Universiteit Leiden
The Netherlands

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

Endendijk, J.J.

Citation
Endendijk, J. J. (2015, April 21). *Heroes and housewives: The role of gender and gender stereotypes in parenting and child development*. Retrieved from https://hdl.handle.net/1887/32778

Version:	Corrected Publisher's Version
License:	Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from:	https://hdl.handle.net/1887/32778

Note: To cite this publication please use the final published version (if applicable).

Cover Page

Universiteit Leiden

The handle http://hdl.handle.net/1887/32778 holds various files of this Leiden University dissertation.

Author: Endendijk, Joyce Johanna
Title: Heroes and housewives : the role of gender and gender stereotypes in parenting and child development
Issue Date: 2015-04-21

Heroes and Housewives:

The Role of Gender and Gender Stereotypes in Parenting and Child Development

ISBN: 978-94-90858-35-3

Printed by Mostert & Van Onderen, 2015

Copyright cover illustration, Scott R. Kellogg

Copyright © 2015, Joyce J. Endendijk, Leiden University

All rights reserved. No parts of this book may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronically, mechanically, by photocopy, by recording, or otherwise, without prior written permission from the author.

Heroes and Housewives:

The Role of Gender and Gender Stereotypes in Parenting and Child Development

PROEFSCHRIFT

ter verkrijging van de graad van Doctor aan de Universiteit Leiden

op gezag van Rector Magnificus prof. mr. C.J.J.M. Stolker

volgens besluit van het College voor Promoties

te verdedigen op dinsdag 21 april 2015

klokke 13.45 uur door

Joyce Johanna Endendijk

geboren te Amersfoort in 1987

Promotiecommissie

Promotores:

Prof. dr. J. Mesman

Prof. dr. M.J. Bakermans-Kranenburg

Co-promotor:

Dr. M.G. Groeneveld

Overige leden:

Prof. dr. S.A. Berenbaum (The Pennsylvania State University)

Prof. dr. N. Ellemers

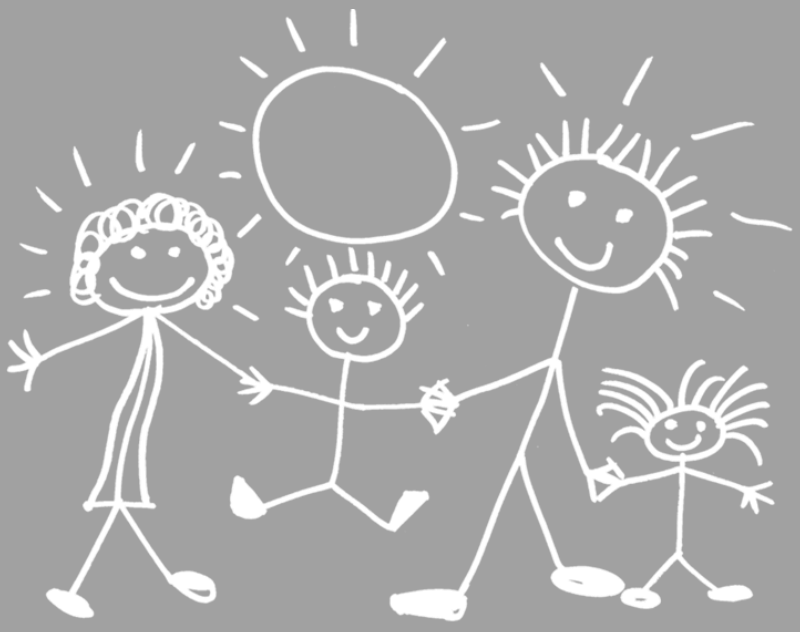
Prof. dr. M.H. van IJzendoorn

The studies in this dissertation were supported by a European Research Council Starting Grant awarded to Judi Mesman (project # 240885) and a grant from the Netherlands Organization for Scientific Research (VICI Grant 453-09-003) awarded to Marian J. Bakermans-Kranenburg.

TABLE OF CONTENTS

1.	General Introduction	7
2.	Bad Boy, Good Girl? A Meta-Analysis of Mothers' and Fathers' Gender-Differentiated use of Positive and Negative Controlling Strategies	17
3.	Gender stereotypes in the family context: Mothers, fathers, and siblings	63
4.	Boys don't play with dolls: Mothers and fathers gender talk during picture book reading	87
5.	Gender differences in child aggression: Relations with gender-differentiated parenting and parents' gender stereotypes	111
6.	The gendered family process model: An integrative framework of gender in the family	133
7.	General Discussion	165
	References	183
	Nederlandse samenvatting (Summary in Dutch)	227
	Dankwoord (Acknowledgements)	235
	Curriculum vitae	237
	Lijst van publicaties (List of publications)	239

1



General Introduction

Gender differences in behavior have been studied systematically since the 1600s (Graunt, 1665), but it was not until the feminist movement in the 1970s that the study of gender in relation to child development emerged (Zosuls, Miller, Ruble, Martin, & Fabes, 2011). A major contribution to the study of gender in relation to child development was the publication of the book, *The Development of Sex Differences*, edited by Maccoby (1966), and Maccoby and Jacklin's (1974) review, *The Psychology of Sex Differences*. These books laid the foundation for theory and research on gender in developmental psychology (Zosuls et al., 2011). Their most important contributions to the field were the conclusions that 1) there are only a few well-established gender differences in behavior, instead of numerous large differences between the sexes, 2) within-gender differences are often larger than between-gender differences, and 3) there are several potential reasons for gender differences, not only biological but also social.

During the 70s and 80s the study of gender in psychology flourished (Blakemore, Berenbaum, & Liben, 2009). However, with the decline of the feminist movement the interest in gender as an important explanatory variable in developmental psychology decreased. The most widely cited papers on gender development are still from the 1970s and 1980s (Blakemore et al., 2009). Given the rapid changes in gender roles in most Western societies the past decades (Inglehart & Norris, 2003) there is a need for child-development research to incorporate gender as a variable of interest in their studies, to understand the possible consequences of these societal changes for child development. The current thesis focuses on gender and gender-related factors (such as gender stereotypes) as possible explanatory variables of parent and child behavior in the family context. When studying gender within the family context, 'gender' applies to all members of the family, including parent gender and child gender, and to all relations between family members' genders, attitudes, and behaviors.

Child Gender

In their book *The Psychology of Sex Differences* (1974, p. 351-352), Maccoby and Jacklin state that there are some *"fairly well established sex differences: 1) Girls have greater verbal ability than boys, 2) Boys excel in visual-spatial ability, 3) Boys excel in mathematical ability, 4) Males are more aggressive".* Gender differences in social and emotional behavior are indeed found from an early age onwards. Before 12 months of age, boys already display higher activity levels and lower effortful control than girls (Else-Quest, Hyde, Goldsmith, Van Hulle, 2006), which can be seen as a precursor of their higher levels of disruptive behaviors (i.e., noncompliance, oppositional behavior, aggression) that are generally found at a later age (Koot & Verhulst, 1991; Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987). One of the most pronounced gender differences found in the literature on child

behavioral development is the higher level of aggressive behavior in boys than in girls (Archer, 2004; Hyde, 1984). There is also some evidence of boys showing less empathy and prosocial behavior than girls (Zahn-Waxler, Robinson, & Emde, 1992).

Several biological processes have been linked to gender differences in children's behavior, with gonadal hormones (i.e., testosterone, estrogens) as the most extensively studied factors (Hines, 2005). Studies examining the association between testosterone levels and gender differences in behavior have demonstrated that girls who are exposed to high levels of testosterone prenatally (i.e., genetic disorder congenital adrenal hyperplasia; CAH) show increased male-typical play and interests and reduced female-typical play and interests (see Auyung et al., 2009; Berenbaum & Beltz, 2011; Hines, 2005). Moreover, natural variations in prenatal testosterone levels have also been linked to variations in girls', but not boys', gender-role behavior (see Cohen-Bendahan, van de Beek, & Berenbaum, 2005). This evidence indicates that gender differences in behavior might in part be due to gender differences in androgen levels during early development. However, these studies cannot completely rule out the influence of the social environment (i.e., parents of daughters with CAH may treat these girls differently than parents of daughters without CAH do, because CAH girls look more masculine at birth), nor have they found substantial evidence for a neural substrate that can explain the association between prenatal testosterone levels and gender differences in behavior (e.g., Ciumas, Lindén Hirschberg, & Savic, 2009).

In addition to potential biological influences, gender differences in child behavior may arise because of parental differential treatment of boys and girls (Chaplin, Cole, & Zahn-Waxler, 2005; Mandara, Murray, Telesford, Varner, & Richman, 2012). There is meta-analytic evidence that parents use more physical punishment with boys than with girls, encourage sex-typed behaviors (i.e., expected or normative for one sex) more in boys than in girls (Lytton & Romney, 1991), and use more supportive speech with daughters than with sons (Leaper, Anderson, & Sanders, 1998). However, it is unclear whether this differential treatment of boys and girls can explain gender differences in behavior. Moreover, little is known about the mechanisms underlying this differential treatment of boys and girls. As already proposed by Maccoby and Jacklin in 1974, parents treat boys and girls differently *"1) To shape them toward the behavior deemed appropriate for their sex, 2) Because of innate differences in characteristics manifested early in life, boys and girls stimulate their parents differently and hence elicit different treatment from them"* (Maccoby & Jacklin, 1974, p. 305-306).

More recent theories such as role theory and social role theory provide a more extensive explanation for differential parenting of boys and girls (Eagly, Wood, & Diekman, 2000; Hosley & Montemayor, 1997). Both theories focus on the historical division in gender roles, that is the female role of homemaker and the male role of economic provider. It is proposed that these roles and the characteristics

associated with these roles lead to stereotypical ideas and expectations about men and women, which lead to differential treatment of men and women, which in turn leads to gender differences in behavior. When applied to parenting and child aggression, for example, mothers and fathers are expected to use different parenting strategies with boys and girls in accordance with boys' and girls' divergent gender roles. Parenting girls would be more likely to focus on affiliation and interpersonal closeness, whereas parenting boys would be more likely to focus on assertiveness and dominance.

On the other hand, child-effect models (i.e., children are not only passive recipients of parenting behaviors, but also influence the parent by their own behaviors, Bell, 1968) and studies of gene-environment correlation (rGE, Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983) have demonstrated child-driven effects on parenting (Klahr & Burt, 2013). Given this evidence and the fact that boys have shown a higher genetic tendency to disruptive behavior problems than girls (Buckholtz et al., 2008; Kim-Cohen et al., 2006; Meyer-Lindenberg et al., 2006), they may also be more likely to elicit more negative behaviors from their parents or actively seek conflict with their parents.

Parent Gender

Gender of the parent is also an important factor in research on parenting and child development. As Maccoby and Jacklin stated: *"A parent's behavior toward a child will depend, in some degree, upon whether the child is of the same sex of himself"* (Maccoby & Jacklin, 1974, p. 306). However, most studies on child development in the family context include only mothers. Fathers are still sorely underrepresented in these studies, although they play an important role in the socialization of their children (Lamb, 2010). According to role theory and social role theory, mothers are traditionally viewed as homemakers and primary caregivers of the children whereas fathers are seen as economic providers (Eagly et al., 2000; Hosley & Montemayor, 1997). The male role is characterized by competence, independence, assertiveness, power, and leadership, whereas females are seen as kind, considerate, helpful, nurturing, and caring. Although gender roles have changed dramatically over the last decades in most Western societies, mothers in the Netherlands are still the primary caregivers of children in the vast majority of families (Sociaal en Cultureel Planbureau [SCP], 2011). It has been suggested that these gender roles and the characteristics associated with these roles may result in differences in parenting between mothers and fathers (Bem, 1981).

Evolutionary theories, and especially the concept of parental investment, may also provide rationales for the differences between mothers and fathers (Hyde, 2014). Parental investment addresses any parental behavior or investment directed to the offspring that benefits the offspring, but may also be detrimental to the parent's own future condition, survival, or further reproductive output (Trivers, 1972). Human

mothers biologically invest more in their children than human fathers (e.g., sperm cells are less precious than egg cells, nine-month pregnancy, delivery). At birth, it is to the advantage of the person who already invested most in the offspring to take care of it. This may explain why mothers' involvement in child care is much more intensive than that of fathers. This difference in child-care involvement may in turn lead to differences in other domains (e.g., gender roles, working outside the home, behavior repertoires, Hyde, 2014).

Mothers and fathers not only differ in the *amount* of involvement in child care, but they may also use different parenting strategies. There is meta-analytic evidence that fathers use more directive and informative speech and less supportive speech than mothers, and talk less to their children in general than mothers (Leaper et al., 1998). Moreover, fathers show lower levels of sensitivity and higher levels of intrusiveness than mothers do (see Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Hallers-Haalboom et al., 2014; Lovas, 2005). With regard to discipline there is some evidence that mothers are more concerned with disciplining their children than fathers are. Mothers have been found to use more verbal control, guidance, commands, and physical discipline strategies in reaction to children's noncompliance than fathers (e.g., Gunnoe & Mariner, 1997; Power, McGrath, Hughes, & Manire, 1994; Tulananda & Roopnarine, 2001).

Mothers and fathers not only differ in their general parenting practices, but they may also differ in the extent to which they treat their sons and daughters differently. According to social role theory fathers are more inclined than mothers to socialize their children, especially their sons, into the gender roles proposed by society (Eagly et al., 2000). Because gender roles and gender stereotypes are generally more restrictive for boys than for girls (i.e., it is deemed more appropriate for girls to play soccer than it is for boys to do ballet), fathers are more concerned with their boys conforming to gender roles (Eagly et al., 2000). Thus, fathers are expected to use more gender-differentiated parenting than mothers. Meta-analytically there is indeed some evidence that fathers differentiate more between boys and girls than mothers (Lytton & Romney, 1991). However, this meta-analysis has been criticized for using too-broad categories of socialization behaviors, including few observational studies, and not weighing study results by sample size (Keenan & Shaw, 1997).

Another important issue with regard to differences between mothers and fathers is whether mothers and fathers have a different influence on child development. Evidence from a meta-analysis shows that mothers' parenting strategies have a stronger influence on children's disruptive behaviors than fathers' parenting (Rothbaum & Weisz, 1994). An explanation for this finding is that in most families mothers are the primary caregivers, and therefore might influence their children more than fathers (Rothbaum & Weisz, 1994). In addition, meta-analytically the positive association between maternal sensitivity and infant-mother attachment security is

markedly stronger than the association between paternal sensitivity and infant-father attachment security (De Wolff & Van IJzendoorn, 1997; Lucassen et al., 2011). However, fathers still have an important influence on children's behavior above and beyond mothers' influence (e.g., Kosterman, Haggerty, Spoth, & Redmond, 2004). Especially in older children and adolescents the father-child relationship becomes increasingly important for child well-being, probably because father involvement tends to increase during this period (Connell & Goodman, 2002; Rothbaum & Weisz, 1994).

With regard to the combination of parent and child gender it has been suggested that boys and girls might be primarily socialized by the same-sex parent (Bandura, 1977). One would therefore expect the highest levels of parent-child influence to be found in either the mother-daughter dyad or the father-son dyad. However, results from the small body of empirical studies are inconsistent. Some studies find no differences between the four possible parent-child dyads (i.e., mother-daughter, mother-son, father-son, father-daughter; Russel & Saebel, 1997), whereas other studies find the strongest link between mothers and daughters behaviors and attitudes (Blair, 1992). Yet another study has found that the father-son dyad is characterized by the least optimal interaction patterns, whereas the mother-daughter dyad could be characterized by the most optimal interaction patterns (Lovas, 2005).

Sibling Gender Combination

Sibling gender combination is a structural family characteristic that refers to the combination of gender and ordinal position of siblings in a family. In 1956 Helen Koch already pointed to *"the sib's-sex variable as a very important one (i.e., in child development) that, in the main, has been relatively neglected in the experimental…literature."* (Koch, 1956, p. 309). Even though the lack of studies on the effects of sibling gender combination (i.e., boy-boy, girl-girl, boy-girl, girl-boy) was noted more than 5 decades ago, there are still very few studies addressing its influence on parent or child behaviors. In the Netherlands the majority of children grow up in families with at least one sibling (Sociaal en Cultureel Planbureau [SCP], 2011). According to family system theories, family structure may influence the behavior of individual family members, but also the way in which family members relate to each other (Hinde & Stevenson-Hinde, 1987; Minuchin, 1985; Schoppe, Mangelsdorf, & Frosch, 2001). Indeed, there is some evidence that sibling gender combination plays a role in child social-emotional development and parent-child interactions (e.g., McHale, Crouter, & Tucker, 1999; Rust, Golombok, Hines, Johnston, & Golding, 2000). However, the results are mixed with regard to the direction of effects. Some studies find that families with mixed-gender siblings constitute a *less* gender stereotypical environment than families with same-gender siblings, because siblings reinforce characteristics of their own sex in their sisters and

brothers (e.g., Brim, 1958; Rust et al., 2000). These studies indicate that the presence of an opposite-gender sibling may work as a gender neutralizer on the family environment. On the other hand, some studies provide evidence for the proposition that families with mixed-gender siblings provide a *more* gender stereotypical environment than families with same-gender siblings, because parents in families with mixed-gender siblings have the opportunity to emphasize differences between boys and girls (McHale et al., 1999). In this case the presence of an opposite-gender sibling may work as a gender intensifier on the family environment.

Gender Stereotypes

As stated by Maccoby and Jacklin: *"Parents base their behavior toward a child on their conception of what a child of a given sex is likely to be like"* (Maccoby & Jacklin, 1974, p. 306). This implies that parents' stereotypes about gender differences might influence their behavior. Gender schema theory (Bem, 1981) suggests that the way parents behave towards boys and girls is indeed guided by their gender schemas that consist of gender-typed information and experiences. According to this theory, parents with gender schemas consisting of strong stereotypical notions about gender roles might be more likely to socialize their boys and girls in a gender-role consistent way, for example by gender-differentiated parenting or by emphasizing that certain behaviors are more appropriate for boys or girls. Children will internalize these early gender-typed experiences in gender schema's (Gelman, Taylor, Nguyen, Leaper, & Bigler, 2004; Witt, 1997) and these gender schema's will influence the processing of subsequent gender-related information and thereby bias future actions (Bem, 1981). When children's gender concepts are composed of stereotypical information about gender roles they are more likely to show gender-typed behavior (Fagot, Leinbach, & O'Boyle, 1992; Liben & Bigler, 2002). These propositions suggest that parental gender stereotypes might be important factors in parenting and child development.

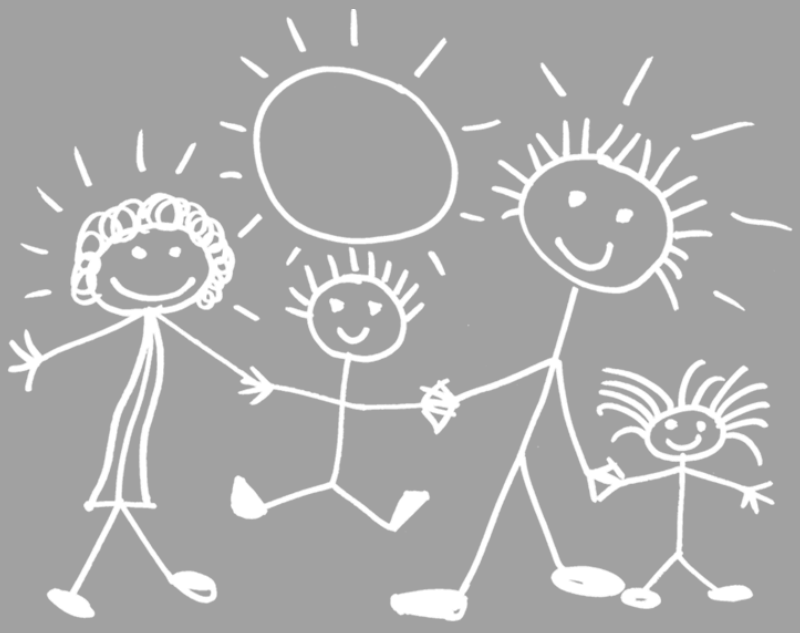
Although gender schema theory provides theoretical underpinnings for the intergenerational transmission of gender stereotypes via the behaviors of parents, there is surprisingly little empirical evidence for a link between parents' and children's attitudes about gender (see Tenenbaum & Leaper, 2002), nor for a link between parents' gender stereotypes and parents' actual gender-related behavior towards their children (e.g., Fagot et al., 1992; Tenenbaum & Leaper, 2002), with most studies finding no significant associations. This may be partly because parents' attitudes are often assessed explicitly (i.e., overtly expressed ideas about men and women), whereas for controversial subjects like gender and race, implicit stereotypes (i.e., operate largely outside conscious awareness) may be better predictors of behavior than explicit self-reported stereotypes (Nosek, Benaji, & Greenwald, 2002a). Self-report of gender stereotypes may be biased by social desirability and a lack of awareness of own stereotypes (White & White, 2006).

Aim and Outline of the Dissertation

The general aim of the studies presented in this dissertation is to provide more insight into the role of child gender, parent gender, and sibling gender composition in the socio-emotional development of children. The relevance of gender in the study of child development has been signaled since the 1950s, but the effects of gender on parenting and child development are still poorly understood. Moreover, there is a lack of studies investigating parenting factors as a possible mechanism underlying the gender differences in child behavior (see Hyde, 2014). The focus of the current dissertation is on gender (of parent, child, sibling) and gender-related factors (i.e., gender stereotypes) as possible explanatory variables for child development. A systematic meta-analysis was conducted to examine possible differences in the extent to which mothers and fathers use differential control strategies with boys and girls. Moreover, in three empirical studies the intergenerational transmission of gender stereotypes from parents to children via parental messages about gender and parents' gender-differentiated parenting practices is examined, with a focus on the effects of child, parent, and sibling gender. We also investigate the possible consequences of mothers' and fathers' differential treatment of boys and girls for gender differences in behavior.

In Chapter 2 the extent to which mothers and fathers use differential control strategies with their sons and daughters is examined meta-analytically. Chapter 3 reports on the implicit gender stereotypes of preschoolers and their parents within the family context, focusing on the role of implicit and explicit parental gender stereotypes, parent gender, child gender, and sibling gender. Chapter 4 focuses on our newly developed picture book that was specifically designed to elicit parental statements about gender. Mothers' and fathers' gender talk towards their young sons and daughters are examined, by taking into account sibling gender composition, and the association between parental gender talk and parental gender stereotypes is tested. In Chapter 5 a moderated mediation model is tested in which the link from child gender, via parental use of physical discipline strategies, to the child's aggressive behavior a year later, is moderated by parents' gender stereotypes. Chapter 6 presents a review of the literature on gender-related processes in the family context and the newly developed Gendered Family Process model. Finally, in Chapter 7 the main findings of these studies are integrated and discussed. Limitations, suggestions for further research, and theoretical and practical implications are addressed.

2



Bad Boy, Good Girl?

A Meta-Analysis of Mothers' and Fathers' Gender-Differentiated use of Positive and Negative Controlling Strategies

Joyce J. Endendijk, Marleen G. Groeneveld, Judi Mesman, and Marian J. Bakermans-Kranenburg

Manuscript submitted for publication

ABSTRACT

Although various theories of parenting describe mechanisms leading to differential treatment of boys and girls, there is no consensus in the literature about the extent to which parents *do* treat their sons and daughters differently. Furthermore, the last meta-analyses on the subject were conducted more than fifteen years ago. In the current set of meta-analyses based on 120 observation studies (14,363 families), we examined mothers' and fathers' differential positive and negative control of boys and girls, and the role of moderators related to the decade in which the study was conducted, the observational context, and sample characteristics. Parents use more negative control with boys than with girls, but the effect was small (k = 151, N = 14,904, d = 0.09, 95% CI [0.04, 0.13], p < .01). The effect was larger in normative groups than in clinical- and at-risk groups. Significant but small differences in negative control of boys and girls were observed in both mothers and fathers, in different settings and situations, with children of various ages, and independent of socioeconomic status and ethnicity. No overall gender-differentiated parenting effect for positive control was found (k = 128, N = 11,511, d = 0.03, 95% CI [-0.01, 0.07], p = .07). A significant effect of time emerged: studies published in the 1970s and 1980s reported more positive control towards boys than toward girls, but from 1990 onwards parents showed more positive control toward girls than toward boys. Although overall parents used similar control strategies with boys and girls, the subtle differentiations that were found may have consequences for the development of gender differences in children's problem behavior, and warrant further investigation.

Keywords: gender-differentiated socialization, mothers and fathers, parental control, observation, meta-analysis

INTRODUCTION

The popular saying 'boys will be boys' refers to the expectation that boys show more disruptive behaviors (including oppositional, aggressive, and hyperactive behaviors, temper loss, noncompliance, low concern for others; Stormshak, Bierman, McMahon, Lengua, 2000; Wakschlag, Tolan, & Leventhal, 2010) than girls. This pattern of gender differences in disruptive behavior has indeed been widely confirmed in scientific research in children of different ages and different ethnicities (see Archer, 2004; Baillargeon et al., 2007; Loeber, Capaldi, & Costello, 2013). One of the mechanisms proposed to explain these gender differences is that parents use different socialization practices with boys than with girls (Zahn-Waxler, Shirtcliff, & Marceau, 2008), and several theoretical models suggest mechanisms that are consistent with the differential treatment of boys and girls, including biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012), child-effect models (Pardini, 2008), behavioral genetics (child-based twin designs), or evocative gene-environment correlation frameworks (Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983). However, to date there is no consensus in the literature about the extent to which parents 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 (Fagot & Hagan, 1991; Leaper, Anderson, & Sanders, 1998; Lytton & Romney, 1991).

Parental control is one area of parenting that might be especially relevant to the study of gender-differentiated parenting practices in relation to gender differences in disruptive behavior. There is meta-analytic evidence that both mothers' and fathers' negative parental control is related to children's disruptive behaviors (e.g., Kawabata, Alink, Tseng, Van IJzendoorn, & Crick, 2011; Rothbaum & Weisz, 1994), but findings regarding gender-differentiated use of negative control have been inconsistent (e.g., Bronstein, 1984; Kochanska, Barry, Stellern, & O'Bleness, 2009; Kuczynski, 1984; Domenech Rodríguez, Donovick, & Crowley, 2009; Mullis & Mullis, 1985). In the current paper we report on a series of meta-analyses to test the hypothesis that parents show more negative control with boys and more positive control with girls. Additionally, we examine the effect of potential moderators related to year of publication, the observational context, and sample characteristics. We focus on *observed* parental control, 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 (Culp, Cook, & Housley, 1983).

Gender-Differentiated Parenting: Theoretical Perspectives

Biosocial theory. Biosocial theory of sex differences provides rationales for differential parenting of boys and girls (Eagly & Wood, 2002; Wood & Eagly, 2012). 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. In present-day societies, mothers are more likely to be the primary caregivers of young children (Huerta et al., 2013; The Fatherhood Report, 2010). Moreover, even though men and women take on the role of economic provider, females are overrepresented in educational, caretaking, and nurturing occupations, whereas males are overrepresented in occupations that are associated with power, physical strength, status, and agentic personality characteristics (i.e., management, engineering) (U.S. Department of Labor, 2009). So even though some aspects of traditional gender roles have become less salient over time, gender role theory is still very relevant to present-day societies.

It is proposed that gender roles and the characteristics associated with these roles lead to beliefs and expectancies about the different nature and behavior of men and women, which will lead to differential treatment of men and women, and boys and girls. This differential treatment may start in early childhood within the family context. There is indeed some empirical evidence that parents respond differently to sons and daughters based on their beliefs about the different nature and behavior of boys and girls. For example, in one study, mothers and fathers believed that risky misbehavior of boys could be attributed predominantly to child characteristics or bad luck, whereas risky misbehavior of girls was believed to be related to factors within the immediate context that mothers could influence (Morrongiello & Hogg, 2004; Morrongiello, Zdzieborski, & Normand, 2010). Consistent with these beliefs, mothers tried to actively prevent injury recurrence to daughters by setting rules or by making environmental changes, but did not did not do much to prevent injury recurrence to sons.

Although the original biosocial model does not specifically focus on parental socialization, the recent version of the model includes a strong emphasis on gender-role socialization through parents (Wood & Eagly, 2012). It is stated that due to socialization processes by parents, school or other adults, children learn to behave in accordance with the gender roles defined in their society. One way parents can socialize their children into societies' gender roles is through gender-differentiated parenting. Mothers and fathers are expected to use different parenting strategies with boys than with girls in accordance with boys' and girls' different gender roles. Parenting behavior toward girls would then be more likely to focus on affiliation and interpersonal closeness whereas parenting behavior toward boys would be more likely to focus on assertiveness and dominance. The link between gender roles and the differential treatment of boys and girls by parents is reflected, for example, in findings that submissiveness is encouraged in girls in societies in which women do not hold much power (Low, 1989) and aggressiveness is promoted in boys through harsh parenting practices in societies at war (Ember & Ember, 1994).

Eagly and Wood's biosocial theory of sex differences (Eagly & Wood, 2002; Wood & Eagly, 2012) does not say anything specific about differences between mothers and fathers in gender-differentiated parenting practices. However, since women are less accepting than men of social hierarchies that subordinate women (Lee, Pratto, & Johnson, 2011), mothers may be less likely than fathers to socialize their children into societies' gender roles using gender-differentiated parenting practices.

Social learning theories. According to social cognitive theory of gender development and differentiation, children's learning about gender roles and the behaviors appropriate for each gender is influenced by modeling, enactive experience, and direct tuition (Bussey & Bandura, 1999). The concept of enactive experience is most closely linked to parents' differential treatment of boys and girls, because it concerns the child's experience with social consequences (e.g., parental reactions) for gender-related behaviors. Social cognitive theory also states that people differ in how they respond to the same gender-related behaviors in children. Fathers, for example, react more negatively than mothers to boys' feminine toy play (Idle, Wood, & Desmarais, 1993). Parents provide their children with positive and negative sanctions for their behavior by giving affective reactions and evaluative comments. Affective reactions through intonation patterns, smiles, and frowns are particularly salient events that control and direct the child's behavior.

Patterson's coercion model, or coercion theory (1982), which represents a specification of social learning theory, also offers rationales for parents' differential treatment of boys and girls. It predicts that the use of negative control by parents in response to disruptive behavior will ultimately lead to a downward spiral of increasingly negative behavior by both child and parent, because repeated attempts by the parent to control the child in a negative way will lead to increasingly difficult behavior on the part of the child (Patterson, 1982). A coercive cycle might start with an (intrusive) request from the parent to which the child should comply. This request can be made either in response to misbehavior or because the parent wants to impose his or her agenda on the child. In response to this request, the child will start acting coercively (e.g., whining, tantrums) to terminate the undesired request. When the parent responds to this 'bad' behavior in the child with scolding or harsh discipline, this will lead to increasingly difficult behavior by the child. If this process ultimately leads to the parent giving in, the child learns that disruptive behavior is effective in terminating undesired requests from parents. Thus, coercion theory predicts that difficult child behavior is more likely to occur in the future when a child is reinforced for responding with negative behavior to parental pressures for compliance.

Parents might be more likely to end up in a coercive cycle with boys than with girls (Bezirganian & Cohen, 1992; Chaplin, Cole & Zahn-Waxler, 2005; Eron, 1992; McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996; Radke-Yarrow &

Kochanska, 1990). There is some evidence from large US population-based longitudinal studies that boys are more likely than girls to react with aggression and negative behavior to parental demands, whereas girls are more likely to comply (Bezirganian & Cohen, 1992; Eron, 1992). Moreover, in a longitudinal US study with an ethnically and socioeconomic diverse sample (children aged 6-8 years) mothers were more likely to react with increasingly harsh discipline to boys' than to girls' disruptive or noncompliant behavior (McFadyen-Ketchum et al., 1996). In two other longitudinal US studies with ethnically and socioeconomic diverse samples (children aged 1-7 years), both mothers and fathers gave in to angry boys more often than to angry girls (Chaplin et al., 2005; Radke-Yarrow & Kochanska, 1990).

Child-effect- versus parent-effect models. Differential treatment 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. The child-effects model was proposed by Bell (1968) who argued that children are not only passive recipients of parenting behaviors, but also influence the parent through their own behaviors. Since its introduction, the notion of child effects has been incorporated in several major theories of socialization and child development (e.g., Belsky, 1984; Mischel, 1973; Patterson, 1982; Rimm-Kaufman & Pianta, 2000; Scarr & McCartney, 1983). Longitudinal studies examining both parent and child effects remain relatively rare, especially for fathers (Pardini, 2008), but several US studies with ethnically and socioeconomically diverse samples examining both parent and child effects in early childhood provide evidence for the bidirectional association between mother and child behavior (see Maccoby, Snow, & Jacklin, 1984; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004; Pardini, 2008). In a large UK population-based longitudinal study, bidirectional effects have been reported for maternal negativity and child antisocial behavior for children aged between 4 and 7 years old (Larsson, Viding, Rijsdijk, & Plomin, 2008), and maternal controlling behavior and child disruptive problem behaviors (Smith et al., 2004). Given this evidence and the fact that boys have been found to show more disruptive behavior problems than girls during childhood and adolescence (Archer, 2004; Baillargeon et al., 2007; Hyde, 1984; Loeber et al., 2013), it seems likely that boys and girls evoke different reactions from their parents.

Studies of gene-environment correlation (rGE, Plomin et al., 1977; Scarr & McCartney, 1983) have shown child-driven effects on parenting (see for meta-analytic evidence Klahr & Burt, 2013). 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, Boeldt et al., 2012; Jaffee et al., 2004; Larsson et al., 2008). Both retrospective and longitudinal US adoption studies found

that adopted children (aged 12-18 years) with a genetic predisposition toward antisocial behavior (from their biological parents) evoke more harsh and inconsistent discipline from their adoptive mothers and fathers (Ge et al., 1996; Riggins-Caspers, Cadoret, Knutson, & Langbehn, 2003). Children with a genetic predisposition toward oppositional behavior might also actively seek conflict with their parents (active rGE), although empirical evidence for this mechanism is lacking. For most aspects of behavior, evidence for an association with differential gene expression in males and females is absent (Vink et al., 2012), except for gender-specific genotype effects for the X-chromosomal monoamine oxidase A (MAOA) gene on antisocial behavior that are more pronounced in males (see Buckholtz et al., 2008; Kim-Cohen et al., 2006; Meyer-Lindenberg et al., 2006). Because boys have shown more genetic vulnerability for disruptive behavior problems than girls (Buckholtz et al., 2008; Kim-Cohen et al., 2006; Meyer-Lindenberg et al., 2006), they may also be more likely to elicit negative behaviors from their parents or actively seek conflict with their parents.

Genetic models tend to explain associations between genes and environment (i.e., parenting) as mostly child-driven, which minimizes the role of parental behavior. However, associations between differences in boys' and girls' genetic predispositions and parenting can also be explained from an interactive or "goodness of fit" perspective (Chess & Thomas, 1999). "Goodness of fit results when the properties of the environment and its expectations and demands are in accord with the organism's own capacities, characteristics, and style of behaving" (Chess & Thomas, 1999, p. 3). According to this perspective, children with a genetic predisposition toward disruptive behavior may require a special kind of parenting style (Bates, Petit, Dodge, & Ridge, 1998; Rothbart & Bates, 1998). When this perspective is extended to differential control of boys and girls, one might argue that parents adapt their control strategies to the differential proneness of boys and girls to disruptive behavior. In this way boys' and girls' genetic predispositions are matched by the environment, which fosters optimal development.

Gender-Differentiated Parenting: Previous Findings

Consistent with the main tenets of the theoretical frameworks discussed above, there is some meta-analytic evidence that parents indeed use different parenting strategies with boys and girls, and that the extent to which this happens differs for fathers and mothers. For example, Lytton and Romney (1991) demonstrated in their meta-analysis that in Western countries other than North America, parents use more physical punishment with boys than with girls, and that North-American parents encourage sex-typed behaviors more in boys than in girls, though less so with increasing child age. Leaper and colleagues (1998) found in their meta-analysis 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). These findings indicate a tendency for negative parenting strategies (i.e., focused on dominance and power) to be used preferably with boys, and positive parenting strategies (i.e., focused on affiliation and interpersonal closeness) to be used more with girls. Lytton and Romney (1991) also found some evidence for fathers to differentiate more between boys and girls than mothers. Leaper and colleagues (1998) were not able to examine any difference between fathers and mothers due to a lack of studies on fathers' talk to their children. The two 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. There is some evidence from a 10-year longitudinal population-based study of approximately 1000 US children between the ages of 1 and 20 years that mothers and fathers were harsher with boys than with girls (Bezirganian & Cohen, 1992). 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 questionnaire and interview data, without observational data. Thus, potential effects of child temperament on gender-differentiated parenting cannot be ruled out conclusively.

Both meta-analyses are cited broadly, but they were not without limitations (Keenan & Shaw, 1997, Leaper et al., 1998). The Lytton and Romney meta-analysis (1991) has been criticized for using categories of socialization behaviors that were too broad (Keenan & Shaw, 1997), and combining constructs that were too divergent (Lipsey &Wilson, 2001). 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 (1998). Additionally, the Lytton and Romney meta-analysis did not distinguish between verbal and nonverbal behavior, whereas gender-specific parenting may be less obvious in nonverbal behaviors (Leaper et al., 1998). Leaper and colleagues addressed this problem by focusing on verbal behavior, but did not compare pure verbal behaviors with other behavior. Perhaps most importantly, both meta-analyses were conducted more than fifteen years ago. In the meantime, gender equality has increased substantially in most Western societies (Inglehart & Norris, 2003), which may have had an important influence on gender-differentiated parenting practices. It is thus essential to extend previous meta-analyses with studies conducted in the last fifteen to twenty years and to examine the effect of time on gender-differentiated parenting.

Parental Control

One of the parenting aspects that is especially relevant to gender-differentiated parenting practices in relation to gender differences in disruptive behavior is parental control. The first reason why control is relevant is that both the Lytton and Romney meta-analysis (1991) and the meta-analysis of Leaper and colleagues (1998) point in the direction of parents using controlling behaviors (harsh punishment, support) in a gender-differentiated fashion. However, neither covered the entire parental control construct. The second reason is that negative control might partly explain gender differences in child disruptive behavior, because there is evidence that the two are related (e.g., Kawabata et al., 2011; Rothbaum & Weisz, 1994).

Parental control strategies can be defined as any strategy that a parent uses to alter, change, or influence their child's behavior (Grolnick, 2013). Examples of control strategies are comments, praise, prohibitions, physical redirections, negative or positive facial expressions, spanking, or physical obstruction (Grolnick, 2013). A problem in the literature on parental control is the lack of consensus about the direction of the impact of parental control (Rothbaum & Weisz, 1994). Some argue that high parental control is necessary for optimal development (Baumrind, 1975, 1983; Barber, 1996), whereas others suggest it influences development negatively (Lewis, 1981; Grolnick, 2013). These divergent perspectives might be due to the fact that parental control is a multidimensional construct, with numerous definitions (Grolnick, 2013).

Self-determination theory (Deci & Ryan, 2000) 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). Autonomous regulation is proposed to be associated with optimal behavioral development, whereas controlled regulation would be associated with behavioral maladjustment (Deci & Ryan, 2000). Self-determination theory assumes that parents' rearing style plays an important role in children's development of autonomous or controlled regulation of behavior (Deci, Eghrari, Patrick, & Leone, 1994; Grolnick et al., 1997). Within this theory, a distinction is made between autonomy-supportive- and controlling socialization (hereafter defined as positive and negative controlling strategies, respectively).

Parents using positive controlling strategies provide the child with a desired amount of choice, acknowledge the child's perspectives, and provide the child with meaningful rationales when choice is constrained (Deci et al., 1994). Strategies that are generally seen as positive are authoritative in nature, and include induction (i.e., providing explanations for commands and prohibitions), empathy for the child ("I know this is difficult for you"), approval, support, encouragement, and positive

feedback (e.g., praise) (see Braungart-Rieker, Garwood, & Stifter, 1997; Grolnick, 2013). Meta-analytically maternal and paternal positive control strategies tend to be associated with lower levels of disruptive behaviors in children, because parents provide a model for positive behaviors (Kawabata et al., 2011; Rothbaum & Weisz, 1994). Children may observe and imitate them, because they learn that these strategies are effective in altering others' behavior and in gaining parental approval. Moreover, positive strategies are thought to foster the internalization of parental rules, and the willingness to comply with parental requests and rules in the future (Grusec & Kuczynski, 1997). Furthermore, a previous study has also shown that an intervention to promote mothers' use of positive control strategies (i.e., sensitive discipline) was effective not only in increasing positive control, but also in decreasing children's disruptive (i.e., overactive) behavior (Van Zeijl et al., 2006).

Parents' negative controlling strategies undermine the child's ability for autonomous regulation, and pressure the child to think, behave, or feel in particular ways (Deci et al., 1994; Soenens & Vansteenkiste, 2010). Strategies labeled as negative in the literature are more authoritarian in nature in that they rely on power assertion ("you have to do this because I say so"), negative feedback ("no, you're not doing it right"), bribing ("if you're nice you'll get a treat"), threatening ("if you do not clean up, you will not get dessert"), negative commands ("you pick that up NOW"), physical punishment, or other physical controlling behaviors (see Braungart-Rieker et al., 1997; Grolnick, 2013). Social learning theories state that parents using negative strategies provide a model for negative behaviors to their children (Bandura, 1977; Bussey & Bandura, 1999). Children may imitate these behaviors and use negative behaviors in conflict situations or to alter others' behavior, because they have learned that strategies such as commanding and threatening are effective in getting one's own way. There is ample empirical evidence that negative maternal and paternal controlling strategies are indeed related to an increase in disruptive behavior in children of different ages (see meta-analyses by Karreman, Van Tuijl, Van Aken, & Dekovic, 2006; Kawabata et al., 2011).

On the basis of self-determination theory, Soenens and Vansteenkiste (2010) made a further distinction between two different ways in which parents can exert negative control, that is, via internal and external pressure. External pressure refers to harsh, explicit, or tangible controlling strategies, such as spanking, hitting, grabbing with force, or forcefully taking the child out of the situation (i.e., harsh discipline; Whipple & Richey, 1997). 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; Barber, 1996).

Psychological control is often assessed through parental self-report questionnaires (Parental Psychological Control measure; Nelson et al., 2013) or through child reports (Child Report of Parental Behavior Inventory; Schaefer, 1965; Psychological Control Scale; Barber, 1996, Parental Regulation Scale; Barber, 2002). The same is true for harsh physical discipline (Gershoff, 2002; Whipple & Richey, 1997). There are also instruments to directly observe parental psychological controlling behaviors toward their children (Psychological Control Scale-Observer Rating; Barber, 1996), or harsh physical discipline (Bender et al., 2012; Joosen, Mesman, Bakermans-Kranenburg, & Van IJzendoorn, 2012), but they are not used that often, probably because of the low frequency of these behaviors in relatively short observation periods.

The distinction between psychological control and harsh physical discipline is particularly relevant for the study of gender-differentiated parenting as a mechanism underlying gender-specific behavior. Both psychological control and harsh physical discipline are highly detrimental for child development. Several studies with ethnically and socioeconomic diverse samples have demonstrated that both mothers' and fathers' excessive use of psychological control is associated with internalizing problems in children and adolescents (Barber, 1996; Barber et al., 1996; Mills & Rubin, 1998; Nelson, Yang, Coyne, Olsen, & Hart, 2013; Soenens & Vansteenkiste, 2010), whereas mothers' and fathers' harsh physical discipline is more often associated with externalizing problems in children (Mulvaney & Mebert, 2007) and adolescents (Bender et al., 2012). If parents use more harsh physical control with their sons than with their daughters, this might be associated with the higher prevalence of externalizing problems in boys. And if they use more psychological control with their daughters than with their sons, this might explain the higher prevalence of internalizing problems in girls. In contrast with this idea, there is some empirical evidence from US studies with both children and adolescents (mostly questionnaire data) that parental psychological control might be higher among boys than girls (Barber et al., 2002) or that there are no gender differences in the use of psychological control (Nelson & Crick, 2002; Pettit, Laird, Dodge, Bates, & Criss, 2001). To our knowledge the literature on psychological control to date has not been systematically reviewed with regard to the differential use of psychological control with boys and girls.

An important issue in distinguishing between negative and positive control strategies is the situation in which the parent tries to control the child. A certain level of parental control or monitoring is considered necessary for optimal development (Barber, 1996; Baumrind, 1975, 1983; Steinberg, 2001). Parental control is necessary to protect the child from harm in risky situations. However, when used unnecessarily and excessively, parental control undermines the child's autonomy (Grolnick, 2013). This nuance can be extended to the situations in which parental control is observed in

behavioral research. Using commands (e.g., "Give me that car") in a setting in which the child is allowed to play freely with a set of toys might be considered negative, because it is not necessary or appropriate to control the child in this situation. However, the use of commands (e.g., "Don't touch the toys") might be considered appropriate in a setting in which the child is not allowed to touch a set of attractive toys. Thus, when labeling control strategies as positive or negative, the observation context needs to be taken into account.

Factors Related to Gender-Differentiated Parenting

Observational context. An important question with regard to the magnitude of gender differences in socialization is whether this difference is context-specific. In the meta-analysis by Leaper et al., (1998) 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.

The observational context can be categorized based on the setting and on the task the parent and the child have to perform. We expected gender differences in socialization to be stronger in the home setting than in the lab setting, because home settings generally provide less structure and are more naturalistic than lab settings (Gardner, 2000). With regard to the task, 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) (Gardner, 2000). The distinction between these four types of activities is quite common in studies on observed parenting practices (Gardner, 2000). In fact, they reflect a continuum of structured to non-structured activities.

In a related vein, the duration of the observation session, which is often longer in more naturalistic settings than in laboratory settings, may play a role. Longer observation likely leads to a bigger range of possible behaviors, which in addition to task setting, leads to an increased possibility to detect gender differences (Leaper et al., 1998). Therefore, we expected gender differences in parental control to increase with observation length.

Other procedural characteristics. Another potential moderator of gender-differentiated parental control is the differentiation between verbal and nonverbal behavior. There is some evidence that language is a particularly important factor in the socialization of gender. A meta-analysis on parental talk to their children (Leaper et al., 1998) showed more systematic differences in the way mothers act toward their

sons versus daughters than those found in the Lytton and Romney meta-analysis (1991), which did not distinguish between verbal and nonverbal parenting behaviors. Therefore, we expected gender differences to be more pronounced in studies that specifically observed parental verbal control as opposed to parental controlling behavior.

In addition, the frequency of parental controlling behaviors is highly dependent on the child's behavior. The parent might, for example, feel a greater need to exert control when the child violates the task's requirements. So it is important 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 oppositional behavior of boys and girls. We therefore expected effect sizes to be greater in studies that did not control for child behavior.

Other potential moderators include the study's focus (examining gender differences or not) and gender of the coders of parenting behavior (all male, all female, or mixed). We hypothesized that the effect sizes would be smaller for papers in which examining gender differences in parental control was not one of the goals, because in these studies the absence of gender differences might be more likely to be reported only in passing (Eagly & Wood, 1991), and studies aimed at testing gender-related differences in parenting behavior may use designs with optimal power to find such differences. With regard to the moderating effect of the coder's gender, we expected that single-gender coding teams (males or females only) would yield the greatest effect sizes, because they are more likely to hold similar gender-related biases, thus strengthening a particular direction in the observation of gender-differentiated parenting (Eagly & Carli, 1981).

Sample characteristics. Variation in effect sizes for gender differences in socialization may also be related to characteristics of the sample such as child age. The evidence with regard to child age is, however, inconclusive. Biosocial theory does not explicitly incorporate child age effects (Eagly & Wood, 2002; Wood & Eagly, 2012). However, pressures to conform to gender roles increase with child age, and the pressure to conform might be highest in adolescence (Basow & Rubin, 1999). Gender-specific parenting may increase as children get older in order to prepare children for the greater pressures toward gender role conformity. This is in line with Blocks (1979) argument that parents are likely to distinguish more between boys and girls with older children than with younger children. There is also meta-analytic evidence convergent with these propositions; Leaper and colleagues (1998) found that gender differences in mothers' directive speech were greater with older children than with younger children. They suggest that with older children mothers accommodate their socialization strategies to the emerging ability of the child to understand gender-typed social and personality characteristics. However, Lytton and Romney (1991)

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 (Kochanska, Coy, & Murray, 2001). This decrease may make gender differences less pronounced at later ages, leading to smaller effect sizes.

Parents' socioeconomic and cultural backgrounds may also be a moderator of the differential treatment of boys and girls. There is evidence that higher socioeconomic status (SES) is associated with less traditional views on gender roles (Dodson & Borders, 2006; Ex & Janssen, 1998). Women with higher educational levels have been found to have less traditional views about gender than less educated women (Harris & Firestone, 1998). Higher educated men more often chose less traditional occupations and had less traditional attitudes about gender roles (Dodson & Borders, 2006). It is likely that in families with a higher SES, the division of gender roles is less strict, because the mothers in these families more often participate in the work force, have careers, and spend less time in housework and childcare than mothers from lower-SES families (Ex & Janssens, 1998; Harris & Firestone, 1998). Similarly, there is evidence that lower-SES families show more gender-differentiated parenting than middle-class families (Serbin, Zelkowitz, Doyle, Gold, & Wheaton, 1990). This is indeed what would be expected in light of biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012), 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 treatment 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. In most societies men are more likely to hunt, be at war, or work outside the home, whereas women are more often responsible for growing fruits and vegetables, cooking, or caring (Eagly & Wood, 2002; Wood & Eagly, 2012). However, even in these societies differences in the strictness of the division of gender roles can be observed. 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 (World Gender Gap Index, 2013), 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.

From the perspective of biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012), 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. This also fits with the propositions about the influence of culture on parenting and child development put forward by Super and Harkness (2002) in the developmental niche framework. They argue that various operational subsystems in the child's environment, such as the historically constituted customs and practices of child care and child rearing, and the psychology of the caretakers, particularly parental 'ethnotheories' (i.e., values and practices of a culture), play a directive role in parenting and child development. Moreover, the impact of parenting practices on child development might be different across cultures because of the meaning attached to particular parenting practices (Ispa et al., 2004; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004). Thus, with regard to the ethnicity of the sample, we expected gender differences in the treatment of boys and girls to be smaller in cultures where there are small differences in the roles of men and women (e.g., Europe vs. North America).

Further, we expected that at-risk or clinical samples (e.g., child or parent has some disorder, parent is abusive) would yield smaller effect sizes. Because these families often face many problems and challenges in the parent-child relationship, these may override gender-related parenting patterns.

Publication characteristics. Publication characteristics including gender of the first author, percentage of male authors, publication outlet, and year of publication are also potentially significant moderators. With regard to gender of the first author and percentage of male authors we expected that single-gender research teams (males or females only) would yield the biggest effect sizes, because they probably hold the same gender-related biases (Eagly & Carli, 1981). Regarding publication outlet, we expected the magnitude of differences in the socialization of boys and girls to be bigger in published material (i.e., peer-reviewed papers) than in unpublished material (i.e., dissertations), given that significant findings are more likely to be published than non-significant findings (Rosenthal, 1979). We also expected that effect sizes would be smaller in recent studies compared to older studies, because gender equality has increased in most Western societies over the past decades (Inglehart & Norris, 2003). Moreover, in the recent decades the division of gender roles has become less strict in most modern Western societies (Cabrera et al., 2000; Lamb, 2010), which according to biosocial theory would lead to more egalitarian attitudes about gender, and consequently less differentiation between boys and girls (Eagly & Wood, 2002; Wood & Eagly, 2012).

The Current Study

The current meta-analysis was guided by the following framework based on the empirical literature: (a) Meta-analytic evidence shows that there are robust gender differences in children's disruptive behavior (see for example Archer, 2004; Polanczyk, Silva de Lima, Horta, Biederman, & Rohde, 2007); (b) Meta-analytic

evidence shows that parental control is consistently related to children's disruptive behavior (see for example Kawabata et al., 2011; Rothbaum & Weisz, 1994); (c) Parents may use control in a gender-differentiated manner, which may explain gender differences in disruptive behavior. In the literature there is no consensus about the extent to which parents use different controlling strategies with their sons and daughters, and little is known about the consequences of differential treatment for gender differences in children's disruptive behavior. Much is also unknown about the mechanisms underlying gender-differentiated parenting. Parents' gender-differentiated use of control may be child-driven if the effect is not seen when child behavior is controlled, or may have a causal influence (e.g., parents' gender role attitudes) if the effect remains when child behavior is controlled.

We tested the following hypotheses, primarily based on the rationales of biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012), social learning theories (Bussey & Bandura, 1999), child-effect frameworks (Bell, 1968), and previous (meta-analytic) evidence on related topics: (a) mothers and fathers use more negative control strategies, including psychological control and harsh physical discipline, with their sons than with their daughters (Barber et al., 2002; Lytton & Romney, 1991); (b) mothers and fathers use more positive control strategies with their daughters than with their sons (Leaper et al., 1998); (c) fathers' control strategies are more gender-differentiated than mothers' control strategies (Lytton & Romney, 1991). Hypotheses (a) and (b) follow from both biosocial theory and child-effects frameworks. From a biosocial perspective, parents are expected to use different parenting strategies with boys and girls in accordance with male and female gender roles. Parenting behavior toward girls would then be more likely to focus more on affiliation and interpersonal closeness whereas parenting behavior toward boys would focus more on assertiveness and dominance. In light of the child-effect models, it can be argued that the higher occurrence of disruptive behavior in boys compared to girls elicits more negative parenting behaviors rather than positive ones from their parents. Regarding hypothesis (c), biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012) and social cognitive theory of gender development (Bussey & Bandura, 1999) also propose that fathers are more inclined than mothers to exert control in a gender-differentiated way. A conceptual analysis with expert raters was used to classify parental control variables as positive or negative.

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, because overly broad categories of behaviors might obscure systematic differences in the socialization of boys and girls. Parental control is also studied extensively in fathers, enabling a comparison between mothers' and fathers' socialization practices; 2) a focus on observed parental control as opposed to self-reported control, because differences in the treatment of boys and girls are most

readily found in observational studies given the generally unconscious nature of gender-differentiated parenting (Culp et al., 1983), which is therefore unlikely to be captured through self-report measures; 3) the distinction between observed parental verbal control and parental control behavior; 4) an examination of the effect of several procedural moderators, because aspects of the setting or context in which the behavior is observed may be important; 5) an attempt to rule out alternative explanations for gender-differentiated socialization by comparing studies that control and do not control for child behavior; 6) the extension of previous meta-analyses on gender-differentiated parenting (i.e., Lytton & Romney, 1991; Leaper et al., 1998) with studies that have been conducted during the past two decades. In this period, gender equality has increased substantially in most Western societies (Inglehart & Norris, 2003), with potentially major consequences for gender-differentiated parenting practices.

METHOD

Literature Search

The PRISMA guidelines were used for conducting and reporting the current meta-analysis (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). Three search methods were used to identify eligible studies published up until November 11th, 2013. 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 (parent* OR mother* OR maternal OR father* OR paternal) AND (disciplin* OR induct* OR harsh disciplin* OR harsh parent* OR spank* OR authorit* OR obedien* OR disobedien* OR parental control* OR maternal control* OR paternal control* OR complian* OR noncomplian* OR negative interact* OR coerc* OR negative reinforce*, positive reinforce* OR punish* OR prohib* OR forbid* OR critic* OR limit setting OR praise OR guid* OR psychological control* OR behavioral control*) AND (child* OR preschool* OR toddler OR infan* OR adolescen*) AND (observ* OR experiment*). For WOS, additional restrictions were used based on WOS categories.

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 (1991) meta-analysis. This was indeed the case. Second, we searched the reference lists of relevant reviews and meta-analyses on parental control (Gershoff, 2002; Karreman at al., 2006; Leaper et al., 1998; Rothbaum & Weisz, 1994). 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 7333 hits. Figure 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 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 positive control). 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 120 publications with data from 138 independent samples encompassing a total of 14,363 families. The studies that were included in the meta-analyses are presented in Table 1 and marked with an asterisk in the references.

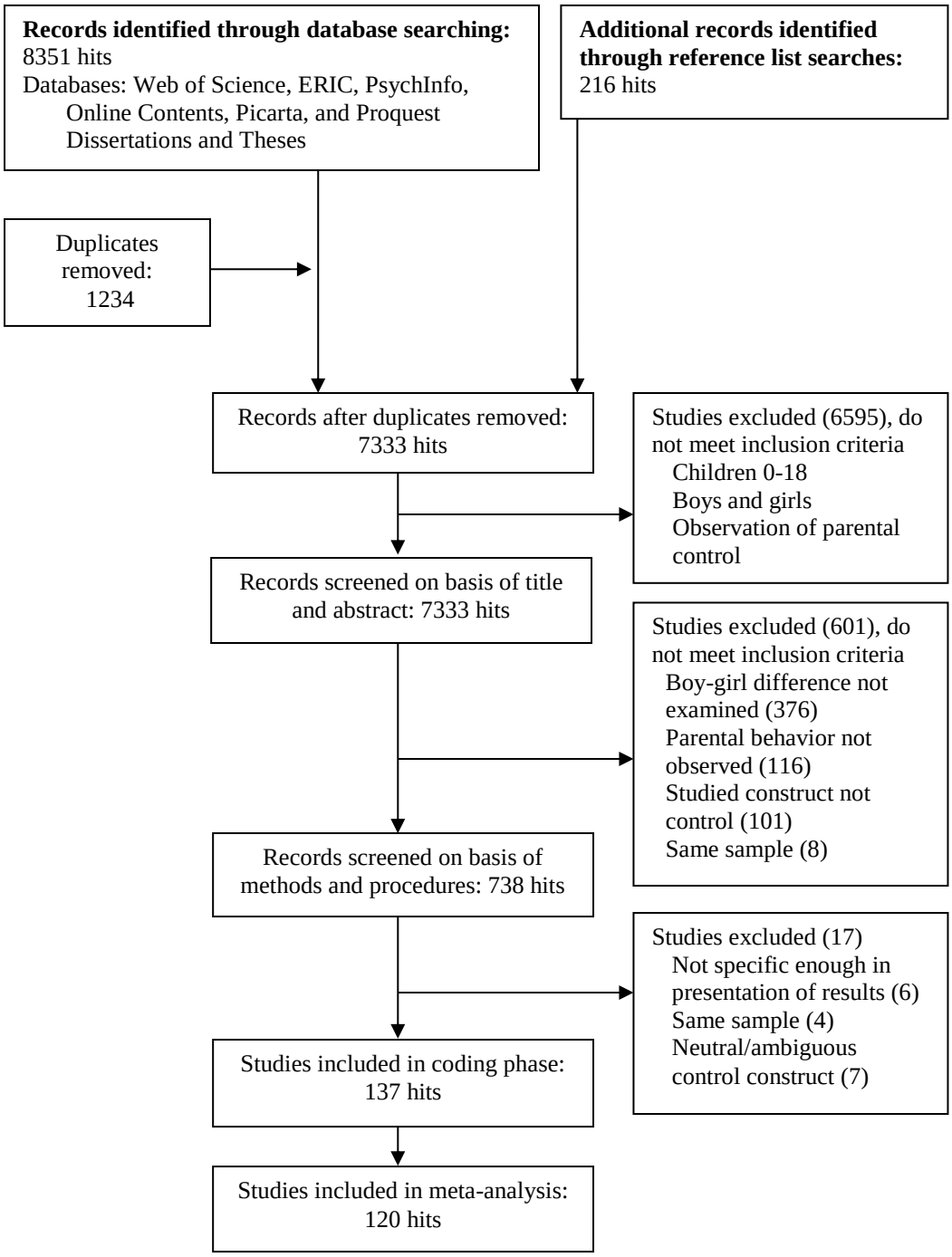


Figure 2.1 Flow-chart of literature search process.

Table 2.1 *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	M	+	8 ♀	8 ♂	50	1.0	-	F	Yes	4	H	No	28	-	1	1	50	1
Barkley 1989	M	+, -	20 ♀	20 ♂	50	6.0	-	F,T,M	No	4	L	No	20	-	1	1	100	1
Barnett et al. 1998	M	-	38 ♀	31 ♂	55	4.6	AA	F	Yes	1	L	No	7	-	2	1	67	1
Baumrind 1971	M, F	+, -	69 ♀	80 ♂	46	4.2	-	N	Yes	4	H	No	-	-	1	2	0	1
Befera et al. 1985	M	+, -	30♀	30 ♂	50	8.6	-	F,T,M	Yes, No	4	L	No	10	-	1	2	50	1
Belden et al. 2007	M	+, -	133 ♀	144 ♂	48	4.0	-	D	No	3	L	No	8	-	1	1	33	1
Bellinger et al. 1982	M, F	-	5 ♀	5 ♂	50	3.9	-	T	Yes	3	L	Yes	30	-	1	1	50	1
Bernstein et al. 2005	M	+	332 ♀	351 ♂	49	4.0	Mixed	T	Yes	1	L	No	-	-	2	1	20	1
Blackwelder et al. 1986	M	+, -	12 ♀	12 ♂	50	5.9	-	T	Yes	4	L	No	-	-	2	1	100	1
Braungart-Rieker et al. 1997	M	+, -	29 ♀	28 ♂	51	2.5	Mixed	D	Yes	2	L	No	2	-	2	2	0	1
Bright et al. 1984	M, F	+, -	13 ♀	16 ♂	45	4.7	-	F	Yes	2	L	No	10	2	1	2	0	1
Brody et al. 1985	M	+, -	20 ♀	14 ♂	42	5.2	-	N	Yes	2	H	No	40	-	2	1	100	1
Brody et al. 1986	M, F	+, -	23 ♀	37 ♂	38	6.5	NAC	T	Yes	3	L	No	5	-	2	1	100	1
Brody et al. 1992	M, F	+, -	53 ♀	56 ♂	49	7.5	NAC	T	Yes	3	H	No	-	-	2	1	33	1
Bronstein 1984	M, F	+, -	24 ♀	30 ♂	43	9.0	SA	N	Yes	1	H	No	60	-	1	2	0	1
Bronstein et al. 2007	C	+, -	51 ♀	42 ♂	55	10.7	NAC	N	Yes	4	H	No	60	-	1	2	0	1
Caldera et al. 1989	M, F	+	20 ♀	20 ♂	50	1.7	-	D	Yes	-	L	Yes	24	-	1	2	0	1
Calkins et al. 1998	M	+, -	35 ♀	30 ♂	54	2.0	Mixed	T	Yes	2	L	No	11	-	2	2	0	1
Campbell et al. 1986	M	+, -	27 ♀	41 ♂	40	2.9	-	F	No	-	L	No	15	-	2	2	0	1
Campbell 1999	M	+, -, H	66 ♀	73 ♂	47	10	Mixed	T	Yes	2	L	Yes	20	-	1	2	0	2
Celano et al. 2008	M	+	29 ♀	72 ♂	29	8.6	Mixed	T	No	1	L	No	15	-	2	2	33	1
Chen et al. 2000	M	+, -	84 ♀	82 ♂	51	2.0	C	F	Yes	4	L	No	19	-	2	2	100	1
Chen et al. 2001	M, F	+, -	40 ♀	28 ♂	59	4.2	C	T	Yes	4	H	No	30	-	2	1	50	1
Cherry et al. 1976	M	-	6 ♀	6 ♂	50	2.0	-	F	Yes	-	L	Yes	15	-	1	2	50	1
Christopoulou 1988	M	-	36 ♀	32 ♂	53	7.3	Mixed		Yes	2	L	No	10	-	2	2	0	2
Ciarrocchi 1983	M	+, -	31 ♀	27 ♂	53	5.2	-	T	Yes	3	H	No	3	-	2	1	100	2
Cipriano et al. 2010	M	+	63 ♀	63 ♂	50	2.0	Mixed	D	Yes	4	L	No	4	-	2	2	0	1
Copeland 1985	M	+, -	30 ♀	31 ♂	49	8.5	-	T	Yes	-	L	No	50	-	1	2	0	1
Coulson 2002	M, F	P	61 ♀	52 ♂	54	4.0	Mixed		Yes	4	L	No	12	-	2	2	0	2
Crockenberg et al. 1990	M	+, -	39 ♀	56 ♂	41	2.0	Mixed	N,T,M	Yes	4	H,L	No	21	-	2	2	0	1
Deater-Deckard 2000	M	+, -	120 ♀	120 ♂	50	3.6	Mixed	T	Yes	4	H	No	20	-	2	1	100	1
Dekovic et al. 1992	C	+, -	113		-	8.9	WEC	T	Yes	4	H	No	20	-	1	2	50	1

Table 2.1 *(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
Dennis 2006	M	+, P	55 ♀	58 ♂	49	4.0	Mixed	D,F,M	Yes	4	L	No	8	-	2	2	0	1
Domenech et al. 2009	C	+, -	57 ♀	38 ♂	58	6.6	Mixed	T	Yes	1	L	No	18	3	1	2	0	1
Donovan et al. 2000	M	+, -	29 ♀	28 ♂	51	2.0	NAC	D	Yes	3	L	No	15	-	2	2	67	1
Dumas et al. 1995	M	+, -	69 ♀	57 ♂	55	4.2	Mixed	T	No	4	L	No	18	-	2	1	67	1
Eddy et al. 2001	M, F	-	201 ♀	195 ♂	51	5.0	Mixed	N	Yes	4	L	No	60	-	1	1	33	1
Eiden et al. 2001	M, F	+, -	107 ♀	108 ♂	50	1.5	Mixed	F	No	4	L	No	10	2	1	2	67	1
Eley et al. 2010	M	-	296 ♀	234 ♂	56	8.0	Mixed	T	No	4	L	No	8	-	2	2	0	1
Emmons 2001	M, F	+	49 ♀	63 ♂	41	1.6	Mixed	D	Yes	4	L	No	5	-	1	2	0	2
Fagot 1985	M, F	+, -	18 ♀	18 ♂	50	1.9	-	N	Yes	-	H	No	420	3	1	2	0	1
Fagot et al. 1993	M, F	+, -	65 ♀	72 ♂	46	1-1.5	Mixed	N	Yes	4	H	No	60	-	1	2	0	1
Fagot et al. 1996	M	+, -	46 ♀	47 ♂	49	2.5	Mixed	T	Yes	1	L	No	-	-	1	2	0	1
Falender et al. 1975	M	+, -, H	19 ♀	20 ♂	49	5.0	AA	T	Yes	1	L	No	20	-	2	2	50	1
Feldman et al. 1986	M	-	46 ♀	48 ♂	49	2.5	I	D	Yes	-	L	No	13	-	2	2	0	1
Feldman et al. 2003	M, F	+	16 ♀	16 ♂	50	2.2	I	D	Yes	2	H	No	8	-	2	2	0	1
Fisher et al. 1993	M, F	-	90 ♀	102 ♂	47	5.0	-	N	Yes	-	H	No	120	-	1	1	50	1
Frampton 2012	M	+, -	743		-	2.8	Mixed	T	Yes	4	H	No	15	-	2	2	0	2
Frankel et al. 1983	M, F	+, -	9 ♀	9 ♂	50	6.1	-	F,T,M	Yes	-	H	No	8	1	1	1	100	1
Frodi et al. 1985	M	-	17 ♀	24 ♂	41	1.0	NAC	T	Yes	4	L	No	6	-	2	2	0	1
Gaertner et al. 2008	M	+	115 ♀	141 ♂	45	1.5	Mixed	D	Yes	4	L	No	-	-	2	2	0	1
Gjerde et al. 1991	M, F	+, -	46 ♀	42 ♂	53	5.0	Mixed	T	Yes	4	L	No	-	-	1	1	67	1
Gordon 1983	M	+, -	39 ♀	35 ♂	54	3.5	Mixed	T	Yes, No	4	L	No	10	-	1	2	0	1
Gross et al. 2009	C	+, -	112 ♀	141 ♂	44	3.0	-	F,T,M	Yes	1	L	No	10	3	2	2	33	1
Gunnoe et al. 1999	M, F	+, -	217 ♀	240 ♂	49	12.9	Mixed	T	Yes	-	H	No	10	-	2	2	33	1
Gustafsson et al. 2012	M	-	338 ♀	367 ♂	48	1.3	Mixed	F	Yes	-	H	No	30	-	2	2	0	1
Henderson 2007	M	+, -	35 ♀	20 ♂	64	2.0	Mixed	D	Yes	1	H	No	5	-	1	2	0	2
Hess et al. 1984	M	-	33 ♀	34 ♂	43	4.0	NAC	T	Yes	4	L	Yes	-	-	2	1	50	1
Higgins 2008	M, F	+, -	50 ♀	50 ♂	50	2.0	Mixed	M	Yes	4	L	No	35	-	2	2	0	2
Holt 2008	M	-	53 ♀	58 ♂	48	2.0	Mixed	T	Yes	4	L	No	10	-	1	2	0	2
Huber 2012	M	-	39 ♀	41 ♂	49	0.9	SA	F	Yes	1	L	No	4	-	1	2	0	1
Hughes et al. 1999	M	+, -	138 ♀	100 ♂	58	3.6	Mixed	T	Yes	4	H	No	20	-	1	2	33	1
Inoff-Germain et al. 1988	M, F	-	30 ♀	30 ♂	50	12.3	NAC	T	Yes	2	H	No	45	-	1	2	0	1
Janssens et al. 1997	M, F	+	62 ♀	63 ♂	50	4-8	-	T	Yes	4	H	Yes	20	-	2	1	50	1

Table 2.1 *(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
Kagan et al. 1963	M	-, P	20 ♀	30 ♂	40	4.3	-	N	Yes	4	H	No	180	-	2	1	50	1
Kalpidou et al. 1998	M	+, -, P	22 ♀	22 ♂	50	4.0	Mixed	D	Yes	3	L	No	27	2	2	2	33	1
Kapungu et al. 2006	M	+, -	157 ♀	117 ♂	57	11.0	AA	T	Yes	1	L	No	60	-	1	2	33	1
Kauffman 1985	M, F	-	17 ♀	23 ♂	43	5.0	-	T	Yes	4	H	Yes	5	-	1	2	0	2
Kenny-Benson et al. 2005	M	-	52 ♀	52 ♂	50	8.2	Mixed	T	Yes	3	L	No	15	-	2	2	0	1
Kerig et al. 1993	M, F	+, -	19 ♀	19 ♂	50	3.6	Mixed	F	Yes	2	L	Yes	10	2	1	2	33	1
Kochanska 1995	M	+, H	51 ♀	52 ♂	50	2.7	Mixed	D	Yes	4	Mix	No	80	-	2	2	0	1
Kochanska et al. 2003	M	-	53 ♀	55 ♂	49	1.2	Mixed	D	Yes	4	L	No	58	-	2	2	0	1
Kochanska et al. 2009	M, F	-	50 ♀	50 ♂	50	2.0	Mixed	D	Yes	4	L	No	45	-	2	2	25	1
Kok et al. 2012	M	+, -	214 ♀	222 ♂	49	3.1	WEC	D	Yes	4	L	No	2	-	2	2	56	1
Kuczynski 1984	M, F	+, -	32 ♀	32 ♂	50	4.0	-	T	Yes	4	L	No	9	-	1	1	100	1
LaFreniere et al. 1992	M	+, -	66 ♀	60 ♂	52	3.9	NAC	T	Yes	-	L	No	18	-	2	1	100	1
Laosa 1978	M	+, -, H	23 ♀	20 ♂	53	5.8	SA	T	Yes	4	H	No	10	2	2	1	100	1
Lengua et al. 2007	M	+, -	80		-	3.0	Mixed	T	Yes	4	L	No	-	-	2	2	0	1
Li and Lee 2013	C	+, P	150		-	7.4	Mixed	D	No	-	L	No	20	-	2	1	100	1
Lindsey et al. 2005	M	+, -	27 ♀	28 ♂	49	1.2	Mixed	T	Yes	4	H	Yes	-	-	1	1	50	1
Linver et al. 2002	M	+, -	256 ♀	237 ♂	52	2.5	Mixed	F	No	4	L	No	8	-	2	2	0	1
Liu et al. 2010	M	+, -	42 ♀	37 ♂	53	5.2	C, NAC	F	Yes	3	L	No	30	-	2	2	50	1
Lloyd 2010	M	-	13 ♀	13 ♂	50	1.0	Mixed	F	Yes	4	L	No	5	-	1	2	0	1
Loeb 1980	M, F	+, -	51 ♀	47 ♂	52	10.0	NAC	T	Yes	2	H	No	7	-	1	1	33	1
Longeway 1983	M	+, -	20 ♀	20 ♂	50	9.0	-	T	Yes	4	L	No	30	-	1	2	0	2
Maccoby et al. 1984	M	+, -	29 ♀	28 ♂	51	1.3	-	T	Yes	-	Mix	No	17	-	1	2	0	1
Mandara et al. 2012	M	+, -, P	55 ♀	44 ♂	56	11.5	AA	T	Yes	4	L	No	10	-	1	2	40	1
Margolin et al. 1975	M, F	+, -	14 ♀	14 ♂	50	8.4	-	N	Yes	-	H	No	45	2	1	2	50	1
Martinez 1988	M	+, -, H	28 ♀	19 ♂	60	5.3	SA	T	Yes	1	H	No	10	-	1	2	0	1
McFadyen et al. 1996	M	-	69 ♀	74 ♂	45	5.0	Mixed	N	Yes, No	4	H	No	120	-	1	1	100	1
McLaughlin et al. 1980	M, F	-	12 ♀	12 ♂	50	5.0	-	T	Yes	2	L	Yes	23	-	1	1	100	1
McLaughlin 1983	M, F	-	12 ♀	12 ♂	50	2.5	NAC	F	Yes	2	H	Yes	16	-	1	1	100	1
Michnick et al. 1979	M, F	+, -	6 ♀	6 ♂	50	1.6	-	F,T,M	Yes	4	L	Yes	20	-	1	2	0	1
Minton et al. 1971	M	+, -, H	41 ♀	49 ♂	46	2.3	-	N	Yes	4	H	No	300	-	2	2	33	1
Morrell et al. 2003	M	+, -	28 ♀	31 ♂	47	5.0	-	M	Yes	4	Mix	No	-	-	2	1	50	1
Mullis et al. 1985	M, F	-	16 ♀	16 ♂	50	9.4	-	T	Yes	2	H	Yes	17	-	1	1	50	1

Table 2.1 *(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
Neppl et al. 2009	C	+, -	55 ♀	102 ♂	29	2.3	NAC	T	Yes	2	H	No	5	-	1	2	25	1
O'Brien et al. 1987	M, F	+, -	10 ♀	10 ♂	50	1.9	NAC	T	Yes	2	L	Yes	12	-	1	2	50	1
Oldershaw et al. 1986	M	+, -,P,H	20 ♀	20 ♂	50	3.0	-	D	Yes, No	2	L	No	40	-	2	2	33	1
Power 1985	M, F	+, -, H	12 ♀	12 ♂	50	7-13	NAC	F	Yes	3	L	No	5	-	2	1	100	1
Roberts 1983	M, F	-	19 ♀	11 ♂	63	4.3	-	N	Yes	4	H	No	-	-	2	1	100	2
Robinson et al. 1981	M, F	+	16 ♀	26 ♂	38	5.2	-	T	Yes, No	4	L	No	5	3	2	2	0	1
Russell et al. 1996	C	+, -	28 ♀	29 ♂	49	6.8	A	N	Yes	4	H	No	90	-	1	1	100	1
Scaramella et al. 2008	M	+, -	20 ♀	20 ♂	50	1.5	Mixed	D	Yes	-	Mix	No	-	-	2	2	20	1
Shaw et al. 1998	M	-	42 ♀	61 ♂	41	2.0	Mixed	D	Yes	1	L	No	-	-	1	1	50	1
Silverman et al. 1995	M	+, -, P	15 ♀	18 ♂	45	1.5	Mixed	F,T,M	Yes	4	H	No	12	-	2	1	50	1
Smith et al. 1977	C	+, -	16 ♀	16 ♂	50	1.5	WEC	N	Yes	4	H	No	60	3	1	1	50	1
Smith et al. 1997	M	-, H	372 ♀	343 ♂	52	2.0	Mixed	N	No	4	H	No	-	-	1	2	0	1
Smith et al. 2004	M	-	67 ♀	58 ♂	54	4.5	Mixed	T	No	4	L	No	22	-	1	2	20	1
Smith 2010	M	-	68 ♀	72 ♂	49	2.7	Mixed	F	Yes	4	L	No	8	-	2	2	0	1
Tam et al. 2003	M, F	+, -	41 ♀	40 ♂	51	9.8	C	T	Yes	-	L	No	20	-	2	2	0	1
Tamis-LeMonda et al. 2009	M	+, -	53 ♀	66 ♂	45	6.5	AA	D	Yes	4	-	No	20	-	1	2	50	1
Trautmann et al. 2006	F	-	45 ♀	43 ♂	51	2.0	WEC	F	Yes	-	L	No	5	-	1	2	67	1
Tulananda et al. 2001	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	M	+, -	107 ♀	127 ♂	46	2.3	WEC	D	No	4	L	No	10	-	2	2	25	1
Webster-Stratton et al. 1999	M, F	P	32 ♀	88 ♂	27	5.7	Mixed	N	No	4	H	No	30	-	2	2	0	1
Wilson 1980	M	+, -	30 ♀	30 ♂	50	3.5-7.5	NAC	T	Yes	3	L	No	10	-	1	2	0	2
Yaman et al. 2010	M	+, -	58 ♀	82 ♂	41	2.0	WEC, T	D	No	-	H	No	4	-	2	2	20	1
Zevalkink et al. 2001	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] + = positive control strategy; - = negative control 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).

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 De Wolff & Van IJzendoorn, 1997; Kawabata et al., 2011). Experts were defined as persons who had been 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. All of these coders had had extensive training in observing parent-child interactions. 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. Each construct, including the definition that was given in the paper and examples for the specific parenting construct, was printed on a separate card. 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. 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. Experts were asked to sort the constructs into three groups of parental controlling behaviors (positive, negative, and neutral), separate for the four different observation settings. A neutral category was included only for the sorting task, because we wanted to examine only the most pure forms of negative and positive control in the actual meta-analysis.

Overall, 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 positive, neutral, or negative control category. The 30 remaining constructs with 70% agreement or less were discussed by the first and third 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 positive or negative control strategies.

Overall, negative strategies were characterized by authoritarian practices relying on, for example, power assertion, negative feedback, commands, threatening, physical punishment or physical controlling behaviors. Positive strategies were more authoritative and include support (all parental strategies that help the child to comply or solve the problem), praise, reasoning, approval, and induction (providing explanations for commands and prohibitions). Because the parental negative control strategies could contain aspects of psychological control or harsh physical discipline, the first and second authors analyzed each of the negative control constructs to identify incidences of psychological control and harsh physical discipline. 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; Schaefer, 1965, Parental Psychological Control measure; Nelson et al., 2013, Psychological Control Scale; Barber, 1996, Parental Regulation Scale; Barber, 2002). 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, personal attack), guilt induction (i.e., continually reminding the child of all the sacrifices parents have made to pressure the child to comply with parents' requests).

With regard to the included publications in the current meta-analysis, 44 of the 60 negative control strategies that were examined contained a mix of physical, psychological and verbal control (e.g., Belden, Sullivan, & Luby, 2007; Kochanska, 1995; Kochanska, Aksan, & Nichols, 2003; Scaramella et al., 2008). Moreover, six control strategies were not defined specifically enough to evaluate whether they considered either psychological control or harsh physical discipline or both (e.g., Gustafsson, Cox, & Blair, 2012; harsh-intrusive parenting), so they were not included in the meta-analyses on psychological control and physical discipline. Only five negative control 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.

Data Extraction

A data-extraction sheet was developed and refined based on a pilot with 10 randomly selected studies. Three types of moderators were coded: sample characteristics, procedural moderators, and publication moderators.

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, or if a clinical diagnosis was established, including abused children, parents with an addiction or other forms of psychopathology, or when a subsample 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), the study's goal (examine gender differences in parental behavior versus other), and whether the frequency of parental controlling 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 (Borenstein, Rothstein, & Cohen, 2005). 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 negative control with boys than with girls, more positive control 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 (1977), 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 (Borenstein, Hedges, Higgins, & Rothstein, 2009). To test the homogeneity of the overall and specific sets of effect sizes, we computed Q-statistics (Borenstein et al., 2009). 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 (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). Different meta-analyses were conducted for positive and negative control, 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 (Goldstein & Healy, 1995; Julious, 2004; Payton, Greenstone, & Schenker, 2003; Van IJzendoorn, Juffer, & Klein Poelhuis, 2005).

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 (Duval & Tweedie, 2000b; Sutton, Duval, Tweedie, Abrams, & Jones, 2000). 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 (Duval & Tweedie, 2000a, 2000b).

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 (Tabachnick & Fidell, 2001). Five outlying effect sizes were detected (Feldman & Klein, 2003, fathers' positive control; Kerig et al., 1993, both mothers' and fathers' positive and negative control) and seven studies had outlying sample sizes (Bernstein et al., 2005; Frampton, 2012; Gunnoe et al., 1999; Gustafsson et al., 2012; Kok et al., 2012; Linver et al., 2002; Smith & Brooks-Gunn, 1997). 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

Parental Negative Control

The combined effect size for the difference in parental negative control toward boys and girls was non-significant (d = 0.04, 95% CI [-0.02, 0.10], p = .15). The set of studies was highly heterogeneous (Q = 496.17, p < .01). Excluding outlying effect sizes (k = 2), the combined effect size was significant but small (d = 0.09, 95% CI [0.04, 0.13], p < .01; Table 2.2) in a heterogeneous set of studies (Q = 222.52, p < .01). The effect size was positive, indicating that parents used more negative control strategies with boys than with girls. Moderator analyses were conducted without outliers.

The combined effect size for the normative group (d = 0.10, 95% CI [0.06, 0.15], p < .01, k = 130, n = 11,368) was larger than the combined effect size for the group with clinical or at-risk samples (d = -0.01, 95% CI [-0.16, 0.13], p = .85, k = 21, n = 3,498; $Q_{contrast}$ = 4.75, p < .05), indicating that the differential negative control toward boys and girls was larger in normative groups than in clinical and at-risk groups, where the gender difference was absent. None of the other moderators were significant. Continuous moderators were tested using meta-regression analyses, but none of them were significant.

To test whether mothers' and fathers' differential negative control toward 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 negative control of boys and girls was small but significant (d = 0.07, 95% CI [0.02, 0.11], p < .01) in a heterogeneous set of studies (Q = 173.08, 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 [0.03, 0.10]) 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 controlled their boys more negatively than their girls. For fathers, none of the moderators were significant. For mothers, observation time was a significant moderator ($Q_{contrast}$ (1) = 5.70, $p < .05$). Mothers used more negative control 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, 0.08], p = .80; > 10 minutes: d = 0.12, 95% CI [0.06, 0.18], $p < .01$). 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.

We tested the interaction between different moderators whenever the subsets consisted of at least four studies. No significant interactions were found between child age and task ($Q_{contrast}$ = 0.74, p = .48), child age and observation setting ($Q_{contrast}$ = 0.94, p = .40), child age and parent gender ($Q_{contrast}$ = 1.71, p = .19), parent gender and task ($Q_{contrast}$ = 0.21, p = .81), or parent gender and observation setting ($Q_{contrast}$ = 0.12, p = .74).

Separate meta-analyses were conducted for two types of negative control: studies specifically examining psychological control (k = 12, n = 950), and studies examining harsh physical discipline (k = 17, n = 1,145). The gender difference for psychological control was not significant (d = 0.07, 95% CI [-0.06, 0.21], p = .28) in a homogeneous set of studies (Q = 5.65, p = .90). The combined effect size for the difference in harsh physical discipline with boys and girls was not significant either (d = 0.11, 95% CI [-0.02, 0.10], p = .06) in a homogeneous set of studies (Q = 10.75, p = .83). 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 = 0.13, 95% CI [0.01, 0.25], $p < .05$). Parent gender was however not a significant moderator of the gender-differentiated use of harsh physical discipline ($Q_{contrast}$ = 1.33, p = .25). The subsets of studies on psychological control and harsh physical discipline were too small to conduct further moderator analyses.

Table 2.2 *Negative parental control.*

Characteristics	*k*	*N*	*d*	95% CI	*Q*	
Total set	151	14,904	0.085**	[0.036, 0.134]	222.52**	
Sample						
Parent gender						1.41
Father	35	2,633	0.123**	[0.036, 0.210]	30.33	
Mother	108	11,425	0.066**	[0.019, 0.112]	173.08**	
Mixed	8	808	0.116	[-0.126, 0.358]	17.02*	
Child age						2.72
0-2 years	40	3,365	0.131**	[0.048, 0.214]	35.18	
2-4 years	37	4,719	0.037	[-0.039, 0.112]	97.03**	
> 4 years	74	6,782	0.082**	[0.027, 0.136]	81.49	
Normative sample						4.75*
Yes	130	11,368	0.102**	[0.058, 0.145]	143.02	
No	21	3,498	-0.012	[-0.158, 0.134]	69.99**	
SES						2.01
Low	14	1,202	0.064	[-0.136, 0.264]	20.40	
Middle	27	2,841	0.102*	[0.001, 0.203]	27.02	
High	22	1,085	-0.032	[-0.227, 0.164]	7.31	
Mixed	69	8,751	0.083**	[0.027, 0.139]	152.65**	
Ethnicity						5.61
African-American	4	529	0.265**	[0.090, 0.439]	4.49	
N-A Caucasian	28	1,461	0.077	[-0.022, 0.176]	14.57	
Chinese	5	422	0.105	[-0.060, 0.269]	0.67	
W-E Caucasian	6	973	0.217**	[0.093, 0.340]	14.27*	
South-American	5	224	0.062	[-0.164, 0.289]	9.28	
Procedure						
Verbal						1.00
Only	18	597	-0.003	[-0.172, 0.166]	18.52	
Mixed	130	13,675	0.086**	[0.044, 0.128]	200.80**	
Setting						0.04
Home	63	7,487	0.077**	[0.019, 0.134]	55.62	
Lab	83	7,016	0.069*	[0.013, 0.125]	154.98**	
Task						3.80
Free play	30	2,887	0.054	[-0.044, 0.153]	84.61**	
Naturalistic	33	3,164	0.103*	[0.022, 0.183]	23.29	
Teaching	66	6,762	0.045	[-0.016, 0.105]	74.04	
Discipline	20	2,247	0.157**	[0.049, 0.265]	30.56*	
Observation length						3.16
0-10 minutes	49	5,410	0.026	[-0.047, 0.098]	108.10**	
11-60 minutes	73	7,009	0.104**	[0.047, 0.161]	80.61	
> 60 minutes	14	819	0.118	[-0.009, 0.246]	7.28	
Coders gender						0.70
Female	13	981	0.025	[-0.097, 0.147]	9.05	
Mixed	4	199	-0.115	[-0.416, 0.118]	8.93*	
Study goal gender						0.49
Yes	83	6,705	0.094**	[0.039, 0.150]	104.13	
No	68	8,161	0.066*	[0.009, 0.123]	117.37**	
Control child behavior						2.51
Yes	13	897	0.177**	[0.067, 0.287]	17.03	
No	90	7,084	0.082**	[0.039, 0.125]	82.96	

Table 2.2*(Continued)*

Characteristics	*k*	*N*	*d*	95% CI	*Q*	
Publication						
Gender first author						0.39
Male	53	3,797	0.057	[-0.048, 0.162]	58.22	
Female	98	11,069	0.089**	[0.041, 0.136]	163.22	
% male authors						0.48
0-30	68	7,544	0.066	[-0.021, 0.153]	125.24**	
31-70	55	5,933	0.096**	[0.032, 0.159]	65.33	
> 70	30	1,465	0.083	[-0.067, 0.233]	30.75	
Publication outlet						0.09
Journal	132	13,225	0.083	[0.040, 0.125]	211.96**	
Dissertation	19	1,641	0.064	[-0.050, 0.179]	10.35	
Publication year						1.41
< 1980	17	718	0.140*	[0.006, 0.267]	17.65	
1981-1990	54	2,083	0.081	[-0.006, 0.169]	50.10	
1991-2000	32	4,237	0.048	[-0.003, 0.126]	24.34	
> 2000	48	7,828	0.087**	[0.026, 0.148]	129.03**	

Note. Statistics displayed are from analyses without outliers. Abbreviations stand for North-American (N-A) and Western-European (W-E).

Parental Positive Control

The results of the meta-analysis on differential positive control with boys and girls indicated that the gender difference was not significant (d = 0.03, 95% CI [-0.00, 0.07], p = .07) in a homogeneous set of studies (Q = 131.91, p = .44). Excluding the outlying effect sizes (k = 3) did not change the results (d = 0.03, 95% CI [0.00, 0.07], p = .08; Table 2.3), again, the set of studies was homogeneous (Q = 100.91, 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 (Hedges & Pigott, 2001). We therefore conducted moderator analyses to examine this heterogeneity.

The difference between effect sizes from papers that had gender-differentiated parenting as focus (d = -0.01, 95% CI [-0.06. 0.04], p = .73, k = 61, n = 4,530) versus those that did not (d = 0.06, 95% CI [0.02, 0.11], p < .01, k = 67, n = 6,981) was significant ($Q_{contrast}$ = 3.92, p < .05), indicating that the higher parental positive control toward girls than toward boys could only be detected in studies that did *not* have gender-differentiated parenting as focus. Furthermore, publication year was a significant moderator ($Q_{contrast}$ = 8.99, 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 (1971-2013) and Cohen's d (r = 0.22, p = 0.01). Figure 2.2 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 positive control than girls. From 1990 onwards the positive effect sizes indicate that girls received more positive control than boys. Since the scatterplot 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 better than the linear function (both models $z = 2.56$). Since 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, $p < .01$). The other categorical or continuous moderators were not significant.

To test whether mothers' and fathers' differential positive control toward 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 positive control of boys and girls was not significant ($d = 0.03$, 95% CI [-0.01, 0.08], $p = .11$) in a homogeneous set of studies ($Q = 81.05$, $p = .71$). 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 fathers none of the moderators were significant, but for mothers the same moderators were significant as in the overall meta-analysis. Mothers' differential positive control toward boys and girls could only be detected in studies that did *not* have gender-differentiated parenting as focus ($d = 0.08$, 95% CI [0.02, 0.14], $p < .01$, $k = 51$, $n = 5{,}512$), whereas it was lower in studies that did have gender-differentiated parenting as focus ($d = -0.05$, 95% CI [-0.07, 0.02], $p = .24$, $k = 39$, $n = 2{,}911$, $Q_{contrast} = 9.32$, $p < .01$). In addition, publication year was a significant moderator of mothers' differential positive control toward boys and girls ($Q_{contrast} = 7.86$, $p < .05$), also in a meta-regression ($B = 0.01$, 95% CI [0.00, 0.01], $p < .05$), indicating that in the 1970s and 1980s boys received more positive control than girls from their mothers, whereas from 1990 onwards girls received more positive control than boys. The 85% confidence intervals of fathers and mothers were non-overlapping only for studies that did not have gender-differentiated control as study focus (Mothers 85% CI [0.04, 0.12], Fathers 85% CI [-0.15, 0.04]). Mothers used more slightly positive control with girls than with boys, whereas fathers used somewhat more positive control with boys than with girls in studies that did *not* have gender-differentiated control as focus.

Publication Bias

There was no evidence for publication bias in the funnel plots. Using the trim and fill method (Duval & Tweedie, 2000a, 2000b), asymmetries (missing studies in the non-hypothesized direction) were not found in the meta-analyses on negative and positive control.

Table 2.3 *Positive parental control.*

Characteristics	*k*	*N*	*d*	95% CI	*Q*	
Total set	128	11,511	0.031	[-0.004, 0.065]	100.91	
Sample						
Parent gender						1.31
Father	29	2,027	0.001	[-0.075, 0.076]	15.75	
Mother	90	8,423	0.034	[-0.007, 0.075]	81.05	
Mixed	9	1,061	0.087	[-0.040, 0.203]	2.80	
Child age						1.64
0-2 years	38	2,515	0.016	[-0.054, 0.087]	9.61	
2-4 years	32	4,480	0.061*	[0.003, 0.119]	38.14	
> 4 years	58	4,516	0.013	[-0.043, 0.067]	51.52	
Normative sample						0.00
Yes	110	9,305	0.031	[-0.008, 0.069]	63.37	
No	18	2,206	0.031	[-0.052, 0.114]	37.54**	
SES						1.49
Low	12	1,770	-0.011	[-0.104, 0.081]	5.93	
Middle	18	1,804	-0.011	[-0.104, 0.081]	7.28	
High	19	961	0.012	[-0.122, 0.146]	0.52	
Mixed	62	6,037	0.058*	[0.010, 0.106]	74.43	
Ethnicity						1.56
N-A Caucasian	22	1,185	0.073	[-0.042, 0.187]	4.00	
Chinese	5	422	0.040	[-0.122, 0.203]	0.18	
W-E Caucasian	5	729	0.099	[-0.048, 0.246]	4.52	
South-American	4	144	0.115	[-0.215, 0.446]	1.07	
Procedure						
Verbal						0.67
Only	14	588	0.099	[-0.064, 0.261]	3.11	
Mixed	123	10,859	0.029	[-0.006, 0.065]	95.48	
Setting						1.24
Home	50	4,407	0.004	[-0.052, 0.059]	31.55	
Lab	71	5,816	0.049*	[0.001, 0.098]	67.73	
Mixed	4	255	0.032	[-0.213, 0.278]	0.25	
Task						2.50
Free play	21	1,693	0.092*	[0.002, 0.183]	15.49	
Naturalistic	20	1,218	0.009	[-0.097, 0.115]	11.44	
Teaching	60	5,918	0.014	[-0.036, 0.065]	43.71	
Discipline	24	2,401	0.065	[-0.009, 0.139]	14.47	
Observation length						0.77
0-10 minutes	46	4,503	0.049	[-0.007, 0.105]	46.31	
11-60 minutes	61	4,607	0.012	[-0.041, 0.065]	48.96	
> 60 minutes	10	701	0.032	[-0.107, 0.172]	0.70	
Coders gender						0.33
Female	13	981	-0.057	[-0.174, 0.059]	5.79	
Mixed	9	536	0.038	[-0.134, 0.210]	0.89	
Study goal gender						3.92*
Yes	61	4,530	-0.009	[-0.062, 0.043]	61.37	
No	67	6,981	0.062**	[0.015, 0.108]	35.62	
Control child behavior						1.67
Yes	12	708	-0.067	[-0.189, 0.055]	24.57*	
No	85	5,295	0.020	[-0.030, 0.070]	37.96	

Table 2.3 *(Continued)*

Characteristics	*k*	*N*	*d*	95% CI	*Q*	
Publication						
Gender first author						0.01
Male	42	3,283	0.033	[-0.030, 0.097]	18.77	
Female	86	8,228	0.029	[-0.012, 0.071]	82.12	
% male authors						0.07
0-30	58	5,385	0.035	[-0.016, 0.087]	43.57	
31-70	48	4,960	0.028	[-0.026, 0.082]	47.78	
> 70	22	1,166	0.024	[-0.073, 0.120]	9.49	
Publication outlet						0.04
Journal	116	10,440	0.029	[-0.008, 0.066]	96.10	
Dissertation	12	1,071	0.040	[-0.060, 0.140]	4.77	
Publication year						8.99*
< 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	41	5,911	0.072**	[0.025, 0.123]	33.17	

Note. Statistics displayed are from analyses without outliers. Abbreviations stand for North-American (N-A) and Western-European (W-E).

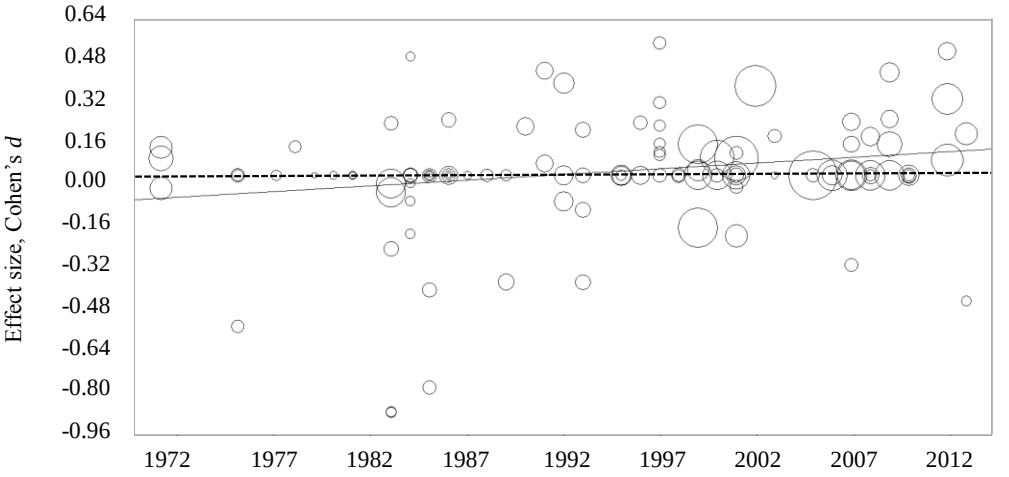


Figure 2.2 Scatterplot showing the relation between year of publication and Cohen's *d*.

Note. Solid line represents regression line, dashed line represents Cohen's $d = 0.00$.

DISCUSSION

Contrary to our expectations, parents were very similar in the use of control towards boys and girls. In the current set of meta-analyses, only small differences were found in parents' use of negative controlling strategies with boys and girls. Parents used slightly more negative control with boys than with girls. The combined effect size was larger in normative groups than in clinical and at-risk groups, but even then it remained small in the perspective of Cohen's (Cohen, 1977) criteria. Regarding positive control, no gender-differentiated positive control was found in the total set of studies. However, in earlier studies parents showed more positive control toward boys than toward girls, whereas in studies from 1990 onwards parents showed more positive control toward girls than toward boys. Contrary to our expectations, mothers and fathers did not differ in the extent to which they used differential positive or negative control toward boys and girls. All significant effects were small in magnitude.

Overall the results indicate that there is strong overlap between the distributions of parental control with boys and with girls. Previous meta-analyses on parents' differential treatment of boys and girls also found small effects (Leaper et al., 1998; Lytton & Romney, 1991), but these meta-analyses were not without limitations. The results of the current meta-analysis fit well with the growing awareness of gender similarities in the psychology and child development literature (i.e., gender similarities hypothesis; Hyde, 2005, 2014).

In general, three possible explanations for small or non-significant combined effect sizes in meta-analysis can be proposed. A first explanation is a lack of power, due to insufficient studies in the field. This does not seem to apply to the current meta-analysis because the numbers of studies and participants are substantial for the overall analyses as well as for most subsets of studies in the moderator analyses. A second possible explanation is that null findings may emerge when the construct examined is too broadly defined, which harbors the risk of combining heterogeneous constructs and thus obscuring any systematic results. By using expert sorts to define the constructs of negative and positive control, excluding constructs that were judged ambiguous by the experts, we hope to have countered the risk of combining too heterogeneous control strategies. That leaves us with the third explanation that the relevant research *does* show mixed or small effects. Apparently there are big similarities in parents' use of control with boys and girls. These results may suggest that gender-differentiated parenting is part of gender socialization only in a small subset of parents, for example for parents with strong gender stereotypes. Gender-differentiated control might also only be visible in specific situations or in response to specific child behaviors. Another explanation for the small effects is that parents may use gender-differentiated parenting in a very subtle way. There is evidence that gender

differentiation and discrimination has been becoming less blatant and increasingly subtle in many contemporary societies (Swim, Aikin, Hall, & Hunter, 1995).

The few differences in the treatment of boys and girls that were found were in the expected direction. The finding that parents use more negative control with boys than with girls is in line with the result that boys receive more physical punishment than girls as reported by Lytton and Romney (1991), which also refers to a form of negative control. This finding also fits with biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012). As proposed by these theories, the roles associated with males and females, and the characteristics associated with these roles, lead to the differential treatment of boys and girls. The results of our meta-analysis show that such differential treatment is already present in childhood, and this link between gender roles and differential treatment of boys and girls may be explained by parental gender stereotypes or gender schemas. Gender schema theory (Bem 1981, 1983) suggests that the way parents behave toward their children is guided by gender schemas that consist of gender-typed experiences. If the gender schemas of parents consist of stereotypical associations about gender roles, parents are more likely to show gender-differentiated parenting.

Parents may also treat boys and girls differently in reaction to pre-existing gender differences in children's behavior or temperament (rGE), especially because genes or temperamental dispositions influencing child behavior might have a gender-specific effect on parenting (Moberg et al., 2011). However, the current findings show that differential negative control of boys and girls was detected both in studies that controlled for the child's behavior and in studies that did not. It should be noted that the number of studies controlling for child behavior was small and heterogeneous in terms of design and analysis (i.e., longitudinal, cross-sectional, overall control for the child's disruptive problem behavior across the observation, or probability of a specific parental response given a specific child behavior). Only a few studies had a cross-lagged design (i.e., parent and child behavior assessed at multiple time points) in which the complex issue of child-to-parent and parent-to-child reciprocal effects could be examined appropriately. One of these studies (a US sample with Caucasian and African-American mothers) showed that child behavior and temperament in early childhood did not influence later parenting behavior while controlling for earlier parent behavior, thereby ruling out the child-to-parent effect (Scaramella, Sohr-Preston, Mirabile, Robison, & Callahan, 2008). Two other US studies with representative community-based samples with symmetrical longitudinal designs provided evidence for bidirectional effects in early childhood, showing that parenting was related to subsequent child behavior while controlling for earlier child behavior, and that child behavior was related to subsequent parenting while controlling for earlier parenting (Maccoby et al., 1984; Smith et al., 2004). Thus the evidence with regard to parent versus child effects is mixed. The few available studies do not provide clear support for either a coercive feedback loop with reciprocal effects

between disruptive child behavior and parental negative control (Patterson, 1982) or a completely parent- or child-driven effect resulting in differential treatment of boys and girls.

Other studies on child-to-parent and parent-to-child reciprocal effects might provide clues about the direction of effects in the differential treatment of boys and girls. For example, in a large Swedish population-based twin study examining parenting in relation to behavior problems of adolescent boys and girls, mothers and fathers responded differently to the same behavior in boys and girls (Moberg et al., 2011). This implies that parents' attitudes about the appropriateness of certain behaviors for boys and girls caused the differential responses, as the differential response was not due to gender differences in behavior. Another large population-based longitudinal twin study (UK children aged 4-7 years) found that the association between maternal parenting and child antisocial behavior was best explained by both parent-driven and child-driven effects (Larsson et al., 2008). A similar result was found in another large UK population-based study with 5-year-old twins, indicating that mothers' use of corporal punishment was partly driven by genetic child factors (Jaffee et al., 2004). Moreover, a 10-year longitudinal study showed that mothers and fathers reported that they were harsher with boys than with girls (Bezirganian & Cohen, 1992). Boys and girls in this study did not differ in terms of temperament, so the more harsh treatment of boys was not because they were more difficult to begin with. As a response to the harsh treatment, especially by mothers, boys appeared to become more difficult and noncompliant than girls. These studies are convergent with the idea that it is not only gender-specific disruptive behavior that elicits parents' use of more negative control with boys than with girls, but also parental attitudes about how to treat boys versus girls, and/or about the perceived appropriateness of certain behaviors for boys and girls that caused the differences in use of negative control. Taken together, the findings from the current meta-analysis, evidence from previous longitudinal studies with a cross-lagged design included in the meta-analysis, and studies on child-to-parent and parent-to-child reciprocal effects point in the direction of genetically influenced gender differences in behavior that evoke different reactions in parents, and gender-differentiated parenting (induced by parental attitudes about how to treat boys and girls) influencing, and perhaps enhancing, these gender differences in child behavior.

Psychological control and harsh physical discipline were examined as dimensions of (extreme) negative control. Overall, parents did not differ in their use of psychological control and harsh physical discipline with boys and girls. The effect of child gender on parents' use of harsh discipline was marginally significant in the whole group and significant for the subgroup of mothers, indicating that mothers were harsher with boys than with girls. These results are of interest given that parents would use both harsh physical discipline and psychological control more with boys than with girls (Barber et al., 2002; Lytton & Romney, 1991). Unfortunately, only few

observation studies included a focus on psychological control or harsh physical discipline. In most studies the negative control 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 disentangle the gender-differentiated use of these extreme negative control strategies from milder negative parenting strategies. This is especially important because psychological control and harsh physical discipline might be prone to social desirability in self-report studies (Morsbach & Prinz, 2006), and because of their detrimental effects on child development (Barber, 1996; Barber et al., 1996; Bender et al., 2012; Mills & Rubin, 1998; Mulvaney & Mebert, 2007; Nelson, Yang, Coyne, Olsen, & Hart, 2013; Soenens & Vansteenkiste, 2010). 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 Barber, 1996; Joosen et al., 2012).

Differential negative control toward boys and girls was detected in studies that used normative samples rather than clinical or at-risk samples. This finding might imply that parent and/or child problems serve as gender equalizers, in that problem behaviors prevail in the shaping of parent-child interactions irrespective of child gender. Alternatively, the diversity in the set of studies with clinical or at-risk families (e.g., ADHD, externalizing behaviors, anxiety, abusive parents) may have obscured any systematic differences in the differential negative control of boys and girls. Indeed, the effect sizes within the non-normative subset were strongly heterogeneous.

An explanation for the small effects of child gender on parents' use of negative control might be that child gender effects can only be found in a small subset of parents. Patterson's coercion model (1982) provides rationales for why differential negative control with boys and girls is only visible in a small subset of children. There is some empirical evidence that parents might end up in a coercive cycle with boys more often than with girls, because boys are more likely than girls to react with aggression and negative behavior to parental demands (i.e., child effect; Bezirganian & Cohen, 1992; Eron, 1992) and mothers are more likely to react with increasing harsh discipline to boys' than to girls' disruptive or noncompliant behavior (parent effect; McFadyen-Ketchum et al., 1996). It is likely that parent and child dynamics necessary for a coercive cycle (e.g., child's predisposition toward disruptive behavior in combination with parents' negative control in response to difficult child behavior) will be present only in a subset of families with boys. The difference in parental negative control with boys and girls may be accounted for by those parents who have ended up in interactions characterized by coercive cycles (i.e., a pattern of high levels of negative parental control) with their sons.

For positive control, the picture was less straightforward than for negative control. Overall, parents did not differ in the amount of positive control of boys and girls, but we did find a moderating effect of publication year on parental use of

positive control, indicating that in earlier studies parents showed more positive control toward boys than toward girls, whereas from 1990 onwards parents showed more positive control towards girls than towards boys. In the decades before 1990, parents generally gave more attention to boys' behavior than to girls' behavior, because gender-role pressures were higher for boys than for girls. It was therefore thought that boys needed more explicit guidance, both positive and negative, than girls (Hartley, 1959; Martin, 2005). In addition, in the 1970s and 1980s there was a strong preference for male children in most societies (Arnold & Kuo, 1984; Williamson, 1976), leading to greater parental involvement with boys than with girls (Lundberg, 2005). This greater parental involvement with boys might be reflected in the higher use of both negative and positive control with boys than with girls in studies before 1990. After 1990 the son preference diminished in most Western countries and in some countries even changed to a daughter preference (Andersson, Hank, Rønsen, & Vikat, 2006; Hank & Kohler, 2000), possibly leading to an increase in parental involvement and positive attention toward girls.

The finding that parents used more positive discipline with boys than with girls might also be related to the "gender-neutral wave" in that time period (Martin, 2005). Gender stereotypes were vigorously being attacked, gender-neutral parenting was valued highly, and the view that boys had to be brought up as boys and girls as girls was losing ground (Martin, 2005). Coinciding with this development there was an increased interest in positive parenting strategies (Forehand & McKinney, 1993), and an emergence of the view that positive, warm, and supportive parenting was not detrimental for boys in terms of causing homosexuality, a fear that existed prior to this period (Martin, 2005). By using more positive control with boys than with girls, parents may have tried to socialize their boys into a less masculine role (characterized by power and assertiveness) and into a more feminine role (characterized by kindness, helping, caring), in an attempt to bring the gender roles of boys and girls closer together. The finding that more recently girls are controlled more positively than boys, combined with the current findings that negative control is used more with boys than with girls, implies that parents reverted to socializing their children into the traditional gender roles (i.e., assertive/powerful males, kind/helpful/caring females).

The findings with regard to publication time also indicate that regardless of an increase in gender equality in the past two decades in most Western societies (Inglehart & Norris, 2003), parents still use gender-differentiated negative and positive control strategies. In addition, contrary to our expectations, effect sizes for both positive and negative control were not absent in studies from the past two decades; they were small but they remained significant over time. This finding was not expected because according to biosocial theory the changes in the division of gender roles in recent decades would have led to more egalitarian attitudes about gender, and consequently no more differentiation between boys and girls (Eagly & Wood, 2002; Wood & Eagly, 2012). This implies that although explicit attitudes

about gender might have changed (Hill & Augoustinos, 2001), the corresponding parenting behavior change may take longer to evolve (White & White, 2006) or may not happen at all. Several explanations for this pattern of results may be given. First, gender stereotypes may still be present implicitly and unconsciously exert their influence regardless of explicit gender attitudes (Endendijk et al., 2012; White & White, 2006). Second, stereotypes might still fulfill explanatory social functions related to gender roles, in a way that they contain functional information about differences between men and women, e.g., describe and explain still existing social arrangements in society (Hill & Augoustinos, 2001).

In the current meta-analysis, we also found a moderating effect of study goal on parental use of positive control toward boys and girls, indicating that gender-differentiated positive control could be detected in studies that did *not* have gender-differentiated parenting as focus. The effect sizes were in the expected direction, but again very small. In this subset of studies, mothers used more positive control with girls than with boys, whereas fathers used more positive control with boys than with girls. Thus, more favorable control strategies were used in the same-gender parent-child dyads than in the mixed-gender dyads. This is in line with the proposition that the interactive synchrony between parent and child is higher in same-gender parent-child dyads (Feldman, 2003). Moreover, there is some evidence that parents have a preference for their same-gender offspring (Lawson & Mace, 2009; Zick & Bryant, 1996) which can result in a greater use of positive control strategies, such as praise and approval, as opposed to negative strategies. The finding that mothers use more positive control with their daughters than with their sons is also in line with previous meta-analytic findings of mothers using more supportive speech with daughters than with sons (Leaper et al., 1998).

Why this gender-differentiated parenting effect for positive control is only found in studies that did *not* have gender-differentiated parenting as an explicit focus seems puzzling, but might have something to do with research bias. Eagly and Wood (1991) noted that research on gender differences is vulnerable to a number of potential biases. Researchers can hold an 'alpha bias' or 'beta bias' with regard to gender differences. Alpha bias refers to a tendency to acknowledge that there are gender differences, with a possibility of exaggerating true differences. Beta bias refers to a tendency to ignore or minimize gender differences. Studies that have gender-differentiated parenting as focus are more vulnerable to alpha bias, whereas studies that do *not* have gender-differentiated parenting as focus are more vulnerable to beta bias. Researchers who are devoted to studying gender differences may be overly aware of their own alpha bias, which might cause them to be overly cautious with, for example, coding the behavior of their subjects, because coding parenting behavior is never blind to the gender of the child. Anxious not to find alpha-biased results with regard to gender differences, they might attribute subtle differences in the treatment of boys and girls to their own gender bias and thereby diminish true differences between

boys and girls. Our finding contrasts with the view that gender differences only exist in studies that a priori assume differences between men and women (Eagly & Wood, 1991), and it rules out a possible confounding effect of alpha bias in the current meta-analysis.

The majority of the moderators failed to reach significance. Most importantly, mothers and fathers did not differ in the extent of their differential control of boys and girls, which was unexpected based on biosocial theory (Eagly & Wood, 2002; Wood & Eagly, 2012), social cognitive theory (Bussey & Bandura, 1999), and the findings from the Lytton and Romney meta-analysis (1991) that fathers differentiated more between boys and girls than mothers with regard to directiveness. However, it should be mentioned that for the other socialization areas in the Lytton and Romney meta-analysis there were no significant differences between mothers and fathers, in line with the current findings. In theory, it is possible that mothers and fathers differ in their gender-differentiated parenting practices only with regard to very specific socialization areas, which were unable to be detected with our more general measure of parental control. However, the data show that both mothers and fathers engage in gender-differentiated parenting practices.

We expected the magnitude of the child-gender effect to be dependent on the particular situation in which parents' behavior was observed (Leaper et al., 1998), because parental control might be necessary regardless of child gender in certain situations. This would lead to a smaller range of possible behaviors, which minimizes naturally occurring differences in parenting and child behavior. However, we did not find any moderating effect for the observed task or the observational setting. Apparently, the demand characteristics of a highly structured setting or task (i.e., lab setting, discipline task) do not necessarily lead to smaller effect sizes, given that differences in the treatment of boys and girls were detected equally well across settings and tasks. We did find that mothers' differential negative control was more pronounced in longer (> 10 minutes) observation periods, implying that longer duration of the task rather than the type of task may lead to a bigger range of possible behaviors, leading to an increased possibility to detect gender differences (Leaper et al., 1998).

With regard to the other moderators, differential control towards boys and girls was not dependent on the child's age, the socioeconomic status of the family, verbal or nonverbal control, the ethnicity of the sample, the gender of the first author, the percentage of male authors, or the publication outlet. It appears that differential control of boys and girls can be observed in both mothers and fathers, in many different settings and situations, in samples of different ages, ethnicity or socioeconomic status. Of course, this conclusion must be drawn with caution for moderators with few studies in certain subgroups (i.e., adolescents, verbal control, ethnicity). Especially the null findings with regard to ethnicity and socioeconomic status of the sample were unexpected in light of biosocial theory (Eagly & Wood,

2002; Wood & Eagly, 2012). The more traditional views about gender roles in lower-SES families were expected to be associated with a larger differentiation between boys and girls. Similarly, gender differences in the treatment of boys and girls were expected to be smaller in societies where gender equality is high. 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, we also did not find significant decreases in gender-differentiated parenting over time, even though gender roles have become more equal in the past decades in most Western societies (Cabrera et al., 2000; Lamb, 2010). So, the strictness of the gender roles in a society might not necessarily be related to the level of gender-differentiated discipline. It should be noted that many studies included samples with mixed ethnicities or did not provide enough information about the samples' ethnicity, leading to a small number of studies in which the moderating effect of ethnicity on gender-differentiated control could be examined.

Implications of Gender-Differentiated Parenting

Although there appear to be only small differences in the treatment of boys and girls, these subtle differences might still have important consequences for the development of gender differences in behavior and for the gender socialization of boys and girls. There is for example evidence that even subtle gender-discriminatory events (e.g., differential treatment of the genders), when frequently occurring, can have severe consequences in terms of the extent to which they advantage or disadvantage one gender over the other (Schmitt, Branscombe, & Postmes, 2003), and that subtle discrimination has more detrimental effects on behavior (i.e., negative affect and low self-esteem) than blatant discrimination (Barreto & Ellemers, 2005; Barreto, Ellemers, Scholten, & Smith, 2010).

Gender-differentiated parenting may convey the message that boys and girls are different and that different behaviors are appropriate for boys and girls, especially when it happens in families with both boys and girls. Children will internalize these early gender-typed experiences in gender schemas (Gelman, Taylor, Nguyen, Leaper, & Bigler, 2004; Witt, 1997) and these gender schemas will influence the processing of subsequent gender-related information and thereby bias future actions (Bem, 1983). Second, there is evidence from a US study that mothers and fathers do actually reinforce gender-typed behavior in children by their differential treatment of their 2-year-old girls and boys (Fagot, 1978). Third, differential treatment of boys and girls may predict increased gender differences in future behavior. For example, in a longitudinal study in the US with a representative community-based sample, fathers have been found to attend more to 4-year-old girls' submissive emotions than to boys' submissive emotions, and this attention was found to predict increases in children's expressions of submissive emotion over time, resulting in larger gender differences (Chaplin et al., 2005). Unfortunately, very few studies have actually examined the

link between gender-differentiated parenting and gender differences in child behavior (Chaplin et al., 2005; Mandara et al., 2012; Tamis-LeMonda et al., 2009).

More specifically, using more negative control strategies with boys than with girls may have important consequences for the development of disruptive behaviors, and this differential control may be one of the mechanisms behind the gender differences in disruptive behavior that have been consistently found in the literature for both children and adolescents (see Archer, 2004; Baillargeon et al., 2007; Hyde, 1984; Loeber et al., 2013). According to social learning theories, parents who use negative control strategies provide a model for negative behaviors for their children, which children may start imitating to control others' behavior themselves (Bandura, 1977; Bussey & Bandura, 1999). Within the parent-child relationship this in turn can lead to a downward spiral of increasingly negative behavior by the child and the parent (Patterson, 1982). Moreover, according to self-determination theory, parents use of negative control with boys would foster externally controlled behavioral regulation and hamper the development of self-regulatory skills in boys, which in turn is associated with behavioral maladjustment (Deci & Ryan, 2000). Thus, using negative control more with boys than with girls may put boys at risk for developing or exacerbating disruptive behavior problems.

The use of positive control strategies is associated with more positive outcomes and fewer negative outcomes for children, because parents using positive strategies provide their children with positive models, leading to a more favorable development in terms of positive behaviors (Kawabata et al., 2011; Rothbaum & Weisz, 1994). To our knowledge there is no literature on the presumed effects of positive control over time in relation to gender differences in positive behaviors such as prosocial behavior. However, one study that tested this association concurrently found that mothers used more positive control strategies (e.g., encouragement, acceptance, empathy) with girls than with boys, which was related to higher levels of engaged and relaxed behaviors and happiness in girls compared to boys (Mandara et al., 2012).

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, that may account for variations in gender-differentiated parenting. Second, the sorting of the parental control constructs into positive and negative categories 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 are appropriate to the situation, due to the fact that in the expert sorting these behaviors were grouped under the neutral control

category. 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 (Hallers-Haalboom et al., 2014). It is of vital importance to examine gender-differentiated parenting within families to account for such factors. The crucial question in the within-family design is whether socialization differences between boys and girls are also found when they grow up in the same family (i.e., when the same parents socialize both a boy and a girl). Only then can we be more sure that systematic variations in parenting boys and girls cannot be ascribed to other family variables. 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 within-family studies are needed to disentangle the effect of child gender on parenting practices from between-family effects.

More research is also necessary to examine whether parents with traditional gender stereotypes or gender roles show more gender-differentiated parenting practices than parents with less traditional stereotypes or gender roles. In such studies, the theoretical link between gender roles, parental gender stereotypes or gender schemas on the one hand, and the actual differential treatment of boys and girls on the other hand can be tested. Additionally, it is important to examine the consequences of specific gender-differentiated parenting practices for gender differences in behavior and the possible bi-directionality of this association. This should preferably be done in longitudinal studies with multiple time points to identify the processes that lead to changes in gender-differentiated parenting and the behavior of boys and girls over time. It is of great importance that these studies do not focus solely on parental negative control, but also include positive control. Small gender differences in behavior and roles (with a possible biological origin) may lead to stereotypes about males and females, which may in turn lead to differences in the treatment of men and women, or boys and girls, which may then result in gender-related differences in adult and child behavior, causing a vicious cycle of gender effects (Blakemore, Berenbaum, Liben, 2009).

Last, the current meta-analysis focused on the differential treatment of boys and girls by parents, but there are many other sources of differential treatment of boys and girls, such as peers (Fagot & Hagan, 1985; Rose & Rudolph, 2006), teachers (Dobbs, Arnold, & Doctoroff, 2004; Fagot & Hagan, 1985), and media (Birnbaum & Croll, 1984; Gooden & Gooden, 2001; McHale, Crouter, & Whiteman, 2003). For example, it has been shown that boys get more attention from teachers overall and specifically for aggressive or assertive behavior (Dobbs et al., 2004; Fagot & Hagan,

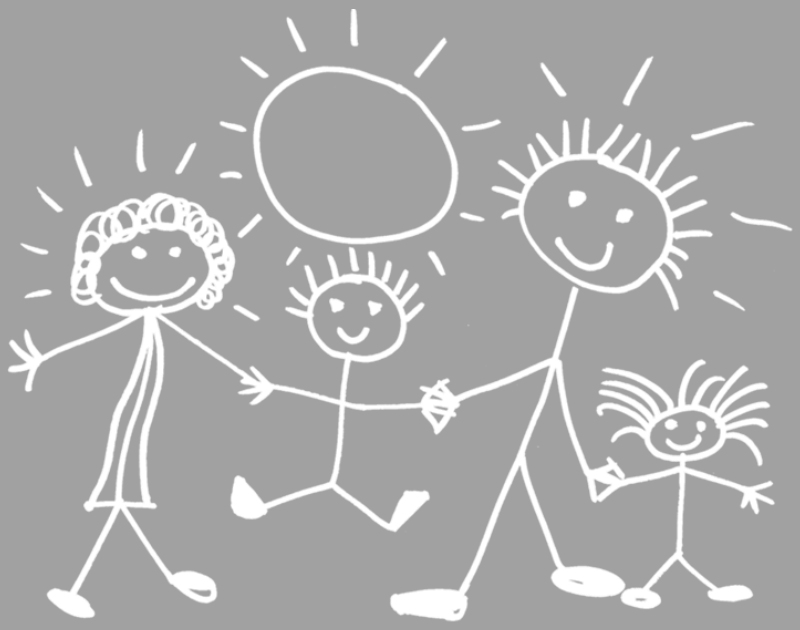
1985). In addition, teachers appear to address boys and girls differently (i.e., 'cutie' for girls, 'buddy' for boys), provide them with different toys and activities, and comment on girls' appearance more than on boys' appearance (Chick, Heilman-Houser, & Hunter, 2002). Regarding the influence of peers, school-aged children disapprove behaviors in their peers that are not typical of their gender (Blakemore, 2003). Moreover, boys and girls are consistently portrayed as different in children's books, television programs, and movies (Birnbaum & Croll, 1984; Gooden & Gooden, 2001; McHale et al., 2003). These factors are often examined separately (McHale et al., 2003), but examination of the interplay between the various gender-socializing agents would provide a more complete picture of gender development in childhood and adolescence.

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. Contrary to our expectations, the effects of child gender on parents' use of control were small, indicating large similarities in parents' control strategies with boys and girls. Some boys are faced with more negative control by their mothers and fathers than girls are, and this effect is visible across different settings and situations, different ages, ethnic and socioeconomic backgrounds. Parents also use gender-differentiated positive control, although the direction of this effect was dependent on the decade in which the study was conducted and on the gender of the parent.

We conclude that there is a need for studies that control for child behavior in symmetrical longitudinal designs, or employ a within-family design to rule out alternative explanations for the gender-differentiated-parenting effect. These studies will not only increase our knowledge of the mechanisms behind gender-differentiated socialization, but they will also increase our understanding of basic theoretical issues in child development and parenting research, such as the directionality of effects and the influence of parental attitudes. The proposed cycle from gender stereotypes to differential treatment to gender differences in behavior should be tested empirically. The current meta-analysis highlights the subtle nature of gender-differentiated parenting. However, even subtle differentiation between boys and girls may have consequences for the development of gender differences in child disruptive behavior, and such processes deserve future research attention.

3



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

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

(2013)

Sex Roles, 68, 577-590

ABSTRACT

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

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

INTRODUCTION

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

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

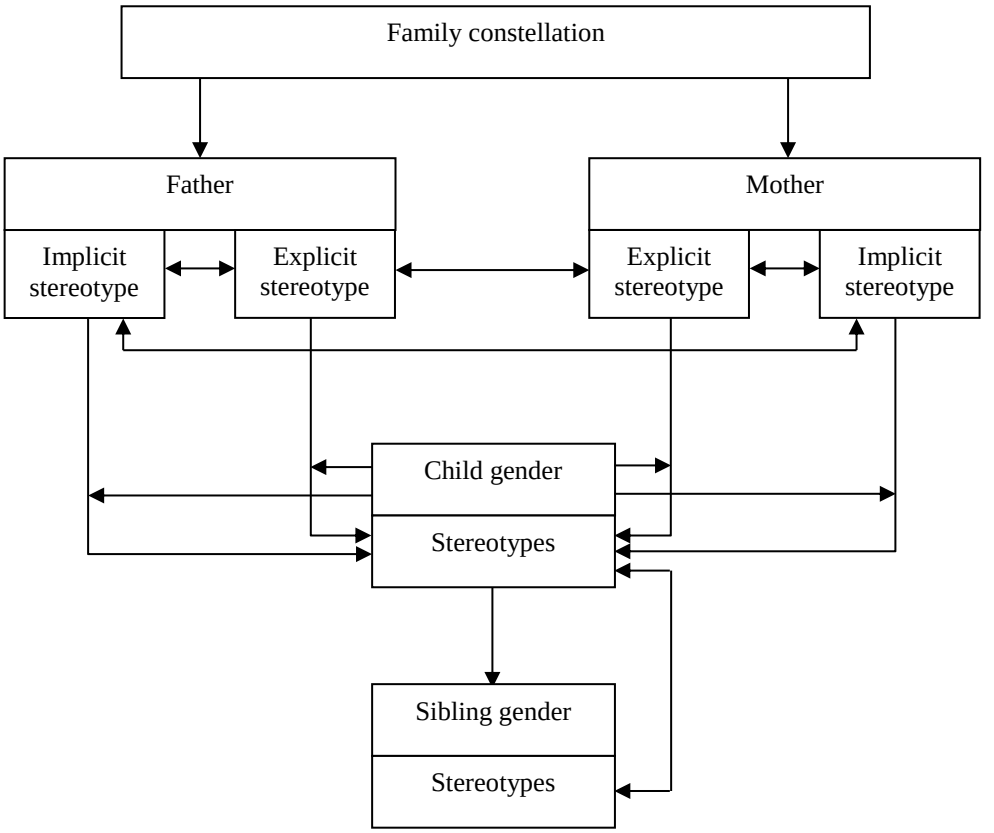


Figure 3.1 Model of associations between parental gender stereotypes, child gender stereotypes, parent gender, child gender, sibling gender, and family constellation.

Parental Gender Stereotypes

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

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

Children's Gender Stereotypes

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

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

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

Gender Differences in Gender Stereotypes

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

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

The Influence of Family Gender Constellation and Sibling Gender

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

The Association Between Parental and Children's Gender Stereotypes

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

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

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

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

The Current Study

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

METHOD

Sample

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

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

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

Table 3.1 *Sample characteristics (N =355)*

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

[a] Registered or cohabitation agreement.

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

Procedure

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

Instruments

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

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

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

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

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

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

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

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

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

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

Data Inspection

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

RESULTS

Descriptive Statistics

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

Gender Differences in Parental and Child Gender Stereotypes

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

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

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

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

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

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

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

Parental and Child Gender Stereotypes and Family Gender Constellation

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

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

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

Predictors of Children's Gender Stereotypes: Moderation Model

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

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

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

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

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

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

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

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

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

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

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

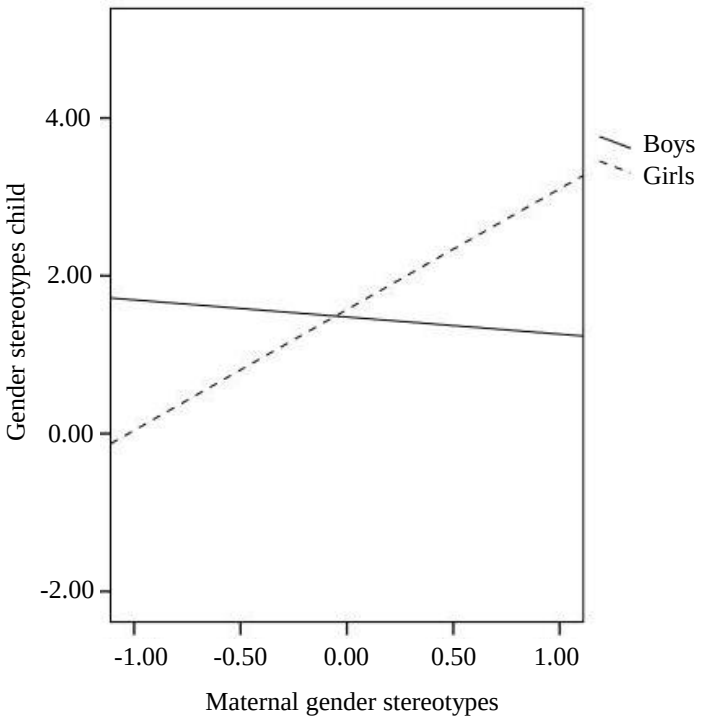


Figure 3.2 Interaction between maternal gender stereotypes (AIP) and child's gender stereotypes.

DISCUSSION

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

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

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

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

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

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

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

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

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

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

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

Limitations and Recommendations

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

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

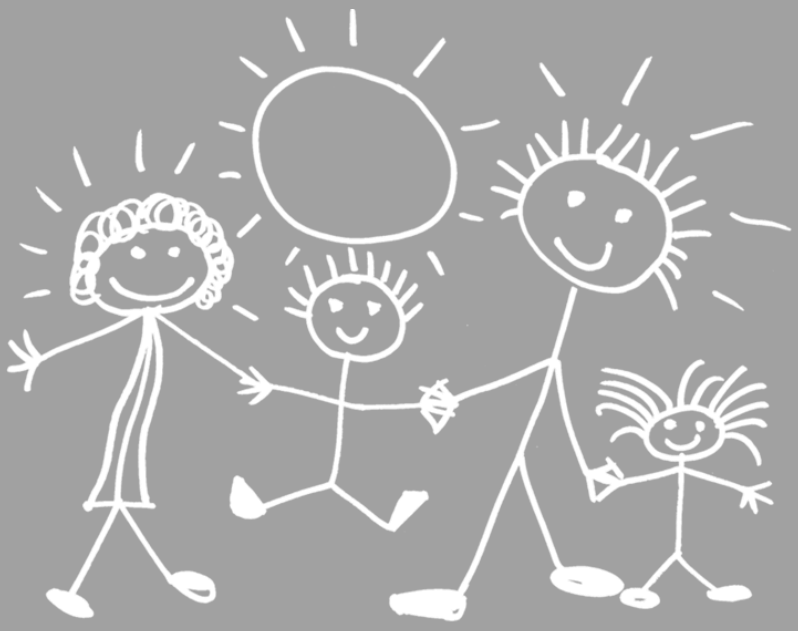
Another limitation is that we did not use an explicit attitude measure for children. The inclusion of an explicit measure would have given a more complete picture of the prediction of children's gender stereotypes from parental attitudes. Future studies should explore the associations between explicit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

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

Conclusion

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

4



Boys Don't Play With Dolls: Mothers' and Fathers' Gender Talk During Picture Book Reading

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

(2014)

Parenting: Science and Practice, *14*, 141-161

ABSTRACT

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.

Keywords: gender talk, picture book, implicit gender stereotypes, mothers and fathers, children, 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 gender-socialization route (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 towards 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 et al., 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 et al., 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 et al., 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, Leinbach, & O'Boyle, 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, Leaper, & Bigler, 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). They also pointed out that gender messages can be present in evaluative comments on gender-stereotypical behaviors and activities (e.g., boys playing with cars, girls playing with dolls) 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 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 et al., 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 that 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 have to 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 both the studies of Endendijk et al. (2013) and McHale et al. (1999) sibling gender constellation only influenced fathers' and not mothers' gender-related behaviors or attitudes.

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 towards 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 for 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; (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 as (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 towards 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 socio-emotional development of girls and boys in the first 4 years of life. The current paper 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 et al. (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), 5 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 data set.

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 socio-emotional development of their children. One of the tasks was talking about the Gender Stereotype 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 family gender constellation 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 Stereotype 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 4.1.

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 had to determine whether the child in the picture was a boy or a girl. 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 (ps = .13 - .23). The students also rated each activity on a 3-point scale (1 = mostly seen as masculine activity, 2 = neutral, 3 = mostly seen as feminine activity). Mean scores were different (p < .01) for activities intended as stereotypically masculine (M = 1.45, SD = 0.24), activities intended as stereotypically feminine (M = 2.82, SD = 0.16), and activities intended to be gender neutral (M = 2.01, SD = 0.13). 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). If parents used 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 4.1). 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, 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 boys' and girls' 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 boy or a girl 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 4.1).

(3) Comments about gender stereotypes. Parents could make two types of comments about gender stereotypes; 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 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).

Table 4.1 *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	Picknicking 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 waterguns	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).

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 have to be divided between a boy and a girl (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 stereotypical feminine toys to a girl) with 16 trials each and two incongruent blocks (e.g., assigning stereotypical masculine toys to a girl) with 16 trials each. The two congruent blocks alternated with the two incongruent blocks. The participants had to distribute the gifts to the girl or the boy by means of pressing a red or a blue button (red for the girl, blue for the boy). 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; (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 4.2. When examining parental comments across all the pictures in the book, most parents made use of at least one gender label (i.e., masculine *or* feminine) in the pictures, and more than half of 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 4.2 (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.

Table 4.2 *Means and standard deviations for mothers' and fathers' gender talk in the total book and the picture types of interest.*

		Mother	Father
		M (*SD*)	*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.

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* = -0.17, *p* = .87, or contradict stereotypes, *Wilcoxon Z* = -0.67, *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 4.2 (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 are 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 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* = 0.14, *SD* = 0.35) more often than the feminine label (*M* = 0.00, *SD* = 0.00), *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) = 0.32, $p = .57$, $\eta_p^2 < .01$. 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) = 0.06, $p = .81$, $\eta_p^2 < .01$). 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 ($M = 1.49$, $SD = 0.57$) than about the picture with girls' negative behavior ($M = 1.35$, $SD = 0.51$), 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 (Hypothesis 3)

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 Tables 3. For

fathers there were no associations between any form of gender talk in the picture book and the implicit gender stereotypes (*p*s = .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, $t(302) = 2.47$, $p < .05$, $d = 0.67$. 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, $r(304) = .15$, $p < .05$. 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, $t(302) = -2.00$, $p < .05$, $d = 0.22$. 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.

Table 4.3 *Gender stereotypes of parents that used and did not use gender labels and comments about gender stereotypes*

		Mothers' stereotypes	Fathers' stereotypes
Use of gender labels		*M* (*SD*)	*M* (*SD*)
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 that used and did not use a type of gender talk.

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 that 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 at 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 et al. (1997) 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 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 et al. study has 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 is 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 their both

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 their both 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 boys' 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 behaviour 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).

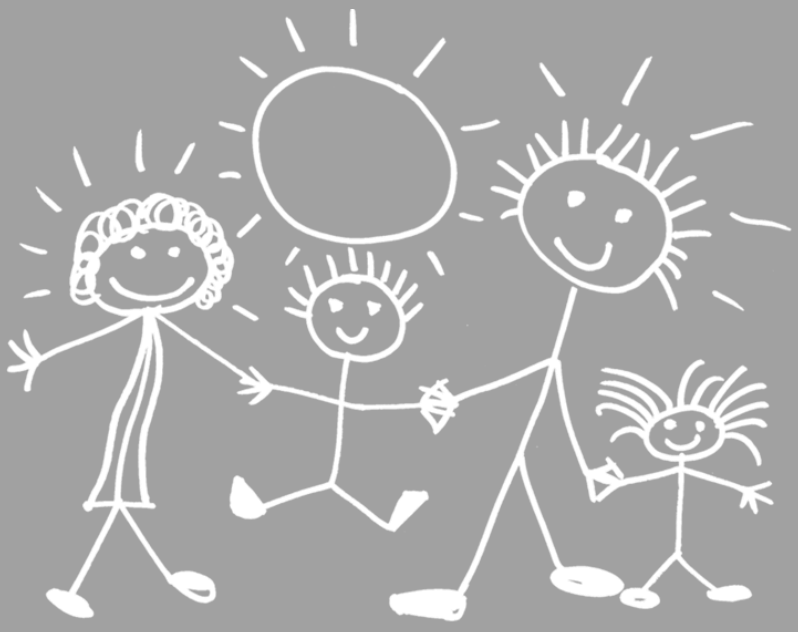
The newly developed *Gender Stereotypes Picture Book* also demonstrated its usefulness as meaningful associations were found between parents' gender talk and their implicit gender stereotypes. In addition, the book was successful in uncovering direct and indirect aspects of gender talk. The different 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 need to be reduced (Hyde, 2014; Zahn-Waxler, Shirtcliff, & Marceau, 2008). The first step towards 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).

5



Gender Differences in Child Aggression: Relations with Gender-Differentiated Parenting and Parents' Gender Stereotypes

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

Manuscript submitted for publication

ABSTRACT

The aim of the current study was to shed light on the mechanisms underlying the differential parental treatment of boys and girls, and the consequences of differential treatment for children's behavior. A moderated mediation model, in which the association between child gender and child aggression via parents' physical control was moderated by parents' gender stereotypes, was tested longitudinally in 299 two-parent families with a three-year-old child. Parents' physical control strategies were observed in the home and parents' implicit gender stereotypes were assessed with the Implicit Association Test (Wave 1). Child aggression was assessed when the child was three years old and again a year later (Wave 1 and 2). Fathers with strong traditional gender stereotypes used more physical control strategies with boys than with girls, whereas fathers with strong counter-stereotypical attitudes toward gender roles used more physical control with girls than with boys. Moreover, when fathers had strong traditional or counter-stereotypical attitudes toward gender roles, their differential treatment of boys and girls completely accounted for the gender differences in children's aggressive behavior a year later. Mothers used more physical control strategies with boys than with girls, regardless of their gender stereotypes. Mothers' gender-differentiated parenting practices were unrelated to child aggression a year later. Thus, paternal gender stereotypes play an important role in the differential treatment of boys and girls and gender-differentiated parenting appears to be an important mechanism behind gender differences in children's behavior.

Keywords: gender stereotypes, gender-differentiated parenting, gender differences, aggression, physical control

INTRODUCTION

Higher levels of aggressive behavior in boys than in girls represent one of the most pronounced gender differences found in the literature on child development (Archer, 2004; Hyde, 1984; Loeber, Capaldi, & Costello, 2013). It has been suggested that in addition to potential biological influences, these gender differences may arise because of parental differential treatment of boys and girls (Chaplin, Cole, & Zahn-Waxler, 2005; Mandara, Murray, Telesford, Varner, & Richman, 2012). Parents' gender-role attitudes might play a role in the differential treatment of their sons and daughters (Bem, 1981; Eagly, Wood, & Diekman, 2000), but this mechanism has rarely been studied.

One area of parenting that might be especially relevant to the study of gender-differentiated parenting in relation to differences in aggressive behavior between boys and girls is parental use of physical (rather than verbal) control strategies, such as grabbing, pushing, holding, physically redirecting, or spanking (Kochanska, Barry, Stellern, & O'Bleness, 2009). There is meta-analytic evidence that parental physical control strategies are related to children's aggressive behaviors (e.g., Gershoff, 2002; Kawabata, Alink, Tseng, Van IJzendoorn, & Crick, 2011; Rothbaum & Weisz, 1994), and there is evidence that parents are more likely to use physical control strategies with boys than with girls (e.g., Kochanska et al., 2009; Kuczynski, 1984; Lytton & Romney, 1991). However, the potential mediating role of parental use of physical control in the association between child gender and aggression has not been examined. In the current study we tested whether the relation between child gender and child aggression is mediated by parental use of physical control strategies, using a longitudinal design and observational assessments of mothers' and fathers' parenting behavior. In addition, we examined whether the relation between child gender and parental use of physical control strategies is moderated by parents' attitudes toward gender roles.

Both role theory and social role theory provide rationales for differential parenting of boys and girls, and for the link between gender-differentiated parenting and differences in aggressive behavior of boys and girls (Eagly et al., 2000; Hosley & Montemayor, 1997). Both theories focus on the historical division in gender roles, that is the female role of homemaker and the male role of economic provider. It is proposed that these roles and the characteristics associated with these roles lead to stereotypical ideas and expectations about men and women, which lead to differential treatment of men and women, which in turn leads to gender differences in behavior. When applied to parenting and child aggression, mothers and fathers are expected to use different parenting strategies with boys and girls in accordance with boys' and girls' divergent gender roles. Parenting girls would be more likely to focus on affiliation and interpersonal closeness, whereas parenting boys would be more likely

to focus on assertiveness and dominance. Furthermore, parents will teach their sons but not their daughters that aggressive responding is appropriate as part of a set of instrumental behaviors that fit with the masculine role of economic provider (Archer, 2004).

Additionally, gender schema theory (Bem, 1981) suggests that the way parents behave towards their children is guided by gender schemas that consist of gender-typed experiences. When the gender schemas of parents consist of strong stereotypical representations of gender roles, parents are more likely to show gender-differentiated parenting that reinforces gender-role consistent behavior (e.g., reinforcing aggression in boys but not in girls). When parents' gender schemas consist of 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., reinforcing aggression in girls but not in boys). Thus, the association between child gender and parenting practices is likely to depend on parents' attitudes toward gender roles (see Figure 5.1).

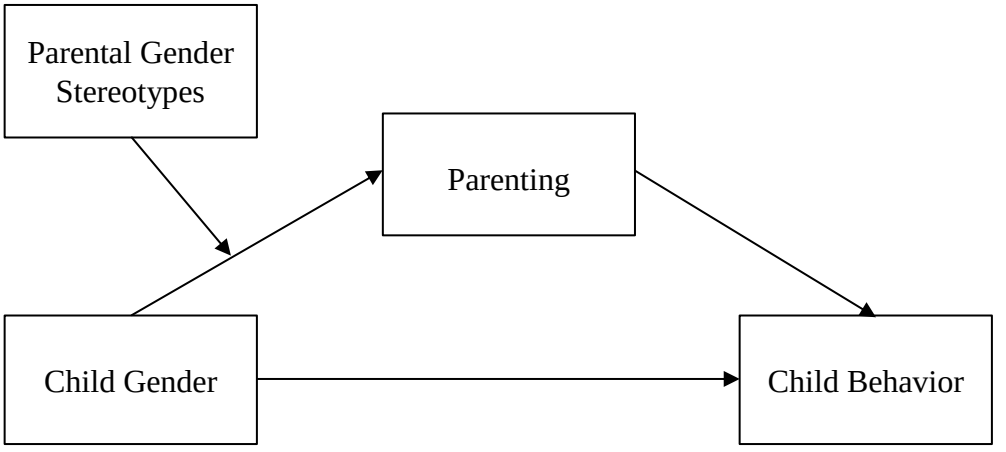


Figure 5.1 Theoretical framework of associations between gender-differentiated parenting, gender stereotypes, and gender differences in behavior.

Some studies provide indirect evidence for the moderating effect of parents' gender stereotypes on the differential treatment of boys and girls. Studies on gender-related parent-child conversation have found meaningful associations between mothers' gender stereotypes and the way they talk about gender with their children (Endendijk et al., 2014; Gelman, Taylor, Nguyen, Leaper, & Bigler;, 2004; Friedman, Leaper, & Bigler, 2007). For example, mothers with stronger gender stereotypes were more likely to make comments confirming gender stereotypes and to evaluate gender-role inconsistent behavior more negatively than mothers with more egalitarian gender-role attitudes (Endendijk et al., 2014; Friedman et al., 2007).

There is also some empirical evidence for a link between gender-differentiated parenting and subsequent differences in child behavior. Chaplin and colleagues (2005) showed that fathers attended more to girls' submissive emotion than to boys', whereas they attended more to boys' disharmonious emotion than to girls'. Moreover, they found that parental attention predicted later submissive emotions, and disharmonious emotions predicted later externalizing problems. However, they did not formally test for mediation. In another study the mediating role of parenting on the association between child gender and child behavior was tested, and it was shown that mothers were more responsive to girls than to boys in a puzzle game, which was related to more happy, engaged, and relaxed behavior in girls than in boys during the puzzle task (Mandara et al., 2012). However, these associations were tested concurrently, and initial differences between boys' and girls' behavior may have confounded the results.

Regarding the relation between child gender and child aggressive behavior, parent's use of physical control strategies is especially relevant as a potential mediator, as there is evidence that parents use more physical control with boys than with girls (e.g., Kochanska et al., 2009; Kuczynski, 1984; Lytton & Romney, 1991), and the differential use of physical control with boys and girls might partly explain gender differences in children's aggressive behavior. That is, social learning theories submit that the use of physical and harsh control provides a model for aggressive behavior, leading to a downward spiral of increasing negative behavior in both the child and the parent (Bandura, 1977; Patterson, 1982), a pattern that has been frequently confirmed in empirical research (e.g., Gershoff, 2002; Kawabata et al., 2011; Rothbaum & Weisz, 1994). Thus, when parents use more physical control strategies with boys than with girls, this might contribute to more aggressive behavior in boys than in girls.

It is important to examine parents' physical control strategies *in response to* challenging child behavior. First, physical control generally only occurs when there is a conflict between the wishes of the parent and those of the child (Kochanska et al., 2009). Second, coercion theory predicts that the use of negative control, such as physical strategies, by parents in response to disobedient behavior will ultimately lead to a downward spiral of increasing negative behavior by the child and the parent,

because repeated attempts by the parent to control the child in a negative way will lead to increasingly difficult behavior of the child (Patterson, 1982). Third, parents' gender-differentiated use of physical control might only be visible if control is assessed in response to boys and girls challenging behavior, as opposed to a more global assessment of parents' use of physical control. There is some evidence that mothers especially differentiate between boys and girls when responding to noncompliant child behavior, indicating that they were more likely to react with increasing harsh discipline to boys' than to girls' difficult or noncompliant behavior (McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996). Moreover, boys are more likely than girls to react with aggression and negative behavior to parental control, whereas girls are more likely to comply (Bezirganian & Cohen, 1992; Eron, 1992).

The Current Study

To shed light on the mechanisms underlying the differential treatment of boys and girls, and the consequences of this differential treatment for children's problem behavior, the current study examined the links between parents' attitudes toward gender roles, parents' gender-differentiated use of physical control strategies and gender differences in child aggressive behaviors. We tested the hypotheses that (1) the association between child gender and parents' use of physical control strategies is moderated by parents' attitudes toward gender roles, that (2) parents' use of physical control strategies is related to later aggressive behavior and that, following from the first two hypotheses, (3) for parents with strong gender- role attitudes (strongly stereotypical or strongly counter-stereotypical), their use of physical control strategies mediates the relation between child gender and later aggressive behavior in the child. In other words, we expect that parental gender stereotypes moderate the indirect effect of child gender, through physical control, on later child aggression (moderated mediation). We examine these models separately for mothers and fathers.

We aim to extend previous work on gender-differentiated parenting and gender differences in child behavior by (a) incorporating individual differences in parental gender stereotypes into the model, (b) adopting a longitudinal design to control for initial differences in behavior, and (c) using observational methods to assess parents' use of physical control strategies in response to children's disobedience, since differential parenting occurs mostly at an unconscious level and is therefore more likely to be captured with observational methods than with self-report measures (Culp, Cook, & Housley, 1983).

METHOD

Sample

This study is part of the longitudinal study *Boys will be Boys?* examining the influence of gender-differentiated socialization on the socio-emotional development of boys and girls in the first 4 years of life. Families with two children in the Western region of the Netherlands were eligible for participation. Families were included if the youngest child was around 12 months of age and the oldest child was between 2.5 and 3.5 years old. Exclusion criteria were single-parenthood, severe physical or intellectual handicaps of parent or child, and being born outside the Netherlands and/or not speaking the Dutch language. Between April 2010 and May 2011, eligible families were invited by mail to participate in a study with two home-visits each year over a period of 3 years. They received a letter, a brochure with the details of the study, and an answering card to respond to the invitation. The current paper reports on data from the first two waves (Wave 1: home visits around first birthday of youngest child, Wave 2: home visits around second birthday).

Of the 1,249 eligible families 31% were willing to participate (n = 390). The participating families did not differ from the non-participating families on age of fathers (p = .13) or mothers (p = .83), educational level of fathers (p = .10) or mothers (p = .27), and the degree of urbanization of residence (p = .77). The current paper focuses on the oldest child. Families were excluded if (1) the oldest child did not show noncompliant behavior during the discipline task with mother or father, thus precluding the observation of parental physical control (n = 76), (2) neither parent had completed the Child Behavior Checklist (see Instruments) at both waves (n = 11), and (3) when families had a missing value on the gender stereotype task due to computer failure or data logging problems (n = 4). These exclusion criteria resulted in a final sample of 299 families (156 boys, 143 girls). The included families did not differ from the excluded families in any of the background variables (all ps > .23). The children that did not show noncompliant behavior during our observation procedure were not different from the children that did show noncompliant behavior on our dependent variable, aggressive behavior (p = .37).

At the time of the first visit at Wave 1 children were on average 3.01 years old (SD = 0.30). At Wave 2, children were on average 4.01 years of age (SD = 0.30). At Wave 1 mothers were aged between 25 and 46 years (M = 33.95, SD = 3.90) and fathers were between 26 and 63 years of age (M = 36.73, SD = 5.09). At Wave 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 (80%) and fathers (75%) had a high educational level (academic or higher vocational schooling). 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 data set.

Procedure

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

Instruments

Implicit Association Task. At Wave 1 implicit gender stereotypes of fathers and mothers were assessed by a computerized version of the Implicit Association Task (IAT); the family-career IAT (Nosek, Benaji, & Greenwald, 2002). This version measures the association of female and male attributes with the concepts of career and family. The computer task was built with E-prime 2.0 (Schneider, Eschman, & Zuccolotto, 2002) based on the task on the Harvard Project Implicit demonstration website (https://implicit.harvard.edu/implicit/) and the Nosek et al. (2002) paper. The task consists of congruent blocks in which participants are requested to sort career attributes (e.g., the word 'salary') to the male category and family attributes (e.g., the word 'children') to the female category, and incongruent blocks in which participants have to sort career attributes to females and family attributes to males. They sort the stimuli (i.e., words) by pressing a blue button that corresponds to the male category or a red button for the female category.

To reduce possible order effects of the presentation of congruent and incongruent blocks, two precautionary measures were taken (Nosek, Greenwald, & Benaji, 2005): the number of practice trials on the fifth of the seven blocks of the standard IAT procedure was increased, and two versions of the IAT were constructed, one in which the congruent block was first administered and one in which the incongruent block was first administered. As expected, difference scores between the congruent and incongruent blocks were significantly higher on the version that started with the congruent block for both fathers ($p < .01$) and mothers ($p < .01$). The participating families were randomly assigned to one of the two versions so that the mother and father within one family always completed the same version of the IAT. The inclusion of task version as covariate in the current analyses did not change the

results. Participants conducted the IAT on a laptop computer. Reaction time and accuracy were automatically recorded for every trial.

The improved scoring algorithm by Greenwald, Nosek, and Benaji (2003) was used to determine each participant's level of implicit stereotypes. A high positive score represented more difficulties to pair male attributes to the family concept and female attributes to the career concept than to pair female attributes to the family concept and male attributes to the career concept. In other words, higher positive scores represent stronger stereotypical ideas about the roles of men and women. Negative scores represent counter-stereotypical ideas about gender roles.

Parental physical control strategies. At Wave 1 parental physical control strategies were measured during a *don't-touch-task*. During this task the parent was asked to put a set of attractive toys on the floor in front of both children, and to make sure the children did not play with or touch the toys for a period of two minutes. After 2 minutes, both children were allowed to play with only an unattractive stuffed animal for another 2 minutes, after which the task was finished and the children were allowed to play with all the toys.

Parental use of physical strategies to prevent or stop child non-compliance were event-coded separately for each child in the 10 seconds after the onset of the occurrence of child-noncompliant behavior (the child reaching for or touching the toys). Physical strategies include holding or pushing the child back, moving the toys out of reach, taking the toys from the child's hand, or blocking the way towards the toys (see Kochanska et al., 2009). More harsh strategies such as spanking or yanking the child's arm away from the toys were also included, but these hardly ever occurred in our sample. The total number of times physical strategies occurred was divided by the total number of non-compliance events to create a relative score for physical control.

Twelve coders rated the videotapes for parental physical control strategies. All dyads within the same family were coded by different coders to guarantee independency among ratings. A reliability set of 60 videotapes was used to determine inter-coder reliability. The mean intraclass correlation coefficient (absolute agreement) for number of non-compliant events was .97 (range .92 to 1.00), for physical control .93 (range .83 to .99). During the coding process regular meetings with coders were organized to prevent coder drift.

Child aggression. At Wave 1 and 2 the Child Behavior Checklist for preschoolers (CBCL/1½-5; Achenbach & Rescorla, 2000) was used to measure aggressive behavior. Both fathers and mothers indicated whether they had observed any of the described 55 problem behaviors in the last two months on a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). The internal consistencies of the aggression scale were .84 at Wave 1 and .85 at Wave 2 (Cronbach's alpha) for fathers and mothers. The CBCL scores of fathers and mothers on aggression were significantly correlated (Wave 1: $r(297) = .59$, $p < .01$; Wave 2:

$r(297) = .47$, $p < .01$) and did not differ significantly (Wave 1: $p = .64$; Wave 2: $p = .20$). To obtain a composite measure for aggressive behavior, father and mother scores were averaged per wave. In the current study, 24 children had missing data on the CBCL aggression scale in the second wave of the study. These missing values were predicted from the CBCL aggression scores in the first wave using linear regression. Analyses with and without imputed values yielded similar results, so the imputed values were retained in the current data set.

Data Analysis

All variables were inspected for possible outliers that were defined as values more than 3.29 *SD* below or above the mean (Tabachnick & Fidell, 2012). Outliers ($n = 3$) were winsorized by giving them a marginally higher value than the most extreme not outlying value (Tabachnick & Fidell, 2012). The aggression variables were not normally distributed and therefore square-root transformed to approximate normal distribution (Tabachnick & Fidell, 2012). A scatter matrix was used to detect possible bivariate outliers, but none were detected.

Pearson correlation coefficients were computed to examine the associations between all study variables. Independent-sample *t*-tests were conducted to examine gender differences among key variables and paired-sample *t*-tests were used to examine change in aggressive behavior from Wave 1 to Wave 2 and differences between mothers and fathers.

To examine the first hypothesis that the association between child gender and parental physical control was moderated by parental gender stereotypes, separate hierarchical regression analyses were conducted for mothers and fathers, with the inclusion of the dichotomous variable child gender (0 = boy, 1 = girl) and the centered variable parental gender stereotypes in the first step, and the interaction between the two variables added in the second step.

A moderated mediation analysis (Preacher, Rucker, & Hayes, 2007) was performed to examine the second hypothesis that parental gender stereotypes moderated the indirect effect of child gender, through parental physical control, on aggression at Wave 2, while controlling for aggression at Wave 1. This analysis was completed using the MODMED macro (Model 2) provided by Preacher et al. (2007) to obtain bootstrapped confidence intervals (CIs) for moderated indirect effects. Moderated mediation pertains to the interaction between gender stereotypes and child gender (moderator*independent variable) affecting the mediator (parental physical control) that is expected to predict child aggression. We applied an extension of the Johnson-Neyman (J-N) technique to moderated mediation (Preacher et al., 2007). This technique tests the significance of the indirect effect within the observed range of values of the moderator and identifies the value of the moderator for which the conditional indirect effect is statistically significant at a set level ($\alpha = .05$). Values of the moderator for which the mediation effect is significant constitute the region of

significance. Bootstrapped confidence intervals were used to avoid power problems introduced by the often asymmetric and non-normal sampling distributions of the indirect effect (Preacher & Hayes, 2004).

RESULTS

Preliminary Analyses

Table 5.1 displays the descriptive statistics and correlations for all study variables. Mothers' and fathers' gender stereotypes were significantly associated, as were their use of physical control strategies. Parental gender stereotypes were not associated with use of physical control or child aggression. More use of physical control by fathers (during Wave 1) was associated with more child aggression a year later (Wave 2), whereas mothers' use of physical control (during Wave 1) was related to child aggression at both Wave 1 and at Wave 2. Wave 1 and Wave 2 child aggression were highly correlated, and no mean-level changes between waves were found, $t(298) = 1.68$, $p = .09$. Regarding parent and child gender differences, mothers had significantly stronger gender stereotypes than fathers, $t(298) = -2.44$, $p < .05$, $d = 0.17$. Mothers and fathers did not differ in their mean levels of physical control, $t(298) = -1.38$, $p = .17$. In addition, mothers used significantly more physical control with boys than with girls, $t(297) = 2.67$, $p < .01$, $d = 0.31$. Fathers did not differ in their treatment of boys and girls, $t(297) = 0.83$, $p = .41$. Boys were more aggressive than girls both at Time 1, $t(297) = 2.82$, $p < .01$, $d = 0.33$, and at Time 2, $t(297) = 2.80$, $p < .01$, $d = 0.33$. Child gender was not associated with parental gender stereotypes (mothers: $t(297) = 0.92$, $p = .36$; fathers: $t(297) = -1.14$, $p = .25$). None of the study variables were significantly related to background variables like educational level or working hours (ps = .06 - .92). Analyses with and without the background variables as covariates yielded the same results.

Table 5.1 *Descriptive statistics and correlations for all study variables*

	1	2	3	4	5	6
1.Stereotypes father						
2.Stereotypes mother	.26**					
3.Physical discipline father	.04	.06				
4.Physical discipline mother	.05	.05	.18**			
5.Child aggression Wave 1	.02	.02	.08	.12*		
6.Child aggression Wave 2	-.06	-.07	.13*	.12*	.64**	
Overall *M* (*SD*)	0.28 (0.38)[c]	0.35 (0.43)[d]	0.42 (0.34)	0.46 (0.33)	4.27 (2.95)	4.52 (3.01)
Boys *M* (*SD*)	0.26 (0.37)	0.37 (0.43)	0.44 (0.34)	0.50 (0.32)[a]	4.73 (3.10)[a]	4.99 (2.97)[a]
Girls *M* (*SD*)	0.31 (0.39)	0.33 (0.42)	0.40 (0.34)	0.40 (0.33)[b]	3.78 (2.72)[b]	4.02 (2.99)[b]

Note. Child gender effect: [a] and [b] differ significantly, $p < .01$. Parent gender effect: [c] and [d] differ significantly, $p < .05$.

*$p < .05$, **$p < .01$.

Moderation Model

A hierarchical linear regression analyses was performed to test whether parental gender stereotypes moderated the association between child gender and parents' use of physical control. Child gender (β = -.05, p = .38) and fathers' gender stereotypes (β = -.05, p = .38) did not predict fathers' use of physical control in the first step (R^2 = .00, p = .53). In step 2, the association between child gender and fathers' use of physical control was significantly moderated by fathers' gender stereotypes (β = -.23, p < .01, ΔR^2 = .03, p < .01). The interaction effect is shown in Figure 5.2. Fathers with strong stereotypical attitudes toward gender used more physical control with boys than with girls, whereas fathers with strong counter-stereotypical attitudes toward gender used more physical control with girls than with boys. Finally, for mothers there was only a significant association between child gender and mothers' use of physical control (β = -.15, p < .01), indicating that mothers used more physical control with boys than with girls, irrespective of their gender stereotypes. Mothers' gender stereotypes did not predict mothers' use of physical control in the first step (β = .04, p = .50, step 1 R^2 = .03, p < .05) The interaction between child gender and mothers' gender stereotypes was not significant and did not improve the model (β = -.13, p = .11, ΔR^2 = .01, p = .11).

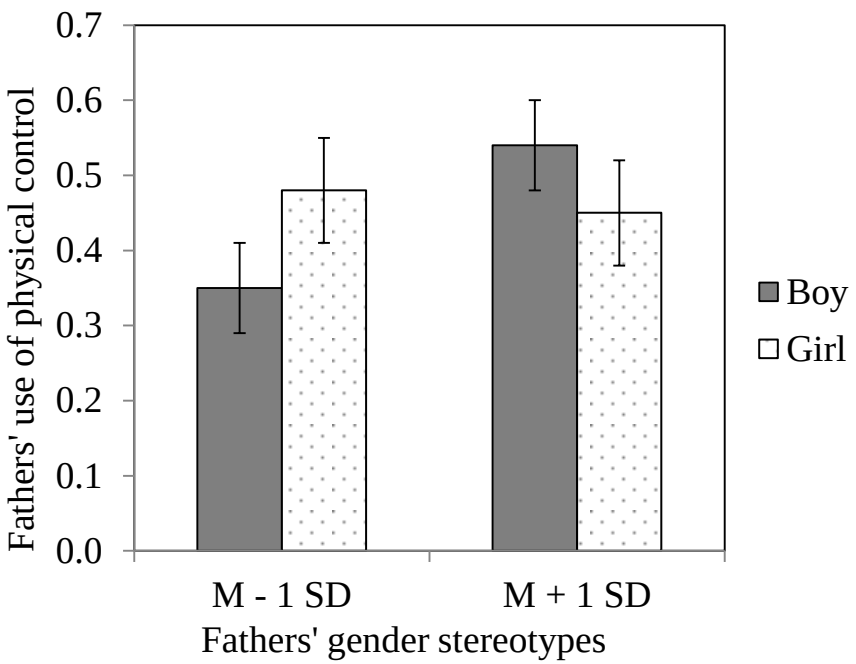


Figure 5.2 Interaction between child gender and fathers' gender stereotypes on fathers' use of physical control.

Moderated Mediation

Since fathers' gender stereotypes moderated the association between child gender and fathers' use of physical control, a bias-corrected (BC) bootstrapped moderated mediation analysis (with 5000 resamples) was performed to investigate if fathers' gender stereotypes moderated the indirect effect of child gender via physical control on aggression at Wave 2, controlling for aggressive behavior at Wave 1. The total model (including the moderator, interaction term, and covariates) accounted for 47% of the variance in child aggression ($R^2 = 0.47$, $p < .001$). This model was examined to determine whether fathers' gender stereotypes significantly interacted with child gender to produce differential effects of the predictor (i.e., child gender) on the mediator (i.e., fathers' use of physical control) controlling for aggression of the child at Wave 1. Specifically, we wanted to test the hypothesis that fathers' use of physical control mediates the relation between child gender and later aggressive behavior when fathers' gender stereotypes are extremely traditional or extremely counter-stereotypical.

Two regression analyses were conducted to test the moderated mediation hypothesis. In Table 5.2 normal theory tests (i.e., *p*-values) are provided for the moderator and mediator model. For the conditional indirect effects at different levels of gender stereotypes bootstrapped standard errors are presented (see Table 5.2 and Figure 5.3). In the mediator variable model, which is similar to the simple moderation model that was conducted in SPSS, fathers' gender stereotypes predicted fathers' use of physical control, whereas child gender did not. The significant interaction between child gender and fathers' gender stereotypes, that was also found in the moderation analysis in SPSS, suggests that the indirect effect of child gender on later aggression through fathers' use of physical control might be moderated by fathers' gender stereotypes. The dependent variable model provided further evidence for a moderated indirect effect, since child aggression at Wave 2 was significantly predicted by fathers' use of physical control, over and above the effect of aggressive behavior at Wave 1.

Table 5.2 *Indirect effect of child gender on aggression, via fathers' use of physical control, moderated by fathers' gender stereotypes*

	Mediator variable model (predicting physical control)			
Predictor	*B*	*SE*	*t*	*p*
Constant	0.36**	0.06	5.89	.00
Child aggression Wave 1	0.04	0.03	1.57	.12
Child gender[a]	-0.02	0.04	-0.61	.54
Gender stereotypes	0.07*	0.03	2.44	.02
Child gender*Gender stereotypes	-0.11**	0.03	-2.79	.01
	Dependent variable model (predicting child aggression Wave 2)			
Predictor	*B*	*SE*	*t*	*p*
Constant	0.72**	0.10	6.96	.00
Child aggression Wave 1	0.64**	0.04	14.99	.00
Child gender[a]	-0.10	0.06	-1.52	.13
Gender stereotypes	-0.12**	0.04	-2.66	.01
Child gender*Gender stereotypes	0.13*	0.06	2.03	.04
Physical control	0.19*	0.09	1.98	.04

Note. Bootstrap N = 5000. Unstandardized coefficients are shown. BCaL95 = 95% confidence interval lower limit. BCaU95 = 95% confidence interval upper limit.

[a] child gender: boy=0, girl=1.

* $p < .05$, ** $p < .01$.

The results of the J-N technique (see Figure 5.3, Table 5.3), provided further evidence of a moderated indirect effect, showing that if fathers have strong stereotypical ideas about gender roles the indirect effect of child gender, through fathers' use of physical control, on later child aggressive behavior, is significant. When fathers have strong counter-stereotypical attitudes toward gender roles the indirect effect was also significant. Overall, the signs of the path coefficients and the conditional indirect effect, and the outcomes of the simple moderation analysis in SPSS (see Figure 5.2) were consistent with the interpretation that physical control was associated with more aggressive behavior a year later, and that child gender was associated with fathers' use of physical control, but this association was different for fathers with strong traditional gender stereotypes and fathers with strong counter-stereotypical ideas about gender roles. Fathers with traditional gender stereotypes used more physical control with boys than with girls, which was related to more

aggression in these boys a year later. Fathers with strong counter-stereotypical attitudes toward gender used more physical control with girls than with boys, which was related to more aggression in these girls a year later. Since the direct effect from child gender to aggressive behavior was no longer significant in the moderated mediation model, gender differences in child behavior were completely accounted for by the differential father-child interaction patterns observed in fathers with strong stereotypical or counter-stereotypical attitudes toward gender roles. Exact values of the J-N technique can be found in Table 5.3. According to the BC confidence intervals, the critical values of fathers' gender stereotypes at which the indirect effect becomes significant are 0.50 on the stereotypical side (88 fathers in our sample) and -0.21 on the counter-stereotypical side (37 fathers in our sample).

Since for mothers only the main effect of child gender on physical control was significant, we did not perform a moderated mediation analysis for mothers. Therefore, the Preacher and Hayes approach to test mediation was applied using the macro package for SPSS available online to examine the direct and indirect effects of the predictors (i.e., child gender, mothers' use of physical control) on child aggressive behavior (Hayes, 2013). This method adopts the bootstrapping approach that does not assume that the sampling distributions of the indirect effect are normal, unlike the traditionally used Sobel test (Preacher & Hayes, 2004). Five thousand bootstrap resamples were used and 95% BC confidence intervals were computed. The indirect path from child gender, through mothers' use of physical control, to child aggressive behavior was not significant, B = -0.003, $S.E.$ = 0.01, BC CI = -0.027, 0.013. The direct effect of child gender on later child aggressive behavior was not significant either, B = -0.11, $S.E.$ = 0.06, p = .10.

Table 5.3. *Conditional indirect effects for different levels of fathers' gender stereotypes*

Fathers' stereotypes[b]	Conditional indirect effect at range of values of gender stereotypes[a]			
	Boot indirect effect	Boot *SE*	BCaL95	BCaU95
-2.33 (-0.61)	0.04*	0.03	0.004	0.117
-2.07 (-0.51)	0.04*	0.03	0.003	0.111
-1.81 (-0.41)	0.03*	0.02	0.002	0.095
-1.55 (-0.31)	0.03*	0.02	0.001	0.080
-1.29 (-0.21)	0.02*	0.02	0.000	0.067
-1.03 (-0.11)	0.02	0.01	-0.001	0.055
-0.52 (0.08)	0.01	0.01	-0.008	0.032
0.00 (0.29)	-0.01	0.01	-0.029	0.008
0.55 (0.50)	-0.02*	0.01	-0.053	0.000
1.06 (0.69)	-0.03*	0.02	-0.075	-0.002
1.58 (0.89)	-0.04*	0.02	-0.101	-0.004
2.10 (1.09)	-0.05*	0.03	-0.128	-0.006
2.63 (1.29)	-0.06*	0.04	-0.149	-0.006
2.89 (1.39)	-0.06*	0.04	-0.167	-0.008

Note. Bootstrap N = 5000. Unstandardized coefficients are shown. BCaL95 = 95% confidence interval lower limit. BCaU95 = 95% confidence interval upper limit.

[a] Controlling for child aggression at Wave 1. Bias corrected and accelerated (BCa) confidence intervals are reported.

[b] Values represent selected output provided by the Preacher et al. (2007) macro. *Z*-scores outside brackets, raw scores inside brackets.

* $p < .05$.

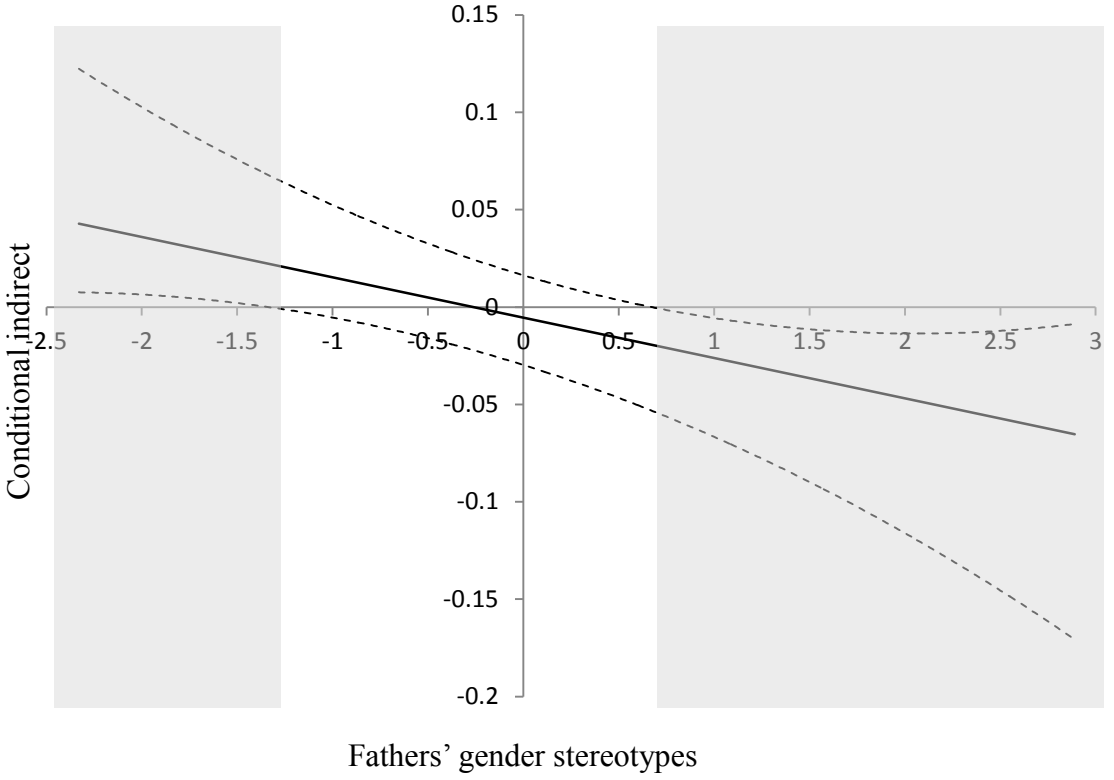


Figure 5.3 The indirect association between child gender and child aggression (mediated by fathers' physical control) for different levels of fathers' stereotypes, with bootstrapped 95% confidence bands (dashed lines).

The grey areas represent the areas of significance. The plot shows that with moderate to high stereotypical attitudes about gender roles (> .55 *SD*) fathers used more physical control with boys than with girls, and higher paternal physical control in turn predicted more aggressive behavior a year later. In case of high counter-stereotypical attitudes about gender roles (< -1.29 *SD*) fathers used more physical control with girls than with boys, and higher paternal physical control in turn predicted more aggressive behavior a year later.

DISCUSSION

The current study confirmed our hypothesis that fathers' gender-differentiated use of physical control is dependent on their gender-role attitudes. Moreover, when fathers' implicit attitudes toward gender roles were strongly stereotypical or strongly counter-stereotypical, their differential treatment of boys and girls was related to children's aggressive behavior a year later. Mothers used more physical control strategies with boys than with girls, regardless of their level of gender stereotypes. Mothers' gender-differentiated parenting practices were unrelated to aggressive behavior in either boys or girls a year later.

As expected, the association between child gender and the use of father's physical control strategies was influenced by his implicit attitudes toward gender roles. These results converge with evidence of the link between attitudes toward gender and actual gender-related behavior (Bem, 1981; Endendijk et al., 2013; Gelman et al., 2004; Friedman et al., 2007). Fathers with strong stereotypical attitudes toward gender roles use more physical control with boys than with girls. As a consequence boys might be socialized into a more masculine role, characterized by assertiveness, power, and dominance (Eagly et al., 2000; Hosley & Montemayor, 1997), because they will learn that using physical strategies is effective in getting one's own way (Bandura, 1977). On the other hand fathers with strong counter-stereotypical attitudes toward gender roles (i.e., women as economic providers, men as caregivers) show the opposite gender-differentiated parenting practices. By using more physical control with girls than with boys, these girls might be socialized towards a more masculine role than boys (Bandura, 1977; Eagly et al., 2000; Hosley & Montemayor, 1997). These fathers appear to encourage power assertive behaviors more in girls than in boys. Because individuals with counter-stereotypical attitudes are relatively rare (Frable & Bem, 1985) little is known about the development of these attitudes and the associated gender-related behaviors. There is evidence from one study that highly non-traditional gender-role attitudes can be a reflection of fathers' own gender roles (i.e., highly involved in child care, McGill, 2011). However, in the current study data on child care involvement was only available at the second wave of data collection, and it was unrelated to fathers' gender stereotypes at Wave 1. Future research should incorporate measures of parents' own gender roles and division of labor in and outside the home to further elucidate the development of counter-stereotypical attitudes and the behaviors associated with these attitudes. As opposed to fathers with strong traditional or counter-stereotypical attitudes, fathers with more egalitarian implicit gender-role attitudes (about 60% of our sample) treated boys and girls more similarly.

Our results suggest that gender-differentiated parenting practices indeed have important consequences for later child behavior. Fathers' differential treatment of

boys and girls was related to children's aggressive behavior a year later, but only when fathers' attitudes toward gender roles were strongly stereotypical or strongly counter-stereotypical. By using physical control strategies more often with boys than with girls, fathers with traditional gender-role attitudes appear to reinforce later aggression more in boys than in girls. On the other hand, fathers with counter-stereotypical attitudes reinforce aggression more in girls than in boys by their increased use of physical control strategies with girls. These results imply that fathers might employ the gender-differential use of physical control strategies to encourage their children to show behavior that is consistent with their attitudes toward gender roles (i.e., stereotypical or counter-stereotypical). Our finding that fathers' differential use of physical control strategies with boys and girls completely accounted for the relation between child gender and child aggressive behavior also provides evidence for the idea that gender-differentiated parenting is an important mechanism underlying gender differences in children's behavior (Chaplin et al., 2005; Mandara et al., 2012, Tamis-LeMonda, Briggs, McClowry, & Snow, 2009). Interestingly, the association between child gender and maternal use of physical control strategies was not dependent on mothers' attitudes toward gender roles. Overall, mothers used more physical control strategies with boys than with girls. Apparently, for mothers there is a less strong link between attitudes toward gender and differential behavior towards boys and girls, which converges with previous evidence that men are more concerned about acting in accordance with attitudes toward gender roles than women (Fischer & Arnold, 1994; Hort, Fagot, & Leinbach, 1990).

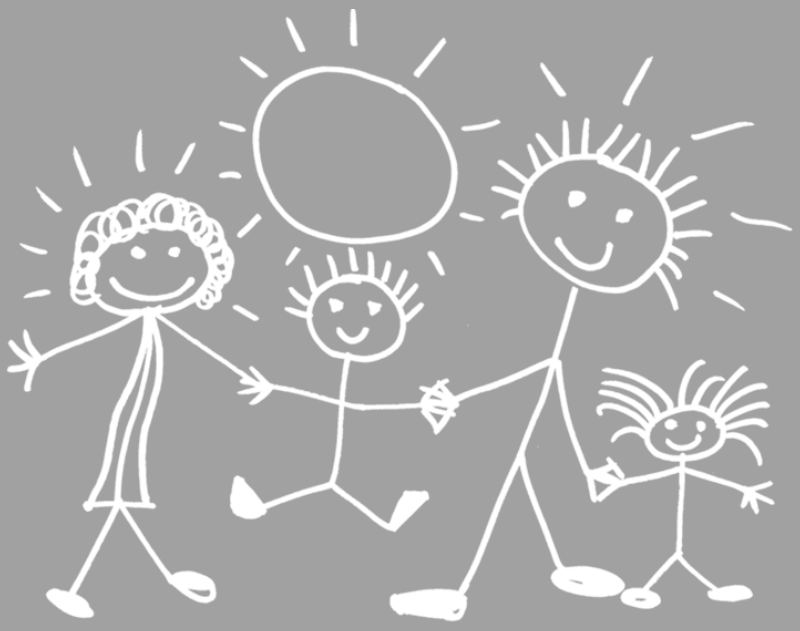
Mothers' differential use of physical strategies with boys versus with girls was also unrelated to boys' and girls' aggressive behavior a year later. These results are not surprising in light of previous studies on gender-differentiated parenting in relation to child outcomes. Chaplin and colleagues (2005) also found the strongest associations for fathers and not for mothers. In the same vein, Mandara et al. (2012) found associations between mothers' gender-differentiated use of positive parenting practices, such as sensitivity and responsiveness, and later child behavior, but no associations for more negative practices such as control. Mothers may make use of positive parenting strategies to socialize their children into the expected gender roles, with fathers making use of more negative strategies for gender socialization (Russel et al., 1998). In that case mothers' attitudes toward gender may be more strongly related to her differential use of *positive* parenting strategies, rather than any gender-differentiated use of *negative* strategies.

This study has some limitations. First, harsh physical control strategies, like spanking, rarely occurred in our sample, probably because of the high number of highly educated parents who generally use less harsh parenting practices than parents from a lower socioeconomic status (Hoff, Laursen, & Tardif, 2002). However, differences in the treatment of boys and girls were still found, as were meaningful associations with later child behavior. Second, although it was a strength of the

current study that our coding system was based on parental control in response to child non-compliance (i.e., physical control generally only occurs when there is a conflict between the wishes of the parent and those of the child), almost 20% of the families were excluded from the sample because the child did not show any noncompliance. This might have left us with the more disruptive part of our sample, reducing the generalizability of our results. However, there were no differences in aggressive behavior between compliers and non-compliers. Finally, we adopted a between-family design to examine differences in parenting boys and girls. With this approach parenting in families with boys is compared with parenting practices in families with girls. An important limitation of this approach is that differences in parenting practices do not necessarily reflect a gender difference in the offspring, but may also be related to other family characteristics. It is thus of vital importance to also examine gender-differentiated parenting longitudinally in a within-family design (i.e., compare boys and girls within families at the same age).

Despite these limitations our results provide important implications and directions for future research. First, the current study provides support for the theoretical assumptions of gender schema theory (Bem, 1981) and for the link between parents' gender-related attitudes and actual gender socialization of their children. Previous evidence in this area has been surprisingly weak (e.g., Fagot, Leinbach, & O'Boyle, 1992; Tenenbaum & Leaper, 2003), possibly because parents' attitudes were often assessed explicitly, whereas implicit stereotypes may be better predictors of behavior (Nosek et al., 2002). Second, our study highlights the importance of taking into account parents' implicit gender stereotypes when examining gender-differentiated parenting or gender socialization, since parents with egalitarian, strongly stereotypical, or strongly counter-stereotypical attitudes toward gender differ substantially in their parenting practices towards boys and girls. Parents at both extremes of the distribution (i.e., highly stereotypical, highly counter-stereotypical) showed the largest differences in the treatment of boys and girls. Third, even the more subtle forms of physical control strategies, such as grabbing, pushing, holding, or physically redirecting (representing most of the physical control acts in this study), predict aggression in children, suggesting a strong role for modeling and social learning (Bandura, 1977). Most importantly, gender-differentiated parenting indeed appears to be an important mechanism underlying gender differences in children's behavior. When fathers had strong traditional or counter-stereotypical attitudes toward gender roles, their differential use of physical control strategies with boys and girls completely accounted for later gender differences in child aggressive behavior.

6



The Gendered Family Process Model: An Integrative Framework of Gender in the Family

Joyce J. Endendijk, Marleen G. Groeneveld, and Judi Mesman

Manuscript submitted for publication

Gender is one of the most important organizers of social life (Blakemore, Berenbaum, & Liben, 2009), from the cradle to the grave. It shapes a large part of children's identity development, and influences the way they are talked to, the way they are parented, the opportunities they are provided with, and people's reactions to certain behaviors, hobbies, interests, and play styles. Children's gender development can be studied in different contexts, such as the family context, the school context, the peer group, and in relation to agents implicated in the gender socialization process, such as parents, siblings, teachers, peers, and the media (Blakemore et al., 2009). In the current review the focus will be on gender development of children and adolescents in the family context, because family processes are crucial factors in gender development, providing the first gender-related experiences that children incorporate in their gender concepts (Bem, 1981), which in turn shape the influence of other socializing agents.

Several general and broad theories of child or gender development have been applied to gender socialization processes in the family context (i.e., evolutionary theories, Trivers, 1972; social role theory, Eagly, Wood, & Diekman, 2000; social learning theories, Bandura, 1977; Bussey & Bandura, 1999). However, these theories do not specifically address gender-related family processes. There are also some family-context frameworks or models that mainly focus on very specific gender-related aspects or processes in the family system (i.e., gender schema theory, Bem, 1981, 1983; reciprocal role theory, Siegal, 1987). Comprehensive explanatory models combining biological, social, and cognitive perspectives on gender development are lacking, although they are essential for the continuation and expansion of the study of gender in the family context and for the understanding of child gender development. Therefore, in the current review we present the Gendered Family Process model (GFP-model), an integrative research framework of gender-related family processes.

Theoretical Framework and Explanatory Model

The Gendered Family Process model (see Figure 6.1) is based on family systems theories (e.g., Whitechurch & Constantine, 1993), biosocial perspectives on the family (e.g., Troost & Filsinger, 1993), Bronfenbrenner's ecological theory of child development (Bronfenbrenner, 1979), and more specific biological, social, and cognitive theories about gender development (i.e., hormonal perspectives, social role theory, social learning theory, gender schema theories). In family systems theories and biosocial family theories the family is viewed as a system encompassing both biological and social factors. Understanding of gender-related family processes requires considering the family as a whole rather than as "conglomerates of separate individuals" (Whitechurch & Constantine, 1993, p. 340), and attention to both biological and social or psychological factors. Thus, an adequate framework should

take into account all members of the family and all relations between family members.

Bronfenbrenner's ecological theory of child development states that the family system is not an isolated system, but is nested in and influenced by the larger societal and cultural environment (Bronfenbrenner, 1979). In addition, the small family system consisting of parents and their children is also embedded in an extended family context (i.e., grandparents, uncles, aunts, cousins, nieces, nephews), which may have an influence on gender-related processes in the smaller family context (McHale, Crouter, & Whiteman, 2003). The GFP-model focuses on the nuclear family (i.e., microsystem and mesosystem), the extended family (i.e., exosystem), and the larger cultural context (i.e., macrosystem).

Biological perspectives on gender-related family processes focus mostly on the influence of (prenatal) hormones on children's gender development and on the influence of, e.g., concurrent testosterone levels on fathers' and mothers' behavior in the family context (Hines, 2005). Social approaches, like social role theory and socialization theories (Bandura, 1977; Bussey & Bandura, 1999; Eagly et al., 2000), address gender-related socialization practices within the family context, such as modeling, shaping, or observational learning, that affect both parent and child gender cognitions and behaviors. Finally, cognitive theories about gender, like gender schema theories (i.e., Bem, 1981, 1983; Martin & Halverson, 1981, 1987), propose that children and parents incorporate all gender-related information from the environment (e.g., parents, siblings, child, extended family members, broader society and cultural environment) into gender concepts that will influence future behavior.

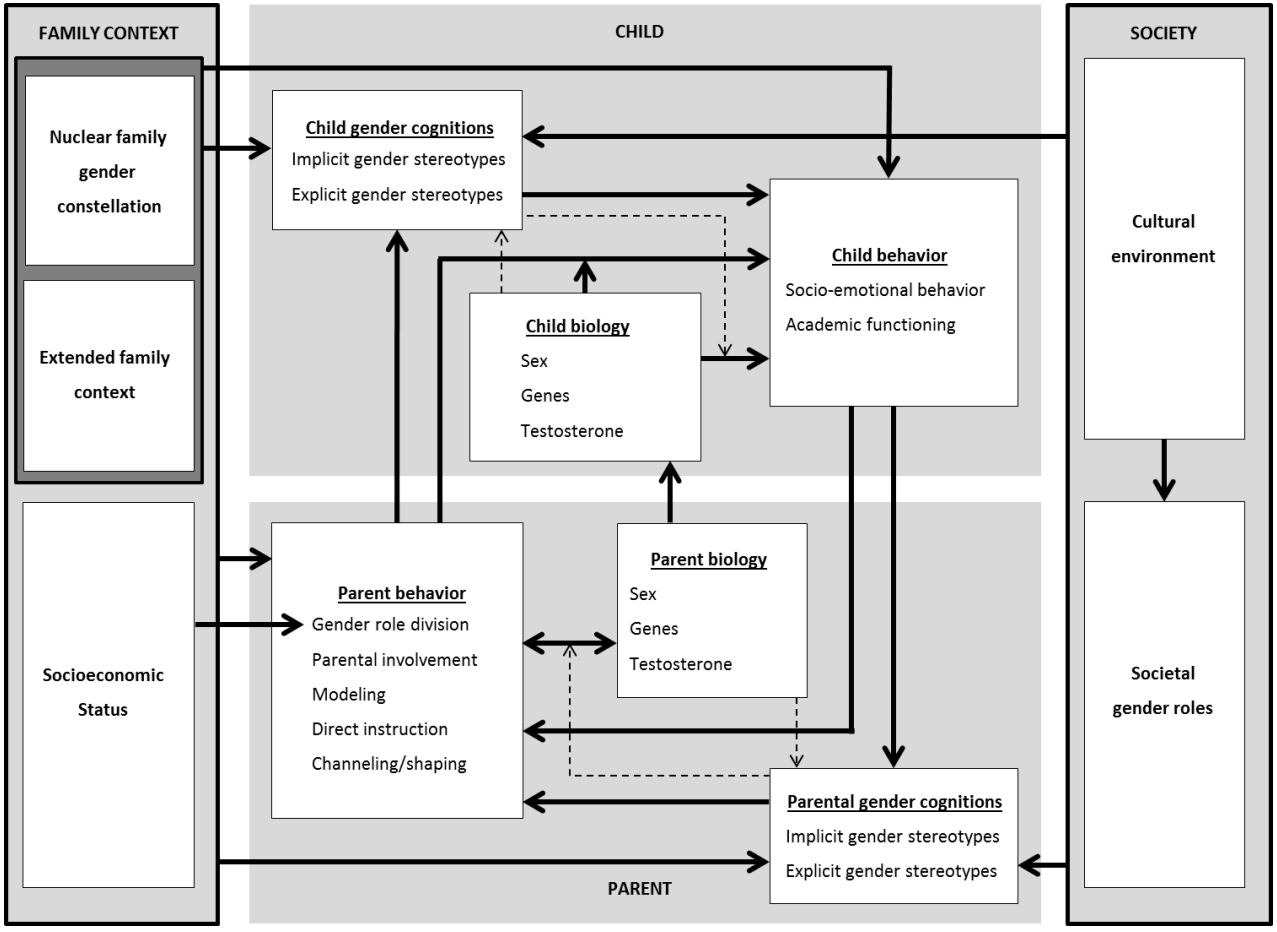


Figure 6.1 The Gendered Family Process Model.

Note to Figure 6.1. The light-grey boxes comprise subsystems (in white blocks) of the family context, the larger societal context, the child level, and the parent level. The dark-grey box refers to the combined influence of the nuclear and extended family. Arrows that originate from a light-grey or dark-grey box (e.g., arrow from family context to parent behavior) indicate that there is a combined influence of several subsystems on a gendered process. Arrows that originate from a white box (e.g.., arrow from child biology to child behavior) indicate that a subsystem has a specific effect on another construct in the model. Arrows that point to a specific construct within a white box (e.g., socioeconomic status to parental gender role division) indicate that the influence is only on this specific construct within the subsystem. Dashed arrows (e.g., arrow from parent biology to parent gender cognitions) represent theoretically plausible associations for which empirical evidence is absent or scarce.

Biological Perspectives: The Role of Parent and Child Biology in Family Process

Two types of biological perspectives can be distinguished; distal perspectives that are concerned with evolutionary processes behind the development of differentiated gender roles, and proximal perspectives that focus on mechanisms such as genetics, or hormones, that are directly associated with gender differences.

Evolutionary Perspectives

Background. Evolutionary theories, and especially the concepts of parental investment and sexual selection, may provide rationales for gender differences in behavior for both parents and children in the family context (Hyde, 2014). Evolutionary perspectives state that not only biological but also psychological characteristics that maximize the survival of the species through natural and sexual selection will become increasingly common in next generations. They also assume that different behaviors are adaptive for males and females (e.g., Buss & Schmitt, 1993). Specifically, parental investment addresses any parental behavior or investment directed to the offspring that benefits the offspring, but may also be detrimental to the parent's own future condition, survival, or further reproductive output (Trivers, 1972). Human mothers biologically invest more in their children than human fathers (e.g., egg cells are more precious than sperm cells , nine-month pregnancy, delivery). At birth, it is to the advantage of the person who already invested most in the offspring to take care of it (Cassidy, 1999). This may explain why mothers' involvement in child care is much more intensive than that of fathers. This difference in child-care involvement may in turn lead to differences in other domains (e.g., gender roles, working outside the home, behavior repertoires, Hyde, 2014). Due to the lower parental investment of males compared to females, there is a high degree of competition among males for females mates. In the context of inter-male competition aggressive behavior can be considered an adaptive trait, because males who are highly aggressive typically have more mating success than less

aggressive males. This rationale is often used to explain gender differences in aggression (e.g., Archer, 2004).

Application to family process. The evolutionary perspective can also be specifically applied to gender-related processes in the family context. Gender-differentiated parenting may have common grounds with the evolutionary perspective. From an evolutionary perspective one might argue that the differential treatment of male and female offspring is beneficial for the organism's survival and reproduction. This adaptive effect of treating male and female offspring differently might be closely related to its consequences on the behavior of male and female offspring (i.e., gender differences). It is possible that via gender-differentiated treatment parents try to emphasize the already present biological predispositions of their male and female offspring to increase their chances of reproduction and to prepare them for the roles they are expected to fulfill in society or family life. For example, it might be advantageous for parents to reinforce the biological predisposition towards aggression in their male offspring, because it will enhance the reproductive success of the offspring by being able to compete successfully with other males for female mates.

In light of this evolutionary perspective one would expect gender-differentiated parenting to be found across species and cultures. There is indeed evidence that parents treat male and female offspring differently with regard to anger displays, holding, and weaning in monkeys (for a review see LaFreniere, 2011), weaning and defense behaviors in blank voles (Koskela, Mappes, Niskanen, & Rutkowska, 2009), and licking and grooming in rats (Champagne, Francis, Mar, & Meaney, 2003; Moore & Morelli, 1979). In rats this difference was more readily observed within litters than between litters (Champagne et al., 2003). Meta-analytically parent's differential control of boys and girls was found across different cultures (Endendijk, Groeneveld, Mesman, & Bakermans-Kranenburg, 2014). However, variations in gender-differentiated parenting patterns have been found between cultures, which were related to cultural differences in gender roles (Low, 1989).

Representation in the GFP-model. Although appealing in many ways, the evolutionary perspective is often criticized for being too simplistic and for the difficulty of testing its predictions empirically (e.g., Blakemore et al., 2009; Eagly & Wood, 1999). Also, the evidence with regard to the universality of certain gender differences or gender-related processes in the family context seems to be mixed (Archer & Lloyd, 2002; Eckes & Trautner, 2000). Therefore, the evolutionary processes related to gender were not included in the explanatory model. In the model we focus on the proximal biological mechanisms that are more readily testable.

Proximal Biological Mechanisms

Background. The effects of prenatal levels of gonadal hormones (i.e., testosterone, estrogens) on behavior are the most extensively studied factors in gender

development research (Hines, 2005). In general prenatal testosterone levels are higher in human male fetuses than in female fetuses from about weeks 8-24 of gestation (Hines, 2005). This same period is also characterized by rapid brain development (Hines, 2005). Already in 1966 Hamburg and Lunde reviewed the evidence with regard to hormonal influences on gender development (Hamburg & Lunde, 1966). They concluded that in children with endocrine abnormalities who were genetically of a different sex than their assigned sex, socialization influences and rearing were more important for gender role development than their genetic sex.

Not only the prenatal levels of testosterone might be implicated in the child's gender development. The rise of testosterone levels during puberty also has important "organizational" and "activational" effects on the adolescent's brain and behavior (Berenbaum & Beltz, 2011; Peper, Hulshoff Pol, Crone, & Van Honk, 2011). Organizational effects are thought to be the more permanent effects of testosterone on brain structures and related behaviors, whereas activational effects are the more temporary alterations of brain functioning and behavior related to circulating levels of hormones (Berenbaum & Beltz, 2011). In an extensive review of the literature, Berenbaum and Beltz (2011) found little evidence of organizational effects of circulating testosterone levels during puberty on behavior, only on gender identity. There is also some evidence that rise in sex steroids during puberty are linked to gender-typical behavior problems that generally emerge during adolescence such as depression, eating disorders, and anxiety disorders (for a review see Berenbaum & Beltz, 2011). However, it is unclear whether these effects are organizational or activational. Another mini-review of neuroimaging studies concluded that the changes in sex steroids during puberty are involved in structural reorganization of grey and white matter in the brain (Peper et al., 2011).

It is important to note that children's testosterone levels are for a large part genetically determined (Harris, Vernon, & Boomsma, 1998; Hoekstra, Bartels, & Boomsma, 2006; Caramaschi, Booij, Petitclerc, Boivin, & Tremblay, 2012). Heritability estimates ranged from 66% to 85% (Harris et al., 1998; Meikle, Stringham, Bishop, & West, 1988) for adolescent males and 41% to 52% for adolescent females (Harris et al., 1998; Hoekstra et al., 2006). Non-shared environmental influences explained the rest of the variance (Harris et al., 1998; Hoekstra et al., 2006). When measures were corrected for daily fluctuations in testosterone levels and measurement error, the variance in testosterone levels would be practically entirely explained by genetic effects (Hoekstra et al., 2006). In infancy variation in testosterone levels was entirely explained by shared (prenatal) environmental factors (57%), such as maternal hormone levels, maternal smoking behavior and diet during pregnancy, and non-shared environmental factors (43%), such as position in the womb or differential parenting practices (Caramaschi et al., 2012). The prenatal testosterone environment is also influenced by mothers' circulating testosterone levels. There is evidence from studies of pregnant women

with elevated androgen levels or women who used androgenic hormones during pregnancy, that testosterone can pass from the maternal system to the fetus as indicated by higher fetal testosterone levels (Barbieri, 1999; Ehrhardt & Money, 1967). In contrast, studies comparing mothers carrying fetuses with or without congenital adrenal hyperplasia (CAH; genetic disorder in which fetus produces extremely high levels of testosterone) or mothers carrying male or female fetuses found no differences in maternal testosterone levels between the groups, indicating that testosterone does not appear to pass from the fetus to the mother (Hines et al., 2002; Meulenberg & Hofman, 1991).

Next to the 'classic' and dominant focus on the influence of gonadal hormones in the field of gender development, there is an emerging view that direct genetic effects play an important role as well (Ngun, Ghahramani, Sánchez, Bocklandt, & Vilain, 2011). Genetic effects on gender development are difficult to investigate, but evidence is starting to emerge indicating that genes on both the X and Y chromosome are associated with behavioral gender differences (for a review see Blakemore et al., 2009; Ngun et al., 2011). For example, manipulated mice that are genetically male, but hormonally female (i.e., deletion of *Sry* gene on Y chromosome responsible for testis formation), show aggression and parenting behaviors like pup retrieval at the level of normal male mice (Gatewood et al., 2006). These results indicate that genes on the Y chromosome other than *Sry* have an effect on aggression and parenting behavior of males. In addition, studies of manipulated mice with one X chromosome found increased anxiety in 1X mice compared to 2X mice, indicating X gene(s) to be involved in modulating fear reactivity (Cox, Bonthuis, & Rissman, 2014). There are humans with chromosomal abnormalities similar to these mice. Research from males with Klinefelter syndrome (extra X chromosome) has found that these men show impaired social processing, verbal abilities, and cognitive functioning compared to normal controls (Cox et al., 2014). Girls with Turner syndrome (absence of or abnormality in one X chromosome) have been found to be at higher risk for autism, and have impaired visuospatial skills, memory, and attention (Cox et al., 2014). So, there is also evidence from studies with humans for behavioral effects of sex-linked genes on the X chromosome. Interestingly, both the absence of an X chromosome in girls and the presence of an extra X chromosome in boys seem to be associated with more male-typical behavior profiles.

Application to family process. Recent studies examining the association between testosterone levels and gender differences in behavior have demonstrated that girls who are exposed to high levels of testosterone prenatally (i.e., genetic disorder congenital adrenal hyperplasia; CAH) show increased male-typical play and interests and reduced female-typical play and interests (Auyung et al., 2009; Berenbaum & Beltz, 2011; Hines, 2005). Moreover, natural variations in prenatal testosterone levels have also been linked to variations in girls', but not boys', gender-role behavior (Cohen-Bendahan, van de Beek, & Berenbaum, 2005). The more consistent

association between prenatal testosterone variability and gender-role behavior in girls than boys might be due to the differential socialization of boys and girls (Hines et al., 2002). For example, parents reinforce gender-typical behaviors more in boys than in girls, whereas they discourage cross-gendered behavior more in boys than in girls (Hort, Fagot, & Leinbach, 1990; Leaper, 2000). So, a hormonal predisposition towards cross-gendered behavior might be counteracted more by parental socialization influences in boys than in girls (Hines et al., 2002).

In rhesus monkeys there is ample evidence that the social environment modifies the effects of prenatal hormones on behavior (Wallen, 1996). Money and Ehrhardt (1972) were among the first researchers examining the interplay between biological and environmental factors in human gender development. In their work they focused especially on the influence of gonadal hormones on prenatal development and puberty. They theorized that the differential exposure of boys and girls to gonadal hormones in the womb is related to subtle gender differences in brain development and behavior, which together with socialization influences would play a critical role in gender development.

However, in the child development literature there are few studies empirically testing the combined influence of prenatal testosterone levels and socialization influences. We only know of one study examining this in a sample of normally developing children (Booth, Johnson, Granger, Crouter, & McHale, 2003). They showed that when parent-child relationship quality was high, the association between testosterone and risk-taking behavior or depressive symptoms was less strong than when parent-child relationship quality was low (Booth et al., 2003). Most studies have been conducted on children with CAH, examining the hypothesis that it is not only the high prenatal testosterone causing the boy-typical behaviors in CAH girls, but the hormonally induced cross-gendered appearance of girls with CAH that leads to differential treatment by parents, which in turn encourages cross-gendered behavior tendencies. The results of these studies are mixed. Most studies found that parents did not treat their daughters with CAH differently than they treated their unaffected daughters (for a review see Cohen-Bendahan et al., 2005). One study found that both mothers and fathers encouraged girl-typical toy play more in their daughters with CAH than in their unaffected daughters (Pasterski et al., 2005), whereas another study showed that parents encouraged more boy-typical and less girl-typical toy play in girls with CAH compared to unaffected girls (Wong, Pasterski, Hindmarsh, Geffner, & Hines, 2013). It should be mentioned that most of these studies used parental self-report or small samples. Differential parenting occurs mostly at an unconscious level and is therefore more likely to be captured with observation methods than with self-report measures (Culp, Cook, & Housley, 1983).

A similar mediational mechanism with socialization mediating the association between prenatal testosterone and child behavior that is found for girls with CAH might also play a role in the gender development of normally developing

children. We can elaborate on this idea from the perspective of studies on gene-environment correlation (rGE, Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983). With regard to the family context three types of rGE have been proposed (Plomin et al., 1977; Scarr & McCartney, 1983). First, with passive rGE parents provide both the genes and the environment that lead to certain child behaviors. For example, the association between negative parenting practices and children's disruptive behaviors can be seen as a reflection of parents' and children's shared genetic tendency towards disruptive behaviors and the negative environment parents create with their disruptive behaviors. Second, active rGE refers to children's active selection of their environments based on their genetic predispositions. For example children with a genetic predisposition towards disruptive behaviors or difficult temperament may actively seek conflict with their parents. The third type, evocative rGE refers to the evocative effect that genetically predisposed child characteristics have on parent behavior. For example, children with genetically-driven tendencies to be cooperative and/or prosocial would be more likely to elicit positive reactions from their parents, while children with genetically-driven tendencies toward disruptive behavior would be more likely to elicit negative reactions from their parents (Pardini, 2008).

There is a large body of research mostly using self-report data that suggests genetic child-driven effects on parenting (see for meta-analytic evidence Klahr & Burt, 2013). Large population-based longitudinal twin studies have shown that children with a cooperative and/or prosocial predisposition 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 (e.g., Boeldt et al., 2012; Jaffee et al., 2004; Larsson et al., 2008). Also several adoption studies found that adopted children with a genetic predisposition towards antisocial behavior (from their biological parents) evoke more harsh and inconsistent discipline from their adoptive mothers and fathers (e.g., Ge et al., 1996; Riggins-Caspers, Cadoret, Knutson, & Langbehn, 2003). It should be mentioned that the effects in these studies were modest. With the results from these studies in mind, one can argue that hormonally or genetically induced differences in behavior of boys and girls elicit differential treatment by parents, which in turn might enhance the biologically predisposed gender differences in children's behavior.

Regarding the influence of biological factors on parental behavior, levels of circulating gonadal hormones have been associated with gender differences in aggression and cognitive abilities in adolescence and adulthood (Blakemore et al., 2009). Normal testosterone levels are higher in men than in women from puberty onwards. Levels of circulating testosterone have also been specifically linked to family processes. In the parenting context the influence of testosterone is often presented within a trade-off framework that contrasts low testosterone levels and parenting with high testosterone levels and competitive challenges or mating (Van

Anders, Tolman, & Volling, 2012). This trade-off is then framed via the "challenge hypothesis" which, when extended to the family context, predicts that high testosterone levels inhibit parenting, and that cues associated with children, child care, or parenting decrease testosterone levels (Wingfield, Hegner, Dufty, & Ball, 1990) in both mothers and fathers (Gettler, McDade, Feranil, & Kuzawa, 2011; Kuzawa, Gettler, Huang, & McDade, 2010), although the vast majority of studies examining the influence of circulating testosterone on behavior have been conducted in men.

A number of studies found support for the challenge hypothesis. For example, marriage and fatherhood have been found to be consistently associated with lower levels of circulating testosterone (Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002; Gettler et al., 2011). Moreover, more involvement in child care and time spent with children were associated with subsequent lower testosterone levels in fathers (Gettler et al., 2011; Storey, Noseworthy, Delahunty, Halfyard, & McKay, 2011). However, studies examining testosterone changes in response to baby cues have shown that baby cries actually increase testosterone levels in men (Fleming et al., 2002; Storey et al., 2000). In addition, administration of testosterone enhances, rather than suppresses, neural responsivity to baby cries in women (Bos et al., 2010). These divergent results to baby cries can be interpreted in light of the Steroid/Peptide Theory of Social Bonds which states that "only those infant/parent contexts that involve nurturance will decrease testosterone; those that involve competitions (real or imagined) will increase testosterone" (Van Anders et al., 2012, p. 31). A recent study that examined testosterone changes in men in response to an interactive baby doll paradigm (Van Anders et al., 2012) found evidence for the Steroid/Peptide Theory of Social Bonds. It was demonstrated that baby cries do decrease testosterone levels in men, but only when cries could be terminated by nurturant responses. In contrast, baby cries to which men were not able to respond with nurturing behaviors (i.e., listen to playback of baby doll's sounds) increased testosterone levels.

These studies seem to suggest that more paternal involvement leads to lower circulating levels of testosterone and not the other way around (i.e., low testosterone levels lead to more paternal involvement). However, there are also studies providing evidence for the proposition that (genetically based) variations in basal testosterone levels can be considered as a more trait-like feature associated with variations in paternal involvement and quality of involvement. For example, lower basal testosterone levels are associated with greater paternal responsiveness (Alvergne et al., 2009), and more optimal father-child behaviors (Weisman, Zagoory-Sharon, & Feldman, 2014). Based on the studies presented above it seems plausible that the association between testosterone and parental involvement is bidirectional. Basal testosterone levels influence parental behavior, but at the same time cues associated with marriage, children, child care, or parenting can lead to short-term or longer-term fluctuations around this basal level. More longitudinal research is necessary to disentangle the precise direction of effects.

Studies that examined testosterone changes in response to child/parenting cues generally have found large individual differences in testosterone variability, with some parents showing almost no change in response to these cues and others showing large changes. Individual differences in testosterone variability might be associated with differences in parental involvement or parenting quality. For example, fathers showing a decrease in testosterone levels in response to marriage or fatherhood, are less likely to divorce or have marital problems (Gray et al., 2002) and are more likely to have a positive father-child relationship (Weisman et al., 2014), compared to fathers showing a smaller or no decrease in testosterone levels. However, these first results remain to be replicated.

Mothers and fathers basal testosterone levels might not only be related to parental involvement, but also specifically to gender socialization practices (Cohen-Bendahan et al., 2005). For example, mothers with high basal testosterone levels may parent their daughters differently than mothers with low basal testosterone levels, possibly because they have opposite-gender interests or reinforce their daughters' male-typical behavior (Cohen-Bendahan et al., 2005). Similarly, fathers with low basal testosterone levels may show more female-typical behaviors and interests or encourage their sons to play with girls' toys.

A very small body of research examined the neurobiological origins of gender schemas or gender stereotypes (Quadflieg & Macrae, 2011). Neuroimaging studies found that gender stereotypes were associated with activity in the brain during social judgment tasks, and especially in regions linked to semantic retrieval and categorization (Mitchell, Ames, Jenkins, Benaji, 2009), regions frequently linked to social cognition (Contreras, Benaji, & Mitchell, 2012), areas associated with evaluative processing and the representation of action knowledge (Quadflieg, Turk, Waiter, Mitchell, Jenkins, & Macrae, 2009). With regard to the influence of gonadal hormones it has been found that testosterone and gender stereotypes have an interactive effect on gender differences in cognition (Hausmann, Schoofs, Rosenthal, & Jordan, 2009) and math performance (Josephs, Newman, Brown, & Beer, 2002), indicating that testosterone only influenced performance when gender stereotypes were activated. It also seems plausible that testosterone levels in parents and children may have a direct influence on their gender cognitions. For example males with low testosterone levels may have more egalitarian gender cognitions than males with high testosterone levels, possibly because they have opposite-gender interests (Cohen-Bendahan et al., 2005) or show less male-typical behavior.

Proximal biological mechanisms in the GFP-model. First, the model includes a direct path from child biology to child behavior, because there is ample evidence that especially the child's prenatal testosterone levels have a direct influence on the child's gender-typical socio-emotional behavior, cognitive skills, and academic achievement. Second, we included a path from child biology, to child behavior, to parent behavior, to child behavior. In this pathway genetically or hormonally

predisposed differences in behavior or temperament of boys and girls evoke differential parental reactions, which in turn enhance biologically predisposed behavioral differences between boys and girls. Third, the model includes an interaction between biology of the child and parental gender socialization behaviors, indicating that the child's biology modifies the influence of parental socialization on child behavior. Regarding the influence of parents' biology, we included a direct path from parent to child biology, because of the heritability of testosterone levels and the influence of maternal testosterone levels on fetal testosterone. There is a bidirectional arrow between parent biology and behavior, because it remains unclear if parenting or becoming a parent influences testosterone levels or if testosterone levels influence parenting behaviors.

The model also includes dashed arrows for associations on which there is an urgent need for more studies. There are interactions between biology and gender cognitions for both parent and child, indicating that testosterone might only influence gender-related behaviors when gender stereotypes are activated. There is also a direct arrow from biology to gender cognitions for both parent and child, representing the possible influence of testosterone on gender cognitions.

Social Approaches: The Parent-Child Relationship

Social Role Theory

Background. Both role theory and social role theory provide rationales for family processes implicated in children's gender development (Eagly et al., 2000; Hosley & Montemayor, 1997). Both theories focus on the historical division in gender roles, and particularly on the female role of homemaker and the male role of economic provider. The male role is characterized by competence, independence, assertiveness, power, and leadership, whereas females are seen as kind, considerate, helpful, nurturing, and caring. According to social role theory "the differences in behavior of women and men [..] originate in the contrasting distributions of men and women into social roles" (Eagly et al., 2000, p 125). More specifically, it is proposed that gender roles and the characteristics associated with these roles lead to stereotypical ideas and expectancies about men and women, that will guide future behavior (Bem, 1981; Macrae & Bodenhausen, 2000). Thus, stereotypical ideas about gender roles will lead to differential treatment of men and women, which in turn lead to gender differences in behavior.

An often-heard concern with social role theory is that the concept of gender roles (i.e., male as economic provider, female as homemaker) is no longer applicable to current-day society. In the last decades a shift in gender role patterns has occurred in most Western societies: mothers' participation in the labor market has increased substantially and fathers take more active roles in their children's socialization

(Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Lamb, 2010). Even though the division of gender roles has become less strict in most modern Western societies, gender roles still fulfill important explanatory purposes. For example, despite the increase of paternal involvement in the family, maternal involvement remains substantially higher: in most Western countries mothers show a two- to threefold investment in time spent on child care compared to fathers (Huerta et al., 2013; The Fatherhood Institute, 2010). Thus, consistent with role theory, mothers continue to be the primary caregivers of young children in most families. Moreover, even though men and women take on the role of economic provider, they have different occupations that are often convergent with the characteristics associated with the historical gender roles (U.S. Department of Labor, 2012). For example, females are overrepresented in educational, caretaking, and nurturing occupations, whereas males are overrepresented in occupations that are associated with power, physical strength, status, and agentic personality characteristics (i.e., management, engineering). So even though some aspects of traditional gender roles have become less salient over time, gender role theory is still very relevant to current-day societies.

Application to family process. The different roles and responsibilities mothers and fathers have in the family may lead to differences in behavior towards their children. Also, the different characteristics associated with the male and female role may result in differences in parenting and parental involvement between mothers and fathers. There is meta-analytic evidence that fathers differ from mothers in speech with their children (Leaper, Anderson, & Sanders, 1998), and evidence for differences between mothers and fathers in sensitivity (e.g., Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Hallers-Haalboom et al., 2014; Lovas, 2005), and discipline (e.g., Gunnoe & Mariner, 1997; Power, McGrath, Hughes, & Manire, 1994; Tulananda & Roopnarine, 2001). Second, based on social role theory mothers and fathers are expected to use different parenting strategies with boys and girls in accordance with prevailing gender roles. Parenting behavior towards girls would then be more likely to focus on affiliation and interpersonal closeness whereas parenting behavior towards boys would be more likely to focus on assertiveness and dominance. Social role theory also proposes that fathers are more inclined to socialize their children, especially their sons, into the gender roles proposed by society (Eagly et al., 2000). Thus, fathers are expected to use more gender-differentiated parenting than mothers. This proposition was also made by Johnson (1963) in her reciprocal role theory that drew upon the psychoanalytic processes of identification. Meta-analytically there is indeed some evidence that fathers differentiate more between boys and girls than mothers (Lytton & Romney, 1991). However, this meta-analysis has been criticized for using too-broad categories of socialization behaviors, including few observational studies, and not weighing study results by sample size (Keenan & Shaw, 1997).

Social role theory in the GFP-model. Social role theory proposes pathways from society's division in gender roles to parent and child gender cognitions to gender-related behavior of both parent and child. In addition, differences between mothers' and fathers' roles, parenting practices, and involvement in the family are stressed as a consequence of societies' gender roles and associated gender cognitions.

Social Learning Theories

Background. Originating from behaviorism, social learning theories were developed in the 1960s to study the development of social behaviors (Bandura, Ross, & Ross, 1961; Bandura & Walters, 1963). Mischel (1966) was the first to apply social learning principles to children's gender development. Central to these theories are the concepts of imitation/modeling and reinforcement/punishment. Observational learning from available models in the child's environment is an important factor in children's gender development.

Application to family process. In the family context much gender-related information is available for the child to imitate. First, parents create a highly gendered environment for their children by the toys, clothes, activities, and chores they choose for them (Pomerleau, Bolduc, Malcuit, & Cossette, 1990), the books or media they expose their children to (Birnbaum & Croll, 1984; Gooden & Gooden, 2001), and even by the names they give their children (Barry & Harper, 1995). This process is also called 'channeling or shaping' children's gender development (Blakemore et al., 2009; Eisenberg, Wolchik, Hernandes, & Pasternack, 1985). Second, parents are models for gender-typical behavior through their own behaviors, occupations, and interests. In the family context, mothers and fathers have been found to differ on time spend on child care in most Western countries (Huerta et al., 2013; The Fatherhood Report, 2010), the professions they pursue (U.S. Department of Labor, 2012), and their play and interaction styles (Leaper et al., 1998; Paquette, 2004). By observing these differences between mothers and fathers, children will learn how males and females act. Third, parents can provide direct gender-related instruction to their children, for example by the way they talk to their children about gender (Gelman, Taylor, & Nguyen, 2004). To our knowledge only four studies have systematically examined gender socialization via parent-child communication about gender (DeLoache, Cassidy, & Carpenter, 1987; Endendijk et al., 2014; Gelman et al., 2004; Friedman, Leaper, & Bigler, 2007). These studies provided evidence for they idea that talking about gender is an important factor in children's gender development.

Another way in which parents influence the gender development of their children is via gender-differentiated parenting. Parents treat boys and girls differently, which especially in families with both boys and girls sends the message that boys and girls are different. Although the differences are usually small, parents have been consistently found to treat boys and girls differently with regard to physical care in non-Western societies or financial investments in Western societies (for a review see

Lundberg, 2005), emotion socialization (e.g., Chaplin, Cole, & Zahn-Waxler, 2005; Fivush, 1998; Fivush, Brotman, Buckner, & Goodman, 2000), conversations (see meta-analysis by Leaper et al., 1998), risk taking (e.g., Morrongiello & Dawber, 1999; Morrongiello & Hogg, 2004), discipline (see meta-analyses by Endendijk et al., 2014; Lytton & Romney, 1991), and play style (e.g., physical play or pretend play; Lindsey & Mize, 2001; Paquette, Carbonneau, Dubeau, Bigras, & Tremblay, 2003).

With regard to the differential treatment of boys and girls, parents may also respond differently to the same behaviors in boys and girls. This process is distinct from the modeling/imitation processes discussed above in that it focuses more on the social learning processes of reinforcement, punishment, and extinction. In general social learning theory states that responding to behavior (i.e., reinforcement), negatively or positively, will increase the frequency of that particular behavior in the future, whereas ignoring behavior (i.e., extinction) will decrease the frequency of behavior. In the 1970s Maccoby and Jacklin (1974) found very little evidence for the hypothesis of differential reinforcement contingencies for boys and girls when they reviewed the literature on parents' differential reactions to boys' and girls' behaviors. However, since then evidence started to emerge supporting the differential reinforcement contingency hypothesis. For example, parents are more likely to respond positively to girls' than to boys' prosocial behavior (Hastings et al., 2007), to react with increasing harsh discipline to boys' than to girls' difficult or noncompliant behavior (McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996), punish boys more often for their aggression than girls (Eron, 1992), but when the angry and noncompliant behaviors continue they give in to boys more often than to girls (Chaplin et al., 2005; Radke-Yarrow & Kochanska, 1990).

There are some unresolved issues in the literature on gender-differentiated parenting. First, almost all studies adopt a between-family design in which parenting in families with boys is compared with parenting in families with girls. It is essential to examine gender-differentiated parenting within families to take into account the possible influence of between-family differences. Second, although gender-differentiated parenting has been labeled as an important factor influencing child behavior, very few studies have actually examined the link between gender-differentiated parenting and child behavior. One study showed that fathers attended more to girls' submissive emotion than to boys', whereas they attended more to boys' disharmonious emotion than to girls' (Chaplin et al., 2005). Moreover, they found that parental attention predicted later submissive emotions, and disharmonious emotions predicted later externalizing problems. However, they did not formally test for mediation (i.e., parent behavior mediates association between child gender and child behavior). In another study the mediating role of parenting on the association between child gender and child behavior was tested, and it was shown that mothers were more responsive to girls than to boys in a puzzle game, which was related to more happy, engaged, and relaxed behavior in girls than in boys during the puzzle task (Mandara,

Murray, Telesford, Varner, & Richman, 2012). However, these associations were tested concurrently, and initial differences between boys' and girls' behavior may have confounded the results. Third, it is difficult to disentangle child-gender effects on parenting or parental reactions from effects of gender-specific behavioral or temperamental differences. In addition, the direction of effects is often unclear. For example, to date there is too little evidence to determine if the differential treatment of boys and girls results from parental attitudes about how to treat boys versus girls, or as a reaction to biologically predisposed gender differences in child behavior, or a combination of both.

Social learning theories in the GFP-model. Social learning theories propose several ways in which parents can socialize their children with regard to gender, such as channeling, shaping, direct instruction, gender-differentiated parenting, and modeling of their own gender roles and parental involvement. According to these theories there is a direct influence of parental gender socialization practices on child behavior. However, as will become evident in the next section on cognitive theories of gender development, this influence is likely to be at least partially mediated by the child's cognitions about gender. Besides the mediation by the child's gender cognitions it seems likely that socialization pressures keep having a direct effect on child behavior, especially for younger children who are still developing their gender cognitions.

Cognitive Approaches: The Role of Parent and Child Cognitions About Gender

Background

One of the founders of the cognitive perspective on gender development is Kohlberg (1966). In the book *The Development of Sex Differences*, edited by Maccoby (1966), Kohlberg wrote a chapter on the cognitive influences on gender development which set the stage for a new way of investigating gender development. Central to this theory is the idea that children are not passive recipients of all gender-related information from their environments, but instead play an active role in learning about gender-typical behavior and gender-related attitudes. The learning process is characterized by three cognitive stages in which children first acquire gender identity, followed by gender stability, and last gender consistency or constancy. Kohlberg ascribes children's movement through the stages to the increasing complexity of children's cognitive abilities during development.

Gender identity refers to the ability to identify one's own gender and later also other's gender. According to Kohlberg this phase is essential, because it sets the stage for the development of gender-typed behaviors and attitudes. Children need to have awareness of their own gender and other's gender to observe which behaviors are usually carried out by members of their own gender, to model the behavior of

same-gender peers or adults, and to know which behaviors are considered appropriate for each gender. Kohlberg (1966, p.89) stated this sequence as follows: "I am a boy, therefore I want to do boy things, therefore the opportunity to do boy things (and to gain approval for doing them) is rewarding", which is essentially different from the socialization perspective that states that gender-typed behaviors are acquired through the rewarding nature of gender-appropriate behaviors (i.e., I want rewards, I am rewarded for doing boy things, therefore I am a boy). Gender stability and gender constancy, which generally develop a few years later, refer to understanding the fixed nature of gender over time, invariant to changes in appearance or situations.

Gender Schema Theories

In the 1970s and 1980s several versions of gender schema theories were developed independently from each other (i.e., Bem, 1981, 1983; Martin & Halverson, 1981, 1987). It is beyond the scope of the current review to discuss the differences with regard to the focus of these theories. Therefore, we will only describe the overlapping themes in the different versions of schema theory.

Application to family process. In general, gender schema theories propose that people actively incorporate gender-related input from the environment (e.g., parents, siblings, extended family members, broader society and cultural environment) into cognitive structures called gender schemas. These gender schemas influence the attention, perception, and memory of gender-related information in the environment, and even bias future behavior towards males and females. These theories mainly focus on the influence of children's own gender schemas in relation to future behavior. However, its basic premises can also be applied to the intergenerational transmission of gendered ideas in societies and in families. For example, when gender is a salient issue in a family, due to the gender socialization behaviors of parents, this will encourage the continuation of gendered ideas in children, because they incorporate these early gender-related experiences in their own gender schemas.

According to this reasoning, parents have a profound influence on the content of children's gender schemas. However, children also receive gender-related input from other agents such as peers, teachers, and the media (Rose & Rudolph, 2006; Dobbs, Arnold, & Doctoroff, 2004; Gooden & Gooden, 2001; McHale et al., 2003). Therefore, it is likely that the content of parents' and child's gender schemas will be similar but slightly different. Meta-analytically, there is evidence that parent and child gender schemas are related, but the associations are small (Tenenbaum & Leaper, 2002). Thus it is important to not only take parents' gender schemas into account in the study of children's gender development, but also children's own gender schemas which are likely to play a role in gender development above and beyond parents' schemas.

Although gender schema theories provide elegant explanations for the persistence of gender stereotypes and the intergenerational transmission of gendered ideas, the evidence for a link between gender stereotypes and actual parenting behavior in the family context is surprisingly weak (e.g., Fagot, Leinbach, & O'Boyle, 1992; Tenenbaum & Leaper, 2003), with most studies finding no significant associations. The evidence that is supporting the idea of an attitude-behavior link in adults is often found with experimental studies or with highly structured tasks assessing cognitive processes like encoding or memory of, and attention to gendered information (e.g., Frawley, 2008; Habibi & Khurana, 2012; Kee, Gregory-Domingue, Rice, & Tone, 2005; Kroneisen & Bell, 2013; Sherman, Stroessner, Conrey, & Azam, 2005). We only know of a few studies on gender-related parent-child conversation that have found meaningful associations between mothers' gender stereotypes and the way they talk about gender with their children (Endendijk et al., 2014; Gelman et al., 2004; Friedman et al., 2007). For example, mothers with stronger gender stereotypes were more likely to make comments confirming gender stereotypes and to evaluate gender-role inconsistent behavior more negatively than mothers with more egalitarian gender-role attitudes (Endendijk et al., 2014; Friedman et al., 2007).

The lack of an attitude-behavior link for parents may be partly because parents' attitudes are often assessed explicitly (i.e., overtly expressed ideas about men and women), whereas for controversial subjects like gender and race, implicit stereotypes (i.e., operate largely outside conscious awareness) may be better predictors of behavior than explicit self-reported stereotypes (Nosek, Benaji, & Greenwald, 2002). Self-report of gender stereotypes may be biased by social desirability and a lack of awareness of own stereotypes (White & White, 2006). In one of our recent studies fathers' implicit attitudes about gender roles were indeed associated with gender-differentiated parenting practices in the family (Endendijk et al., 2014). One aspect of parents' behavior that might be related to explicit attitudes about gender is parents' direct instruction about gender to their children. Since direct instruction about gender happens more consciously than for example gender-differentiated parenting, this is more likely to be a reflection of parents' explicit attitudes about gender.

Only few studies on stereotype-behavior congruence in children have been conducted (Martin & Dinella, 2012). Children's attitudes about gender are also often assessed explicitly with questionnaires (Gender Attitude Scale for Children, Signorella & Liben, 1985; OAT scales, Liben & Bigler, 2002). One study showed high levels of congruence between self-reported gender stereotypes and preferences for stereotypical masculine or feminine activities of 7 to 12-year-old girls (Martin & Dinella, 2012). Another study focusing on adolescent girls academic achievement found that explicit egalitarian attitudes about gender were related to more math and science motivation (Leaper, Farkas, & Spears Brown, 2012). In addition, implicit math-gender stereotypes predicted academic achievement above and beyond explicit

math-gender stereotypes for both boys and girls, and over and above enrollment preferences for girls (Steffens, Jelenec, & Noack, 2010). So, it appears that both children's implicit and explicit attitudes about gender are associated with child behavior.

More is known about the internalization of parents' gender socialization practices into children's gender cognitions. One study found that the more mothers employed a conformist parenting style (i.e., child has to comply with traditional norms and values) with their daughters, the more traditional the daughters' gender role attitudes were (Ex & Janssens, 1998). In addition, mothers' parenting style was largely influenced by her own gender role attitudes, which suggests a pathway from parents' gender-role beliefs to parent behavior, and from parent behavior to children's gender-role beliefs. Another study that examined the traditionality of parents' occupations, which can be seen as a reflection of their gender roles, showed that the traditionality of mothers' occupations was related to children's gender stereotypes (Barak, Feldman, & Noy, 1991). In addition, mothers and fathers who performed more nontraditional gender-role behaviors in the home had children with less strong gender stereotypes (Turner & Gervai, 1995). To our knowledge there are no studies conducted on the internalization of children's gender-related behaviors into parents' gender cognitions, although according to gender schema theories (Bem, 1981, 1983; Martin & Halverson, 1981, 1987) and family system theories (Whitechurch & Constantine, 1993) it would be expected that children also influence parents' attitudes about gender.

Gender schema theories in the GFP-model. Gender schema theories propose an indirect pathway from parent behavior, to child gender cognitions, to child behavior, as opposed to the direct pathway from parent to child behavior that is proposed by social learning theories. Schema theories also state that both parent and child gender-related behavior is influenced by their gender stereotypes. Moreover, there is not only a path from parents' gender socialization behavior to the child's gender cognitions, it is also likely that parents' gender cognitions are influenced by their children's gender-related behaviors. Implicit and explicit gender role beliefs will have a combined influence on gender-related family processes, except for parents' use of direct instruction about gender, which is likely to be mainly influenced by parents' explicit attitudes about gender. There are also factors outside the immediate family environment that influence the gender cognitions of parents and children. These factors are the focus of the next section of this review.

The Family Context

According to family systems theories (e.g., Whitechurch & Constantine, 1993) and Bronfenbrenner's ecological theory of child development (Bronfenbrenner, 1979) the family system or the child's microsystem includes not only parents, but also siblings,

grandparents, and other extended family members. These family members are not only agents for social learning (Bandura, 1977), but also provide parents and children with gender-related experiences that are incorporated in their gender schemas (Bem, 1981, 1983).

Nuclear Family Gender Composition

Background. Not all families are the same with regard to composition. A structural family characteristic that is especially relevant for gender-related family processes is the family gender composition, which consists of the sibling gender configuration and the parent gender configuration (e.g., single-parent family, two-parent family, heterosexual, homosexual). Although it is often believed that gender might run in families, there is little empirical support for the idea that a tendency to have only boys or girls might be genetically determined (Rodgers & Doughty, 2001). For example, data from the large National Study of Youth conducted by the US Department of Labor demonstrated that the sex of a given child did not depend on the sex composition of previous children in the family (Rodgers & Doughty, 2001). In the three-child families some evidence was found for a gender bias in sex composition (i.e., larger number of same-sex families than expected by chance). However, with the two- and four-child families included in the analyses, there was no evidence for a tendency for all-male families to produce males with a greater chance than all-female families.

Regarding parent gender configuration, data from the US Census Bureau has shown that the number of single-parent households increased from 25% in 2000 to 27% in 2010 (Lofquist, Lugaila, O'Connell, & Feliz, 2012). Both the number of single-mother (20%) and single-father (7%) households increased. According the same data, 0.4% of the family households consisted of same-gender parents (i.e., 0.1% male-male couples, 0.3%, female-female couples, Krivickas & Lofquist, 2011). In the Netherlands the percentage of single-parent households is slightly lower; 20% single-parent households in 2013 (single-mother: 16%, single father: 4%; CBS, 2014). In 2010 0.24% of family households in the Netherlands consisted of same-gender parents (0.2% female couples, 0.04% male couples; Bos & Van Gelderen, 2010).

Application to family process. In line with the family systems perspective (e.g., Whitechurch & Constantine, 1993) siblings have been found to have a profound effect on gender socialization (McHale, Crouter, & Tucker, 1999; Rust et al., 2000; Stoneman, Brody, & MacKinnon, 1986). However, the results from the small number of studies conducted are mixed with regard to the direction of effects.

First, there is evidence that siblings are an important source of observational learning and/or reinforcement of own-gender characteristics (e.g., Brim, 1958; Rust et al., 2000). In families with a mixed sibling gender configuration (i.e., boy-girl, girl-boy) the opposite-gender siblings reinforce cross-gender behavior in each other. In families with a same-gender siblings (i.e., girl-girl, boy-boy), the siblings are models

for gender-typical behaviors, leading to an increase of gender-typical behavior in the siblings. In this case the presence of an opposite-gender sibling may work as a gender neutralizer on the family environment (Brim, 1958; Rust et al., 2000).

Second, there is also evidence that siblings may serve as sources of social comparison (McHale et al., 1999). In families with mixed-gender sibling configuration parents have the opportunity for gender-differentiated parenting, which may provide a *more* gender stereotypical environment than families with same-gender siblings (McHale et al., 1999). In this case the presence of an opposite-gender sibling may work as a gender intensifier on the family environment. Recently, evidence has started to emerge that sibling gender configuration not only influences the siblings behavior and attitudes, but also has an influence on parental behaviors and attitudes, such as sensitivity (Van der Pol et al., 2014), gender stereotypes (Endendijk et al., 2013), and gender talk (Endendijk et al., 2014).

With regard to the influence of parental gender configuration on gender-related family processes, it is often thought that parents in nontraditional families (i.e., single-parent families, families with homosexual parents) hold less traditional attitudes about gender and are less traditional in their behaviors than parents in traditional families. Biblarz and Stacey examined these hypotheses in an extensive review of the literature (Biblarz & Stacey, 2010). They concluded that single-gender parenting (i.e., single-parent, homosexual parents) appears to foster more androgynous parenting practices in both mothers and fathers. Nontraditional families do not only employ different socialization practices, they are also models for nontraditional gender roles to their children. Single parents' behavior indeed is often less traditional, because these parents have to fulfil both gender roles of economic provider and caretaker. The same is true for homosexual parents, who are more likely to share the roles of caretaker and economic provider (Solomon, Rothblum, & Balsam, 2005; Stacey & Biblarz, 2001).

It seems reasonable to expect that children in these nontraditional families would also hold less traditional attitudes about gender and show less gender-typical behavior. However, the small body of evidence regarding this proposition is mixed. Meta-analytically there are no differences between children with heterosexual or homosexual parents with regard to sexual orientation, satisfaction with life, and cognitive and moral development (Allen & Burrell, 1997). In early childhood there are also no differences between children with heterosexual parents or homosexual parents with regard to gender-related attitudes and behavior (Golombok et al., 2003; Patterson, 1992). However, some studies show that in families with single-parent mothers, boys show less gender-typical behavior than boys from families with a father present (Russel & Ellis, 1991). In addition, girls from families with lesbian mothers are less gender-typical with regard to their play behavior, appearance, and activity preferences (Green, Mandel, Hotvedt, Gray, & Smith, 1986). Further, daughters with

lesbian mothers are more likely to reject stereotypical gender-related behaviors (Stacey & Biblarz, 2001).

Family gender composition in the GFP-model. The body of research on the influence of the family gender composition is small and results are mixed. However, the available studies do point in the direction of a direct influence of the family gender composition on both parent and child gender-related behaviors as well as a more indirect influence via gender cognitions on parent and child gender-related behaviors. Moreover, there might be a pathway from parent gender composition, to parent behavior, to child gender cognitions, to child behavior. In this pathway parent gender composition influences the gender role division and parental involvement in the family, these gender-related experiences are incorporated in children's gender schema, which in turn influence the child's gender-related behavior.

Extended Family Context

Background. Another factor from the social environment that might have an important influence on gender-related processes in the family context is the larger family context. The larger family context includes all relationships with family members other than parents and siblings, such as grandparents, uncles, aunts, and cousins. Grandparents might be the most important agents influencing gender-related processes in the family context, because they are generally the most involved extended family members (Luo, LaPierre, Hughes, & Waite, 2012). Data from a large nationwide US sample of grandparents has shown that more than 60% of grandparents provided some kind of care for their grandchildren (i.e., personal care, babysitting) and more than 70% did this for two or more years (Luo et al., 2012). In Europe 56% of grandparents provides some kind of care for their grandchildren over a 12-month period (Hank & Buber, 2009). Moreover, recent historical trends have increased the salience of the role of grandparents in the lives of grandchildren (Szinovacz, 1998). For example, life expectancy and financial security has increased, family sizes have decreased, and new ways of communication are available, all facilitating contact between grandparents and grandchildren (Szinovacz, 1998).

Application to family process. Very little is known about the influence of the larger family context on children's gender development (Blakemore et al., 2009). It is likely that the influence of the extended family is of a more indirect nature than the influence of parents and siblings. For example, gender-related experiences of parents with their own parents may have shaped parents' gender-related cognitions, which in turn influence their behavior towards their own children. There is evidence that mothers with mothers who worked outside the home when they were young had more gender-egalitarian beliefs than mothers whose own mothers did not work outside the home (Ciabattari, 2001; Davis & Robinson, 1991).

In addition, extended family members also provide children with gender-related experiences that get incorporated in the child's gender concepts. For example,

grandparents are closer to the children of their daughters than to the children of their sons (Fingerman, 2004). Grandparents might also provide their grandchildren with specific information about gender roles (Goodsell, Bates, & Behnke, 2010). A qualitative study showed that grandparents provided their grandsons with messages that fatherhood involves economically productive work, that work is a positive thing through which men develop relationships, and that women play a supporting role to men's activities in and with families. Granddaughters learned from grandparents that when fathers work, it takes them away from family relationships and therefore women may need to compensate for some fathers' inadequate fathering (Goodsell et al., 2010).

Cousins may also serve as socializing agents in a similar way as the peer group of a child. If the extended family is composed of mostly male cousins the group may be organized more around dominance (Pettit, Bakshi, Dodge, & Coie, 1990; Savin-Williams, 1979) and characterized by high-energy play or rough-and-tumble play (Maccoby, 1998), whereas if the extended family is composed of mostly female cousins the group may be more focused on intimate relationships, support, encouragement, and pretend-play (Maccoby, 1998; Underwood, 2003; Zarbatany & Pepper, 1996). Moreover, cousins may reinforce gender-typical behavior and punish cross-gender behavior in their cousins in a similar way as peers do. Last, it might be interesting to investigate the family gender composition (i.e., percentage of males or females born in a family over multiple generations) in relation to gender-related family processes. It is possible that a predominantly boy-family (e.g., father from all-boy family has two sons himself) constitutes a different gender-environment than families with both boys and girls.

Extended family context in the GFP-model. The influence of the extended family context on gender-related family processes is similar, but probably less prominent, to the influence of the nuclear family context. The extended family context influences the behavior of both parent and child directly, but also indirectly by providing gender-related experiences that are incorporated in parents' and children's gender concepts.

Socioeconomic Status

Application to family process. The family's socioeconomic status (SES) is an important contextual factor to take into account in a model on gender-related family processes. First, there is ample evidence that higher socioeconomic status is associated with less traditional attitudes about gender (Baxter & Kane, 1995; Bolzendahl & Myers, 2004; Dodson & Borders, 2006; Ex & Janssen, 1998; Kane, 1995). Women with higher educational levels have been found to have less traditional views about gender than lower educated women (Harris & Firestone, 1998). Higher educated men more often choose less traditional occupations and have less traditional attitudes about gender (Dodson & Borders, 2006). Education also strengthens both

women's and men's belief in gender egalitarianism (Bolzendahl & Myers, 2004; Kane, 1995). Moreover, longer hours in paid employment, location in middle-class position, and higher education are associated with more egalitarian gender attitudes for women and men although associations are generally stronger in women (Baxter & Kane, 1995).

Family SES also has a specific effect on parents' gender role division. In families with higher SES the division of gender roles is generally more equal, because the mothers in these families more often participate in the work force, have careers, and spend less time on housework and childcare than mothers from lower-SES families (Ex & Janssens, 1998; Harris & Firestone, 1998). There is indeed evidence that greater economic opportunities for women and female employment (especially full-time employment) are associated with more egalitarian gender views, because they provide women with greater power to dismiss traditional gender roles (Baxter & Kane, 1995; Bolzendahl & Myers, 2004; Cha & Thebaud, 2009). In addition, the extent to which young adults can explore various options in their transition to adult work and family roles is limited by lack of resources and wealth among working-class youth (Arnett, 2010). Last, changes in gender role divisions and corresponding changes in gender-related attitudes are particularly found in middle- and upper-class young adults, who generally pursue higher levels of formal schooling (Twenge, 1997). This influence of SES on gender role division in the family is likely to be mediated by parents' gender role cognitions, although this has not been tested empirically.

SES in the GFP-model. Little is known about the influence of SES on gender-related family processes. The studies that have been conducted have a correlational design and did not investigate the mechanisms behind the associations with SES. Most likely SES only has a direct effect on parents' gender cognitions, which in turn influences parental behavior in the family context, such as the gender role division. The effect of SES on children's gender cognitions and behavior is likely to be indirect and is mediated by parents' gender cognitions and gender-related behaviors. Therefore, for children there are only paths from the combined nuclear family context and extended family context (i.e., dark grey square) to children's gender cognitions and behavior.

Broader Society and Cultural Environment: Gender as a Social Construction

Background

According to social construction theories about gender gender-related knowledge or beliefs are socially constructed and vary by time, place, and culture (Gergen, 1985). Even the assumption that there are only two genders is socially constructed, since this assumption varies between cultures (i.e., some cultures assume that there are more

than two genders; Roscoe, 1999). The social construction perspective also states that gender roles are created by society, because they have important functional and explanatory purposes, which is consistent with the assumptions of social role theory (Eagly et al., 2000). In line with social construction theories, aspects of gender roles vary substantially from culture to culture (Best & Williams, 1997). For example, fathers in the Aka and Bifi forager tribes in Africa are highly involved in child-care while the women in these tribes perform the same activities as the men, and share responsibilities with them (Fouts, 2008). In contrast, in most other societies men are more likely to hunt, be at war, or work outside the home, whereas women are more often responsible for growing fruits and vegetables, cooking, or caring (Eagly et al., 2000).

A recent experimental study found evidence for the proposition that social categories like gender are indeed culturally constructed, and are not a priori grounded on biological or objectively visible facts (Diesendruck & Deblinger-Tangi, 2014). In this study toddlers had to complete a categorization task with several categories of people and animals in which for half of the children the familiarization phase (presentation of different exemplars of a given category) was accompanied by the use of novel labels ("Look, a Tirpali"), for the other half of the children the experimenter called attention to the picture ("Look at this"). It was found that without the support of linguistic labels toddlers failed to identify categories of people with high visual saliency (i.e., gender, race), whereas there were no differences in toddlers' ability to identify animal categories in the label and no-label conditions. The authors concluded from these findings that labels apparently are critical for educating children which categories of people are relevant in a given society.

A major concern with social construction theories of gender is its rigorous claim that gender is created (almost) entirely by society, despite the accumulation of evidence that biological processes are also implicated in gender development. Another perspective that links culture to family processes is the developmental niche framework (Super & Harkness, 2002). In this framework Super and Harkness focus on the influence of culture on parenting and child development. With regard to gender development in the family context they argue that various operational subsystems in the child's environment such as the historically constituted customs and practices of child care and child rearing, and the psychology of the caretakers, particularly parental 'ethnotheories' (i.e., values and practices of a culture) play a directive role in parenting and child development. Within the field of children's gender development researchers, inspired by social constructionist theories or cultural frameworks, usually study the historical and cultural differences in gender roles, the gender socialization in the family and in larger cultural system, and the combined influence of gender, race, class, and culture.

Application to family process

There is a large body of research demonstrating that gender-related aspects within the larger societal and cultural environment, such as women's educational and employment opportunities, or state policies promoting gender equality, for an important part shape people's gender attitudes by providing them with gender-equal or gender-unequal information and experiences (Baxter & Kane, 1995; Charles & Bradley, 2009; Manago, Greenfield, Kim, & Ward, 2014; Williams & Best, 1990; Yu & Lee, 2013). However, the evidence with regard to the direction of effect seems inconclusive. Some studies show that in societies were gender equality is high or women's dependence on men is low (i.e., social, economic, and interpersonal) the highest levels of egalitarianism in gender attitudes are found (Baxter & Kane, 1995; Williams & Best, 1990). In contrast, another study found that sex segregation by field of study is more pronounced in advanced industrial societies than in developing and transitional societies, which is explained by the strong Western cultural emphasis on individual self-expression leading individuals to express their essential male and female selves via choice of study field (Charles & Bradley, 2009). Another study also found evidence for the persistence of gender attitudes in egalitarian societies, indicating that in countries with more educational and economic opportunities for women people have positive attitudes toward mothers' participation in the labor market, but less positive attitudes about gender equality in the family context (Yu & Lee, 2013). The authors proposed that the lower approval of gender equality in the home might be because individuals in a highly gender-equal society feel a need to preserve the gender system in the private domain. Yet other studies that have been conducted on gender stereotypes in different cultures usually find only small variations and a large overlap between gender stereotypes cross-culturally (e.g., Williams & Best, 1990; Williams, Satterwhite, & Best, 1999). In sum, these studies demonstrate the complexity of gender attitudes and the different effects culture can have on specific aspects of people's gender attitudes.

Although gender-related family processes can be studied from a cultural psychological perspective, very few studies actually employed such a perspective (Gibbons, 2000). We know of one recent study that longitudinally examined mothers' gender-differentiated emotion socialization practices in African American and European American families and relating the cross-cultural differences to mothers' beliefs about emotions (Nelson, Leerkes, O'Brien, Calkins, & Marcovitch, 2012). It was found that African American mothers displayed more gender-differentiated emotion socialization practices than European American mothers, which could be partially accounted for by their belief that boys will encounter more negative social consequences if they display negative emotions.

There may also be cultural variation in the way parents treat boys and girls. Societies vary substantially with regard to gender equality. 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 (World Gender Gap Index, 2013), 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. From the perspective of social role theory (Eagly et al., 2000; Hosley & Montemayor, 1997) one might argue that in countries with a larger gender gap, parents will differentiate more between their sons and daughters to prepare them for adult life in a society with large differences in gender roles. In line with this reasoning one would expect large differences in the behavior of boys and girls in societies with a high level of gender inequality. There is indeed evidence that the gender difference in math scores disappears in gender-equal societies (Guiso, Monte, Sapienza, & Zingales, 2008).

It seems likely that culture has an important influence on the gender stereotypes of parents and children, because of the variations in gender role divisions across cultures (Best & Williams, 1997). When gender is a salient issue in a society, because of strict division on the gender roles of men and women, these gender-related experiences are likely to be incorporated in its inhabitants' gender schemas (i.e., Bem, 1981, 1983; Martin & Halverson, 1981, 1987).

Another cultural concept that is relevant for the cultural differences in gender roles is the dimension of masculinity/femininity that was described by Hofstede in his book *Culture's Consequences* (1980). This dimension refers to the division of roles between men and women in a society. A masculine society is characterized by large differences in gender roles. Characteristics like competitiveness, assertiveness, materialism, ambition, and power are highly valued in men, whereas characteristics such as modesty and tenderness are valued highly in women. Feminine societies differentiate less between male and female gender roles. In these societies modesty, tenderness, and concern with the quality of life are highly valued by and for both men and women. It is proposed that societies values with regard to femininity or masculinity are implicated in the construction of gender differences (Hofstede et al., 1998), possibly via influencing peoples cognitions about gender.

Broader society and culture in the GFP-model

Studies on the influence of the larger society and cultural environment on gender-related family processes provide evidence for a pathway from culture, to societies gender roles, to parents' gender cognitions, to parents' gender-related behavior. Further, societal gender roles and degree of masculinity or femininity in the culture provide both parent and child with gender-related experiences that influence their gender cognitions.

Future Directions and Conclusion

Our review of the literature on gender in the family context and our Gendered Family Process model highlight the involvement of biological, social, and cognitive factors in gender-related family processes. It also reveals important gaps in the literature that need to be addressed in future research. In all three domains (i.e., biology, socialization, cognition) of research on gender development there is an urgent need for more longitudinal studies including both mothers and fathers and preferably starting before birth and continuing into puberty. Before birth hormones in amniotic fluid, maternal blood, or umbilical cord blood can be measured (Hines, 2010; Van de Beek, Thijssen, Cohen-Kettenis, Van Goozen, & Buitelaar, 2004), to examine the influence of prenatal testosterone on gender development in typically developing children. In addition, both mothers' and fathers' hormonal profiles can be assessed before actual parenthood to investigate the direction of effects regarding the association between parental testosterone levels and parenting behavior. After birth parental testosterone levels can be related to both quantitative (i.e., parental involvement) and qualitative aspects of parenting behavior (i.e., sensitivity, emotional availability) as well as more specific gender socialization practices of parents. It is important to use observational rather than self-report measures of parents' gender socialization practices, since gender socialization practices in the family context are generally very subtle and often happen outside parents' conscious awareness (Culp et al., 1983).

These studies should employ a cross-lagged design (i.e., both parent and child behavior assessed at multiple time points) in which the complex issue of child-to-parent and parent-to-child reciprocal effects with regard to gender-differentiated parenting could be examined appropriately. With such studies it is also possible to empirically test the widely held assumption that parental gender socialization practices have an important impact on the development of gender-typed behavior (Archer & Lloyd, 2002). However, the focus should not only be on examining the influence on *gender differences* between boys and girls but also on *individual differences* within boys' and girls' gender development (McHale et al., 2003). When the assessments are extended into puberty it is possible to examine the effects of biological, social, and cognitive changes on gender-related family processes, since puberty is a period of "gender-intensification" (Hill & Lynch, 1983) in which boys and girls become increasingly different as a result of the convergence of biological, social, and cognitive changes.

A specific direction for future research in the biological domain of gender development arises from the fact that studies in this domain are hampered by the difficulty (i.e., ethical and methodological) to conduct experiments in which testosterone levels are externally manipulated. An opportunity to study the effects of testosterone experimentally is provided by adolescents or adults with gender identity

disorder who receive hormonal treatment to suppress puberty or to enhance cross-gender secondary sex characteristics. It might be interesting to examine the parenting quality (e.g., sensitivity) of these individuals before and after the hormonal treatment or to compare parenting quality of individuals who have received the hormonal treatment with matched controls who have not yet received this treatment. A paradigm that can be used for this is the Leiden Infant Simulator Sensitivity Assessment (LISSA; Voorthuis et al., 2013) that makes use of an infant simulator (RealCare Baby II-Plus; Realityworks, Eau Claire, WI, USA).

A specific direction for future research for studies with a social approach toward gender development arises from the fact that studies in the social domain often adopt a between-family design to examine differences in parenting boys and girls. An important limitation of this approach is that differences in parenting practices towards boys and girls do not necessarily reflect a gender difference, but can also be caused by other 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. The crucial question to be addressed in the within-family design is whether socialization differences between boys and girls are also found when they grow up in the same family (i.e., when the same parents socialize both a boy and a girl). Only then can we be more sure that systematic variations in parenting boys and girls cannot be ascribed to other family variables. More within-family studies are needed to disentangle the effect of child gender on parenting practices from between-family effects.

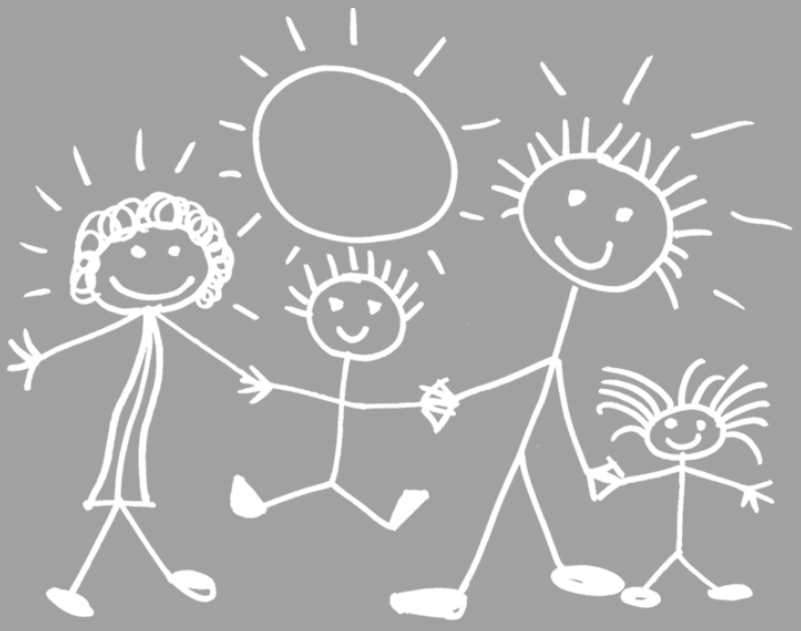
In studying gender-related processes in the family context, future researchers should move beyond investigating children's dyadic interactions with parents or other members in the nuclear or extended family context. Triadic interactions are now widely used to investigate family dynamics and it has been consistently found that fathers' and mothers' behaviors with their child differ when observed in dyads versus triads (e.g., McHale, Fivaz-Depeursinge, Dickstein, Robertson, & Daley, 2008; Sacrano de Mendonça, Cossette, Strayer, & Gravel, 2011). It might be interesting to examine if mothers' and fathers' gender socialization practices are also different in triadic compared to dyadic interactions. It may even be possible to extend the triadic interaction paradigm to quadratic interactions to directly examine the effect of family gender configuration on family interaction patterns. Last, our review underscores the necessity to further investigate the influence of the extended family context and broader contextual influences, like SES, societal perspectives on gender roles, and the degree of a culture's masculinity or femininity on the gender-related processes in the family context.

In studies with a cognitive approach toward gender development it is often assumed that there is a link between an individual's gender stereotypes and their actual gender-related behavior. However, the literature providing evidence for this proposition is scarce for parents as well as for children. More studies should

investigate the link between attitude and behavior in both parents and children. These studies should incorporate implicit measures of gender stereotypes, since for controversial subjects like gender or race implicit stereotypes appear to be better predictors of behavior (Nosek et al., 2002a). Future studies should also examine which gender-related experiences in the family-context influence gender stereotypes in both parent and children, since little is known about the internalization of these experiences into gender concepts. Gender stereotypes consist of different components (Martin, Wood, & Little, 1990) so it is possible that specific gender-related experiences act on specific stereotype components.

To conclude, research to date has shown that gender *is* an important organizer of family processes. Gender shapes biological, social, and cognitive processes at both the parent and child level. In addition, the family is part of a larger context consisting of the extended family system, the socioeconomic context, and the larger society and culture, which each have a unique influence on gendered family processes. However, to date much is unclear about the mechanisms behind gender-related processes in the family context. Future studies should take into account the complexity of gendered family processes, by using advanced research designs, methods, and analytic approaches. Only then we can fully understand *how* gender influences family processes.

7



General Discussion

The findings in the current dissertation provide evidence for the argument that gender is an important factor in the study of child development, as noted by Maccoby and Jacklin as early as 1974. In the family context the genders of all family members (i.e., child gender, parent gender, sibling gender composition) appear to influence child behavior. Moreover, gender stereotypes are important explanatory factors for the behavior of parents towards their sons and daughters. Chapter 2 provided meta-analytic evidence that both mothers and fathers use differential control strategies with their sons and daughters. The results in Chapter 3 showed that there is indeed a link between parents' gender stereotypes and children's attitudes about gender, at least for mothers and daughters. In Chapter 4, the results suggested that parents use gender talk to convey their ideas about gender and gender roles to their children and they attune their gender messages to the gender composition of their two children. Chapter 5 provided evidence for a pathway from parental gender stereotypes to gender-differentiated parenting to gender differences in child behavior. Chapter 6 presented the Gendered Family Process model (GFP-model) an integrative framework of the biological, social, and cognitive factors implicated in gender-related family processes. In the current chapter these findings will be summarized and reviewed in greater detail. Findings are discussed in terms of the role of child gender, parent gender, sibling gender composition, and gender stereotypes. In addition the studies' limitations, implications and suggestions for future research are described.

Child Gender

Chapter 4 examined the effect of child gender on children's attitudes about gender. At age 3 no differences between boys and girls were found in the strength of their implicit gender stereotypes (i.e., operating largely outside conscious awareness). In the literature gender differences in children's gender stereotypes are less well established than gender differences in aggression, toy preferences, or spatial perception (see Hines, 2004; Signorella, Bigler, & Liben, 1993). A meta-analysis found that preschool boys and girls did not differ in the strength of their gender stereotypes (Signorella et al., 1993). However, for adults there is some evidence that men and women differ in the strength of their gender stereotypes (i.e., women more implicit stereotypes, men more explicit, overtly expressed, stereotypes, Nosek, Benaji, & Greenwald, 2002a; Tenenbaum & Leaper, 2002). Apparently, gender differences in attitudes about gender start to develop later in childhood, probably during the school years where peer influence becomes more pronounced. Since boys are subject to more pressure from peers to conform to gender stereotypes than girls (Hort, Fagot, & Leinbach, 1990; Leaper, 2000), boys' attitudes about gender may become more traditional than girls' gender stereotypes. There is indeed some evidence of gender differences in gender stereotypes to become more pronounced during the school years (McHale, Crouter, & Tucker, 1999; Turner & Gervai, 1995). Even though no differences between boys and girls were found in the attitudes children have about

gender, the fact remains that three-year-old children already have developed gender stereotypes. At this young age, parents are most likely to be the main influencers (McHale et al., 1999).

In Chapter 5 differences between boys and girls in aggression were examined. Results showed that boys are more aggressive than girls both at three and four years of age. These results converge with numerous studies that have found higher levels of aggressive behavior in boys than in girls (see Alink et al., 2006; Archer, 2004; Hyde, 1984, 2014; Loeber, Capaldi, & Costello, 2013). Moreover, it is in line with Maccoby and Jacklins conclusion that *"The sex difference in aggression has been observed in all cultures in which the relevant behavior has been observed. Boys are more aggressive both physically as well as verbally"* (1974, p. 338). Gender differences in aggressive behavior represent one of the most pronounced gender differences found in the literature on child development. However, there is also evidence that girls use specific forms of aggression more often than boys. Previous studies have found girls to be more relationally aggressive (i.e., gossiping, excluding, withdraw friendship) than boys, whereas boys are more overtly aggressive (i.e., physical and verbal aggression) than girls (Crick & Grotpeter, 1995). In Chapter 5 the focus was only on overt physical and verbal aggression.

Child gender does not only play a role in the child's own behavior, but also in their parent's behavior. Evidence regarding the role of child gender in parenting was presented in Chapter 2 and 5. In Chapter 2 the role of child gender in parent's use of positive and negative control strategies was examined meta-analytically. Results showed that parents use more negative control with boys than with girls. This is in line with the previous meta-analytic result that boys receive more physical punishment (i.e., form of negative control) than girls (Lytton & Romney, 1991). As mentioned in the general introduction, Maccoby and Jacklin proposed two mechanisms behind gender-differentiated parenting: *"1) Because of innate differences in characteristics manifested early in life, boys and girls stimulate their parents differently and hence elicit different treatment from them, 2) Parents treat boys and girls differently, because parents base their behavior toward a child on their conception of what a child of a given sex is likely to be like"* (Maccoby & Jacklin, 1974, p. 305-306). However, only a few of the studies conducted on gender-differentiated parenting included in the meta-analysis (Chapter 2) have adopted a longitudinal design to examine both parent and child effects on parenting, or included parents' attitudes about gender and gender differences. Therefore, it was not possible to examine whether the differential treatment of boys and girls was due to parent's attitudes about gender, or due to the difference between boys and girls in disruptive behavior that elicits parents' use of more negative control with boys than with girls. However, the differential negative control of boys and girls was detected both in studies that controlled for the child's behavior and in studies that did not (Chapter 2). In addition, previous studies have found evidence for bidirectionality in parent-child

relationships (Maccoby et al., 1984; Scaramella, Sohr-Preston, Mirabile, Robinson, & Callahan, 2008; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). Moreover, another study showed that child behavior has a limited influence on parents' use of harsh control (Jaffee et al., 2004). Thus, we propose that it is not only the gender difference in disruptive behavior that elicits parents to use more negative control with boys than with girls (i.e., child effect), but also something in parental attitudes about gender roles. We were also able to rule out some other explanations for the differential control of boys and girls, since gender-differentiated negative control was a robust effect that could be observed in both mothers and fathers, in many different settings and situations, in samples of different ages or socioeconomic status, and on different continents (i.e., Asia, North America, South America, Europe, Australia).

The picture for parents' differential use of positive control with boys and girls was less straightforward than for negative control. No overall gender-differentiated parenting effect for positive control was found, but a significant effect of time emerged: studies published in the 1970s and 1980s reported more positive control towards boys than towards girls, but from 1990 onwards parents showed more positive control towards girls than towards boys. These findings were interpreted in light of historical trends such as the *"gender-neutral wave"* (Martin, 2005) and the increased interest in positive parenting strategies in the 70s and 80s (Forehand & McKinney, 1993).

One of the rationales for the meta-analysis was the potential importance of differential parenting strategies with boys and girls for the development of gender differences in behavior. However, we were not able to test if differential control may indeed be one of the mechanisms behind gender differences in for example disruptive behavior that have been consistently found in the literature (see Else-Quest, Hyde, Goldsmith, Van Hulle, 2006; Hyde, 1984). The lack of studies examining the consequences of gender-differentiated parenting for gender differences in child behavior was the inspiration for the study presented in Chapter 5. In this study we tested whether the relation between child gender and child aggression is mediated by parental use of physical discipline strategies, using a longitudinal design and observational assessments of mothers' and fathers' parenting behavior. The results showed that fathers' differential use of physical discipline with boys and girls completely accounted for the gender differences in children's aggressive behavior a year later (i.e., for fathers with strong stereotypical or counter-stereotypical attitudes toward gender roles). Mothers' gender-differentiated parenting practices were unrelated to child aggression a year later. Fathers' gender-differentiated parenting thus appears to be an important mechanism behind gender differences in children's behavior. These findings are in line with three previous studies that also found evidence for the proposition that gender differences in child behavior may arise because of parents', and especially fathers', differential treatment of boys and girls

(Chaplin, Cole, & Zahn-Waxler, 2005; Mandara, Murray, Telesford, Varner, & Richman, 2012; Tamis-LeMonda, Briggs, McClowry, & Snow, 2009).

However, our results contradict Maccoby and Jacklin's statement that *"because the sex differences* (i.e., in aggression) *are found early in life … there is no evidence that differential socialization pressures have been brought to bear by adults to "shape" aggression differently in the two sexes"* (Maccoby & Jacklin, 1974, p. 228). Although gender differences in aggression are indeed found early in life (see Baillargeon et al., 2007; Tremblay et al., 1999), this does not mean that the differential socialization of boys and girls can be ruled out as an explanatory mechanism. The results of the meta-analysis presented in Chapter 2 show that parents start socializing boys and girls differently from a very early age onwards (i.e., 0-2 year). Moreover, the famous study by Culp, Cook, and Housley (1983), in which a six-month-old infant is dressed up alternately as a boy and as a girl, showed that when adults perceive the infant to be a boy, they encourage and initiate more gross motor play and engage in less verbal interaction than when the infant is perceived to be a girl. This implies that even at a very early age (i.e., infancy) adults treat boys and girls differently and that this is not influenced by the infant's behavior.

Parent Gender

The current dissertation also provided evidence for differences between mothers and fathers in attitudes and behaviors (Chapter 3 and 4). In Chapter 3 differences between mothers and fathers in gender stereotypes and in the influence of their gender stereotypes on children's attitudes about gender were examined. Mothers had stronger implicit gender stereotypes than fathers, whereas fathers had stronger explicit attitudes about gender. The finding that fathers have stronger explicit gender stereotypes than mothers was consistent with previous studies on gender differences in adults gender stereotypes (Nosek et al., 2002a; Tenenbaum & Leaper, 2002). The finding that women have stronger implicit gender stereotypes than men was not entirely expected, since most studies do not find differences between men and women in implicit stereotypes (Benaji & Greenwald 1995; Rudman & Glick 2001; Rudman & Kilianski 2000). Only one previous study found stronger implicit attitudes about gender in women than in men (Nosek et al., 2002a). On the implicit measure, women in that study showed the culturally prescribed associations that link their gender with family more than with career, which was the same in our study (Chapter 2). Women have been found to have remarkably stronger implicit in-group biases (i.e., own gender preference) than men, which is thought to stem from past gender-related experiences (Rudman & Goodwin, 2004). Similar processes may explain stronger implicit gender stereotypes in women, but this remains to be tested.

The findings in Chapter 4 converge with the findings in Chapter 3 that fathers are more likely to express their gender stereotypes explicitly than mothers, and mothers have stronger implicit stereotypes than fathers. In Chapter 4 only some small

effects of parent gender on gender talk were found. First, mothers and fathers differed in their evaluative comments about pictures with boys and girls in activities that are consistent with gender stereotypes (i.e., girls playing hand-clapping games and boys skateboarding). Mothers were more positive than fathers about pictures showing boys and girls in activities that are in line with gender stereotypes. Since making evaluative comments about the activities in the pictures is a more implicit form of communicating information about gender and gender roles, than explicitly mentioning the stereotype (e.g., "Girls cannot play ice hockey" or "Boys don't play with dolls"), this finding implies that mothers use more implicit ways to communicate to their children about gender and the behaviors appropriate for each gender. Second, evidence was found for the hypothesis that fathers use more explicit forms of gender talk than mothers. Fathers made more explicit comments that confirmed the gender stereotype than mothers.

In Chapter 3 we also found that mothers and fathers have a different influence on child development, since only mothers', and not fathers', implicit gender stereotypes were positively associated with their daughters' implicit gender stereotypes. This finding is in line with meta-analytic findings showing that the impact of mothers on the development of gender stereotypes in children is somewhat stronger than that of fathers, because they spend more time with their children and therefore simply have more time to create gender-related experiences for children according to their own stereotypes (Tenenbaum & Leaper, 2002).

Last, Chapter 3 provided some evidence for the idea that boys and girls might be primarily socialized by the same-sex parent (Bandura, 1977), as the association between maternal gender stereotypes and child gender stereotypes was moderated by gender of the child. When mothers showed stronger implicit gender stereotypes about children, their daughters also showed stronger implicit gender stereotypes. For boys no such relation was found. This is in line with Maccoby and Jacklin's statement, mentioned in the General Introduction, that *"A parent's behavior toward a child will depend, in some degree, upon whether the child is of the same sex of himself"* (Maccoby & Jacklin, 1974, p. 306). The strong interrelation between mother and daughter gender stereotypes might be due to the fact that mothers talk more to girls than to boys in general (Leaper, Anderson, & Sanders, 1998), mothers talk more about interests and attitudes to girls than to boys (Boyd, 1989; Noller & Callan, 1990), and mothers have more opportunities to transmit their gender-stereotypic beliefs to girls than to boys, since mothers tend to be more engaged in play with their daughters than with their sons (Clearfield & Nelson, 2006).

The findings of Chapter 5, that fathers, and not mothers, gender-differentiated parenting practices were associated with child aggression a year later might seem a little surprising in light of the stronger influence of mothers on children's gender stereotypes presented in Chapter 3. The findings imply that even though fathers generally are less involved in caretaking task, and therefore have less time to

influence the behaviors and attitudes of their children, both mothers and fathers appear to influence the behavior and attitudes of their children albeit in different ways. Fathers use strategies such a gender-differentiated parenting or explicit talk about gender to exert their influence on the behavior of their children. Mothers influence their children more implicitly, for example via implicit messages about gender or appropriate behaviors for each gender, which seem to be associated with children's attitudes about gender more than with actual behavior. These differences may be explained with role theory and social role theory (Eagly, Wood, & Diekman, 2000; Hosley & Montemayor, 1997) which both propose that the historical division in gender roles and the characteristics associated with these roles may result in differences in parenting between mothers and fathers (Bem, 1981). However, it is also possible that the differences in parental investment lead to differences in parenting practices of mothers and fathers (Trivers, 1972). The current findings do not conclusively support one of these two processes.

Although we also expected differences between mothers and fathers in the extent to which they treat their sons and daughters differently, little evidence was found for this hypothesis. The meta-analysis in Chapter 2 showed that mothers and fathers did not differ in the extent of their differential control of boys and girls, both mothers and fathers engage in gender-differentiated parenting practices. This was not in line with the findings from the Lytton and Romney meta-analysis (1991) that fathers differentiate more between boys and girls than mothers with regard to directiveness. In theory, it is possible that mothers and fathers differ in their gender-differentiated parenting practices only with regard to very specific socialization areas, which could not be detected with our more general measure of parental control. The findings in Chapter 4 seem to suggest that fathers tailor their gender talk more to the gender composition of their both children than mothers.

Sibling Gender Composition

Evidence for the role of sibling gender composition in parent and child attitudes and behaviors was found in Chapter 3 and 4. The finding in Chapter 3 that fathers with same-gender children (i.e., boy-boy, girl-girl) had stronger implicit gender stereotypes than fathers with mixed-gender children (i.e., boy-girl, girl-boy) fits nicely with the idea that a mixed-gender sibling composition works as a gender-neutralizer on the family environment (Brim, 1958; Rust, Golombok, Hines, Johnston, & Golding, 2000). In families with both a boy and a girl opportunities for gendered comparisons are available (McHale et al., 1999), which may confirm gender stereotypes. However, in families with mixed-gender siblings parents also have equal opportunity to see similarities between boys and girls (which is not possible in families with same-gender children) which may make it more difficult to stick to gendered explanations for certain behaviors. It appears that for fathers the experience of seeing similarities between boys and girls gets incorporated into their gender schema (Bem, 1981),

resulting in more egalitarian attitudes. There is indeed evidence of stereotype change when adults are exposed to gender-related information or experiences that go counter to their gender stereotypes (Hill & Augoustinos, 2001).

Although we also expected an influence of sibling gender composition on children's implicit gender stereotypes, this effect was not found in Chapter 3. Several studies have found an effect of the gender of an older sibling on the gender-role socialization and gender stereotypes of a younger sibling (Brim, 1958; McHale et al., 1999; Rust et al., 2000; Stoneman, Brody, & MacKinnon, 1986). However, in our study we examined the influence of the gender of a younger sibling, who was only 1 year old, on the older sibling's gender stereotypes. We conclude that sibling gender effects may not emerge when the younger sibling is still an infant, since it cannot play an active role in the socialization of their older sibling yet.

In Chapter 4 the role of sibling gender composition in parents' use of gender talk was examined. The results in this chapter showed that sibling gender composition only influenced fathers' gender talk and not mothers' gender talk. Fathers with two boys were more inclined to emphasize appropriate male behavior in their gender talk than fathers in other family types. For example, fathers with two boys described the gender-neutral children (i.e., ambiguous gender, clothes in neutral colors, half-long hair) in pictures with a masculine-stereotyped activity more often as boys than as girls, a difference that was not found in other family types. Additionally, fathers with two boys were less negative about pictures showing boys' negative behavior than about pictures showing girls' negative behavior, compared to fathers in other family types. These two findings are consistent with family system theories, given that family structure indeed influences the behavior of individual family members (Hinde & Stevenson-Hinde, 1987; Minuchin, 1985; Schoppe, Mangelsdorf, & Frosch, 2001). Additionally, the findings imply that the most gender-stereotypical environment with regard to gender talk was created by fathers in families with two boys. This provides evidence for the proposition that, at least when you are a boy, having an opposite-gender sibling works as a gender-neutralizer on the family environment (Brim, 1958; Rust et al., 2000) as opposed to the idea that having an opposite-gender sibling works as a gender-intensifier in the family system (McHale et al., 1999).

Gender Stereotypes

Several studies in this dissertation demonstrated the importance of including implicit gender stereotypes of parents and children into the study of gender in developmental psychology (Chapter 3, 4, and 5). The results of Chapter 3 showed that implicit gender stereotypes are transmitted from mothers to their daughters, since a positive association between the gender stereotypes of mothers and their children was found. The study presented in Chapter 3 is one of the few studies that provides evidence for a link between parents' and children's gender stereotypes (see Tenenbaum & Leaper, 2002), possibly because we used the same implicit stereotype measure for mother and

child. Studies failing to find an association between parent and child gender stereotypes often used different methods to assess parent and child attitudes.

In Chapter 3 we proposed, based on previous research, that parents might transmit their gender stereotypes to their children through their own behaviors, occupations, interests, and the reinforcement of gender-stereotypical behaviors in their children (Bandura, 1977; McHale et al., 1999). According to gender schema theory these gender-related experiences get incorporated in children's own gender concepts and these gender concepts will influence the processing of subsequent gender-related information and thereby bias future actions (Bem, 1983). The results in Chapter 4 provided evidence for the idea that parents' gender stereotypes are indeed associated with actual gender-related behavior towards their children. We found that the way mothers talk to their children about gender, by using gender labels, evaluating stereotype-congruent behavior more positive than stereotype-incongruent behavior, or explicitly confirming gender stereotypes, can be seen as a reflection of her implicit gender stereotypes (i.e., associations were found between gender stereotypes and all examined aspects of gender talk). Chapter 5 also showed that fathers' gender-differentiated parenting practices were influenced by his implicit attitudes toward gender roles. Fathers with strong stereotypical attitudes toward gender roles used more physical discipline with boys than with girls. On the other hand fathers with strong counter-stereotypical attitudes toward gender roles (i.e., women as economic providers, men as caregivers) show the opposite gender-differentiated parenting practices; using more physical discipline with girls than with boys. These two findings converge with evidence of the link between attitudes toward gender and actual gender-related behavior (Bem, 1981; Gelman, Taylor, & Nguyen, 2004; Friedman, Leaper, & Bigler, 2007). They also are in line with Maccoby and Jacklin's proposition that *"Parents base their behavior toward a child on their conception of what a child of a given sex is likely to be like"* (Maccoby & Jacklin, 1974, p. 306).

We expected that the opposite gender-differentiated parenting practices of fathers with strong stereotypical and fathers with strong counter-stereotypical attitudes toward gender would have a profoundly different influence on the behavior of boys and girls. We therefore investigated a moderated mediation model in Chapter 5, in which the association between child gender and child aggression via parents' physical discipline was moderated by parents' implicit gender stereotypes. We indeed found that fathers' differential treatment of boys and girls was related to children's aggressive behavior a year later, but in a different way for fathers with strong stereotypical and fathers with strong counter-stereotypical attitudes toward gender. By using physical discipline strategies more often with boys than with girls, fathers with traditional gender-role attitudes appeared to reinforce later aggression more in boys than in girls. On the other hand, fathers with counter-stereotypical attitudes reinforced aggression more in girls than in boys by their increased use of physical discipline strategies with girls. Interestingly, fathers with more egalitarian implicit gender-role

attitudes (about 60% of our sample) treated boys and girls more similarly, and in this part of the sample gender differences in children's aggressive behavior were absent. These results imply that fathers might employ the gender-differential use of physical discipline strategies to encourage their children to show behavior that is consistent with their attitudes toward gender roles (i.e., stereotypical or counter-stereotypical), which is in line with role theory and gender schema theory.

Gender Similarities

Although we found some effects of parent and child gender, and sibling gender configuration on the behaviors and attitudes of parents and children, the differences were generally very small and were accompanied by large similarities between mothers and fathers, and boys and girls. These results are not surprising in light of the gender similarities hypothesis (Hyde, 2005) which proposes that males and females are more similar than they are different. Indeed there is often more variation within the genders than between the genders (Hyde, 2005). Several explanations for the similarity of males and females have been put forward in a recent review of the literature on gender differences (Hyde, 2014). For example, from an evolutionary perspective (Trivers, 1972) one might argue that natural selection pressures act equally on males and females and thus create gender similarities. From a cognitive social learning view (Bussey & Bandura, 1999) one can speculate that discouragement of gender-atypical behaviors by socializing agents in society might have declined and the availability of gender-atypical models (e.g.,, female scientists and doctors) has increased over time, allowing girls and boys to behave more similarly. Last, according to social role theory (Eagly et al., 2000) gender similarities are expected in societies with gender equality in the division of labor.

As stated by Hyde (2014), it is important that researchers studying gender should not only focus on gender differences but also on gender similarities, because there are serious costs to an overemphasis on gender differences. An overemphasis on gender differences for example might fuel an increase in stereotypical beliefs that males and females are very different, which in turn has important consequences for the treatment of males and females and the opportunities they are provided with.

The Gendered Family Process Model

In Chapter 6 the Gendered Family Process (GFP) model was introduced as a working model for future research on gender in the family context. The studies presented in Chapter 3, 4, and 5 focused on various aspects of the GFP-model (see Figure 7.1). In Chapter 3 the paths from the (nuclear) family context to parent and child gender cognitions were examined, by focusing on the influence of sibling gender composition on the gender stereotypes of parents and children. In this chapter the association between SES and parents' gender stereotypes was also assessed. In Chapter 4 the path from the family context to parental gender-related behaviors was tested, by examining the influence of sibling gender composition on parents use of gender talk. Last, Chapter 5 focused on the path from parents' gender cognitions to parents' gender related behaviors, by investigating if parents' gender-differentiated parenting practices were associated with their gender stereotypes. In addition, the path from parent behavior to child behavior was tested, by examining if parents' gender differentiated use of physical control was associated with gender differences in children's aggressive behavior. So, the studies in the current dissertation have mainly focused on the interplay of cognitive, social, and behavioral aspects of gendered family processes.

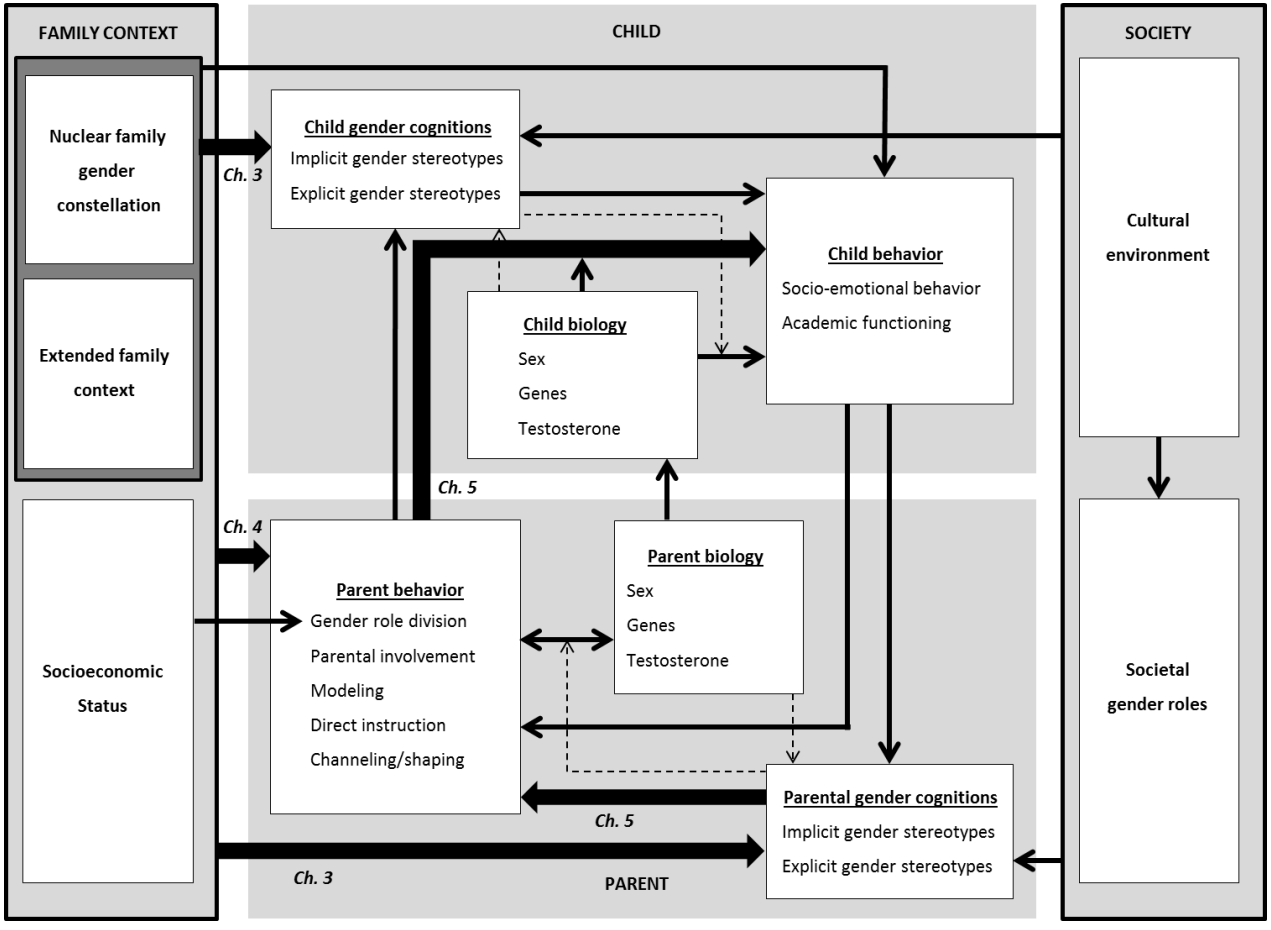


Figure 7.1 The Gendered Family Process model.

Note. Bold arrows with a chapter indicator represent the aspects of the GFP-model examined in the current dissertation.

Limitations and Future Directions

It is necessary to note some limitations of the current dissertation. First, although the meta-analysis presented in Chapter 2 provides a systematic investigation of the extent to which fathers and mothers use gender-differentiated parenting practices with their boys and girls, almost all studies in this meta-analysis adopted a between-family design to examine differences in parenting boys and girls. The same was true for our design in Chapter 5. With this approach parenting practices in families with boys are compared with the parenting 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 meta-analysis presented in Chapter 2 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 within-family studies are needed to disentangle the effect of child gender on parenting practices from between-family effects.

Second, in the meta-analysis in Chapter 2 and the study presented in Chapter 5 we were not able to test the possible bi-directionality of the association between gender-differentiated parenting and gender differences in children's behavior. Maccoby and Jacklin have stated that "*because of innate differences in characteristics manifested early in life, boys and girls stimulate their parents differently and hence elicit different treatment from them"* (Maccoby & Jacklin, 1974, p. 305-306). The meta-analysis included too few studies with a cross-lagged longitudinal design (i.e., both parent and child behavior assessed at all time points) to test this possibility. Future studies should incorporate cross-lagged longitudinal designs more often to further elucidate the roles of parent and child-effects in gender-differentiated parenting. Longitudinal studies examining both parent and child effects still remain relatively rare (Pardini, 2008).

Third, the sample used in Chapter 3, 4, and 5 consisted of mostly Caucasian families with predominantly high educational levels. Although the percentage of highly educated parents is not different from other studies focusing on the influence of parent and child gender on parenting and child behavior in a family context (e.g., McHale et al. 1999) it limits the generalizability of the results, especially because educational level appears to have an effect on gender stereotypes. However, in the current dissertation educational level was only related to explicit gender stereotypes (i.e., higher educational level associated with more egalitarian gender stereotypes). It might be interesting for future studies to examine the effects of parental gender stereotypes on the behavior of parents and children in countries with less egalitarian gender values than the Netherlands, such as Russia, or countries with more egalitarian values, such as Scandinavian countries (World Economic Forum, 2013). Only then

can we get a more complete picture of the influence of gender stereotypes on child development, because currently the literature on gender stereotypes is dominated by North-American studies.

Last, the studies in the current dissertation focused on factors within the parenting and family context to account for gender differences in child behavior. However, as was pointed out in the literature review and model in Chapter 6, biological and cultural factors also play an important role on gendered processes in the family context.

Implications for Research and Theory

The current dissertation provides support for the theoretical assumptions of gender schema theory (Bem, 1981), social role theory (Eagly et al., 2000; Hosley & Montemayor, 1997), and for the transmission of parents' gender-related attitudes towards their children. Previous evidence in this area has been surprisingly weak (e.g., Fagot, Leinbach, & O'Boyle, 1992; Tenenbaum & Leaper, 2002). We have found that there are two ways in which parents transmit their views about gender to their children. First, parents use gender talk like gender labelling, evaluations of activities and explicit expressions of gender stereotypes to highlight gender as a salient issue and to communicate the appropriateness of certain behaviors for boys and girls. When children are repeatedly provided with gender-related (i.e., stereotypical, counter-stereotypical, egalitarian) information, this has important consequences for their attitudes and behavior. Children are likely to incorporate these gender-related experiences in their own gender concept, which will guide their future behavior (Bem, 1983). Second, parents use gender-differentiated parenting practices with their children. Using differential parenting strategies with boys and girls may have important consequences for the development of gender differences in behavior and for the gender socialization of boys and girls. This dissertation indeed found evidence for gender-differentiated parenting to be an important mechanism underlying gender differences in children's behavior. When fathers had strong traditional or counter-stereotypical attitudes toward gender roles, their differential use of physical discipline strategies with boys and girls completely accounted for later gender differences in child aggressive behavior.

This dissertation also highlights the importance of taking into account parents' implicit gender stereotypes when examining gender-differentiated parenting or gender socialization, since parents with egalitarian, strongly stereotypical, or strongly counter-stereotypical attitudes toward gender differ substantially in their parenting practices towards boys and girls. Parents at both extremes of the distribution (i.e., highly stereotypical, highly counter-stereotypical) showed the largest differences in the treatment of boys and girls. Implicit gender stereotypes are especially important, as opposed to explicit gender stereotypes, since all associations that were found in this dissertation were with implicit gender stereotypes. For controversial

subjects like gender or race implicit stereotypes appear to be better predictors of behavior (Nosek et al., 2002a), whereas self-report of gender stereotypes may be biased by social desirability and a lack of awareness of own stereotypes (White & White, 2006). Moreover, the current dissertation points to the importance of using observational methods to study parents' differential behavior towards boys and girls. Differential parenting of boys and girls appears to occur mostly at an unconscious level and is therefore more likely to be captured with observational methods than with self-report measures (Culp et al., 1983).

Implications for Practice

The issue of differences between boys and girls or men and women in behavior, achievements, and educational or employment opportunities has been the subject of societal and political debate for years (Hyde, 2014). The debate is characterized at the extremes by two opposing viewpoints about gender differences. Some argue that there are important differences between males and females, that have to be acknowledged, especially when these differences lead to negative outcomes for males or females (Hyde, 2014; Zahn-Waxler, Shirtcliff, & Marceau, 2008). From this point of view the goal should be to reduce gender differences due to culture or socialization (i.e., changing or reducing socialization or cultural pressures towards gender differences) or to compensate for gender differences that exist due to biological influences. However, others argue that gender differences and their causes are relatively unimportant and the goal should be to develop interventions that would maximize everyone's potential, instead of reducing differences between boys and girls (Newcombe, Mathason, & Terlecki, 2002).

When we put the findings of the current dissertation in light of the first perspective on gender differences, it would be important to increase parents' awareness of their automatic biases about males and females, because of the influence these implicit gender stereotypes have on the treatment of boys and girls and indirectly on the behaviors of boys and girls. The meta-analysis showed that despite dramatic increases in gender equality in most Western countries the past decades (Inglehart & Norris, 2003), parents still treat their sons and daughters differently. It appears that although explicit attitudes about gender might have changed (Hill & Augoustinos, 2001), the corresponding parenting behavior change may take a longer time to evolve (White & White, 2006) or does not happen at all. This is probably because gender stereotypes are still present implicitly and exert their influence unconsciously (Rudman et al., 2001; White & White, 2006). If people do not know their implicit biases, these biases will keep exerting their influence on future behavior (Rudman, Ashmore, & Gary, 2001).

Since automatic biases have been found to be quite difficult to change (i.e., interventions seldom yield results that generalize beyond the specific study situation to group-based attitudes as a whole; Rudman et al., 2001), it might be more relevant

to focus on the relevant behaviors of parents towards boys and girls. This is of special importance for fathers with strong stereotypical or counter-stereotypical attitudes about gender roles, since they differentiate the most between boys and girls. As awareness of these behaviors increases, the differential treatment of boys and girls may diminish (Hoffman, 1977), which may lead to more favorable outcomes for both boys and girls. Especially since the gender-differentiated use of physical discipline strategies had such an important influence on aggression in boys and girls, reducing this differential treatment may have important consequences for later development. Early child aggression has been associated with a variety of detrimental outcomes later in life, such as academic underachievement (Hinshaw, 1992), rejection by peers (Coie, Dutch, & Kupersmidt, 1990), alcohol or drug use and delinquency (Brook, Whiteman, & Finch, 1992), and mental health problems (Campbell, Shaw, & Gilliom, 2000).

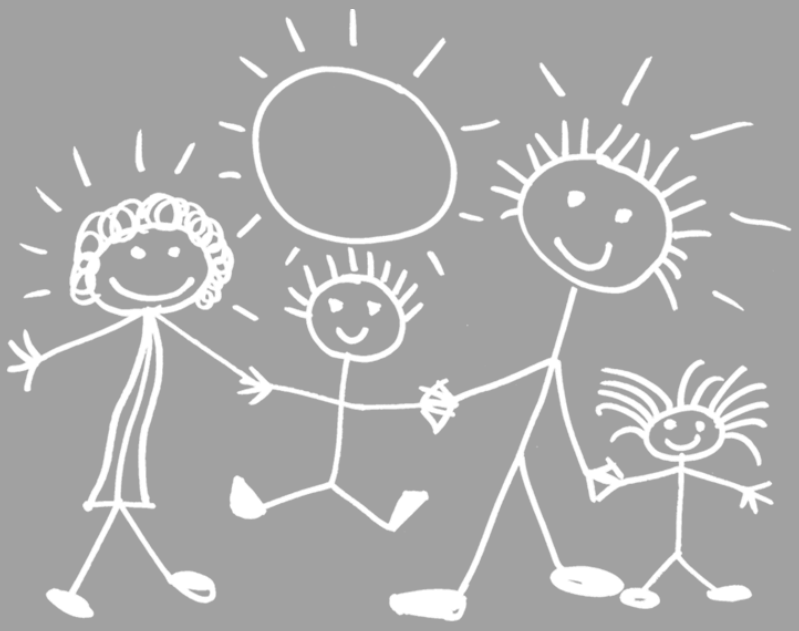
This dissertation also includes findings that are more in line with the viewpoint that gender differences per se are relatively unimportant and the goal should be to develop interventions that would maximize everyone's potential. In Chapter 5 we found that even the more subtle forms of physical discipline strategies, such as grabbing, pushing, holding, or physically redirecting (representing most of the physical discipline acts in this study), predict aggression in children regardless of child gender, suggesting a strong role for modeling and social learning (Bandura, 1977). The more subtle physical strategies may not be as detrimental for child development as harsh discipline, but are not the most optimal form of discipline. Interventions aimed at reducing harsh discipline strategies of parents should therefore also focus on reducing subtle physical strategies and increasing the use of positive discipline strategies such as induction, understanding, and instruction. The Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) which focuses on enhancing sensitive discipline in the form of induction and distraction as non-coercive discipline strategies, has proven to increase the use of positive discipline strategies by parents, which in turn is related to a decrease of externalizing problem behaviors in children (see Van Zeijl et al., 2006; Bakermans-Kranenburg, Van IJzendoorn, Pijlman, Mesman, & Juffer, 2008).

Conclusion

In sum, the current dissertation provided evidence for the idea that child gender, parent gender, and sibling gender combination each play an important role in family processes. Gender differences were found in the behavior of both parents and children. However, child gender also had an important effect on the behavior of parents, in the form of gender-differentiated parenting practices. Sibling gender combination mainly influenced the behavior and attitudes of parents but not of children in the preschool age. Last, parental gender stereotypes appeared to be an important mechanism behind gender-differentiated parenting and parents' gender

socialization of their children. Gender-differentiated parenting, in turn, is an important mechanism underlying gender differences in children's behavior. Taken together the findings presented in this dissertation demonstrate that there is a cycle in which stereotypes about males and females lead to differences in the treatment of men and women, or boys and girls, which in turn may lead to gender-related differences in adult and child behavior and attitudes, once these gender differences get incorporated again in the gender schema's of parents and children this results in a vicious cycle of gender effects. The current thesis hopes to spark renewed interest in studies on gender in relation to child development and parenting, by pointing out the importance of gender and gender-related factors such as gender stereotypes, as explanatory variables of behavior and attitudes of children and parents in the family context.

References



REFERENCES

References marked with an asterisk indicate studies included in the meta-analyses (Chapter 2).

A

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA Preschool forms & profiles.* Burlington, VT: University of Vermont, Research Centre for Children, Youth, & Families.

* Ahl, R.E., Fausto-Sterling, A., Garcia-Coll, C., & Seifer, R. (2013). Gender and discipline in 5-12-month-old infants: A longitudinal study. *Infant Behavior and Development, 36,* 199-209. doi: 10.1016/j.infbeh.2013.01.005.

Akhtar, N., Jipson, J., & Callanan, M.A. (2001). Learning words through overhearing. *Child Development, 72,* 416-430. doi:10.1111/1467-8624.00287.

Allen, M. & Burrell, N. (1997). Comparing the impact of homosexual and heterosexual parents on children. *Journal of Homosexuality, 32,* 19-35. doi:10.1300/J082v32n02_02.

Alink, L.R.A., Mesman, J., Van Zeijl, J., Stolk, M.N., Juffer, F., Koot, H.M., Bakermans-Kranenburg, M.J., & Van IJzendoorn, M.H. (2006). The early childhood aggression curve: Development of physical aggression in 10- to 50-month-old children. *Child Development, 77,* 954-966. doi: 10.1111/j.1467-8624.2006.00912.x.

Alvergne, A., Faurie, C., & Raymond, M. (2009). Variation in testosterone levels and male reproductive effort: Insight from a polygynous human population. *Hormones and Behavior, 56,* 491-497. doi:10.1016/j.yhbeh.2009.07.013.

Andersson, G., Hank, Rønsen, M., & Vikat, A (2006). Gendering family composition: Sex preferences for children and childbearing behavior in the Nordic countries. *Demograpgy, 43,* 255-267. doi:10.1353/dem.2006.0010.

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology 8,* 291-322. doi: 10.1037/1089-2680.8.4.291.

Archer, J. & Lloyd, B. (2002). *Sex and Gender.* Cambridge: University Press.

Arnett, J.J. (2010). *Adolescence and emerging adulthood: A cultural approach* (4th ed.). Boston: Prentice Hall.

Arnold, F. & Kuo, E.C.Y. (1984). The value of daughters and sons: A comparative study of the gender preferences of parents. *Journal of Comparative Family Studies, 15,* 299-318.

Audring, J. (2009). *Reinventing pronoun gender* (Doctoral dissertation, VU University Amsterdam). Retrieved from http://dare.ubvu.vu.nl/bitstream/handle/1871/15413/8136.pdf?sequence=5.Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology 8,* 291-322. doi: 10.1037/1089-2680.8.4.291.

Auyung, B., Baron-Cohen, S., Ashwin, E., Knickmeyer, R., Taylor, K., Hackett, G., & Hines, M. (2009). Fetal testosterone predicts sexually differentiated childhood

behaviour in girls and boys. *Psychological Science, 20,* 144-148. doi: 10.1111/j.1467-9280.2009.02279.x.

B

Baars, B.J. & Gage, N.M. (2010). *Cognition, brain, and consciousness: Introduction to cognitive neuroscience*. Burlington, MA: Academic Press.

Baillargeon, .H., Zoccolillo, M., Keenan, K., Côté, S., Pérusse, D., Wu, H., Boivin, M., & Tremblay, R.E. (2007). Gender differences in physical aggression: A prospective population-based survey of children before and after 2 years of age. *Developmental Psychology, 43,* 13-26. doi: 10.1037/0012-1649.43.1.13.

Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., & Juffer, F. (2003). Less is more: Meta-analysis of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129,* 195-215. doi: 10.1037/0033-2909.129.2.195.

Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., Pijlman, F.T.A., Mesman, J., & Juffer, F. (2008). Experimental evidence for differential susceptibility: Dopamine D4 receptor polymorphism (DRD4 VNTR) moderates intervention effects on toddlers' externalizing behavior in a randomized controlled trial. *Developmental Psychology, 44,* 293-300. doi:10.1037/0012-1649.44.1.293.

Bandura, A. (1977). *Social learning theory*. London: Prentice Hall.

Bandura, A., Ross, D., & Ross, S.A. (1961). Transmission of aggression through the imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63,* 575-582. doi:10.1037/h0045925.

Bandura, A. & Walters, R. (1963). *Social learning and personality development.* New York: Holt, Rinehart, & Winston.

Banse, R., Gawronski, B., Rebetez, C., Gutt, H., & Morton, J.B. (2010). The development of spontaneous gender stereotyping in childhood: Relations to stereotype knowledge and stereotype flexibility. *Developmental Science, 13,* 298-306. doi: 10.111/j.1467-7687.2009.00880.x.

Barak, A., Feldman, S., & Noy, A. (1991). Traditionality of children's interests as related to their parents' gender stereotypes and traditionality of occupations. *Sex Roles, 24,* 511-524. doi:10.1007/BF00289336.

Barber, B.K. (1996). Parental psychological control: revisiting a neglected construct. *Child Development, 67,* 3296-3319. doi: 10.1111/1467-8624.ep9706244861.

Barber, B.K. (2002). *Regulation as a multicultural concept and construct for adolescent health and development.* Unpublished manuscript.

Barber, B.K., Bean, R.L., & Erickson, L.D. (2002). Expanding the study and understanding of parental psychological control. In B.K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 262–289). Washington, DC: American Psychological Association.

Barber, B.K., Olsen, J.E., & Shagle, S.C. (1994). Associations between parental psychological and behavioral control and youth internalized and externalized behaviors. *Child Development, 65,* 1120-1136. doi:10.111/j.1467-8624.1994.tb00807.x.

Barbieri, R.L. (1999). Endocrine disorders in pregnancy. In S.S.C. Yen, R.B. Jaffe, & R.L. Barbieri (Eds.), *Reproductive endocrinology: Physiology, pathophysiology, and clinical management* (pp. 785-812). Philadelphia: W.B. Saunders.

* Barkley, R. A. (1989). Hyperactive girls and boys: Stimulant drug effects on mother-child interactions. *Journal of Child Psychology and Psychiatry, 30*, 379-390. doi: 10.1111/j.1469-7610.1989.tb00253.x.

Barnett, M. A., Deng, M., Mills-Koonce, W. R., Willoughby, M., & Cox, M. (2008). Interdependence of parenting of mothers and fathers of infants. *Journal of Family Psychology, 22*, 561-573. doi: 10.1037/0893-3200.22.3.561.

* Barnett, D., Kidwell, S.L., & Leung, K.H. (1998). Parenting and preschooler attachment among low-income and urban American families. *Child Development, 69*, 1657-1671. doi: 10.1111/j.1467-8624.1998.tb06183.x.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi: 10.1037/0022-3514.51.6.1173.

Barreto, M., & Ellemers, N. (2005). The perils of political correctness: Responses of men and women to old-fashioned and modern sexist views. *Social Psychology Quarterly, 68*, 75–88. doi: 10.1177/019027250506800106.

Barreto, M., Ellemers, N., Scholten, W., & Smith, H. (2010). To be or not to be: The impact of implicit versus explicit inappropriate social categorizations on the self. *British Journal of Social Psychology, 49*, 43-67. doi:10.1348/014466608X400830.

Barry, H., III & Harper A.S. (1995). Increased choice of female phonetic attributes in first names. *Sex Roles, 32*, 809-819. doi:10.1007/BF01560190.

Basow, S.A. & Rubin, L.R. (1999). Gender influences on adolescent development. In N.G. Johnson, M.C. Roberts, & J. Worell (Eds.), *Beyond appearance: A new look at adolescent girls* (pp. 25-52). Washington, DC: American Psychological Association.

Bates, J.E., Pettit, G.S., Dodge, K.A. & Ridge, B. (1998). Interaction of temperamental resistance to control and restrictive parenting in the development of externalizing behavior. *Developmental Psychology, 34*(5), 982-995. doi:10.1037/0012-1649.34.5.982.

Baumeister, R.F., Bratslavsky, E., Finkenauer, C., & Vohs, K.D. (2001). Bad is stronger than good. *Review of General Psychology, 5*, 323-370. doi: 10.1037/1089-2680.5.4.323.

* Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology, 4*, 1-103. doi: 10.1037/h0030372.

Baumrind, D. (1975). Some thoughts about childrearing. In U. Bronfenbrenner & M. Mahoney (Eds.), *Influences on human development* (2nd ed., pp. 270-282). Hinsdale, IL: Dryden Press.

Baumrind, D. (1983). Rejoinder to Lewis' reinterpretation of parental firm control effects: Are authoritative families really harmonious? *Psychological Bulletin, 94*, 132-142. doi: 10.1037/0033-2909.94.1.132.

Baxter, J. & Kane, E.W. (1995). Dependence and independence: A cross-national analysis of gender inequality and gender attitudes. *Gender & Society, 9*, 193-215. doi:10.1177/089124395009002004.

* Befera, M. S. & Barkley, R. A. (1985). Hyperactive and normal girls and boys: Mother–child interaction, parent psychiatric status and child psychopathology. *Journal of Child Psychology and Psychiatry, 26*, 439-452. doi: 10.1111/j.1469-7610.1985.tb01945.x

* Belden, A. C., Sullivan, J. P., & Luby, J. L. (2007). Depressed and healthy preschoolers' internal representations of their mothers' caregiving: Associations with observed caregiving behaviors one year later. *Attachment & Human Development, 9*, 239-254. doi: 10.1080/14616730701455395.

Bell, R.Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review, 75*, 81-95. doi: 10.1037/h0025583.

* Bellinger, D.C. & Gleason, J.B. (1982). Sex differences in parental directives to young children. *Sex Roles, 8*, 1123-1139. doi: 10.1007/BF00290968.

Belsky, J. (1984). The determinants of parenting: A process model. Child Development, 55, 83–96.

Belsky, J., Bakermans-Kranenburg, M.J., & Van IJzendoorn, M.H. (2007). For better *and* for worse: Differential susceptibility to environmental influences. *Current Directions in Psychological Science, 16*, 300-304. doi:10.111/j.1467-8721.2007.00525.x.

Bem, S.L. (1981). Gender schema theory: a cognitive account of sex typing. *Psychological Review, 88*, 354-364. doi: 10.1037/0033-295X.88.4.354.

Bem, S.L. (1983). Gender schema theory and its implications for child development: Raising gender-aschematic children in a gender-schematic society. *Journal of Women in Culture and Society, 8*, 598-616.

Benaji, M.R., & Greenwald, A.G. (1995). Implicit gender stereotyping in judgments of fame. *Journal of Personality and Social Psychology, 68*, 181-198. doi: 10.1037/0022-3514.68.2.181.

Bender, H.L., Allen, J.P., McElhaney, K.B., Antonishak, J., Moore, C.M., Kelly, H.O., & Davis, S.M. (2007). Use of harsh physical discipline and developmental outcomes in adolescence. *Developmental Psychopathology, 19*, 227-242. doi:10.1017/S0954579407070125.

Berenbaum, S.A. & Beltz, A.M. (2011). Sexual differentiation of human behaviour: Effects of prenatal and pubertal organizational hormones. *Frontiers in Neuroendocrinology, 32*, 183-200. doi: 10.1016/j.yfrne.2011.03.001.

* Bernstein, V. J., Harris, E. J., Long, C. W., Iida, E., & Hans, S. L. (2005). Issues in the Multi-Cultural Assessment of Parent-Child Interaction: An Exploratory Study from the Starting Early Starting Smart Collaboration. *Journal of Applied Developmental Psychology: An International Lifespan Journal, 26*, 241-275. doi: 10.1016/j.appdev.2005.02.002.

Best, D.L. & Williams, J.E. (1997). Sex, gender, and culture. In J.W. Berry, M.H. Segall, & C. Kagitcibasi (Eds.), *Handbook of cross-cultural psychology: Vol. 3. Social behaviour and applications* (pp. 163-212). Boston: Allyn and Bacon.

Best, D.L., Williams, J.E., Cloud, J.M., Davis, S.W., Robertson, L.S., Edwards, J.R., Giles, H., & Fowles, J. (1977). Development of sex-trait stereotypes among

young children in the United States, England, and Ireland. *Child Development, 48,* 1375-1384.

Bezirganian, S. & Cohen, P. (1992). Sex differences in the interaction between temperament and parenting. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 790-801. doi:10.1097/00004583-199209000-00004.

* Blackwelder, D. E. & Passman, R. H. (1986). Grandmothers' and mothers' disciplining in three-generational families: The role of social responsibility in rewarding and punishing grandchildren. *Journal of Personality and Social Psychology, 50,* 80-86. doi: 10.1037/0022-3514.50.1.80.

Biblarz, T.J. & Stacey, J. (2010). How does the gender of parents matter? *Journal of Marriage and Family, 72,* 3-22. doi:10.1111/j.1741-3737.2009.00678.x.

Birnbaum, D.W., & Croll, W.L. (1984). The etiology of children's stereotypes about sex differences in emotionality. *Sex Roles, 10,* 677-691. doi: 10.1007/BF00287379.

Blair, S . (1992). The sex-typing of children's household labour: Parental influence on daughters' and sons' housework. *Youth and Society, 24,* 178-203. doi: 10.1177/0044118X92024002004.

Blakemore, J.E.O., Berenbaum, S.A., & Liben, L.S. (2009). *Gender Development.* New York: Psychology Press.

Block, J.H. (1976). Issues, problems, and pitfalls in assessing sex differences: A critical review of The Psychology of Sex Differences. *Merril-Palmer Quarterly, 22,* 283-308.

Block, J.H. (1979). Another look at sex differentiation in the socialization behaviors of mothers and fathers. In F.L. Denmark & J. Sherman (Eds.), *Psychology of women: Future directions for research* (pp. 29-87). New York: Psychological Dimensions.

Boeldt, D.L., Rhee, S.H., DiLalla, L.F., Mullineaux, P.Y, Schulz-Heik, R.Y., Corley, R.P., Young, S.E., & Hewitt, J.K. (2012). The association between positive parenting and externalizing behavior. *Infant and Child Development, 21,* 85-106. doi: 10.1002/icd.764.

Bolzendahl, C. & Meyers, D.J. (2004). Feminist attitudes and support for gender equality: Opinion change in women and men, 1974-1998. *Social Forces, 83,* 759-790. doi:10.1353/sof.2005.0005.

Booth, A., Johnson, D.R., Granger, D.A., Crouter, A.C., & McHale, S. (2003). Testosterone and child and adolescent adjustment: The moderating role of parent-child relationships. *Developmental Psychology, 39,* 85-98. doi:10.1037/0012-1649.39.1.85.

Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2005). Comprehensive Meta-analysis Version 2. Englewood, NJ: Biostat.

Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2009). *Introduction to meta-analysis.* New York: Wiley.

Bos, P.A., Hermans, E.J., Montoya, E., Ramsey, N.F., & Van Honk, J. (2010). Testosterone administration modulates neural responses to crying infants in young females. *Psychoneuroendocrinology, 35,* 114-121. doi:10.1016/j.psyneuen.2009.09.013.

Bos, H. & Van Gelderen, L. (2010) Homo en lesbisch ouderschap in Nederland. In S. Keuzenkamp (ed.), *Steeds gewoner, nooit gewoon. Acceptatie van homoseksualiteit in Nederland* (pp. 104-118). Den Haag: Sociaal en Cultureel Planbureau.

Boyd, C.J. (1989). Mothers and daughters: A discussion of theory and research. *Journal of Marriage and Family, 51,* 291-301.

Bowen, M. (1978) *Family therapy in clinical practice*. New York: Aronson.

* Braungart-Rieker, J., Garwood, M.M., & Stifter, C.A. (1997). Compliance and noncompliance: The roles of maternal control and child temperament. *Journal of Applied Developmental Psychology, 18,* 411-428. doi: 10.1016/S0193-3973(97)80008-1.

* Bright, M.C. & Stockdale, D.F. (1984). Mothers', fathers', and preschool children's interactive behaviors in a play setting. *The Journal of Genetic Psychology, 144,* 219-232. doi: 10.1080/00221325.1984.9923428

Brim, O. G. (1958). Family structure and sex role learning by children: A further analysis of Helen Koch's data. Sociometry, 21, 1–16. doi: 10.2307/2786054.

* Brody, G. H. & Forehand, R. (1985). The efficacy of parent training with maritally distressed and nondistressed mothers: A multimethod assessment. *Behaviour Research and Therapy, 23*, 291-296. doi: 10.1016/0005-7967(85)90007-5

* Brody, G.H., Pillegrini, A.D., & Sigel, I.E. (1986). Marital quality and mother-child and father-child interactions with school-aged children. *Developmental Psychology, 22,* 291-296. doi: 10.1037/0012-1649.22.3.291.

* Brody, G.H., Stoneman, Z., & McCoy, J.K. (1992). Associations of maternal and paternal direct and differential behavior with sibling relationships: Contemporaneous and longitudinal analyses. *Child Development, 63,* 82-92. doi: 10.1111/j.1467-8624.1992.tb03597.x.

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

* Bronstein, P. (1984). Differences in mothers' and fathers' behaviors toward children: A cross-cultural comparison. *Developmental Psychology, 20*(6), 995-1003. doi: 10.1037/0012-1649.20.6.995.

* Bronstein, P., Fox, B. J., Kamon, J. L., & Knolls, M. L. (2007). Parenting and gender as predictors of moral courage in late adolescence: A longitudinal study. *Sex Roles, 56,* 661-674. doi: 10.1007/s11199-007-9182-8.

Buckholtz, J.W., Callicott, J.H., Kolachana, B., Harir, A.R., Goldberg, T.E., Genderson, M., … Meyer-Lindenberg, A. (2008). *Molecular Psychiatry, 13,* 313-324. doi: 10.1038/sj.mp.4002020.

Burge, P.L. (1981). Parental child-rearing sex-role attitudes related to social issue sex-role attitudes and selected demographic variables. *Home Economics Research Journal, 9,* 193-199. doi: 10.1177/1077727X8100900302.

Buss, D.M. & Schmitt, D.P. (1993). Sexual strategies theory: an evolutionary perspective on human mating. *Psychological Review, 100,* 204-232. doi:10.1037/0033-295X.100.2.204.

Bussey, K. & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review, 106,* 676-713. doi:10.1037/0033-295X.106.4.676

C

Cabrera, N.J., Tamis-LeMonda, C.S., Bradley, R.H., Hofferth, S., & Lamb, M.E. (2000). Fatherhood in the twenty-first century. *Child Development, 71*, 127-136. doi:10.1111/1467-8624.00126.

* Caldera, Y.M., Huston, A.C., & O'Brien, M. (1989). Social interactions and play patterns of parents and toddlers with feminine, masculine, and neutral toys. *Child Development, 60*, 70-76. doi: 10.2307/1131072.

* Calkins, S. D., Smith, C. L., Gill, K. L., & Johnson, M. C. (1998). Maternal interactive style across contexts: Relations to emotional, behavioral and physiological regulation during toddlerhood. *Social Development, 7*, 350-369. doi: 10.1111/1467-9507.00072

Campbell, S.A., Shaw, D.S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology, 12*, 467-488. doi: 10.1017/S0954579400003114.

* Campbell, S. B., Breaux, A.M., Ewing, L.J., Szumowski, E.K., & Pierce E.W. (1986). Parent-Identified Problem Preschoolers: Mother-Child Interaction during Play at Intake and 1-Year Follow-Up. *Journal of Abnormal Child Psychology, 14*, 425-440. doi: 10.1007/BF00915436.

* Campbell, J.J. (1999). *Familial antecendents to children's relational and overt aggression.* (9933835 Ph.D), University of North Carolina, United States -- North Carolina. Retrieved from http://search.proquest.com/dissertations/docview/304515055/140C4BD873553FA15D2/3?accountid=12045. ProQuest Dissertations & Theses Full Text database

Caramaschi, D., Booij, L., Petitclerc, A, Boivin, M., & Tremblay, R.E. (2012). *Psychoneuroendocrinology, 37*, 1954-1959. doi:10.1016/j.psyneuen.2012.04.008.

Cassidy, J. (1999). The nature of the child's ties. In J. Cassidy & P.R Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 3-22). New York: The Guilford Press.

* Celano, M., Bakeman, R., Gaytan, O., Smith, C. O., Koci, A., & Henderson, S. (2008). Caregiver depressive symptoms and observed family interaction in low-income children with persistent asthma. *Family Process, 47*, 7-20. doi: 10.1111/j.1545-5300.2008.00236.x.

Centraal Bureau voor de Statistiek (2014). Eenouderhuishoudens.

Cha, Y. & Thebaud, S. (2009). Labor markets, breadwinning, and beliefs: How economic context shapes men's gender ideology. *Gender & Society, 23*, 215-243. doi:10.1177/0891243208330448.

Champagne, F.A., Francis, D.D., Mar, A., & Meaney, M.M. (2003). Variations in maternal care in the rat as a mediating influence for the effects of environment on development. Physiology & Behavior, 79, 359-371. doi:10.1016/S0031-9384(03)00149-5.

Chaplin, T.M., Cole, P.M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion, 5,* 80-88. doi: 10.1037/1528-3542.5.1.80.

Charles, M. & Bradley, K. (2009). Indulging our gendered selves? Sex segregation by field of study in 44 countries. *American Journal of Sociology, 114,* 924-976. doi:10.1086/595942.

* Chen, X., Liu, M., Li, B., Cen, G., Chen, H., & Wang, L. (2000). Maternal authoritative and authoritarian attitudes and mother-child interactions and relationships in urban China. *International Journal of Behavioral Development, 24,* 119-126. doi: 10.1080/016502500383557.

* Chen, X., Wu, H., Chen, H., Wang, L., & Cen, G. (2001). Parenting practices and aggressive behavior in Chinese children. *Parenting: Science and Practice, 1,* 159-184. doi: 10.1207/s15327922par0103_01.

* Cherry, L. & Lewis, M. (1976). Mothers and two-year-olds: A study of sex-differentiated aspects of verbal interaction. *Developmental Psychology, 12,* 278-282. doi: 10.1037/0012-1649.12.4.278.

Chess, S. & Thomas, A. (1999). *Goodness of fit: Clinical applications from infancy through adult life.* Philadelphia, PA: Bruner/Mazel.

Chick, K.A., Heilman-Houser, R.A., & Hunter, M.W. (2002). The impact of child care on gender role development and gender stereotypes. *Early Childhood Education Journal, 29,* 149-154. doi:10.1023/A:1014528424032.

* Christopoulou, C. (1988). *Familial antecedents of peer social competence in second-graders.* (8914625 Ph.D.), University of Virginia, United States -- Virginia. Retrieved from http://search.proquest.com/docview/303730393?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Ciabattari, T. (2001). Changes in men's conservative gender ideologies: Cohort and period influences. *Gender and Society, 15,* 574–91. doi:10.1177/089124301015004005.

* Ciarrocchi, J. W. (1983). *Maternal locus of control and use of incentive methods with preschool children: An observational study.* (8401467 Ph.D.), The Catholic University of America, United States -- District of Columbia. Retrieved from http://search.proquest.com/docview/303126296?accountid=12045 ProQuest Dissertations & Theses Full Text database.

* Cipriano, E. A. & Stifter, C. A. (2010). Predicting preschool effortful control from toddler temperament and parenting behavior. *Journal of Applied Developmental Psychology, 31,* 221-230. doi: 10.1016/j.appdev.2010.02.004

Ciumas, C., Lindén Hirschberg, A., & Savic, I. (2009). High fetal testosterone and sexually dimorphic cerebral networks in females. *Cerebral Cortex, 19,* 1167-1174. doi:10.1093/cercor/bhn160.

Clearfield, M.W., & Nelson, N.M. (2006). Sex differences in mothers' speech and play behavior with 6-, 9-, and 14-month-old infants. *Sex Roles, 54,* 127-137. doi: 10.1007/s11199-005-8874-1.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences.* New York: Academic Press.

Cohen-Bendahan, C.C.C., Van de Beek, C., & Berenbaum, S.A. (2005). Prenatal sex hormone effects on child and adults sex-typed behavior: Methods and findings. *Neuroscience and Biobehavioral Reviews, 29,* 353-384. doi: 10.1016/j.neubiorev.2004.11.004.

Coie, J.D., Dodge, K.A., & Kupersmidt, J. (1990). Peer group behavior and social status. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp. 17–59). New York: Cambridge University Press.

Connell, A.M. & Goodman, S.H. (2002). The association between psychopathology in fathers and children's internalizing and externalizing behavior: A meta-analysis. *Psychological Bulletin, 128,* 746-773. doi: 10.1037//0033-2909.128.5.746.

Contreras, J.M., Benaji, M.R., & Mitchell, J.P. (2012). Dissociable neural correlates of stereotypes and other forms of semantic knowledge. *SCAN, 7,* 764-770. doi:10.1093/scan/nsr053.

* Copeland, A. P. (1984). An early look at divorce: Mother–child interactions in the first post-separation year. *Journal of Divorce, 8,* 17-30. doi: 10.1300/J279v08n02_02.

* Coulson, S.L. (2001). *Relations between parental emotional support and control, children's cognitive ability, and children's helplessness: The mediating and moderating role of self-concept.* (3022914, Ph.D), Claremont Garduate University, United States -- California. Retrieved from http://search.proquest.com/dissertations/docview/251755895/140C4C4C4D6278066B2/1?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Cousins, C.R., & Ning, T. (2004). Working time and work and family conflict in the Netherlands, Sweden and the UK. *Work, Employment & Society, 18,* 531-549. doi: 10.1177/0950017004045549.

Cox, K.H., Bonthuis, P.J., & Rissman, E.F. (2014). Mouse model systems to study sex chromosome genes and behavior: Relevance to humans. *Frontiers in Neuroendocrinology.* Online first publication: http://dx.doi.org/10.1016/j.yfrne.2013.12.004.

Crick, N.R. & Grotpeter, J.K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66,* 710-722. doi:10.1111/j.1467-8624.1995.tb00900.x.

* Crockenberg, S. & Litman, C. (1990). Autonomy as Competence in 2-Year-Olds: Maternal Correlates of Child Defiance, Compliance, and Self-Assertion. *Developmental Psychology, 26,* 961-971. doi: 10.1037/0012-1649.26.6.961.

Culp, R.E., Cook, A.S., & Housley, P.C. (1983). A comparison of observed and reported adult-infant interactions: effects of perceived sex. *Sex Roles, 9,* 475-479. doi: 10.1007/BF00289787.

Cunningham, M. (2001). The influence of parental attitudes and behaviors on children's attitudes toward gender and household labor in early adulthood. *Journal of Marriage and Family, 63,* 111-122. Doi: 10.1111/j.1741-3737.2001.00111.x.

D

Davis, N.J., & Robinson, R.V. (1991). Men's and women's consciousness of gender inequality: Austria, West Germany, Great Britain, and the United States. *American Sociological Review, 56,* 72–84. doi:10.2307/2095674.

* Deater-Deckard, K. (2000). Parenting and child behavioral adjustment in early childhood: A quantitative genetic approach to studying family processes. *Child Development, 71*, 468-484. doi: 10.1111/1467-8624.00158

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality, 62,* 119–142. doi:10.1111/j.1467-6494.1994.tb00797.x.

Deci, E. L., & Ryan, R. M. (2000). The ''what" and ''why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11,* 227–268. doi:10.1207/S15327965PLI1104_01.

De Houwer, J., Teige-Mocigemba, S., Spruyt, A., & Moors, A. (2009). Implicit measures: A normative analysis and review. *Psychological Bulletin, 135,* 347-368. doi: 10.1037/a0014211.

* Deković, M. & Gerris, J. R. M. (1992). Parental reasoning complexity, social class, and child-rearing behaviors. *Journal of Marriage and the Family, 54*, 675-685. doi: 10.2307/353253

DeLoache, J.S., Cassidy, D.J., & Carpenter, C.J. (1987). The three bears are all boys: Mothers' gender labeling of neutral picture book characters. *Sex Roles, 17,* 163-178. doi: 10.1007/BF00287623.

* Dennis, T. (2006). Emotional self-regulation in preschoolers: The interplay of child approach reactivity, parenting, and control capacities. *Developmental Psychology, 42*, 84-97. doi: 10.1037/0012-1649.42.1.84.

Devreux, A.M. (2007). New fatherhood in practice: Domestic and parental work performed by men in France and in the Netherlands. *Journal of Comparative Family Studies, 38*, 87-103.

De Wolff, M.S. & Van IJzendoorn, M.H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development, 68*, 571-591. doi: 10.1111/j.1467-8624.1997.tb04218.x.

Diesendruck, G. & Deblinger-Tangi, R. (2014). The linguistic construction of social categories in toddlers. *Child Development, 85,* 114-123. doi:10.1111/cdev.12130.

DiPietro, J.A. (1981). Rough and tumble play: A function of gender. *Developmental Psychology, 17,* 50-58. doi: 10.1037/0012-1649.17.1.50.

Dobbs, J., Arnold, D.H., & Doctoroff, G.L. (2004). Attention in the preschool classroom: The relationships among child gender, child misbehavior, and types of teacher attention. *Early Child Development and Care, 174,* 281-295. doi:10.1080/0300443032000153598.

Dodson, T.A. & Borders, L.D. (2006). Men in traditional and nontraditional careers: Gender role attitudes, gender role conflict, and job satisfaction. *Career Development Quarterly, 54,* 283-296. doi:10.1002/j.2161-0045.2006.tb00194.x.

* Domenech Rodríguez, M. M., Donovick, M. R., & Crowley, S. L. (2009). Parenting styles in a cultural context: Observations of 'protective parenting' in first-generation Latinos. *Family Process, 48*, 195-210. doi: 10.1111/j.1545-5300.2009.01277.x.

* Donovan, W.L., Leavitt, L.A., & Walsh, R.O. (2000). Maternal illusory control predicts socialization strategies and toddler compliance. *Developmental Psychology, 36,* 402-411. doi: 10.1037/0012-1649.36.3.402.

* Dumas, J. E., LaFreniere, P. J., & Serketich, W. J. (1995). 'Balance of power': A transactional analysis of control in mother-child dyads involving socially competent, aggressive, and anxious children. *Journal of Abnormal Psychology, 104,* 104-113. doi: 10.1037/0021-843x.104.1.104.

Duval, S., & Tweedie, R. (2000a). A nonparametric ‘‘trim and fill’’ method for accounting for publication bias in meta-analysis. *Journal of the American Statistical Association, 95,* 89–98. doi: 10.1080/01621459.2000.10473905.

Duval, S., & Tweedie, R. (2000b). Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics, 56,* 455–463. doi: 10.1111/j.0006-341X.2000.00455.x.

E

Eagly, A.H. & Carli, L.L. (1981). Sex of researchers and sex-typed communications as determinants of sex differences in influenceability: A meta-analysis of social influence studies. *Psychological Bulletin, 90,* 1-20. doi: 10.1037/0033-2909.90.1.1.

Eagly, A. H., & Diekman, A. B. (2005). What is the problem? Prejudice as an attitude-in-context. In J. Dovidio, P. Glick, & L. Rudman (Eds.), *On the nature of prejudice: Fifty years after Allport* (pp. 19-35). Gospons: Blackwell Publishing.

Eagly, A.H. & Wood, W. (1991). Explaining sex differences in social behaviour: A meta-analytic perspective. *Personality and Social Psychology Bulletin, 17,* 306-315. doi: 10.1177/0146167291173011.

Eagly, A.H. & Wood, W. (2002). A cross-cultural analysis of the behavior of women and men: Implications for the origins of sex differences. *Psychological Bulletin, 128,* 699-727. doi:10.1037//0033-2909.128.5.699.

Eagly, A.H., Wood, W., & Diekman, A.B. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H.M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 123-174). Mahwah, NJ: Lawrence Erlbaum Associates.

Eccles, J.S., Freedman-Doan, C., Frome, P., Jacobs, J., & Yoon, K.S. (2000). Gender-role socialization in the family: A longitudinal approach. In In T. Eckes & H.M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 333-360). Mahwah, NJ: Lawrence Erlbaum Associates.

Eckes, T. & Trautner, H.M. (2000). *The Developmental Social Psychology of Gender.* Mahwah, NJ: Lawrence Erlbaum Associates.

* Eddy, J. M., Leve, L. D., & Fagot, B. I. (2001). Coercive family processes: A replication and extension of Patterson's coercion model. *Aggressive Behavior,*

27, 14-25. doi: 10.1002/1098-2337(20010101/31)27:1<14::aid-ab2>3.0.co;2-2.

Ehrhardt, A.A. & money, J. (1967). Progestin-induced hermaphroditism: IQ and psychosexual identity in a study of ten girls. The Journal of Sex Research, 3, 83-100. doi:10.1080/00224496709550517.

* Eiden, R.D., Leonard, K.E., & Morrisey, S. (2001). Paternal alcoholism and toddler noncompliance. *Alcoholism: Clinical and Experimental Research, 25*, 1621-1633. doi: 10.1111/j.1530-0277.2001.tb02169.x.

Eisenberg, N., Wolchik, S.A., Hernandez, R., & Pasternack, J.F. (1985). Parental socialization of young children's play: A short-term longitudinal study. *Child Development, 56*, 1506-1513.

Ekehammar, B., Akrami, N., & Araya, T. (2003). Gender differences in implicit prejudice. *Personality and Individual Differences, 34*, 1509-1523. doi: 10.1016/S0191-8869(02)00132-0.

* Eley, T. C., Napolitano, M., Lau, J. Y. F., & Gregory, A. M. (2010). Does childhood anxiety evoke maternal control? A genetically informed study. *Journal of Child Psychology and Psychiatry, 51*, 772-779. doi: 10.1111/j.1469-7610.2010.02227.x.

Else-Quest, N.M., Hyde, J.S., Goldsmith, H.H., & Van Hulle, C.A. (2006). Gender differences in temperament: A meta-analysis. *Psychological Bulletin, 132*, 33-72. doi: 10.1037/0033-2909.132.1.33.

Ember, C. R., & Ember, M. (1994). War, socialization, and interpersonalviolence. *Journal of Conflict Resolution, 38*, 620–646. doi: 10.1177/0022002794038004002.

* Emmons, Y.D. (2001). *Control strategies and compliance in mother-child and father-child dyads.* (3039143 Ph.D.), California State University, United States -- California. Retrieved from http://search.proquest.com/dissertations/docview/251477573/140C4DDBC6B4BFB739E/2?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Endendijk, J.J., Groeneveld, M.G., Mesman, J., & Bakermans-Kranenburg, M.J. (2014). Bad boy, good girl: A meta-analysis of mothers' and fathers' gender-differentiated use of positive and negative controlling strategies. *Psychological Bulletin.*

Endendijk, J.J., Groeneveld, M.G., Van Berkel, S.R., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M.J. (2013). Gender stereotypes in the family context: Mothers, fathers, and siblings. *Sex Roles, 68*: 577-590. doi:10.1007/s11199-013-0265-4.

Endendijk, J.J., Groeneveld, M.G., Van der Pol, L.D., Van Berkel, S.R., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg M.J. (2014). Boys don't play with dolls: Mothers' and fathers' gender talk during picture book reading. *Parenting: Science and Practice.*

Eron, L.D. (1992). Gender differences in violence: Biology and/or socialization? In K. Björkqvist & P. Niemela (Eds.), *Of mice and women: Aspects of female aggression* (pp. 89-97). San Diego, CA: Academic Press.

Ex, C.T.G.M., & Janssens, J.M.A.M. (1998). Maternal influences on daughters' gender role attitudes. *Sex Roles, 38,* 171-186. doi: 10.1023/A:1018776931419.

F

Fagot, B.I. (1978). The influence of sex of child on parental reactions to toddler children. *Child Development, 49,* 459-465.

Fagot, B.I. (1995). Parenting boys and girls. In M.H. Bornstein (ed.), *Handbook of Parenting, Vol. 1.* (pp. 163-83). Hillsdale, NJ: Erlbaum.

* Fagot, B. I. (1985). A cautionary note: Parents' socialization of boys and girls. *Sex Roles, 12,* 471-476. doi: 10.1007/bf00288169.

* Fagot, B.I., Gauvain, M., & Kavanagh, K. (1996). Infant attachment and mother-child problem-solving: A replication. *Journal of Social and Personal Relationships, 13,* 295-302. doi: 10.1177/0265407596132008.

Fagot, B.I. & Hagan, R. (1985). Aggression in toddlers: Responses to the assertive acts of boys and girls. *Sex Roles, 12,* 341-351. doi:10.1007/BF00287600.

Fagot, B.I. & Hagan, R. (1991). Observations of parent reactions to sex-stereotyped behaviors: Age and sex effects. *Child Development, 62,* 617-628. doi: 10.1111/j.1467-8624.1991.tb01556.x.

Fagot, B.I., Leinbach, M.D., & O'Boyle, C. (1992). Gender labelling, gender stereotyping, and parenting behaviors. *Developmental Psychology, 28,* 225-230. doi: 10.1037/0012-1649.28.2.225.

* Fagot, B.I. & Kavanagh, K. (1993). Parenting during the second year: Effects of children's age, sex, and attachment classification. *Child Development, 64,* 258-271. doi: 10.1111/j.1467-8624.1993.tb02908.x.

* Falender, C. A. & Heber, R. (1975). Mother-child interaction and participation in a longitudinal intervention program. *Developmental Psychology, 11,* 830-836. doi: 10.1037/0012-1649.11.6.830.

Feinman, S. (Ed.). (1992). *Social referencing and the social construction of reality in infancy.* New York: Plenum.

Feldman, R. (2003). Infant-mother and infant-father synchrony: The co-regulation of positive arousal. *Infant Mental Health Journal, 24,* 1-23. doi: 10.1002/imhj.10041.

* Feldman, R. & Klein, P. S. (2003). Toddlers' self-regulated compliance to mothers, caregivers, and fathers: Implications for theories of socialization. *Developmental Psychology, 39,* 680-692. doi: 10.1037/0012-1649.39.4.680.

* Feldman, S. S. & Sarnat, L. (1986). Israeli town and kibbutz toddlers' compliance and adults' control attempts. *Merrill-Palmer Quarterly, 32,* 365-382.

Fingerman, K.L. (2004). The role of offspring and in-laws in grandparents' ties to their grandchildren. *Journal of Family Issues, 25,* 1026-1049. doi:10.1177/0192513X04265941.

Fischer, E. & Arnold, S.J. (1994). Sex, gender identity, gender role attitudes, and consumer behavior. *Psychology & Marketing, 11,* 163-182. doi: 10.1002/mar.4220110206.

* Fisher, P.A. & Fagot, B.I. (1993). Negative discipline in families: A multidimensional risk model. *Journal of Family Psychology, 7*, 250-254. doi: 10.1037/0893-3200.7.2.250.

Fivush, R. (1998). Gendered narratives: Elaboration, structure, and emotion in parent-child reminiscing across the preschool years. In C.P. Thompson & D.J. Herrmann (Eds.), *Autobiographical memory: Theoretical and applied perspectives* (pp. 79-103). Mahwah, NJ: Lawrence Erlbaum Associates.

Fivush, R., Brotman, M.A., Buckner, J.P., & Goodman, S.H. (2000). Gender differences in parent-child emotion narratives. *Sex Roles, 42*, 233-253. doi:10.1023/A:1007091207068.

Fleming, A.S., Corter, C., Stallings, J., & Steiner, M. (2002). Testosterone and prolactin are associated with emotional responses to infant cries in new fathers. *Hormones and Behavior, 42,* 399–413. doi:10.1006/hbeh.2002.1840.

Forehand, R. & McKinney, B (1993). Historical overview of child discipline in the United States: Implications for mental health clinicians and researchers. *Journal of Child and Family Studies, 2,* 221-228. doi: 10.1007/BF01321332.

Fouts, H.N. (2008). Father involvement with young children among the Aka and Bofi foragers. *Cross-Cultural Research, 42,* 290-312. doi:10.1177/1069397108317484.

Frable, D.E.S. & Bem, S.L. (1985). If you are gender schematic, all members of the opposite sex look alike. *Journal of Personality and Social Psychology, 49,* 459-468. doi:10.1037/0022-3514.49.2.459.

* Frampton, K. L. (2012). *Maternal parenting and individual differences in young children's prosocial abilities: Risk and resilience.* (NR79500 Ph.D.), University of Toronto (Canada), Canada. Retrieved from http://search.proquest.com/docview/1330500121?accountid=12045 ProQuest Dissertations & Theses Full Text database.

* Frankel, M.T. & Rollins, & Jr, H.A. (1983). Does mother know best? Mothers and fathers interacting with preschool sons and daughters. *Developmental Psychology, 19,* 694-702. doi: 10.1037/0012-1649.19.5.694.

Frawley, T.J. (2008). Gender schema and prejudicial recall: How children misremember,fabricate, and distort gendered picture book information. *Journal of Research in Childhood Education, 22,* 291-303. doi:10.1080/02568540809594628.

Fredricks, J. A., Simpkins, S., & Eccles, J. S. (2005). Family socialization, gender, and participation in sports and instrumental music. In C. R. Cooper, C. T. Garcia Coll, W. T. Bartko, H.M. Davis, & C. Chatman, (Eds.), *Developmental pathways through middle childhood: Rethinking contexts and diversity as resources* (pp. 41-62). Mahwah, NJ: Lawrence Erlbaum Associates.

Freeman, N.K. (2007). Preschoolers' perceptions of gender appropriate toys and their parents' beliefs about genderized behaviors: Miscommunication, mixed messages, or hidden truths. *Early Childhood Education Journal, 34,* 357-366. doi: 10.1007/s10643-006-0123-x.

Friedman, C.K., Leaper, C., & Bigler, R.S. (2007). Do mothers' gender-related attitudes or comments predict young children's gender beliefs? *Parenting: Science and Practice, 7,* 357-366. doi:10.1080/15295190701665656.

* Frodi, A., Grolnick, W., & Bridges, L. (1985). Maternal correlates of stability and change in infant-mother attachment. *Infant Mental Health Journal, 6*, 60-67. doi: 10.1002/1097-0355(198522)6:2<60::aid-imhj2280060203>3.0.co;2-q

Frome, P. M., & Eccles, J. S. (1998). Parents' influence on children's achievement-related perceptions. *Journal of Personality and Social Psychology, 74,* 435–452. doi: 10.1037/0022-3514.74.2.435.

G

* Gaertner, B. M., Spinrad, T. L., & Eisenberg, N. (2008). Focused attention in toddlers: Measurement, stability, and relations to negative emotion and parenting. *Infant and Child Development, 17*, 339-363. doi: 10.1002/icd.580.

Gardner, F. (2000). Methodological issues in the direct observation of parent-child interaction: Do observational findings reflect the natural behavior of participants? *Clinical Child and Family Psychology Review, 3*, 185-198. doi: 10.1023/A:1009503409699.

Gatewood, J.D., Wills, A., Shetty, S., Xu, Y., Arnold, A.P., Burgoyne, P.S., & Rissman, E.F. (2006). Sex chromosome complement and gonadal sex influence aggressive and parental behaviors in mice. *The Journal of Neuroscience, 26,* 2335-2342. doi:10.1523/JNEUROSCI.3743-05.2006.

Gawronski, B. & Bodenhausen, G.V (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin, 132,* 692-731. doi:10.1037/0033-2909.132.5.692.

Ge, X.J., Conger, R.D., Cadoret, R.J., Neiderhiser, J.M., Yates, W., Troughton, E., & Stewart, M.A. (1996). The developmental interface between nature and nurture: A mutual influence model of child antisocial behavior and parent behaviors. *Developmental Psychology, 32,* 574-589. doi: 10.1037/0012-1649.32.4.574.

Gelman, S.A., Taylor, M.G., Nguyen. (2004). Mother-child conversations about gender: Understanding the acquisition of essentialist beliefs. *Monographs of the Society for Research in Child Development, 69*, 1-127. doi: 10.1111/j.0037-976X.2004.00274.x.

Gergen, K.J. (1985). The social constructionist movement in modern psychology. *American Psychologist, 40,* 266-275.

Gershoff, E.T. (2002). Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin, 128,* 539-579. doi: 10.1037//0033-2909.128.4.539.

Gettler, L.T., McDade, T.W., Feranil, A.B., & Kuzawa, C.W. (2011). Longitudinal evidence that fatherhood decreases testosterone in human males. *Proceedings of the National Academy of Science, 108,* 16194-16199. doi:10.1073/pnas.1105403108.

Gibbons, J.L. (2000). Gender development in cross-cultural perspective. In T. Eckes & H.M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 389-415). Mahwah, NJ: Lawrence Erlbaum Associates.

* Gjerde, P. F., Block, J., & Block, J. H. (1991). The preschool family context of 18 year olds with depressive symptoms: A prospective study. *Journal of Research on Adolescence, 1*, 63-91.

Goldstein, H. & Healy, M.J.R. (1995). The graphical presentation of a collection of means. *Journal of the Royal Statistical Society, 158,* 175-177. doi: 10.2307/2983411

Golombok, S., Perry, B., Burston, A., Murray, C., Mooney-Somers, Stevens, M., & Golding, J. (2003). Children with lesbian parents: A community study. *Developmental Psychology, 39,* 20-33. doi:10.1037/0012-1649.39.1.20.

Gooden, A.M., & Gooden, M.A. (2001). Gender representation in notable children's picture books: 1995-1999. *Sex Roles, 45,* 89-101. doi: 10.1023/A:1013064418764.

Goodsell, T.L., Bates, J.S., & Behnke, A.O. (2011). Fatherhood stories: Grandparents, grandchildren, and gender differences. *Journal of Social and Personal Relationships, 28,* 134-154. doi:10.1177/0265407510386447.

* Gordon, B. N. (1983). Maternal perception of child temperament and observed mother–child interaction. *Child Psychiatry and Human Development, 13,* 153-167. doi: 10.1007/bf00705856.

Graunt, J. (1665). *Natural and political observations mentioned in a following index, and made upon the bills of mortality.* London: Thomas Roycroft from John Martin, James Allestry, and Thomas Dicas.

Gray, P.B., Kahlenberg, S.M., Barrett, E.S., Lipson, S.F., & Ellison, P.T. (2002). Marriage and fatherhood are associated with lower testosterone in males. *Evolution and Human Behavior, 23,* 193-201. doi:10.1016/S1090-5138(01)00101-5.

Green, R., Mandel, J.B., Hotvedt, M.E., Gray, J., & Smith, L. (1986). Lesbian mothers and their children: A comparison with solo parent heterosexual mothers and their children. *Archives of Sexual Behavior, 15,* 167-184. doi:10.1007/BF01542224.

Greenwald, A.G., Nosek, B.A., & Benaji, M.R. (2003). Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology, 85,* 197-216. doi:10.1037/0022-3514.85.2.197.

Grolnick, W.S. (2013). The psychology of parental control: How well-meant parenting backfires. New York: Psychology Press.

Grolnick, W.S., Deci, E.L., & Ryan, R.M. (1997). Internalization within the family: The self-determination theory perspective. In J.E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 78–99). London: Wiley.

* Gross, D., Garvey, C., Julion, W., Fogg, L., Tucker, S., & Mokros, H. (2009). Efficacy of the Chicago Parent Program with Low-Income African American and Latino Parents of Young Children. *Prevention Science, 10*, 54-65. doi: 10.1007/s11121-008-0116-7.

Grusec, J.E. & Kuczynski, L. (1997.) *Parenting and Children's Internalization of Values: A Handbook of Contemporary Theory*. New York: Wiley.

Guiso, L., Monte, F., Sapienza, P., Zingales, L. (2008). Culture, gender, and math. *Science, 320,* 1164-1165. doi:10.1126/science.1154094.

* Gunnoe, M. L. & Mariner, C. L. (1997). Toward a developmental-contextual model of the effects of parental spanking on children's aggression. *Formerly*

Archives of Pediatrics & Adolescent Medicine, 151, 768-775. doi: 10.1001/archpedi.1997.02170450018003.

* Gustafsson, H. C., Cox, M. J., Blair, C., & Family Life Project, K. (2012). Maternal Parenting as a Mediator of the Relationship Between Intimate Partner Violence and Effortful Control. *Journal of Family Psychology, 26,* 115-123. doi: 10.1037/a0026283.

H

Habibi, R. & Khurana, B. (2012). Spontaneous gender categorization in masking and priming studies: Key for distinguishing Jane from John Doe but not Madonna from Sinatra. *PLoS ONE, 7,* e32377. doi:10.1371/journal.pone.0032377.

Hallers-Haalboom, E.T., Mesman, J., Groeneveld, M.G., Endendijk, J.J., Van Berkel, S.R., Van der Pol, L.D., & Bakermans-Kranenburg, M.J. (2014). Mothers, fathers, sons, and daughters: Parental sensitivity in families with two children. *Journal of Family Psychology*. Advance online publication. doi: 10.1037/a0036004.

Hamburg, D.A. & Lunde, D.T. (1966). Sex hormones in the development of sex differences in behavior. In E.E. Maccoby (Ed.), *The development of sex differences* (pp. 1-24). Stanford, CA: Stanford University Press.

Hank, K. & Buber, I. (2009). Grandparents caring for their grandchildren: Findings from the 2004 survey of health, ageing, and retirement in Europe. *Journal of Family Issues, 30,* 53-73. doi:10.1177/0192513X08322627.

Hank, K. & Kohler, H.P. (2000). Gender preferences for children in Europe: Empirical results from 17 FFS countries. *Demographic Research, 2,* 133-152.

Harris, R.J., & Firestone, J.M. (1998). Changes in predictors of gender role ideologies among women: A multivariate analysis. *Sex Roles, 38,* 239-252. doi:10.1023/A:1018785100469.

Harris, J.A., Vernon, P.A., & Boomsma, D. (1998). The heritability of testosterone: A study of Dutch adolescent twins and their parents. *Behavior Genetics, 28,* 165-171. doi:10.1023/A:1021466929053.

Hartley, R.E. (1959). Sex-role pressures and the socialization of the male child. *Psychological Reports, 5,* 457-468.

Hastings, P. D., McShane, K.E., Parker, R., & Ladha, F. (2007). Ready to make nice: Parental socialization of young sons' and daughters' prosocial behaviors with peers. *The Journal of Genetic Psychology, 168* (2), 177-200. doi:10.3200/GNTP.

Hausmann, M., Schoofs, D., Rosenthal, H.E.S., & Jordan, K. (2009). Interactive effects of sex hormones and gender stereotypes on cognitive sex differences – A psychobiosocial approach. *Psychoneuroendocrinology, 34,* 389-401. doi:10.1016/j.psyneuen.2008.09.019.

Haviland, M.G. (1990). Yates's correction for continuity and the analysis of 2x2 contingency tables. *Statistics in Medicine, 9,* 363-367. doi: 10.1002/sim.4780090403.

Hayes, A.F. (2013). Macro package for SPSS. Retrieved from http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html.

Hebert, J.R., Clemow, L., Pbert, L., Ockene, I.S., & Ockene, J.K. (1995). Social desirability bias in dietary self-report may compromise the validity of dietary intake measures. *International Journal of Epidemiology, 24*, 389-98. doi: 10.1093/ije/24.2.389.

* Henderson, S.H. (2007). *Pathways to externalizing behavior: The effects of mother's harsh parenting and toddler's emotional reactivity*. (3283118 Ph.D.), The Catholic University of America, United States -- Virginia. Retrieved from http://search.proquest.com/dissertations/docview/304706363/140C4EC78CD3B995A56/1?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Henslin, J.M. (1999) *Sociology: A Down-To-Earth Approach*. Boston: Allyn and Bacon.

* Hess, R. D. & McDevitt, T. M. (1984). Some cognitive consequences of maternal intervention techniques: A longitudinal study. *Child Development, 55*, 2017-2030. doi: 10.2307/1129776.

* Higgins, K.N. (2008). *The role of parental attachment and limit-setting on toddler behavior: Separate and combined influences of mothers and fathers*. (3341609 Ph.D), University of Texas, United States -- Texas. Retrieved from http://search.proquest.com/dissertations/docview/275867895/140C4F2C50A5DB4F1B1/1?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Hill, J. P. and Lynch, M. E. (1983). The intensification of gender-related role expectations. In J. Brooks-Gunn & A. C. Peterson (Eds.), Girls at puberty (pp. 201–228). New York: Plenum.

Hill, M.E. & Augoustinos, M. (2001). Stereotype change and prejudice reduction: Short- and long-term evaluation of a cross-cultural awareness programme. *Journal of Community & Applied Social Psychology, 11*, 243-262. doi: 10.1002/casp.629.

Hilliard, L.J. & Liben, L.S. (2010). Differing levels of gender salience in preschool classrooms: Effects on children's gender attitudes and intergroup bias. *Child Development, 81*, 1787-1798. doi:10.1111/j.1467-8624.2010.01510.x.

Hinde, R. A., & Stevenson-Hinde, J. (1987). Interpersonal relationships and child development. *Developmental Review, 7*, 1-21. doi: 10.1016/0273-2297(87)90002-5.

Hines, M. (2004). *Brain Gender*. New York: Oxford University Press.

Hines, M. (2010). Sex-related variation in human behavior and the brain. *Trends in Cognitive Science, 14*, 448-456. doi:10.1016/j.tics.2010.07.005.

Hines, M., Golombok, S., Rust, J., Johnston, K., Golding, J., & The Avon Longitudinal Study of Parents and Children Study Team. (2002). Testosterone during pregnancy and gender role behavior of preschool children: A longitudinal, population study. *Child Development, 73*, 1678-1687. doi:10.1111/1467-8624.00498.

Hinshaw, S.P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127-155. doi: 10.1037/0033-2909.111.1.127.

Hoekstra, R.A., Bartels, M., & Boomsma, D. (2006). Heritability of testosterone levels in 12-year-old twins and its relation to pubertal development. *Twin Research and Human Genetics, 9,* 558-565. doi:10.1375/twin.9.4.558.

Hoff, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. In. M.H. Bornstein (Ed.), *Handbook of parenting: Vol. 2. Biology and ecology of parenting* (pp. 231-252). Mahwah, NJ: Lawrence Erlbaum Associates.

Hoffman, L.W. (1977). Changes in family roles, socialization, and sex differences. *The American Psychologist, 32,* 644-657. doi: 10.1037/0003-066X.32.8.644.

Hofstede, G. (1980). *Culture's Consequences: international Differences in Work-Related Values.* Beverly Hills, CA: Sage.

Hofstede, G., Arrindell, W.A., & Best, D.L. (1998). *Masculinity and Femininity: The Taboo Dimension of National Cultures.* Thousand Oaks, CA: Sage Publications.

* Holt, E.C. (2007). *Maternal harshness and the mother-child relationship in the toddler years: Associations with behavior problems at school entry.* (3284575 Ph.D), University of Pittsburgh, United States -- Pittsburgh. Retrieved from http://search.proquest.com/dissertations/docview/304822592/140C4F5BCDD62E25288/1?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Hort, B.E., Fagot, B.I., & Leinbach, M.D. (1990). Are people's notions of maleness more stereotypically framed than their notions of femaleness? *Sex Roles, 23,* 197–212. doi:10.1007/BF00289866.

Hosley, C.A. & Montemayor, R. (1997). Fathers and adolescents. In M.E. Lamb (Ed.), *The role of the father in child development* (pp. 162-178). New York: Wiley.

* Huber, M. O. (2012). Early interactions and child gender in chilean single mothers families. *Revista Latinoamericana De Psicologia, 44*, 75-86. Retrieved from: http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-05342012000200007.

Hudak, M.A. (1993). Gender schema theory revisited: Men's stereotypes of American women. *Sex Roles, 28,* 279-293. doi: 10.1007/BF00289886.

Huerta, M., Adema, W., Baxter, J., Han, W., Lausten, M., Lee, R., & Waldfogel, J. (2013), Fathers' leave, fathers' involvement and child development: Are they related? Evidence from four OECD countries, *OECD Social, Employment and Migration Working Papers*, No. 140, OECD Publishing. doi:10.1787/5k4dlw9w6czq-en.

* Hughes, C., Deater-Deckard, K., & Cutting, A. L. (1999). 'Speak roughly to your little boy'? Sex differences in the relations between parenting and preschoolers' understanding of mind. *Social Development, 8*, 143-160. doi:10.1111/1467-9507.00088.

Hyde, J.S. (1984). How large are gender differences in aggression? A developmental meta-analysis. *Developmental Psychology, 20,* 722-736. doi:10.1037/0012-1649.20.4.722.

Hyde, J.S. (2005). The gender similarities hypothesis. *American Psychologist, 60,* 581-592. doi:10.1037/0003-066X.60.6.581.

Hyde, J.S. (2014). Gender similarities and differences. *Annual Review of Psychology, 65,* 373-398. doi:10.1146/annurev-psych-010213-115057.

I

Idle, T., Wood, E., & Desmarais, S. (1993). Gender role socialization in toy play situations: Mothers and fathers with their sons and daughters. *Sex Roles, 28,* 679-691. doi:10.1007/BF00289987.

Inglehart, R. & Norris, P. (2003). *Rising Tide: Gender Equality and Cultural Change Around the World.* Cambridge University Press.

* Inoff-Germain, G., Nottelmann, E. D., Arnold, G. S., & Susman, E. J. (1988). Adolescent aggression and parent-adolescent conflict: Relations between observed family interactions and measures of the adolescents' general functioning. *The Journal of Early Adolescence, 8,* 17-36. doi: 10.1177/0272431688081002.

Ispa, J.M., Fine, M.A., Halgunseth, L.C., Harper, S., Robinson, J., Boyce, L., Brooks-Gunn, J., & Brady-Smith, C. (2004). Maternal intrusiveness, maternal warmth, and mother-toddler relationship outcomes: Variations across low-income ethnic and acculturation groups. *Child Development, 75,* 1613-1631. doi:10.1111/j.1467-8624.2004.00806.x.

J

Jacklin, C.N., DiPietro, J.A., & Maccoby, E.A. (1984). Sex-typing behavior and sex-typing pressure in child/parent interaction. *Archives of Sexual Behavior, 13,* 414-425. doi:10.1007/BF01541427.

Jacobs, J.E. (1991). Influence of gender stereotypes on parent and child mathematics attitudes. *Journal of Educational Psychology, 83,* 518-527. doi: 10.1037/0022-0663.83.4.518.

Jaffee, S.R., Caspi, A., Moffit, T.E., Polo-Tomas, M., Price, T.S., & Taylor, A. (2004). The limits of child effects: Evidence for genetically mediated child effects on corporal punishment. *Developmental Psychology, 40,* 1047-1058. doi: 10.1037/0012-1649.40.6.1047.

* Janssens, J. & Dekovic, M. (1997). Child rearing, prosocial moral reasoning, and prosocial behaviour. *International Journal of Behavioral Development, 20,* 509-527. doi: 10.1080/016502597385252.

Jenkins, J.M., Turrell, S.L., Kogushi, Y., Lollis, S., & Ross, H.S. (2003). A longitudinal investigation of the dynamics of mental state talk in families. *Child Development, 74,* 905-920. doi:10.1111/1467-8624.00575.

Jessel, J.C., & Beymer, L. (1992). The effects of job title vs. job description on occupational sex-typing. *Sex Roles, 27,* 73-83. doi: 10.1007/BF00289655.

Johnson, M.M. (1963). Sex role learning in the nuclear family. *Child Development, 34,* 319-333.

Joosen, K.J., Mesman, J., Bakermans-Kranenburg, M.J., & Van IJzendoorn, M.H. (2012). Maternal sensitivity to infants in various settings predicts harsh discipline in toddlerhood. *Attachment & Human Development, 14,* 101-117. doi:10.1080/14616734.2012.661217.

Josephs, R.A., Newman, M.L., Brown, R.P., & Beer, J.M. (2003). Status, testosterone, and human intellectual performance. *Psychological Science, 14,* 158-163. doi:10.1111/1467-9280.t01-1-01435.

Julious, S.A. (2004). Using confidence intervals around individual means to assess statistical significance between two means. *Pharmaceutical Statistics, 3,* 217-222. doi: 10.1002/pst.126.

K

* Kagan, J. & Freeman, M. (1963). Relation of childhood intelligence, maternal behaviors, and social class to behavior during adolescence. *Child Development, 34,* 899-911.

* Kalpidou, M. D., Rothbaum, F., & Rosen, K. S. (1998). A longitudinal study of mothers' and preschool children's aversive behaviors during dyadic interactions. *Journal of Genetic Psychology, 159,* 103-116. doi: 10.1080/00221329809596138.

Kane, E.W. (1995). Education and beliefs about gender inequality. *Social Problems, 42,* 74-90.

* Kapungu, C. T., Holmbeck, G. N., & Paikoff, R. L. (2006). Longitudinal association between parenting practices and early sexual risk behaviors among urban African American adolescents: The moderating role of gender. *Journal of Youth and Adolescence, 35,* 787-798. doi: 10.1007/s10964-006-9102-1.

Karreman, A., van Tuijl, C., van Aken, M.A.G., & Dekovic, M. (2006). Parenting and self-regulation in preschoolers: A meta-analysis. *Infant and Child Development, 15,* 561-579. doi: 10.1002/icd.478.

* Kauffman, C. M. (1985). *Parental control speech in relation to child characteristics and parity.* (8508912 Ph.D.), Boston University, United States -- Massachusetts. Retrieved from http://search.proquest.com/docview/303389578?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Kawabata, Y., Alink, L.R.A., Tseng, W., Van IJzendoorn, M.H., & Crick, N.R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review, 31,* 240-278. doi: 10.1016/j.dr.2011.08.001.

Kay, P. & Kempton, W. (1984). What Is the Sapir-Whorf Hypothesis? *American Anthropologist, 86,* 65-79. doi: 10.1525/aa.1984.86.1.02a00050.

Kee, D.W., Gregory-Domingue, A., Rice, K., & Tone, K. (2005). A release from proactive interference analysis of gender schema encoding for occupations in adults and children. *Learning and Individual Differences, 15,* 203-211. doi:10.1016/j.lindif.2005.01.001.

Keenan, K. & Shaw, D.S. (1997). Developmental and social influences on young girls' early problem behaviour. *Psychological Bulletin, 121,* 95-113. doi: 10.1037/0033-2909.121.1.95.

* Kenney-Benson, G. A. & Pomerantz, E. M. (2005). The Role of Mothers' Use of Control in Children's Perfectionism: Implications for the Development of

Children's Depressive Symptoms. *Journal of Personality, 73*, 23-46. doi: 10.1111/j.1467-6494.2004.00303.x.

* Kerig, P.K., Cowan, P.A., & Cowan, C.P. (1993). Marital quality and gender differences in parent-child interaction. *Developmental Psychology, 29,* 931-939. doi: 10.1037/0012-1649.29.6.931.

Kerr, D.C.R., Lopez, N.L., Olson, S.L., & Sameroff, A.J. (2004). Parental discipline and externalizing behaviour problems in early childhood: The roles of moral regulation and child gender. *Journal of Abnormal Child Psychology, 32*, 369-383. doi: 10.1023/B:JACP.0000030291.72775.96.

Kim-Cohen, J., Caspi, A., Taylor, A., Williams, B., Newcombe, R., Craig, I.W., & Moffitt, T.E. (2006). MAOA, maltreatment, and gene-environment interaction predicting children's mental health: New evidence and a meta-analysis. *Molecular Psychiatry, 11,* 903-913. doi: 10.1038/sj.mp.4001851.

Klahr, A.M. & Burt, S.A. (2013, september 9). Elucidating the etiology of individual differences in parenting: A meta-analysis of behavior genetic research. *Psychological Bulletin*. Advance online publication. doi: 10.1037/a0034205.

Koch, H. (1956). Children's work attitudes and sibling characteristics. *Child Development, 27,* 289-310.

* Kochanska, G. (1995). Children's temperament, mother's discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development, 66*, 597-615. doi: 10.2307/1131937.

* Kochanska, G., Aksan, N., & Nichols, K. E. (2003). Maternal power assertion in discipline and moral discourse contexts: Commonalities, differences, and implications for children's moral, conduct and cognition. *Developmental Psychology, 39,* 949-963. doi: 10.1037/0012-1649.39.6.949.

* Kochanska, G., Barry, R. A., Stellern, S. A., & O'Bleness, J. J. (2009). Early attachment organization moderates the parent–child mutually coercive pathway to children's antisocial conduct. *Child Development, 80*, 1288-1300. doi: 10.1111/j.1467-8624.2009.01332.x.

Kochanska, G., Coy, K.C., & Murray, K.T. (2001). The development of self-regulation in the first four years of life. *Child Development, 72,* 1091-1111. doi: 10.1111/1467-8624.00336.

Kohlberg, L. (1966). A cognitive-developmental analysis of children's sex-role concepts and attitudes. In E.E. Maccoby (Ed.), *The development of sex differences.* Stanford, CA: Stanford University Press.

* Kok, R., Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., Velders, F.P., Linting, M., Jaddoe, V.W.V., Hofman, A., Verhulst, F.C., & Tiemeier, H. (2012). The role of maternal stress during pregnancy, maternal discipline, and child COMT Val158Met Genotype in the development of compliance. *Developmental Psychobiology, 55,* 451-464. doi: 10.1002/dev.21049.

Koot, H.M. & Verhulst F.C. (1991). Prevalence of problem behaviour in Dutch children aged 2-3. *Acta Psychiatrica Scandinavica, 83* (Suppl. 367): 1-37. doi: 10.1111/j.1600-0447.1991.tb10574.x.

Koskela, E., Mappes, T., Niskanen, T., & Rutkowska, J. (2009). Maternal investment in relation to sex ratio and offspring number in a small mammal: A case for Trivers and Willard theory. *Journal of Animal Ecology, 78,* 1007-1014. doi:10.1111/j.1365-2656.2009.01574.x.

Kosterman, R., Haggerty, K.P., Spoth, R., & Redmond, C. (2004). Unique influence of mothers and fathers on their children's antisocial behaviour. *Journal of Marriage and Family, 66,* 762-778. doi: 10.1111/j.0022-2445.2004.00051.x.

Krivickas, K.M. & Lofquist, D. (2011). *Demographics of Same-Sex Households with Children.* SEHSD Working Paper Number 2011-11. US Census Bureau.

Kroneisen, M. & Bell, R. (2013), Sex, cheating, and disgust: Enhanced source memory for trait information that violates gender stereotypes. *Memory, 21,* 167-181. doi:10.1080/09658211.2012.713971.

Krysan, M. (1998). Privacy and the expression of white racial attitudes: A comparison across three contexts. *Public Opinion Quarterly, 62,* 506-544.

* Kuczynski, L. (1984). Socialization goals and mother–child interaction: Strategies for long-term and short-term compliance. *Developmental Psychology, 20,* 1061-1073. doi: 10.1037/0012-1649.20.6.1061

Kuczynski, L., Kochanska, G., Radke-Yarrow, M., & Girnius-Brown, O. (1987). A developmental interpretation of young children's noncompliance. *Developmental Psychology, 23*, 799-806. doi: 10.1037/0012-1649.23.6.799.

Kunda, Z., & Spencer, S.J. (2003). When do stereotypes come to mind and when do they color judgment. A goal-based theoretical framework for stereotype activation and application. *Psychological Bulletin, 129*, 522-544. doi: 10.1037/0033-2909.129.4.522.

Kuzawa, C.W., Gettler, L.T., Huang, Y., & McDade, T.W. (2010). Mothers have lower testosterone than non-mothers: Evidence from the Philippines. *Hormones and Behavior, 57,* 441-447. doi:10.1016.j.yhbeh.2010.01.014.

L

LaFreniere, P. (2011). Evolutionary functions of social play: Life histories, sex differences, and emotion regulation. *American Journal of Play, 3,* 464-488.

* Lafreniere, P. J. & Dumas, J. E. (1992). A transactional analysis of early-childhood anxiety and social withdrawal. *Development and Psychopathology, 4,* 385-402. doi: 10.1017/s0954579400000857.

Lamb, M. E. (Ed.). (1997). *The role of the father in child development*. New York: Wiley.

Lamb, M.E. (2010). *The role of the father in child development* (4th ed.). Hoboken, NJ: Wiley.

Lansford, J.E., Deater-Deckard, K., Dodge, K.A., Bates, J.E., & Pettit, G.S. (2004). Ethnic differences in the link between physical discipline and later adolescent externalizing behaviors. *Journal of Child Psychology and Psychiatry, 45,* 801-812. doi:10.1111/j.1469-7610.2001.00273.x.

Lanvers, U. (2004). Gender in discourse behaviour in parent-child dyads: a literature review. *Child: Care, Health and Development, 30,* 481-493. doi: 10.1111/j.1365-2214.2004.00443.x.

* Laosa, L. M. (1978). Maternal teaching strategies in Chicano families of varied educational and socioeconomic levels. *Child Development, 49,* 1129-1135. doi: 10.2307/1128752.

Larsson, H., Viding, E., Rijsdijk, F.V., & Plomin, R. (2008). Relationships between parental negativity and childhood antisocial behavior over time: A

bidirectional effects model in a longitudinal genetically informative design. *Journal of Abnormal Child Psychology, 36,* 633-645. doi: 10.1007/s10802-007-9151-2.

Lawson, D. W., & Mace, R. (2009). Trade-offs in modern parenting: a longitudinal study of sibling competition for parental care. *Evolution and Human Behavior, 30,* 170-183. doi: 10.1016/j.evolhumbehav.2008.12.001.

Leaper, C. (2000). The social construction and socialization of gender during development. In P.H. Miller, & E. Kofsky Scholnick (Eds.), *Toward a feminist developmental psychology* (pp. 127–152). Florence, KY: Taylor & Francis/Routledge.

Leaper, C., Anderson, K.J., & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: A meta-analysis. *Developmental Psychology, 34,* 3-27. doi: 10.1037/0012-1649.34.1.3.

Leaper, C., Farkas, T., & Spears Brown, C. (2012). Adolescent girls' experiences and gender-related beliefs in relation to their motivation in math/science and English. *Journal of Youth and Adolescence, 41,* 268-282. doi:10.1007/s10964-011-9693-z.

Leaper, C. & Gleason, J.B. (1996). The relationship of play activity and gender to parent and child sex-typed communication. *International Journal of Behavioral Development, 19,* 689-703. doi:10.1177/016502549601900401.

Lee, I.C., Pratto, F., & Johnson, B.T. (2011). Intergroup consensus/disagreement in support of group-based hierarchy: An examination of socio-structural and psycho-cultural factors. *Psychological Bulletin, 137,* 1029–1064. doi:10.1037/a0025410.

* Lengua, L.J., Honorado, E., & Bush, N.R. (2007). Contextual risk and parenting as predictors of effeortful control and social competence in preschool children. *Journal of Applied Developmental Psychology, 28,* 40-55. doi: 10.1016/j.appdev.2006.10.001.

Levy, G.D., & Haaf, R.A. (1994). Detection of gender-related categories by 10-month-old infants. *Infant Behavior and Development, 17,* 457-459. doi: 10.1016/0163-6383(94)90037-X.

Lewis, C.C. (1981). The effect of parental firm control: A reinterpretation of findings. *Psychological Bulletin, 90,* 547-563. doi: 10.1037/0033-2909.90.3.547.

* Li, J.J. & Lee, S.S. (2013). Interaction of dopamine transporter gende and observed parenting behavior on attention-deficit/hyperactivity disorder: A structural equation modeling approach. *Journal of Clinical Child & Adolescent Psychology, 42,* 174-186. doi: 10.1080/15374416.2012.736355.

Liben, S,L., & Bigler, R.S. (2002). The developmental course of gender differentiation: Conceptualizing, measuring, and evaluating constructs and pathways. *Monographs of the Society for Research in Child Development, 67,* 1-147. doi: 10.1111/1540-5834.t01-1-00187.

Liben, L.S., Bigler, R.S., & Krogh, H.R. (2002). Language at work: Children's gendered interpretations of occupational titles. *Child Development, 73,* 810–828. doi: 10.1111/1467-8624.00440.

* Lindsey, E. W. & Caldera, Y. M. (2005). Interparental agreement on the use of control in childrearing and infants' compliance to mother's control strategies.

Infant Behavior & Development, 28, 165-178. doi: 10.1016/j.infbeh.2005.02.004.

Lindsey, E.W & Mize, J. (2001). Contextual differences in parent-child play: Implications for children's gender role development. *Sex Roles, 44*, 155-176. doi:10.1023/A:1010950919451.

Lindsey, L.L. & Christy, S. (1997). *Gender Roles: A Sociological Perspective.* Upper Saddle River, NJ: Prentice Hall.

* Linver, M. R., Brooks-Gunn, J., & Kohen, D. E. (2002). Family processes as pathways from income to young children's development. *Developmental Psychology, 38*, 719-734. doi: 10.1037/0012-1649.38.5.719.

Lipsey, M. W., & Wilson, D. B. (2001). Practical meta-analysis. Applied social research methods series (Vol. 49). Thousand Oaks, CA: Sage Publications.

* Liu, M. W. & Guo, F. (2010). Parenting practices and their relevance to child behaviors in Canada and China. *Scandinavian Journal of Psychology, 51*, 109-114. doi: 10.1111/j.1467-9450.2009.00795.x.

* Lloyd, C. A. (2010). *Infant behaviors that influence mothers' provision of responsive and directive behaviors.* (3404851 Ph.D.), Northern Illinois University, United States -- Illinois. Retrieved from http://search.proquest.com/docview/520384333?accountid=12045 ProQuest Dissertations & Theses Full Text database.

* Loeb, R. C., Horst, L., & Horton, P. J. (1980). Family interaction patterns associated with self-esteem in preadolescent girls and boys. *Merrill-Palmer Quarterly, 26*, 205-217.

Loeber, R., Capaldi, D.M., & Costello, E. (2013). Gender and the development of aggression, disruptive behavior, and early delinquency from childhood to early adulthood. *Disruptive Behavior Disorders: Advances in Development and Psychopathology, Brain Research Foundation Symposium Series, 1,* 137-160. doi:10.1007/978-1-4614-7557-6_6.

Lofquist, D., Lugaila, T., O'Connell, M., & Feliz, S. (2012). *Households and Families: 2010. 2010 Census Briefs.* US Census Bureau.

* Longeway, K.P. (1983). *The effect of divorce on maternal affect and disciplinary practices.* (8409360 Ph.D.), The University of Wisconsin, United Stated -- Milwaukee. Retrieved from http://search.proquest.com/dissertations/docview/303191563/140C5086C677F24B500/1?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Lovas, G. S. (2005). Gender and patterns of emotional availability in mother-toddler and father-toddler dyads. *Infant Mental Health Journal, 26*, 327-353. doi: 10.1002/imhj.20056.

Low, B.S. (1989). Cross-cultural patterns in the training of children: An evolutionary perspective. *Journal of Comparative Psychology, 103,* 311-319. doi:10.1037/0735-7036.103.4.311.

Lucassen, N., Tharner, A., Van IJzendoorn, M.H., Bakermans-Kranenburg, M.J., Volling, B.L., Verhulst, F.C., Lambregtse-Van den Berg, M.P., & Tiemeier, H. (2011). The association between paternal sensitivity and infant-fathers attachment security: A meta-analysis of three decades of research. *Journal of Family Psychology, 25*, 986-992. doi:10.1037/a0025855.

Lundberg, S. (2005). Sons, daughters, and parental behavior. *Oxford Review of Economic Policy, 21,* 340-356. doi:10.1093/oxrep/gri020.

Luo, Y., LaPierre, T.A., Hughes, M.E., & Waite, L.J. (2012). Grandparents providing care to grandchildren: A population-based study of continuity and change. *Journal of Family Issues, 33,* 1143-1167. doi:10.1177/0192513X12438685.

Lytton, H. & Romney, D.M. (1991). Parents' differential socialization of boys and girls. A meta-analysis. *Psychological Bulletin, 109,* 267-296. doi: 10.1037/0033-2909.109.2.267.

M

MacCallum, F. & Golombok, S. (2004). Children raised in fatherless families from infancy: A follow-up of children of lesbian and single heterosexual mothers at early adolescence. *Journal of Child Psychology and Psychiatry 45*, 1407–1419. doi: 10.1111/j.1469-7610.2004.00324.x.

Maccoby, E.E. (1966). *The development of sex differences.* Stanford, CA: Stanford University Press.

Maccoby, E.E. (1990). Gender and relationships. *American Psychologist, 45,* 513-520. doi: 10.1037/0003-066X.45.4.513.

Maccoby, E.E. (1998). *The two sexes: Growing up apart, coming together*. Cambridge, MA: Harvard University Press.

Maccoby, E.E. & Jacklin, C.N. (1974). *The psychology of sex differences.* Stanford, CA: Stanford University Press.

* Maccoby, E.E., Snow, M.E., & Jacklin, C.N. (1984). Children's dispositions and mother-child interaction at 12 and 18 months: A short tertm longitudinal study. *Developmental Psychology, 20,* 459-472. doi: 10.1037/0012-1649.20.3.459.

Macrae, C.N. & Bodenhausen, G.V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology, 51,* 93-120. doi: 10.1146/annurev.psych.51.1.93.

Manago, A.M., Greenfield, P.M., Kim, J.L., & Ward, L.M. (2014). Changing cultural pathways through gender role and sexual development: A theoretical framework. *ETHOS, 42,* 198-221. doi:10.1111/etho.12048.

* Mandara, J., Murray, C. B., Telesford, J. M., Varner, F. A., & Richman, S. B. (2012). Observed Gender Differences in African American Mother-Child Relationships and Child Behavior. *Family Relations, 61,* 129-141. doi: 10.1111/j.1741-3729.2011.00688.x.

* Margolin, G. & Patterson, G.R. (1975). Differential consequences provided by mothers and fathers to their sons and daughters. *Developmental Psychology, 11,* 537-538. doi: 10.1037/h0076682.

Martin, C.L. (2000). Cognitive theories of gender development. In T. Eckes & H.M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 91-121). Mahwah, NJ: Lawrence Erlbaum Associates.

Martin, C.L. & Dinella, L.M. (2012). Congruence between gender stereotypes and activity preference in self-identified tomboys and non-tomboys. *Archives of Sexual Behavior, 41,* 599-610. doi:10.1007/s10508-011-9786-5.

Martin, C.L. & Halverson, C.F. (1981). A schematic processing model of sex typing and stereotyping in children. *Child Development, 52,* 1119-1134. doi:10.1111/1467-8624.

Martin, C.L. & Halverson, C.F. (1987). The roles of cognition in sex role acquisition. In D.B. Carter (ed.), *Current conceptions of sex roles and sex typing: Theory and research* (pp. 123-137). New York: Praeger.

Martin, C.L., Wood, C.H., & Little, J.K. (1990). The development of gender stereotype components. *Child Development, 61,* 1891-1904. doi: 10.1111/j.1467-8624.1990.tb03573.x.

Martin, J.L., & Ross, H.S. (2005). Sibling aggression: sex differences and parents' reactions. *International Journal of Behavioral Development, 29,* 129-138. doi: 10.1080/01650250444000469.

Martin, K.A. (2005). William wants a doll. Can he have one? Feminists, child care advisors, and gender-neutral child rearing. *Gender & Society, 19,* 456-479. doi: 10.1177/0891243204272968.

* Martinez, E. A. (1988). Child behavior in Mexican-American/Chicano Families: Maternal teaching anf child-rearing practices. *Family Relations, 37,* 275-280.

* McFadyen-Ketchum, S.A., Bates, J.E., Dodge, K.A., & Pettit, G.S. (1996). Patterns of change in early childhood aggressive-disruptive behavior: Gender differences in predictions form early coercive and affectionate mother-child interactions. *Child Development, 67,* 2417-2433. doi: 10.1111/j.1467-8624.1996.tb01865.x.

McGill, B.S. (2011). *Navigating new norms of involved fatherhood: Employment, gender attitudes, and father involvement in American families.* Retrieved from *http://drum.lib.umd.edu/bitstream/1903/12089/1/McGill_umd_0117E_12372.pdf.*

McHale, J.P., Fivaz-Depeursinge, E., Dickstein, S., Robertson, J., & Daley, M. (2008). New evidence for the social embeddedness of infant's early triangular capacities. *Family Process, 47,* 445–463. doi:10.1111/j.1545-5300.2008.00265.x.

McHale, S. M., Crouter, A. C., & Tucker, C. J. (1999). Family context and gender role socialization in middle childhood: Comparing girls to boys and sisters to brothers. *Child Development, 70,* 990-1004. doi: 10.1111/1467-8624.00072.

McHale, S.M., Crouter, A.C., & Whiteman, S.D. (2003). The family contexts of gender development in childhood and adolescence. *Social Development, 12,* 125-148. doi: 10.1111/1467-9507.00225.

* McLaughlin, B. (1983). Child compliance to parental control techniques. *Developmental Psychology, 19,* 667-673. doi: 10.1037/0012-1649.19.5.667.

* McLaughlin, B., Schutz, C., & White, D. (1980). Parental speech to five-year-old children in a game-playing situation. *Child Development, 51,* 580-582.

Meikle, A.W., Stringham, J.D., Bishop, D.T. & West, D W. (1988). Quantitating genetic

and nongenetic factors influencing androgen production and clearance rates in men. *Journal of Clinical Endocrinology and Metabolism*, 67, 104-109. doi:10.1210/jcem-67-1-104.

Mesman, J., Stoel, R., Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., Juffer, F., Koot, H.M., & Alink, L.R.A. (2009). Predicting growth curves of early childhood externalizing problems: Differential susceptibility of children with difficult temperament. *Journal of Abnormal Child Psychology, 37,* 625-636. doi:10.1007/s10802-009-9298-0.

Meulenberg, P.M.M. & Hofman, J.A. (1991). Maternal testosterone and fetal sex. *Steroid Biochemistry and Molecular Biology, 39,* 383-390. doi:10.1016/0960-0760(91)90012-T

Meyer-Lindenberg, A., Buckholtz, J.W., Kolachana, B., Hariri, A.R., Pezawas, L., Blasi, G., … Weinberger, D.R. (2006). Nueral mechanisms of genetic risk for impulsivity and violence in humans, *Proceedings of the National Academy of Sciences, 103,* 6269-6274. doi: 10.1073/pnas.0511311103.

* Michnick Golinkoff, R. & Johnson Ames, G. (1979). A comparison of fathers' and mothers' speech with their young children. *Child Development, 50,* 28-32.

Mills, R.S.L. & Rubin, K.H. (1998). Are behavioral and psychological control both differently associated with childhood aggression and social withdrawal. *Canadian Journal of Behavioral Sciences, 30,* 132-136. doi:10.1037/h0085803.

* Minton, C., Kagan, J., & Levine, J. A. (1971). Maternal control and obedience in the two-year-old. *Child Development, 42,* 1873-1894. doi: 10.2307/1127592.

Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development, 56,* 289-302. doi: 10.1111/1467-8624.ep7251588.

Mischel, W. (1966). A social-learning view of sex differences in behavior. In E.E. Maccoby (Ed.), *The development of sex differences.* Stanford, CA: Stanford University Press.

Mischel, W. (1973). Toward a cognitive social learning conceptualization of personality. *Psychological Review, 80,* 252-283. doi: 10.1037/h0035002.

Mitchell, J.P., Ames, D.L., Jenkins, A.C., & Benaji, M.R. (2009). Neural correlates of stereotype application. *Journal of Cognitive Neuroscience, 21,* 594-604. doi:10.1162/jocn.2009.21033.

Moberg, T., Lichtenstein, P., Forsman, M., & Larsson, H. (2011). Internalizing behavior in adolescent girls affects parental emotional overinvolvement: A cross-lagged twin study. *Behavioral Genetics, 41,* 223-233. doi: 10.1007/s10519-010-9393-8.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., & the PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Annals of Internal Medicine, 151,* 264-269. doi:10.7326/0003-4819-151-4-200908180-00135.

Money, J. & Ehrhardt, A.A. (1972). *Man and woman, boy and girl: Differentiation and dimorphism of gender identity from conception to maturity*. Baltimore, MD: Johns Hopkins University Press.

Moore, C.L. & Morelli, G.A. (1979). Mother rats interact differently with male and female offspring. *Journal of Comparative and Physiological Psychology, 93,* 677-684. doi: 10.1037/h0077599.

* Morrell, J. & Murray, L. (2003). Parenting and the development of conduct disorder and hyperactive symptoms in childhood: a prospective longitudinal study

from 2 months to 8 years. *Journal of Child Psychology and Psychiatry, 44,* 489-508. doi: 10.1111/1469-7610.t01-1-00139.

Morrongiello, B.A. & Dawber, T. (1999). Parental influences on toddlers' injury-risk behaviors: Are sons and daughters socialized differently? *Journal of Applied Developmental Psychology, 20,* 227-251. doi:10.1016/S0193-3973(99)00015-5.

Morrongiello, B.A. & Hogg, K. (2004). Mothers' reactions to children misbehaving in ways that can lead to injury: Implications for gender differences in children's risk taking and injuries. *Sex Roles, 50,* 103-118. doi:10.1023/B:SERS.0000011076.43831.a6.

Morrongiello, B.A., Zdzieborski, D., & Normand, J. (2010). Understanding gender differences in children's risk taking and injury: A comparison of mothers' and fathers' reactions to sons and daughters misbehaving in ways that lead to injury. *Journal of Applied Developmental Psychology, 31,* 322-329. doi:10.1016/j.appdev.2010.05.004.

Morsbach, S.K. & Prinz, R.J. (2006). Understanding and improving the validity of self-report of parenting. *Clinical Child and Family Psychology Review, 9,* 1-21. doi:10.1007/s10567-006-0001-5.

* Mullis, R.L. & Mullis, A.K. (1985). Comparison of mothers' and fathers' speech with that of their school-age children. *Perceptual and Motor Skills, 60,* 567-574.

Mulvaney, M.K. & Mebert, C.J. (2007). Parental corporal punishment predicts behavior problems in early childhood. *Journal of Family Psychology, 21,* 389-397. doi:10.1037/0893-3200.21.3.389.

N

Nelson, D.A. & Crick, N.R. (2002). Parental psychological control: Implications for childhood physical and relational aggression. In B.K. Barber (Ed.), *Intrusive Parenting: How psychological control affects children and adolescents* (pp. 161-189). Washington, DC: American Psychological Association.

Nelson, J.A., Leerkes, E.M., O'Brien, M., Calkins, S.D., & Marcovitch, S. (2012). African American and European American mothers' beliefs about negative emotions and emotion socialization practices. *Parenting: Science and Practice, 12,* 22-41. doi:10.1080/15295192.2012.638871

Nelson, D.A., Yang, C., Coyne, S.M., Olsen, J.A., & Hart, C.G. (2013). Parental psychological control dimensions: Connections with Russian preschoolers' physical and relational aggression. *Journal of Applied Developmental Psychology, 34,* 1-8. doi:10.1016/j.appdev.2012.07.003.

* Neppl, T. K., Conger, R. D., Scaramella, L. V., & Ontai, L. L. (2009). Intergenerational Continuity in Parenting Behavior: Mediating Pathways and Child Effects. *Developmental Psychology, 45,* 1241-1256. doi: 10.1037/a0014850.

Newcombe, N.S., Mathason, L., & Terlecki, M. (2002). Maximization of spatial competence: More important than finding the cause of sex differences. In A. McGillicuddy-De Lisi & R. De Lisi (Eds.), *Biology, Society, and Behaviour:*

The Development of Sex Differences in Cognition, (pp. 183-206). Westport, CT: Ablex.

Noller, P., & Callan, V.J.(1990). Adolescents' perceptions of the nature of their communication with parents. *Journal of Youth and Adolescence, 19,* 349-362. doi: 10.1007/BF01537077.

Nosek, B.A., Benaji, M.R., & Greenwald, A.G. (2002a). Harvesting implicit group attitudes and beliefs from a demonstration web site. *Group Dynamics: theory, Research, and Practice, 6,* 101-115. doi: 10.1037/1089-2699.6.1.101.

Nosek, B.A., Benaji, M.R., & Greenwald, A.G. (2002b). Math = male, me = female, therefore, math ≠ me. *Journal of Personality and Social Psychology, 83,* 44-59. doi: 10.10370//0022-3514.83.1.44.

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the Implicit Association Test: II. Method variables and construct validity. *Personality and Social Psychology Bulletin, 31,* 166-180.

Ngun, T.C., Ghahramani, N., Sánchez, F.J., Bocklandt, S., & Vilain, E. (2011). The genetics of sex differences in brain and behavior. *Frontiers in Neuroendocrinology, 32,* 227-246. doi:10.1013/j/yfrne.2010.10.001.

O

* O'Brien, M. & Nagle, K.J. (1987). Parents' speech to toddlers: the effect of play context. *Journal of Child Language, 14,* 269-279. doi: 10.1017/S0305000900012927.

* Oldershaw, L., Walters, G. C., & Hall, D. K. (1986). Control strategies and noncompliance in abusive mother–child dyads: An observational study. *Child Development, 57,* 722-732. doi: 10.2307/1130349.

Osterhout, L., Bersick, M., & McLaughlin, J. (1997). Brain potential reflect violations of gender stereotypes. *Memory & Cognition, 25,* 273-285. doi: 10.3758/BF03211283.

P

Paquette, D. (2004). Theorizing the father-child relationship: Mechanisms and developmental outcomes. *Human Development, 47,* 193-219. doi:10.1159/000078723.

Paquette, D., Carbonneau, R., Dubeau, D., Bigras, M., & Tremblay, R.E. (2003). Prevalence of father-child rough-and-tumble play and physical aggression in preschool children. *European Journal of Psychology of Education, 18,* 171-189. doi:10.1007/BF03173483.

Pardini, D.A. (2008). Novel insights into longstanding theories of bidirectional parent-child influences: Introduction to the special section. *Journal of Abnormal Child Psychology, 36,* 627-631. doi: 10.1007/s10802-008-9231-y.

Pasterski, V.L., Geffner, M.E., Brain, C., Hindmarsh, P., Brook, C., & Hines, M. (2005). Prenatal hormones and postnatal socialization by parent as determinants of male-typical toy play in girls with congenital adrenal hyperplasia. *Child Development, 76,* 264-278. doi:10.1111/j.1467-8624.2005.00843.x.

Patterson, C.J. (1992). Children of lesbian and gay parents. *Child Development, 63,* 1025-1042. doi:10.1111/j.1467-8624.1992.tb01679.x.

Patterson, G.R. (1982). Coercive family process: A social learning approach. Eugene, OR: Castilia.

Payton, M.E., Greenstone, M.H., & Schenker, N. (2003). Overlapping confidence intervals or standard error intervals: What do they mean in terms of statistical significance? *Journal of Insect Science, 3,* 34-40.

Peper, J.S., Hulshoff Pol, H.E., Crone, E.A., & Van Honk, J. (2011). Sex steroids and brain structure in pubertal boys and girls: A mini-review of neuroimaging studies. *Neuroscience, 191,* 28-37. doi:10.1016/j.neuroscience.2011.02.14.

Perloff, R.M. (1977). Some antecedents of children's sex-role stereotypes. *Psychological Reports, 40,* 463-466. doi: 10.2466/pr0.1977.40.2.463.

Pettit, G.S., Bakshi, A., Dodge, K.A., & Coie, J.D. (1990). The emergence of social dominance in young boys' play groups: Developmental differences and behavioral correlates. *Developmental Psychology, 26,* 1017-1025. doi:10.1037/0012-1649.26.6.1017.

Plomin, R., DeFries, J.C., & Loehlin, J.C. (1977). Genotype-environment interaction and correlation in the analysis of human behavior. *Psychological Bulletin, 84,* 309-322. doi: 10.1037/0033-2909.84.2.309.

Polanczyk, G., Silva de Lima, M., Horta, B.L., Biederman, J., & Rohde, L.A. (2007). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry, 164,* 942-948. doi:10.1176/appi.ajp.164.6.942

Pomerleau, A., Bolduc, D., Malcuit, G., & Cossette, L. (1990). Pink or blue: Environmental gender stereotypes in the first two years of life. *Sex Roles, 22,* 359-367. doi: 10.1007/BF00288339.

Poulin-Dubois, D., Serbin, L.A., Eichstedt, J.A., Sen, MG., & Beissel, C.F. (2002). Men don't put on make-up: toddlers' knowledge of the gender stereotyping of household activities. *Social Development, 11,* 166-181. doi: 10.1111/1467-9507.00193.

* Power, T.G. (1985). Mother- and father-infant play: A developmental analysis. *Child Development, 56,* 1514-1524.

Power, R. G., McGrath, M. P., Hughes, S. O., & Manire, S. H. (1994). Compliance and self-assertion: Young children's responses to mothers versus fathers. *Developmental Psychology, 30,* 890-989. doi: 10.1037/0012-1649.30.6.980.

Preacher, K.J. & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36,* 717-731. doi:10.3758/BF03206553.

Preacher, K.J., Rucker, D.D., & Hayes, A.F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42,* 185-227. doi:10.1080/00273170701341316.

Prewitt-Freilino, J.L., Caswell, T.A., & Laakso, E.K. (2012). The gendering of language: A comparison of gender equality in countries with gendered, natural gender, and genderless languages. *Sex Roles, 66,* 268-281. Doi: 10.1007/s11199-011-0083.5.

Q

Quadflieg, S. & Macrae, C.N. (2011). Stereotypes and stereotyping: What's the brain got to do with it? *European Review of Social Psychology, 22,* 215-273. doi:10.1080/10463283.2011.627998.

Quadflieg, S., Turk, D.J., Waiter, G.D., Mitchell, J.P., Jenkins, A.C., & Macrae, C.N. (2009). Exploring the neural correlates of social stereotyping. *Journal of Cognitive Neuroscience, 21,* 1560-1570. doi:10.1162/jocn.2009.21091.

R

Radke-Yarrow, M. & Kochanska, G. (1990). Anger in young children. In N.L. Stein, B. Leventhal, & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 297-312). Hillsdale, NJ: LEA.

Repetti, R.L. (1984). Determinants of children's sex stereotyping: Parental sex-role traits and television viewing. *Personality and Social Psychology Bulletin, 10,* 457-468. doi: 10.1177/0146167284103014.

Riggins-Caspers, K.M., Cadoret, R.J., Knutson, J.F., & Langbehn, D. (2003). Biology-environment interaction and evocative biology-environment correlation: Contributions of harsh discipline and parental psychopathology to problem adolescent behaviors. *Behavior Genetics, 33,* 205-220. doi: 10.1023/A:1023434206261.

Rimm-Kaufman, S.E. & Pianta, R.C. (2000). An ecological perspective on the transition to kindergarten: A theoretical framework to guide empirical research. *Journal of Applied Developmental Psychology, 21,* 491-511. doi: 10.1016/S0193-3973(00)00051-4.

* Roberts, W.L. (1983). *Family interations and child competence in a preschool setting.* Retrieved from *summit.sfu.ca/system/files/iritems1/6259/b16533483.pdf*

* Robinson, E. A., & Eyberg, S. M. (1981). The dyadic parent–child interaction coding system: Standardization and validation. *Journal of Consulting and Clinical Psychology, 49,* 245-250. doi: 10.1037/0022-006x.49.2.245.

Rodgers, J.L. & Doughty, D. (2001). Does having boys or girls run in the family? *Chance, 14,* 8-13. doi:10.1080/09332480.2001.10542293.

Rogoff, B., Paradise, R., Arauz, R.M., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology, 54,* 175-203. doi:10.1146/annurev.psych.54.101601.145118.

Roscoe, W. (1999). *Changing ones: Third and fourth genders in native North America*. New York: St. Martin's press.

Rose, A.J. & Rudolph, K.D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132,* 98-131. doi:10.1037/0033-2909.132.1.9.

Rosenthal, R. (1966). *Experimenter effects in behavioural research*. New York: Appleton-Century-Crofts.

Rosenthal, R. (1979). The ‘‘file drawer problem’’ and tolerance for null results. *Psychological Bulletin, 86,* 638–641. doi: 10.1037/0033-2909.86.3.638.

Rothbart, M.K. & Bates, J.E. (1998). Temperament. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3, emotional, and personality development* (5th ed., pp. 105-176). New York: Wiley.

Rothbaum, F. & Weisz, J.R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin, 116,* 55-74. doi: 10.1037/0033-2909.116.1.55.

Rudman, L.A., Ashmore, R.D., & Gary, M.L. (2001). “Unlearning” automatic biases: The malleability of implicit prejudice and stereotypes. *Journal or Personality and Social Psychology, 81,* 856-868. doi:10.1037//0022-3514.81.5.856.

Rudman, L.A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues, 57,* 743-762. doi: 10.1111/0022-4537.00239.

Rudman, L.A. & Goodwin, S.A. (2004). Gender differences in automatic in-group bias: Why do women like women more than men like men? *Journal of Personality and Social Psychology, 87,* 494-509. doi:10.1037/0022-3514.87.4.494.

Rudman, L.A., & Kilianski, S.E. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin, 26,* 1315-1328. doi: 10.1177/0146167200263001.

Russel, A., Aloa, V., Feder, T., Glover, A., Miller, H., & Palmer, G. (1998). Sex-based differences in parenting styles in a sample with preschool children. *Australian Journal of Psychology, 50,* 89-99. doi:10.1080/00049539808257539.

Russel, C.D. & Ellis, J.B. (1991). Sex-role development in single parent households. *Social Behavior and Personality, 19,* 5-9. doi:10.2224/sbp.1991.19.1.5.

* Russell, A., & Russell, G. (1996). Positive parenting and boys' and girls' misbehaviour during a home observation. *International Journal of Behavioral Development, 19,* 291-307. doi: 10.1080/016502596385794.

Russell, A., & Saebel, J. (1997). Mother-son, mother-daughter, father-son, and father-daughter: Are they distinct relationships? *Developmental Review. 17,* 111-147. doi: 10.1006/drev.1996.0431.

Rust, J., Golombok. S., Hines, M., Johnston, K., & Golding, J. (2000). The role of brothers and sisters in the gender development of preschool children. *Journal of Experimental Child Psychology, 77,* 292-303. doi: 10.1006/jecp.2000.2596.

S

Sacrano de Mendonça, J., Cossette, L., Strayer, F.F., & Gravel, F. (2011). Mother-child and father-child interactional synchrony in dyadic and triadic interactions. *Sex Roles, 64,* 132-142. doi:10.1007/s11199-010-9875-2.

* Scaramella, L. V., Sohr-Preston, S. L., Mirabile, S. P., Robison, S. D., & Callahan, K. L. (2008). Parenting and children's distress reactivity during toddlerhood:

An examination of direction of effects. *Social Development, 17,* 578-595. doi: 10.1111/j.1467-9507.2007.00439.x.

Scarr, S. & McCartney, K. (1983). How people make their own environments: A theory of genotype greater than environment effects. *Child Development, 54,* 424-435. doi:10.2307/1129703.

Schaefer, E.S. (1965). Children's reports of parental behavior: An inventory. *Child Development, 36,* 413–424.

Schmitt, M.T., Branscombe, N.R., & Postmes, T. (2003). Women's emotional responses to the pervasiveness of gender discrimination. *European Journal of Social Psychology, 33,* 297-312. doi: 10.1002/ejsp.147.

Schneider, W., Eschman, A., & Zuccolotto, A. (2002) E-Prime User's Guide. Pittsburgh: Psychology Software Tools Inc.

Schoppe, S. J., Mangelsdorf, S. C., & Frost, C. A. (2001). Coparenting, family process, and family structure: implications for preschoolers' externalizing behavior problems. *Journal of Family Psychology, 15,* 526-545. doi: 10.1037//0893-3200.15.3.526.

Serbin, L.A., Poulin-Dubois, D., Colburne, K.A., Sen, M.G., & Eichstedt, J.A. (2001). Gender stereotyping in infancy: Visual preferences for and knowledge of gender-stereotyped toys in the second year. *International Journal of Behavioral Development, 25,* 7-15. doi: 10.1080/01650250042000078.

Serbin, L.A., Zelkowitz, P., Doyle, A.B., Gold, D., & Whenton, B. (1990). The socialization of sex-differentiated skills and academic performance: A meditational model. *Sex Roles, 23,* 613-628. doi: 10.1007/BF00289251.

* Shaw, D. S., Winslow, E. B., Owens, E. B., Vondra, J. I., Cohn, J. F., & Bell, R. Q. (1998). The development of early externalizing problems among children from low-income families: A transformational perspective. *Journal of Abnormal Child Psychology, 26,* 95-107. doi: 10.1023/a:1022665704584.

Sherman, J.W., Stroessner, S.J., Conrey, F.R., & Azam, O.A. (2005). Prejudice and stereotype maintenance processes: Attention, attribution, and individuation. *Journal of Personality and Social Psychology, 89,* 607-622. doi:10.1037/0022-3514.89.4.607.

Siegal, M. (1987). Are sons and daughters treated more differently by fathers than by mothers? *Developmental Review, 7,* 183–209. doi:10.1016/0273-2297(87)90012-8.

Signorella, M.L., Bigler, R.S., & Liben, L.S. (1993). Developmental differences in children's schemata about others: A meta-analytic review. *Developmental Review, 13,* 147-183. doi: 10.006/drev.1993.1007.

Signorella, M.L. & Liben, L.S. (1985). Assessing children's gender-stereotyped attitudes. *Psychological Documents, 15,* 7.

* Silverman, I. W. & Ippolito, M. F. (1995). Maternal antecedents of delay ability in young children. *Journal of Applied Developmental Psychology, 16,* 569-591. doi: 10.1016/0193-3973(95)90005-5.

Smith, C., & Lloyd, B. (1978). Maternal behaviour and perceived sex of infant: Revisited. *Child Development, 49,* 1263-1265.

* Smith, C. L. (2010). Multiple Determinants of Parenting: Predicting Individual Differences in Maternal Parenting Behavior with Toddlers. *Parenting-Science and Practice, 10*, 1-17. doi: 10.1080/15295190903014588.

* Smith, C. L., Calkins, S. D., Keane, S. P., Anastopoulos, A. D., & Shelton, T. L. (2004). Predicting stability and change in toddler behavior problems: Contributions of maternal behavior and child gender. *Developmental Psychology, 40*, 29-42. doi: 10.1037/0012-1649.40.1.29.

* Smith, J. R., & BrooksGunn, J. (1997). Correlates and consequences of harsh discipline for young children. *Archives of Pediatrics & Adolescent Medicine, 151*, 777-786. doi:10.1001/archpedi.1997.02170450027004.

* Smith, P. K., & Daglish, L. (1977). Sex differences in parent and infant behavior in the home. *Child Development, 48*, 1250-1254. doi: 10.2307/1128482.

Sociaal Cultureel Planbureau. (2011). *Gezinsrapport 2011* (SCP publication No. 2011-7). Retrieved from http://www.scp.nl/dsresource?objectid=28448&type=org.

Soenens, B. & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review, 30*, 74-99. doi:10.1016/j.dr.2009.11.001.

Sokal, L., Seifert, K., & Piotrowski, C. (2001, April). *Gender schematic development within the family context.* Poster session presented at the biennial meeting of the Society for Research in Child Development, Minneapolis, MN. Abstract retrieved from http://www.eric.ed.gov/PDFS/ED451926.pdf.

Solomon, S.E., Rothblum, E.D., & Balsam, K.F. (2005). Money, housework, sex, and conflict: Same-sex couples in civil unions, those not in civil unions, and heterosexual married siblings. *Sex Roles, 52*, 561-575. doi:10.1007/s11199-005-3725-7.

Stacey, J. & Biblarz, T.J. (2001). (How) Does the sexual orientation of parents matter? *American Sociological Review, 66*, 159-183.

Stahlberg, D., Braun, F., Irmen, L., & Sczesny, S. (2007). Representation of the sexes in language. In K. Fiedler (Ed.), *Social Communication* (pp. 163-187). New York: Psychology Press.

Steffens, M.C., Jelenec, P., & Noack, P. (2010). On the leaky math pipeline: Comparing implicit math-gender stereotypes and math withdrawal in female and male children and adolescents. *Journal of Educational Psychology, 102*, 947-963. doi:10.1037/a0019920.

Steinberg, L. (2001). We know some things: Parent–adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19. doi:10.1111/1532-7795.00001.

Stoneman, Z., Brody, G.H., & MacKinnon, C.E. (1986). Same-sex and cross-sex siblings: Activity choices, roles, behaviour, and gender stereotypes. *Sex Roles, 15*, 495-511. doi: 10.1007/BF00288227.

Storey, A.E., Noseworthy, D.E., Delahunty, K.M., Halfyard, S.J., & McKay, D.W. (2011). The effects of social context on the hormonal and behavioral responsiveness of human fathers. *Hormones and Behavior, 60*, 353–361. doi:10.1016/j.yhbeh.2011.07.001.

Stormshak, E.A., Bierman, K.L., McMahon, R.J., & Lengua, L.J. (2000). Parenting practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology, 29,* 17-29. doi10.1207/S15374424jccp2901_3.

Super, C.M. & Harkness, S. (2002). Culture structures the environment for development. *Human Development, 45,* 270-274. doi:10.1159/000064988.

Sutton, A. J., Duval, S. J., Tweedie, R. L., Abrams, K. R., & Jones, D. R. (2000). Empirical assessment of effect of publication bias on meta-analyses. *British Medical Journal, 320,* 1574–1577. doi: 10.1136/bmj.320.7249.1574.

Swim, J.K., Aikin, K.J., Hall, W.S., & Hunter, B.A. (1995). Sexism and racism: Old fashioned and modern prejudices. *Journal of Personality and Social Psychology, 68,* 199-214. doi: 10.1037/0022-3514.68.2.199.

Szinovacz, M.E. (1998). Grandparents today: A demographic profile. *The Gerontologist, 38,* 37-52. doi:10.1093/geront/38.1.37.

T

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariatestatistics* (3rd ed.). New York: Harper Collins.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics.* New York: Harper & Row.

Tabachnick, B. G., & Fidell, L. S. (2012). *Using Multivariate Statistics* (6th ed.). New York: Harper Collins.

* Tam, V. C. W., & Lam, R. S. Y. (2004). A cultural exploration based on structured observational methods in Hong Kong. *Marriage & Family Review, 35,* 45-61. doi: 10.1300/J002v35n03_04.

* Tamis-LeMonda, C. S., Briggs, R. D., McClowry, S. G., & Snow, D. L. (2009). Maternal control and sensitivity, child gender, and maternal education in relation to children's behavioral outcomes in African American families. *Journal of Applied Developmental Psychology, 30,* 321-331. doi: 10.1016/j.appdev.2008.12.018.

Tenenbaum, H. R., & Leaper, C. (2002). Are parents' gender schemas related to their children's gender-related cognitions? A meta-analysis. *Developmental Psychology, 38,* 615–630. doi:10.1037/0012-1649.38.4.615.

The Fatherhood Institute (2010). *The Fatherhood Report 2010-11. Fairness in Families Index.* Retrieved from: http://www.mencare.org/data/Fairness%20in%20Families.pdf.

The Global Gender Gap Report (2013). Retrieved from: http://www3.weforum.org/docs/WEF_GenderGap_Report_2013.pdf.

Thornton, A., Alwin, D. E, & Camburn, D. (1983). Causes and consequences of sex-role attitudes and attitude change. *American Sociological Review, 48,* 211-227. doi: 10.2307/2095106.

* Trautmann-Villalba, P., Laucht, M., & Schmidt, M. H. (2006). Father negativity in the interaction with toddlers as predictor of internalizing problems in girls and boys at school age. *Praxis Der Kinderpsychologie Und Kinderpsychiatrie, 55,* 169-180.

Trautner, H.M., Ruble, D.N., Cyphers, L., Kirsten, B., Behrendt, R., & Hartmann, P. (2005). Rigidity and flexibility of gender stereotypes in childhood: Developmental or differential? *Infant and Child Development, 14,* 365-381. doi: 10.1002/icd.399.

Tremblay, R.E., Japel, C., Perusse, D., McDuff, P., Boivin, M., Zoccolillo, M., & Montplaisir, J. (1999).The search for the age of 'onset' of physical aggression: Rousseau and Bandura revisited. *Criminal Behavior and Mental Health, 9,* 8-23. doi:10.1002/cbm.288.

Trivers, R.L. (1972). Parental investment and sexual selection. In *Sexual Selection and the Descent of Man, 1871-1971,* B. Campbell (ed.), pp. 137-179. Chicago: Aldine.

Troost, K.M. & Filsinger, E. (1993). Emerging biosocial perspectives on the family. In P.G. Boss, W.J. Doherty, R. LaRossa, W.R. Schumm, & S.K. Steinmetz (eds.), *Sourcebook of family theories and methods: A contextual approach.* New York: Plenum Press.

* Tulananda, O. & Roopnarine, J. L. (2001). Mothers' and fathers' interactions with preschoolers in the home in northern Thailand: Relationships to teachers' assessments of children's social skills. *Journal of Family Psychology, 15,* 676-687. doi: 10.1037//0893-3200.15.4.676.

Turner, P.J., & Gervai, J. (1995). A multidimensional study of gender typing in preschool children and their parents: Personality, attitudes, preferences, behavior, and cultural differences. *Developmental Psychology, 31,* 759-772. doi: 10.1037/0012-1649.31.5.759.

Twenge, J.M. (1997). Changes in masculine and feminine traits over time: A meta-analysis. *Sex Roles, 36,* 305-325. doi:10.1007/BF02766650.

U

Underwood, M.K. (2003). *Social aggression among girls.* New York: The Guilford Press.

U.S. Department of Labor (2012). Highlights of women's earnings in 2011. *(Bureau of Labor Statistics Report 1038).*

V

Van Anders, S.M., Tolman, R.M., & Volling, B.L. (2012). Baby cries and nurturance affect testosterone in men. *Hormones and Behavior, 61,* 31-36. doi:10.1016/j.yhbeh.2011.09.12.

Van de Beek, C., Thijssen, J.H.H., Cohen-Kettenis, P.T., Van Goozen, S.H.M., & Buitelaar, J.K. (2004). Relationships between sex hormones assessed in amniotic fluid, and maternal and umbilical cord serum: What is the best source of information to investigate the effects of fetal hormonal exposure? *Hormones and Behavior, 46,* 663-669. doi:10.1016/j.yhbeh.2004.06.010.

Van der Pol, L.D., Mesman, J., Groeneveld, M.G., Endendijk, J.J., Van Berkel, S.R., Hallers-Haalboom, E.T., & Bakermans-Kranenburg, M.J. (2014). Sibling gender configuration and family processes. *Journal of Family Issues.*

Van IJzendoorn, M.H., Juffer, F., & Klein Poelhuis, C.W. (2005). Adoption and cognitive development: A meta-analytic comparison of adopted and non-adopted children's IQ and school performance. *Psychological Bulletin, 131,* 301-316. doi: 10.1037/0033-2909.131.2.301.

Van IJzendoorn, M. H., Moran, G., Belsky, J., Pederson, D., Bakermans-Kranenburg, M. J., & Kneppers, K. (2000). The similarity of siblings' attachments to their mother. *Child Development, 71,* 1086-1098. doi: 10.1111/1467-8624.00211

* Van Zeijl, J., Mesman, J., Stolk, M. N., Alink, L. R. A., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Juffer, F., & Koot, H. M. (2007). Differential susceptibility to discipline: The moderating effect of child temperament on the association between maternal discipline and early childhood externalizing problems. *Journal of Family Psychology, 21,* 626-636. doi: 10.1037/0893-3200.21.4.626.

Van Zeijl, J., Mesman, J., Van IJzendoorn, M.H., Bakermans-Kranenburg, M.J., Juffer, F., Stolk, M.N., Koot, H., & Alink, L.R.A. (2007). Attachment-based intervention for enhancing sensitive discipline in mothers of 1- to 3-year-old children at risk for externalizing problems: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74,* 994-1005. doi:10.1037/0022-006X.74.6.994.

Vink, J.M., Bartels, M., Van Beijsterveldt, T.C.E.M., Van Dongen, J., Van Beek, J.H.D.A., Distel., M.A., … Boomsma, D.I. (2012). Seks differences in genetic architecture of comples phenotypes? *PloS ONE, 7,* e47371. doi: 10.1371/journal.pone.0047371.

Voorthuis, A., Out, D., Van der Veen, R., Bhandari, R., Van IJzendoorn, M.H., & Bakermans-Kranenburg, M.J. (2013). *Attachment & Human Development, 15,* 603-617. doi:10.1080/14616734.2013.820897.

W

Wakschlag, L.S., Tolan, P.H., & Leventhal, B.L. (2010). "Ain't misbehavin": Towards a developmentally-specified nosology for preschool disruptive behavior. *Journal of Child Psychology and Psychiatry, 51,* 3-22. doi:10.1111/j.1469-7610.2009.02184.x.

Wallen, K. (1996). Nature needs nurture: The interaction of hormonal and social influences on the development of behavioral sex differences in Rhesus monkeys. *Hormones and Behavior, 30,* 364-378. doi:10.1006/hbeh.1996.0042.

Walker, K. & Armstrong, L. (1995). Do mothers and fathers interact differently with their child or is it the situation which matters? *Child: Care, Health and Development, 21,* 161-181. doi: 10.1111/j.1365-2214.1995.tb00747.x.

* Webster-Stratton, C. & Hammond, M. (1999). Marital conflict management skills, parenting style, and early-onset conduct problems: Processes and pathways. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 40*, 917-927. doi: 10.1017/s0021963099004199.

Weinraub, M., Pritchard Clemens, L., Sockloff, A., Ethridge, T., Gracely, E., & Myers, B. (1984). The development of sex role stereotypes in the third year: relationships to gender labeling, gender identity, sex-typed toy preference,

and family characteristics. *Child Development, 55,* 1493-1503. doi: 10.1111/1467-8624.ep7303030.

Weisman, O., Zagoory-Sharon, O., & Feldman, R. (2014). Oxytocin administration, salivary testosterone, and father-infant social behavior. *Progress in Neuro-Psychopharmacology & Biological Psychiatry, 49,* 47-52. doi:10.1016/j.pnpbp.2013.11.006.

White, M.J., & White, G.B. (2006). Implicit and explicit occupational gender stereotypes. *Sex Roles, 55,* 259-266. doi: 10.1007/s11199-006-9078-z.

Whipple, E.E. & Richey, C.A. (1997). Crossing the line from physical discipline to child abuse: How much is too much? *Child Abuse and Neglect, 5,* 431– 444. doi:10.1016/S0145-2134(97)00004-5.

Williams, J.E., & Best, D.L. (1990). Sex and psyche: Gender and self viewed cross-culturally Newbury Park, CA: Sage.

Williamson, N.E. (1976). *Sons or daughters: a cross-cultiral survey of parental preferences.* Beverly Hills, CA: Sage Publications.

Whitechurch, G.G. & Constantine, L.L. (1993). Systems theory. In P.G. Boss, W.J. Doherty, R. LaRossa, W.R. Schumm, & S.K. Steinmetz (eds.), *Sourcebook of family theories and methods: A contextual approach.* New York: Plenum Press.

Williams, J.E. & Best, D.L. (1990). *Measuring sex stereotypes: A multination study*. Beverly Hills, CA: Sage Publications.

Williams, J.E., Satterwhite, R.C., & Best, D.L. (1999). Pancultural gender stereotypes revisited: The five factor model. *Sex Roles, 40,* 513-525. doi:10.1023/A:1018831928829.

* Wilson, E. C. (1980). *Developmental changes in maternal influence techniques.* (8126307 Ph.D.), DePaul University, United States -- Illinois. Retrieved from http://search.proquest.com/docview/303081787?accountid=12045 ProQuest Dissertations & Theses Full Text database.

Wingfield, J.C., Hegner, R.E., Dufty Jr., A.M., Ball, G.F., 1990. The "challenge hypothesis": theoretical implications for patterns of testosterone secretion, mating systems, and breeding strategies. *American Naturalist, 136,* 829–846. doi:10.1086/285134.

Witt, S. D. (1997). Parental influence on children's socialization to gender roles. *Adolescence, 32,* 253–260.

Wong, W.I., Pasterski, V., Hindmarsh, P.C., Geffner, M.E., & Hines, M. (2013). Are there parental socialization effects on the sex-types behavior of individuals with congenital adrenal hyperplasia. *Archives of Sexual Behavior, 42,* 381-391. doi:10.1007/s10508-012-9997-4.

Wood, W. & Eagly, A.H. (2012). Biosocial construction of sex differences and similarities in behavior. In J.M. Olson & M.P. Zanna (Eds.), *Advances in Experimental Social Psychology, Vol. 46* (p. 55-123). Burlington: Academic Press.

World Economic Forum (2013). *The Global Gender Gap Report.* Retrieved from http://www3.weforum.org/docs/WEF_GenderGap_Report_2013.pdf.

Y

* Yaman, A., Mesman, J., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Linting, M. (2010). Parenting in an individualistic culture with a collectivistic cultural background: The case of turkish immigrant families with toddlers in the Netherlands. *Journal of Child and Family Studies, 19*, 617-628. doi: 10.1007/s10826-009-9346-y.

Yeung, W.J., Sandberg, J.F., Davis-Kean, P.E., & Hofferth, S.L. (2001). Children's time with fathers in intact families. *Journal of Marriage and Family, 63,* 136-154. doi: 10.1111/j.1741-3737.2001.00136.x.

Yu, W. & Lee, P. (2013). Decomposing gender beliefs: Cross-national differences in attitudes toward maternal employment and gender equality at home. *Sociological Inquiry, 83,* 591-621. doi:10.1111/soin.12013.

Z

Zahn-Waxler, C., Crick, N., Shirtcliff, E.A., & Woods, K. (2006). The origins and development of psychopathology in females and males. In D. Cicchetti, & D.J. Cohen (Eds.), *Developmental Psychopathology*, 1:76–138. Hoboken, NJ: Wiley.

Zahn-Waxler, C., Robinson, J., & Emde, R. N. (1992). The development of empathy in twins. *Developmental Psychology, 28*, 1038-1047. doi: 10.1037/0012-1649.28.6.1038.

Zahn-Waxler, C., Shirtcliff, E.A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology, 4*, 275-303. Doi: 10.1146/annurev.clinpsy.3.022806.091358.

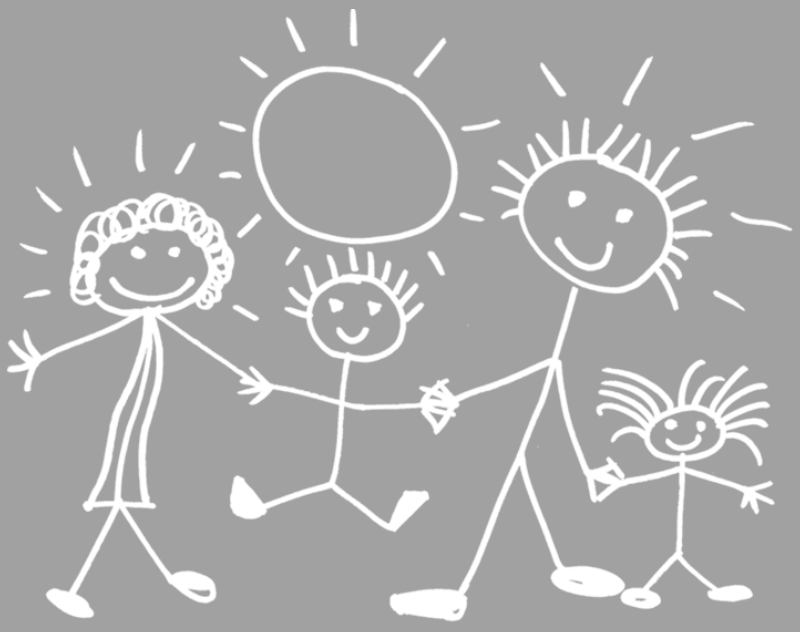
Zarbatany, L. & Pepper, S. (1996). The role of the group in peer group entry. *Social Development, 5*, 251-260. doi:10.1111/j.1467-9507.1996.tb00084.x

* Zevalkink, J. & Riksen-Walraven, J.M. (2001). Parenting in Indonesia: Inter- and intracultural differences in mothers' interactions with their young children. *International Journal of Behavioral Development, 25*, 167-175. doi: 10.1080/01650250042000113.

Zick, C. D., & Bryant, W. K. (1996). A new look at parents' time spend in child care: Primary and secondary time use. *Social Science Research, 25*, 260-280. doi: 10.1006/ssre.1996.0012.

Zosuls, K.M., Miller, C.F., Ruble, D.N., Martin, C.L., & Fabes, R.A. (2011). Gender development research in sex roles: Historical trends and future directions. *Sex Roles, 64*, 826-842. doi: 10.1007/s11199-010-9902-3.

Appendices



NEDERLANDSE SAMENVATTING (SUMMARY IN DUTCH)

Gender heeft een belangrijke invloed op het sociale leven (Blakemore, Berenbaum, & Liben, 2009). Deze invloed is al zichtbaar voor de geboorte van een kind, wanneer ouders op basis van het geslacht van hun kind keuzes maken over de naam, kleding en inrichting van de babykamer. Na de geboorte van een kind beïnvloedt gender onder andere de manier waarop ouders hun kind opvoeden (Leaper, Anderson, & Sanders, 1998; Mandara, Murray, Telesford, Varner, & Richman, 2012) en de reacties die bepaalde gedragingen van het kind uitlokken bij personen in de directe omgeving van het kind, zoals bij leeftijdsgenoten (Fagot & Hagan, 1985; Rose & Rudolph, 2006) en leraren (Dobbs et al., 2004; Fagot & Hagan, 1985). Tijdens de adolescentie staat de identiteitsontwikkeling centraal, waar gender beïnvloedt hoe mannelijk of vrouwelijk adolescenten zichzelf beschouwen (Berenbaum & Beltz, 2011). Daarnaast is er in in de schoolcontext sprake van genderdifferentiatie op het gebied van prestaties, studiekeuze en interesse in de alpha- en bètavakken (Hyde, 2014). Op basis van de invloed die gender heeft op het leven van kinderen is het niet vreemd dat jongens en meisjes al op jonge leeftijd verschillen laten zien in hun gedrag. Al voor hun eerste verjaardag vertonen jongetjes vaker druk gedrag en hebben zij meer moeite met zelfcontrole dan meisjes, terwijl meisjes meer verlegen en angstig gedrag laten zien (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006).

Diverse biologische, sociale en cognitieve processen spelen een rol in de genderontwikkeling van kinderen (voor een overzicht zie Hyde, 2014; McHale, Crouter, & Whiteman, 2003). Genderontwikkeling omvat het leren van de genderrollen die gelden in een bepaalde cultuur en de sociale conventies omtrent gepast gedrag voor jongens en meisjes en de ontwikkeling van een eigen genderidentiteit. Verschillende personen in de directe omgeving van een kind zijn betrokken bij het proces van gendersocialisatie, waarbij gender-typisch gedrag wordt aangemoedigd en genderrollen worden aangeleerd. Factoren binnen de gezinscontext, zoals de gendersocialisatie door ouders, broertjes en zusjes, en de genderrollen die vaders en moeders innemen binnen het gezin, worden gezien als mede bepalend voor de genderontwikkeling van kinderen. De ervaringen omtrent gender die kinderen binnen het gezin opdoen kunnen de blauwdruk zijn voor de invloed van latere socialiserende factoren, aangezien deze ervaringen de perceptie van latere informatie over gender kleuren (Bem, 1981).

Er is echter nog veel onduidelijk over de gendersocialisatie en genderontwikkeling in de gezinscontext. Bovendien is er een gebrek aan studies die onderzoeken of de manier waarop ouders hun jongens en meisjes opvoeden mogelijk ten grondslag ligt aan verschillen in het gedrag tussen jongens en meisjes (zie Hyde, 2014). In de studies beschreven in dit proefschrift worden de volgende vragen met

betrekking tot gendersocialisatie door vaders en moeders en genderontwikkeling van jongens en meisjes binnen het gezin nader onderzocht.

1) In welke mate is sprake van genderspecifieke opvoeding door ouders?
2) Vindt intergenerationele overdracht van genderstereotypen tussen ouder en kind plaats?
3) Zijn genderstereotypen van ouders gerelateerd aan het gebruik van genderspecifieke opvoedingsstrategieën door ouders en de manier waarop zij met hun kinderen praten over gender?
4) Heeft de gendercombinatie van broertjes en zusjes in het gezin invloed op genderstereotypen en gedrag van ouders en kinderen?
5) Wat zijn de consequenties van genderspecifieke opvoeding door ouders voor eventuele genderverschillen in gedrag van kinderen?

Genderspecifieke Opvoeding

Er is sprake van genderspecifieke opvoeding als ouders verschillende opvoedingsstrategieën gebruiken bij jongens en meisjes. In de studies beschreven in dit proefschrift ligt de focus met name op een verschil in gedragsregulerende opvoedingsstrategieën bij jongens en meisjes. Onder gedragsregulerende opvoedingsstrategieën vallen alle strategieën die ouders gebruiken om het gedrag van hun kinderen te veranderen of te beïnvloeden. Het gebruik van gedragsregulerende opvoedingsstrategieën door ouders bij jongens en meisjes werd onderzocht door de effecten van 120 studies in een serie meta-analyses bijeen te brengen (zie Hoofdstuk 2). Zowel vaders als moeders gebruikten meer negatieve gedragsregulerende strategieën zoals fysiek disciplineren, schelden en commanderen bij jongens dan bij meisjes. Dit effect was sterker in studies die een normatieve groep gezinnen onderzochten dan in studies die een klinische of risicogroep onderzochten. De resultaten voor positieve gedragsregulerende strategieën zoals complimenteren, aanmoedigen en uitleg geven waren wat gecompliceerder, aangezien het verschilde per periode in de tijd. Studies gepubliceerd tussen 1970 en 1990 rapporteerden meer positieve gedragsregulerende strategieën bij jongens dan bij meisjes, terwijl in studies gepubliceerd na 1990 meer positieve gedragsregulerende strategieën bij meisjes dan bij jongens werden gevonden. De resultaten met betrekking tot positieve en negatieve opvoedingsstrategieën golden voor kinderen van verschillende leeftijden, met verschillende culturele en sociaaleconomische achtergronden, in verschillende situaties en omgevingen. De verschillen in de opvoeding van jongens en meisjes waren echter klein. Ouders gebruiken dus over het algemeen dezelfde gedragsregulerende opvoedingsstrategieën bij hun zoons en dochters, maar er zijn subtiele verschillen.

Deze resultaten komen overeen met die van eerdere meta-analyses waarin eveneens kleine effecten werden gevonden (Leaper et al., 1998; Lytton & Romney,

1991). De resultaten sluiten ook aan bij de *Gender Similarities Hypothese* (Hyde, 2005; 2014) die stelt dat er over het algemeen meer overeenkomsten dan verschillen zijn tussen de genders. Het is mogelijk dat slechts een kleine groep ouders genderspecifieke opvoedingsstrategieën hanteert. Een andere mogelijkheid is dat genderspecifiek oudergedrag alleen zichtbaar is in specifieke situaties of in reactie op speciefiek kindgedrag. Een laatste verklaring voor de kleine effecten is dat ouders genderspecifieke opvoedingstrategieën op een zeer subtiele manier hanteren.

De subtiele verschillen in de behandeling van jongens en meisjes die gevonden zijn in de meta-analyse kunnen wellicht worden verklaard aan de hand van *Social Role Theory* (Eagly et al., 2000). Deze theorie stelt dat verschillen in genderrollen van mannen en vrouwen en de gedragingskenmerken die geassocieerd worden met deze genderrollen leiden tot een verschillende behandeling van jongens en meisjes. Kenmerken als onafhankelijkheid, assertiviteit, macht en leiderschap zijn traditioneel passender bij de mannelijke rol van kostwinner, terwijl kenmerken als vriendelijkheid, medeleven, zorgzaamheid en behulpzaamheid traditioneel meer geassocieerd worden met de vrouwelijke rol van huisvrouw. Vanuit *Social Role Theory* wordt verwacht dat ouders de opvoeding van hun zoons en dochters aanpassen aan de rollen die zij later gaan innemen in de maatschappij, bijvoorbeeld door in de opvoeding van zoons eigenschappen als dominantie en assertiviteit aan te moedigen en bij dochters het belang van goede persoonlijke relaties centraal te stellen.

Een andere verklaring heeft betrekking op de mogelijke rol die het gedrag van het kind speelt in het uitlokken van een genderspecifieke behandeling van ouders. Het is namelijk plausibel dat ouders hun zoons en dochters verschillend behandelen in reactie op genderverschillen in het gedrag van kinderen. Het kan zo zijn dat ouders bij jongetjes meer negatieve opvoedingsstrategieën gebruiken dan bij meisjes, omdat jongens meer moeilijk en negatief gedrag vertonen dan meisjes. Jongens hebben genetisch meer aanleg voor opstandig en antisociaal gedrag dan meisjes (Buckholtz et al., 2008; Kim-Cohen et al., 2006; Meyer-Lindenberg et al., 2006) en deze grotere neiging tot negatief gedrag leidt mogelijk tot meer conflicten met ouders of roept meer negatieve reacties op bij ouders.

Overdracht van Genderstereotypen Tussen Ouder en Kind

Gender Schema Theory (Bem, 1981) suggereert dat de manier waarop ouders hun zoons en dochters behandelen wordt gestuurd door hun genderstereotypen. De ervaring dat jongens en meisjes verschillend worden behandeld heeft vervolgens invloed op de ontwikkeling van genderstereotypen in kinderen, aangezien kinderen de kennis die zij binnen het gezin opdoen omtrent gender opslaan in hun cognitieve schema's over gender. Vanuit deze theorie valt dan ook te verwachten dat er een verband is tussen de genderstereotypen van ouders en kinderen. In Hoofdstuk 3 werd een studie naar de intergenerationele overdracht van genderstereotypen van ouders naar hun driejarige kinderen beschreven. De impliciete genderstereotypen van

kinderen werden gemeten met een recent ontwikkelde computertaak speciaal voor deze leeftijdsgroep (Banse et al., 2010). Ouders voltooiden dezelfde computertaak als hun kinderen en een computertaak om hun impliciete attituden over genderrollen van volwassenen (vrouw-gezin, man-carrière) te meten (impliciete associatie taak; Nosek et al., 2002a). De opzet van deze impliciete associatie taak was vergelijkbaar met die van de taak om impliciete stereotypen bij kinderen vast te stellen. Beide taken bestaan uit congruente blokken, waarin constructen moeten worden gepaard op een manier die overeenkomt met het stereotype (vrouw-gezin, man-carrière, jongen-jongensspeelgoed, meisje-meisjesspeelgoed) en incongruente blokken, waarin paren moeten worden gemaakt die tegengesteld zijn aan het stereotype (man-gezin, vrouw-carrière, jongen-meisjesspeelgoed, meisje-jongensspeelgoed). Ouders vulden tevens een vragenlijst in over hun expliciete genderstereotypen.

De resultaten bevestigen het idee van intergenerationele overdracht van genderstereotypen tussen moeders en dochters, aangezien er een significant verband was tussen de stereotypen van moeders en dochters. Dit verband werd echter alleen gevonden voor de stereotypen van moeder en dochter gemeten met dezelfde taak. Moeders' expliciete genderstereotypen en impliciete stereotypen over genderrollen waren niet gerelateerd aan de genderstereotypen van hun dochters. Dit resultaat geeft aan dat het verband tussen de genderstereotypen van ouders en kinderen mogelijk alleen gevonden kan worden wanneer gebruik wordt gemaakt van dezelfde taak om de stereotypen van zowel ouders als kinderen te meten. In deze studie bestond geen verband tussen de genderstereotypen van moeders en hun zonen en van vaders en hun dochters of zonen. Het is mogelijk dat er wel een verband is tussen de expliciete stereotypen van vaders en kinderen. Vaders zijn namelijk meer dan moeders geneigd om hun genderstereotypen op een expliciete manier te uiten. In de huidige studie zijn de expliciete genderstereotypen van kinderen echter niet onderzocht.

Genderstereotypen en Ouder-Kind Conversaties Over Gender

De *Social Cognitive Theory of Gender Development* (Bussey & Bandura, 1999) veronderstelt dat het verband tussen de genderstereotypen van ouder en kind wordt gemedieerd door de gendersocialisatie door ouders. Genderstereotypen van ouders zouden dan gerelateerd moeten zijn aan de manier waarop zij de gendersocialisatie van hun kinderen aanpakken. In Hoofdstuk 4 wordt een studie beschreven naar de relatie tussen genderstereotypen van ouders en de manier hoe ouders met hun kinderen praten over gender. In deze studie werd een platenboek gebruikt dat speciaal is ontwikkeld om gesprekken over gender tussen ouders en kinderen te ontlokken. Dit boek bevat platen met genderneutrale kinderen (niet duidelijk of het een jongen of meisje is) in zowel jongens- als meisjesachtige activiteiten, en platen met jongens en meisjes in stereotiepe activiteiten (jongens die skateboarden, meisjes die een handjeklap spelletje doen) en in contrastereotiepe activiteiten (meisjes die voetballen, jongens die hoepelen). Getrainde codeurs bepaalden of ouders de activiteiten in de

platen als positief of negatief beoordeelden, het aantal keer dat ouders stereotiepe of contrastereotiepe opmerkingen over gender maakten en het aantal keer dat ouders het geslacht van de kinderen in de platen benoemden. Ouders voltooiden ook een computertaak om hun impliciete stereotiepe ideeën over de gepastheid van bepaald speelgoed voor jongens en meisjes vast te stellen.

De resultaten wezen op een verband tussen de impliciete genderstereotypen van moeders en de manier waarop zij met hun kinderen praten over gender. Vergeleken met moeders met traditionele attituden over gender waren moeders met meer egalitaire attituden over gender meer geneigd om aan te geven dat gedrag dat niet aansluit bij het genderstereotype gepast is voor zowel jongens als meisjes en dat negatief gedrag ongepast is voor zowel jongens als meisjes. Dat dit resultaat alleen werd gevonden bij moeders en niet bij vaders kan mogelijk verklaard worden doordat in deze studie alleen de impliciete stereotypen van ouders zijn onderzocht. Het is mogelijk dat de manier waarop vaders tegen hun kinderen praten over gender meer gerelateerd is aan hun expliciete genderstereotypen dan aan hun impliciete stereotypen, omdat mannen meer dan vrouwen geneigd zijn om hun stereotypen bewust te uiten. Het is echter ook mogelijk dat de taak waarmee de stereotypen bij ouders werden vastgesteld minder valide was voor vaders dan voor moeders, omdat moeders meer betrokken zijn bij het kopen en geven van speelgoed aan andere kinderen dan vaders.

De Invloed van de Gendercombinatie van Broertjes en Zusjes

In zowel de studie naar de intergenerationele overdracht van genderstereotypen (zie Hoofdstuk 3) als de studie naar ouder-kind conversaties over gender (zie Hoofdstuk 4) werd de invloed van de gendercombinatie van broertjes en zusjes in het gezin op het gedrag en de attituden van ouders en kinderen onderzocht. Er werd gekeken naar vier typen gezinnen: gezinnen met twee jongens, gezinnen met twee meisjes, gezinnen met als oudste kind een meisje en als jongste een jongen en gezinnen met als oudste kind een jongen en als jongste een meisje.

In de studie uit Hoofdstuk 3 werd gevonden dat vaders met twee kinderen van hetzelfde geslacht (jongen-jongen, meisje-meisje) meer traditionele ideeën hadden over gender dan vaders met twee kinderen van een verschillend geslacht (jongen-meisje, meisje-jongen). Dit resultaat sluit aan bij het idee dat de aanwezigheid van twee kinderen met een verschillend geslacht een ‘gender neutraliserend effect’ heeft binnen de gezinscontext (Brim, 1958; Rust et al., 2000). Het lijkt erop dat in deze typen gezinnen vooral de mogelijkheid om overeenkomsten te zien tussen jongens en meisjes de genderstereotypen van vaders beïnvloedt, ook al is er in deze gezinnen eveneens de mogelijkheid tot het observeren van verschillen tussen jongens en meisjes. In Hoofdstuk 3 werd geen effect gevonden van gender van het jongste kind op de genderstereotypen van het oudste kind, wat mogelijk verklaard kan worden door het feit dat het jongste kind nog maar één jaar oud was. Het is mogelijk dat dat op

latere leeftijd jongere broertjes en zusjes meer invloed uitoefenen op de genderstereotypen van hun oudere broers en zussen.

De gendercombinatie van de kinderen in een gezin bleek ook invloed te hebben op de manier waarop vaders met hun kinderen praten over gender. Vaders met twee jongens waren meer geneigd om gepast mannelijk gedrag te benadrukken in de genderconversaties met hun jongens dan in andere gezinstypes het geval was. Het is mogelijk dat vaders, door op deze manier te praten over gender met hun zoons, hun zoons willen voorbereiden op leven in de westerse samenleving waar het voor jongens belangrijker is om zich te gedragen in overeenstemming met de genderstereotypen dan voor meisjes (Leaper, 2000). Dat de gendercombinatie van de kinderen in een gezin niet gerelateerd was aan het praten over gender door moeders sluit aan bij het idee dat moeders in de opvoeding van hun kinderen over het algemeen iets minder geneigd zijn om onderscheid te maken naar het geslacht van hun kinderen (Eagly et al., 2000; Lytton & Romney, 1991). Een mogelijk verklaring voor dit verschil tussen vaders en moeders is dat moeders de traditionele rolverdeling tussen mannen en vrouwen minder accepteren dan vaders, omdat vrouwen in deze verdeling ondergeschikt zijn aan mannen (Lee, Pratto, & Johnson, 2011). De verwachting is dat moeders in de opvoeding dan ook minder aandacht besteden aan de socialisatie van hun zoons en dochters in de traditionele genderrollen dan vaders (Wood & Eagly, 2012).

Genderspecifieke Opvoeding: Consequenties en Invloed van Genderstereotypen

In de studie uit Hoofdstuk 5 werd eveneens onderzocht of vaders en moeders verschilden in de gendersocialisatie van hun zoons en dochters, waarbij specifiek werd gekeken naar verschillen in de fysieke grenzen die ouders hun zoons en dochters stelden. Verder werd in deze longitudinale studie zowel de invloed van genderstereotypen van ouders op genderspecifieke opvoeding onderzocht, als de consequenties van deze genderspecifieke opvoeding voor de ontwikkeling van genderverschillen in gedrag van kinderen. In deze studie werd de mate van fysiek grenzen stellen door vaders en moeders bij hun driejarige kind geobserveerd tijdens een afblijftaak. Bij deze taak mochten de kinderen 4 minuten niet aan een set aantrekkelijk speelgoed komen. Gescoord werd hoe vaak ouders hun kinderen op een fysieke manier bij het speelgoed weghielden in reactie op het reiken naar of aanraken van het verboden speelgoed door hun kinderen. Toen de kinderen 3 jaar waren voerden vaders en moeders ook een computertaak uit om hun impliciete genderstereotypen vast te stellen. Hiernaast vulden ouders een vragenlijst in over het agressieve gedrag van hun zoon of dochter toen de kinderen 3 jaar waren en nogmaals toen de kinderen 4 jaar waren.

De resultaten ondersteunen de hypothese dat genderstereotypen van ouders hun genderspecifieke opvoedingsstrategieën beïnvloeden. Dit was echter alleen het geval bij vaders. Vaders met sterk traditionele genderstereotypen (man als kostwinner,

vrouw als huisvrouw) gebruikten meer fysieke gedragsregulerende strategieën bij jongens dan bij meisjes. Een mogelijk gevolg hiervan is dat jongens meer worden gesocialiseerd in een mannelijke rol, gekenmerkt door assertiviteit, agressie en dominantie (Eagly et al, 2000;. Hosley & Montemayor, 1997). Een jaar later lieten de jongens in de groep met traditionele vaders inderdaad significant meer agressie zien dan de meisjes. Vaders met een sterke contrastereotiepe houding ten opzichte van genderrollen (vrouw als kostwinner, man als huisman) gebruikten juist meer fysieke gedragsregulerende strategieën bij meisjes dan bij jongens. Door het gebruik van meer fysieke strategieën bij meisjes dan bij jongens, worden deze meisjes mogelijk gesocialiseerd in de richting van een meer mannelijke rol dan jongens (Bandura, 1977; Eagly et al, 2000; Hosley & Montemayor, 1997). Een jaar later was het genderverschil in agressie in de groep kinderen met vaders met contrastereotiepe attituden over gender niet langer aanwezig.

Dat dit patroon alleen werd gevonden voor vaders en niet voor moeders kan liggen aan het feit dat we in deze studie alleen negatieve opvoedingsstrategieën hebben onderzocht. In andere studies zijn bijvoorbeeld wel associaties gevonden tussen het genderspecifieke gebruik van positieve opvoedingsstrategieën, zoals sensitiviteit en responsiviteit, en gedrag van kinderen, maar geen associaties voor negatieve strategieën (Mandara et al., 2012). Zoals eerder genoemd zijn vaders mogelijk meer betrokken bij de gendersocialisatie van hun kinderen, omdat zij meer dan moeders gebaat zijn bij het in stand houden van de traditionele rolverdeling (Lee et al., 2011).

Het *Gendered Family Process model*

In de studies in dit proefschrift ligt de nadruk met name op de invloed van cognitieve factoren zoals genderstereotypen en op sociale factoren zoals genderspecifieke opvoeding door ouders op gendersocialisatie en genderontwikkeling in de gezinscontext. In Hoofdstuk 6 wordt aandacht besteed aan deze factoren, maar ook aan biologische en culturele factoren die van belang zijn voor de genderontwikkeling van kinderen binnen het gezin, en worden inzichten uit verschillende onderzoeksgebieden geïntegreerd in het voor dit proefschrift ontwikkelde *Gendered Family Process model* (GFP-model). In het literatuuroverzicht en in het model wordt duidelijk gemaakt naar welke aspecten van genderontwikkeling binnen de gezinscontext meer onderzoek moet worden verricht en op welke manier. Zo is het bijvoorbeeld van belang dat er meer longitudinale studies worden opgezet met een symmetrisch design (zowel ouder- als kindmetingen op meerdere meetmomenten) die de rol van zowel moeders als vaders binnen de genderontwikkeling van kinderen onderzoeken en waarbij aandacht wordt besteedt aan het samenspel van biologische, cognitieve, sociale en culturele factoren in relatie tot de (gender)ontwikkeling van kinderen.

Met betrekking tot onderzoek naar de biologische achtergrond van genderontwikkeling is het essentieel om de effecten van testosteron op het opvoedgedrag van ouders experimenteel te onderzoeken door testosteronniveaus te manipuleren. Alleen op deze manier kan de richting van het verband tussen testosteron en opvoedgedrag van ouders worden vastgesteld. Voor toekomstig onderzoek naar de effecten van socialisatie op de genderontwikkeling van kinderen is het van belang dat genderspecifieke opvoeding onderzocht wordt *binnen* families (vergelijking opvoeding naar jongen en meisje binnen een gezin) en niet *tussen* families (vergelijking opvoeding in gezinnen met jongens met opvoeding in gezinnen met meisjes). Een belangrijke beperking van de vergelijking tussen families is namelijk dat een genderverschil gevonden tussen families veroorzaakt kan worden door andere verschillen tussen de families dan alleen het verschil in gender van de kinderen. Samenvattend wordt met het GFP-model benadrukt dat in toekomstige studies rekening gehouden moet worden met de complexiteit van aan gender gerelateerde processen binnen de gezinscontext door middel van onder andere multidisciplinaire samenwerking.

Conclusie

De bevindingen in dit proefschrift tonen aan dat gender van het kind, gender van de ouder en de gendercombinatie van de kinderen in het gezin elk invloed uitoefenen op de gendersocialisatie door ouders en genderontwikkeling van kinderen. Zo waren vaders meer geneigd om hun genderstereotypen op een expliciete manier te uiten dan moeders, hadden moeders meer invloed op de ontwikkeling van genderstereotypen van hun dochters dan vaders en was alleen de genderspecifieke opvoeding door vaders gerelateerd aan genderverschillen in het gedrag van kinderen. Gender van het kind bleek het gedrag van ouders te beïnvloeden in de vorm van genderspecifieke opvoeding. De gendercombinatie van de kinderen had met name invloed op het gedrag en de gender attituden van ouders, maar niet van kinderen. Deze bevindingen wijzen op een proces waarin stereotypen over mannen en vrouwen kunnen leiden tot verschillen in de behandeling van zoons en dochters, wat vervolgens kan leiden tot genderverschillen in attituden en gedrag van zowel ouders als kinderen. De conclusie is dat gender en genderstereotypen belangrijke verklarende variabelen zijn voor het gedrag en attituden van kinderen en ouders in de gezinscontext. Het is echter van belang dat in meer studies het effect van gender van zowel ouder als kind op processen binnen het gezin wordt onderzocht, om meer duidelijkheid te verkrijgen over *hoe* deze processen beïnvloed worden door gender.

DANKWOORD

Eindelijk is het moment daar, mijn proefschrift is klaar! Dit proefschrift was nooit tot stand gekomen zonder de hulp, inzet en steun van anderen. Deze bladzijde wil ik daarom graag gebruiken om een aantal mensen te bedanken. Allereerst wil ik alle vaders, moeders en kinderen bedanken die aan het onderzoeksproject *Boys will be Boys?* hebben deelgenomen. Mede dankzij hun blijvende betrokkenheid en motivatie gedurende vier jaar dataverzameling is dit project een succes geworden. Daarnaast wil ik de meer dan 150 studenten bedanken die door de jaren heen een bijdrage hebben geleverd aan dit project. Jullie hebben weer, wind en haperend openbaar vervoer getrotseerd om de gezinnen te bezoeken en jullie hebben met elkaar duizenden videoclips gecodeerd. Zonder jullie inzet was het niet gelukt zoveel data te verzamelen en te verwerken. Verder ben ik dankbaar voor de nieuwe vriendschappen die op de werkvloer zijn ontstaan. Lotte, Sheila en Liesbeth, ik ben blij dat ik zo intensief met jullie heb mogen samenwerken. In vijf jaar tijd hebben we soms gehuild, maar vooral veel gelachen. Sharon, Mi-lan, Marleen en Marjolein, jullie zijn niet alleen fantastische assistenten geweest, maar ook heel fijne collega's. Ik hoop dat we onze 'Boys etentjes' nog lang voort zullen zetten. Alle andere (oud-)collega's bedankt voor de gezellige momenten en de hulp die ik heb mogen ontvangen. In het bijzonder bedankt aan 'de harde kern' van het AiO-borrel gezelschap. Tot slot wil ik nog een woord van dank richten aan mijn (schoon-)familie en vrienden. Schoonfamilie en vriendinnen van 'Jaarclub Chérie' bedankt dat jullie altijd interesse hebben getoond in mijn promotietraject en dat ik zowel successen als tegenslagen met jullie kon delen. Kim en Alain, ik ben heel blij met jullie als zus en zwager. Jullie humor en onze 'muzikale uitstapjes' hebben me de nodige afleiding geboden de afgelopen jaren. Lieve papa en mama, bedankt voor het warme en 'traditionele' nest waarbinnen ik mocht opgroeien. Wat was het voor Kim en mij fijn om een moeder te hebben die er iedere dag was als we uit school thuiskwamen. Ik hoop dat dit proefschrift jullie wel doet inzien dat ik niet het type vrouw ben dat fulltime huisvrouw wordt ;-) Lieve Arend, dankjewel voor al je onvoorwaardelijke liefde en steun. Jouw rust en relativeringsvermogen lieten me inzien dat er nog meer is in het leven dan werk.

CURRICULUM VITAE

Joyce Johanna Endendijk werd geboren op 26 juli 1987 in Amersfoort. In 2005 behaalde zij haar Atheneum diploma aan het Johannes Fontanus College te Barneveld. In datzelfde jaar startte zij aan de Universiteit Utrecht met de bachelor Psychologie. Na het behalen van het bachelordiploma in 2008 rondde Joyce in 2009 de master Neuropsychologie cum laude af. Voor haar master liep zij in 2008-2009 een klinische stage bij de afdeling medische psychologie van het VU medisch centrum, waar zij haar basisaantekening diagnostiek haalde. Sinds haar afstuderen werkte Joyce als promovenda bij de afdeling Algemene en Gezinspedagogiek van de Universiteit Leiden, waar zij onderzoek deed naar de invloed van genderstereotypen van ouders en genderspecifieke opvoedingspatronen op de sociaal-emotionele ontwikkeling van jonge kinderen. De resultaten van dat onderzoek zijn in dit proefschrift beschreven. Naast haar aanstelling als promovenda werkte Joyce één dag per week als docent bij de afdeling Algemene en Gezinspedagogiek. Na afronding van haar proefschrift verbleef Joyce drie maanden in de VS waar zij meewerkte in het Gender Development Laboratorium van de Pennsylvania State University.

LIJST VAN PUBLICATIES (LIST OF PUBLICATIONS)

Endendijk, J.J., Groeneveld, M.G., Van der Pol, L.D., Van Berkel, S.R., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg M.J. (2014). Boys don't play with dolls: Mothers' and fathers' gender talk during picture book reading. *Parenting: Science and Practice. 14*, 141-161.

Endendijk, J.J., Groeneveld, M.G., Van Berkel, S.R., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M.J. (2013), Gender stereotypes in the family context: Mothers, fathers, and siblings. *Sex Roles, 68,* 577-590.

Hallers-Haalboom, E.T., Mesman, J., Groeneveld, M.G., **Endendijk, J.J.**, Van Berkel, S.R., Van der Pol, L.D., & Bakermans-Kranenburg, M.J. (2014). Mothers, fathers, sons, and daughters: Parental sensitivity in families with two children. *Journal of Family Psychology, 28,* 138-147.

Van Berkel, S.R., Van der Pol, L.D., Groeneveld, M.G., **Endendijk, J.J.**, Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M.J. (2014). To share or not to share: Parental, sibling, and situational influences on sharing with a younger sibling. *International Journal of Behavioral Development.*

Van Berkel, S.R., Groeneveld, M.G., Mesman, J., **Endendijk, J.J.**, Hallers-Haalboom, E.T., Van der Pol, L.D., & Bakermans-Kranenburg, M.J. (2014). Parental Sensitivity Towards Toddlers and Infant siblings Predicting Toddlers Sharing and Compliance. *Journal of Child and Family Studies.*

Van der Pol, L.D., Mesman, J., Groeneveld, M.G., **Endendijk, J.J.**, Van Berkel, S.R., Hallers-Haalboom, E.T., & Bakermans-Kranenburg, M.J. (2014). Sibling gender configuration and family processes. *Journal of Family Issues.*

Ingediende manuscripten (submitted manuscripts):

Endendijk, J.J., Groeneveld, M.G., & Mesman, J. (2015). The Gendered Family Process Model: An Integrative Framework of Gender in the Family. *Submitted for publication.*

Endendijk, J.J., Groeneveld, M.G., Mesman, J., Van der Pol, L.D., Van Berkel, S.R., Hallers-Haalboom, E.T., & Bakermans-Kranenburg, M.J. (2014). Gender Differences in Child Aggression: Relations with Gender-Differentiated Parenting and Parents' Gender Stereotypes. *Submitted for publication.*

Endendijk, J.J., Groeneveld, M.G., Mesman, J., & Bakermans-Kranenburg, M.J. (2013). Bad boy, good girl: A meta-analysis of mothers' and fathers' gender-differentiated use of positive and negative controlling strategies. *Submitted for publication.*

Hallers-Haalboom, E.T., Mesman, J., Groeneveld, M.G., Van Berkel, S.R., Endendijk, J.J., Van der Pol, L.D., & Bakermans-Kranenburg, M.J. (2014). Wait until your mother gets home! Mothers' and fathers' discipline strategies. *Submitted for publication.*

Van Berkel, S.R., Groeneveld, M.G., Van der Pol, L.D., Endendijk, J.J., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M.J. (2014). Sibling discipline and support. *Submitted for publication.*

Van Berkel, S. R., Groeneveld, M. G., Van der Pol, L. D., Endendijk, J. J., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M. J. (2014). Birth-order effects on social development in early childhood: A within-family study. *Submitted for publication.*

Van der Pol, L.D., Groeneveld, M.G., Van Berkel, S.R., Endendijk, J.J., Hallers-Haalboom, E.T., Mesman, J., & Bakermans-Kranenburg, M.J. (2014). Sad girls and angry boys: Fathers' and mothers' emotion talk with their preschoolers. *Submitted for publication.*