitarian over time (although they became slightly more traditional again when children reached school age). Gender-role stereotypes of fathers with high traditional gender-role stereotypes remained stable. The shape of the gender-role stereotype trajectories was slightly different from a previous study examining explicit gender-role attitudes shortly before and after becoming a parent (Schober & Scott, 2012), which might be due to methodological differences between the studies. For mothers, it was found that older age, higher working hours, higher education, having an older partner, and a more egalitarian task division were buffering against change toward more traditional implicit gender-role stereotypes over time. However, just as for the other mothers, these mothers' perceived task division became more traditional and working hours decreased with increasing child age. Older age when having the first child and higher maternal education have also been associated with a change toward more egalitarian self-reported gender-role attitudes (Fan & Marini, 2000; Schober & Scott, 2012), supposedly because these women have had more time to build stable careers, leading to more gender-equal divisions of labor in the family (Coltrane, 1990). It is also possible that older women are more aware of gender inequality due to more frequent exposure with gender discrimination in their personal lives, resulting in more progressive gender-role attitudes (Bolzendahl & Meyers, 2004).

An explanation for the stable gender-role stereotype trajectory of fathers with high traditional gender-role stereotypes could be that these fathers' stereotypes were already congruent with what was happening in their families. It is also possible that fathers' traditional gender-role stereotypes reinforced a traditional task division in the family. Interestingly, fathers' gender-role stereotype trajectories were only related to their partners' working hours and not to their own gender-role behaviors. Fathers, in particular, may be more influenced by their partners' working hours because fathers changed work patterns less than their partners did in response to the transition to parenthood (i.e., there was a floor effect in work pattern change among fathers). This finding suggests that, in the workplace, men's traditional roles might still be favored and therefore difficult to change. Last, fathers within the egalitarian gender-role stereotype trajectory were more likely to be older and have older partners with high working hours. This is in line with a qualitative study showing that postponing parenthood as a couple might lead to more involved fathers who are willing to share responsibilities associated with parenthood because they have had more time to envision and to become "attached" to the father role (Coltrane, 1990). Alternatively, egalitarian fathers were also partnered with nontraditional women (i.e., older age when becoming a mother and concentrating on their career). The greater monetary resources associated with a working partner gives these fathers more flexibility to engage in household and child-care tasks, which might be the reason for their egalitarian attitudes. Interestingly, even fathers with egalitarian gender-role stereotypes in early childhood showed a slight change toward more traditional gender-role stereotypes over time, possibly because fathers work patterns remained stable and traditional over the years, and their perceived involvement in household and child-care tasks was comparable with that of men with more traditional gender-role stereotypes.

The longitudinal changes in implicit gender-role stereotypes are unlikely to be due to repeated testing effects. Stimulus familiarity and frequency have been found to be unrelated to IAT scores (Ottaway, Hayden, & Oakes, 2001). Also, if anything, taking multiple IAT tests would make it easier to respond to stereotype-incongruent associations, thus decreasing and not increasing gender-role bias in most parents. Furthermore, the individual differences in stereotype change over time cannot be explained by repeated-testing effects.

More similarities than differences were found between mothers and fathers. It is possible that in current-day societies such as the Netherlands in which gender equality is valued highly, the effect of parenthood on mothers' and fathers' gender-role stereotypes and behavior is becoming more similar (Baxter et al., 2015; Cunningham et al., 2005; Fan & Marini, 2000). Mothers were only more likely than fathers to decrease working hours and increase perceived involvement with child-care tasks with increasing child age, and gender-role stereotypes and behavior

were more consistently associated in mothers, which might be due to a greater identification with the parental role in women compared to men (Kerpelman & Schvaneveldt, 1999). People who identify strongly with a social role are more likely to behave in accordance with this role or incorporate experiences associated with this role into their gender-role stereotypes (Stryker & Burke, 2000).

This study also has important theoretical and practical implications. The finding that implicit gender-role stereotypes change in response to parents' personal life experiences provides support for the stereotypes-as-states hypothesis and not for the stereotypes-as-traits hypothesis. This sensitivity to context can also explain the low to moderate correlations between measurement waves in the current study and the moderate test–retest correlations found in previous studies using the IAT (Nosek et al., 2007). This finding further suggests that implicit gender-role stereotypes can be changed once formed, which provides possibilities for interventions focusing on parents to prevent the negative consequences of implicit gender-role stereotypes on both parents (e.g., unequal career opportunities) and children (e.g., traditional gender stereotypes, gender differences in aggression). One avenue of intervention could be increasing parents' self-awareness of implicit gender-role stereotypes and its consequences for themselves and their children. Increased awareness is the key to change in gender-related behaviors (Gawronski & Bodenhausen, 2006).

Also promising might be family policies supporting dual-earner family arrangements. Family policy institutions, such as readily available public day-care services for preschool-aged children, paid maternity and paternity leave, and public home help to the elderly, are known to reduce the tension between paid work and family obligations (Sjöberg, 2004). These policies might subsequently also reduce the change toward more traditional gender-role stereotypes. In the Netherlands, most of these family policies are in place, but paternity leave is only partially paid. Moreover, the individual differences in gender-role stereotype change found in the current study suggest that the Dutch work–family policies to promote egalitarian work–family arrangements might not be sufficient for all families. The Scandinavian countries do have extensive paid paternity leave policies, and equally shared parental leave is promoted with equality bonuses (Thévenon, 2011). Interestingly, in these countries parenthood is not associated with a less gender-equal division of labor (Hegewisch & Gornick, 2011). Thus, supporting equally shared paid parental leave might be a fruitful direction to take. These policies might, however, have a bigger impact if they are accompanied by a societal shift in which father involvement is encouraged and valued (Thompson, Beauvais, & Lyness, 1999).

Last, our findings with regard to the association between gender-role stereotype change and perceived division of labor are in line with gender-role theories and a large body of research demonstrating the association between gender-role stereotypes and division of household and paid labor in parents (e.g., Christie-Mizell & Erickson, 2007; Kaufman & Uhlenberg, 2000). However, it should be mentioned that in the current study no associations were found between implicit gender-role stereotypes and behavior at single time points. Thus, there is a certain discrepancy between one's implicit gender-role stereotypes and perceived gender-role behavior that could not be a result of social desirability bias or lack of awareness of one's gender-role stereotypes.

This study is not without limitations. First, we used a combination of a cross-sectional and longitudinal study (without a nonparent control group) to examine the effects of parenthood on implicit gender-role stereotypes and behavior. Ideally, future studies should employ a longitudinal design starting before the transition into parenthood, following parents and nonparents for longer periods of time. These studies can examine whether parenthood truly changes gender-role stereotypes and behavior or whether traditional adults are more likely to become parents.

Second, the generalizability of the results might be reduced because both samples were highly educated and Dutch, and the cross-sectional sample was a convenience sample that was even higher educated than the longitudinal sample. Higher educated people might have greater opportunities to use public and private child-care facilities than less well-educated people, which may increase the options they have after becoming a parent to reconcile the work–family dilemma in a gender-egalitarian way. Subsequently, this might prevent an increase in traditional gender-role

stereotypes. However, implicit gender-role stereotypes are less affected by educational level than explicit gender-role stereotypes (Endendijk et al., 2013), and there was considerable variation in IAT scores within our high-educated samples, approximating a normal distribution. Moreover, the findings are generally consistent with previous studies on explicit gender-role stereotypes of parents form Australia, the United Kingdom, and the United States (e.g., Baxter et al., 2015; Corrigall & Konrad, 2007; Schober, 2013). Comparisons are needed with future studies conducted in countries with specific policies aimed at enhancing gender-equal sharing of responsibilities associated with parenthood, such as Scandinavian countries, and in countries where gender equality is low, such as countries in the Middle East.

Relatedly, our results might not be generalizable to other family types than families with a mother, a father, and two children with an age difference of around 2 years. Gender-traditional task division increases with the birth of additional children (Sanchez & Thomson, 1997), especially when additional births are close together in time (Kuo, Volling, & Gonzalez, 2017). Also, single, gay, and lesbian parents are less traditional in their gender-role behavior (Stacey & Biblarz, 2001). Future research should examine changes in gender-role stereotypes and behavior after the transition to parenthood in different family types.

Furthermore, the age range of the children in the cross-sectional sample was larger (0–18) than in the longitudinal sample, reducing the comparability of the results. The difference in implicit gender-role stereotypes between parents and nonparents in the cross-sectional sample might have been larger when focusing on the same younger age range as the children in the longitudinal sample because it has been suggested that parents' gender-role stereotypes may revert to pre-parenthood levels as children grow older (Evertsson, 2013).

Last, a survey measure was used to assess parents' perceived division of household labor, which may have been biased by people's gender-role stereotypes (Press & Townsley, 1998). However, implicit gender-role stereotypes were not related to perceived division of household labor at single measurement waves in the current study. Still, it might have been interesting to also use time diaries, which are considered the gold standard (Yavorsky et al., 2015), to examine whether over- or underestimation of perceived household contributions is related to implicit gender-role stereotypes.

To conclude, this is one of the first studies demonstrating (a) a change in implicit stereotypes over a longer period of time and (b) the association of change with personal life experiences. This adds to our understanding of the reliability and state-like characteristics of stereotypes assessed with IAT measures. Specifically, being a parent of young children is associated with an increase in traditional implicit gender-role stereotypes and a division of labor in most parents, even in a gender-equal society such as the Netherlands. These increases are likely to be associated with unfavorable outcomes in both parents and children, such as unequal career opportunities for mothers and fathers (Mayrhofer et al., 2008), the development of gender differences in their children's problem behavior (Endendijk et al., 2017), and the intergenerational transmission of gender stereotypes (Endendijk et al., 2013). However, the current study also provides interesting findings, as not all parents show an increase in traditional gender-role stereotypes, and some even become more egalitarian in their stereotypes. As mothers' higher work hours and a more egalitarian task division in the home appear to be important buffering factors against increased traditional gender-role stereotypes, there is a need for more rigorous policies that support combining mothering and fathering with (full-time) paid employment, such as more equal amounts of paid maternity and paternity leaves. Generally, these findings suggest that an accumulation of counter-stereotypic experiences during the years can reduce implicit stereotypes.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Appendix S1. Supplementary material for analyses in imputed datasets

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