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van Polanen, M.; Colonnesi, C.; Tavecchio, L.W.C.; Blokhuis, S.; Fukkink, R.G.

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Men and women in childcare: a study of caregiver–child interactions

Marleen van Polanen, Cristina Colonnesi, Louis W. C. Tavecchio, Susanne Blokhuis and Ruben G. Fukkink

Department of Child Development and Education, University of Amsterdam, Amsterdam, the Netherlands

ABSTRACT

In this observational study, male and female professional caregivers' ($n = 42$) levels of sensitivity and stimulation toward three-year-old children ($n = 42$) were observed in a semi-structured play situation. Further, sex roles of male and female caregivers were examined with the Bem Sex Role Inventory (BSRI). Male and female caregivers showed the same levels of attention, sensitivity, and stimulation toward boys and girls. Furthermore, all caregivers were classified as feminine or androgynous, but not masculine. Only for female caregivers was a positive relation found between higher levels of femininity and more stimulation of girls. Taken together, these findings provide evidence that male and female staff in childcare share similar interaction styles and sex roles. However, our findings suggest that caregivers' sex roles should be included in future research as well as in the debate on men in childcare.

KEYWORDS

Childcare; gender; sensitivity; stimulation; sex roles

Surrounded by women in early childhood and education, young children in childcare grow up in a women's world. With approximately only 3% of men working in pre-primary education all over the world (OECD 2012), the workforce in these settings is predominantly female. A common argument for more gender equality in childcare is that male caregivers can serve as role models, especially for boys (see for example Brody 2014; Cameron 2001; Jensen 1996). In line with this, the Council of the European Union states that increasing the proportion of men in childcare is an important step to show that not only women can provide education and care and that role models of both sexes can contribute to broaden children's gender-stereotyped perceptions (Council of the European Union 2011). Earlier, in the late 1970s and early 1980s, a small number of studies were conducted on male professional caregivers (Fagot 1981; Perdue and Connor 1978; Robinson 1979; Robinson, Skeen, and Flake-Hobson 1980). Until recently the topic did not receive much scientific attention. Renewed interest in men as professional caregivers has resulted in a recent revival of the study of sex-specific behaviors of caregivers in childcare settings (Aigner et al. 2012; Brandes et al. 2012; Brody

CONTACT Ruben G. Fukkink R.G.Fukkink@uva.nl Department of Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 127, 1090 GE, Amsterdam, the Netherlands

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2014; Koch 2012). However, since most studies focus on the attitudes toward and recruitment and retaining of male professional caregivers (Cremers, Krabel, and Calmbach 2010; Murray 1996), not much is known about gender-specific behavior of male and female caregivers, and in particular toward boys versus girls. The present study explored whether interactions of male caregivers with boys and girls differ from those of female caregivers.

Gendered interactions

In the late 1970s, the changing perspective on the unique role of fathers (for an overview, see Lamb 2010), was extended to a broader perspective of male roles in caregiving, which also included male caregivers in childcare. Male caregivers were found to give more favorable comments and physical affection and join children's play more often than female caregivers (Fagot 1981). Also, caregivers tended to touch children of their own sex more often than children of the opposite sex (Perdue and Connor 1978).)However, other studies showed that caregiver gender was not a significant factor in interactions or attitudes toward boys and girls (Robinson 1981; Robinson et al. 1980).

Recently two empirical, small-scale, unpublished studies in Austria (Aigner et al. 2012) and Germany (Brandes et al. 2012) examined gender effects in the interactions of professional caregivers toward boys and girls. The study by Brandes et al. (2012) revealed that, during a craft situation, the quality of professional interaction of male and female caregivers did not differ on measures of observed empathy, challenge, cooperation and quality of dyadic interaction. However, both male and female caregivers were found to be more functional object-oriented with boys than girls, and more personal relationship-oriented with girls than boys in the content of communication and type of activities.

Aigner et al. (2012) found that, during daily occurring situations, male caregivers interacted on average more positive and less punitive toward children than their female colleagues, and were more permissive than females (i.e., less control and punishment). Additionally, a newly developed rating scale to measure group dynamics showed that male caregivers expand the group dynamic more than females, by relaxing the structure or provoking more mobility. No differences on caregiver gender were found in structuring the group activity. Yet, the sample consisted of only five male caregivers and five female caregivers, so the results should be interpreted with caution. In sum, both recent and earlier small-scale studies have yielded inconclusive results on differences in interactions of male and female staff with young children.

Males' activating roles in caregiving

An indirect way to better understand male caregivers' behavior in childcare is to consider the role of fathers and, in particular, father–child versus mother–child interactions. Whereas fathers are less responsive to infants than mothers (Kochanska and Aksan 2004) and their interactions are rather challenging and oriented toward exploration, mothers' sensitive interaction with children is more focused on proximity and caring (Paquette 2004). From a traditional attachment theory perspective, fathers are thought to provide security in exciting situations through sensitive and challenging support, whereas secure attachment to mothers provides comfort and relaxation (Grossmann

et al. 2008). Extending attachment theory (Bowlby 1969), Paquette (2004) theorized the father–child attachment as an activating relationship that satisfies the child's need to be stimulated, to overcome limits, and to learn to take chances in contexts in which the child is confident of being protected from potential dangers. Fathers achieve this affectionate bond with their children by being more physical during play, following the child's lead, motivating and challenging children to perform at a higher level and behaving like agemates (John, Halliburton, and Humphrey 2013). Also, fathers tend to actively engage in and initiate play with boys (Ross and Taylor 1989) and teach children to cope with unfamiliar situations and stand up for themselves by encouraging risk taking in (Paquette 2004). Overall, boys are being activated more by their fathers than girls (Gaumon and Paquette 2013; Paquette and Bigras 2010). Thus, fathers play a unique role in the development of children's autonomy and their openness to the outside world (Paquette 2004), which contributes to the development of children's social competences (Bögels and Perotti 2011). In line with this, it can be concluded that fathers seem to stimulate children to expand their outside world, whereas mothers provide security in a child's inner world.

Male professional caregivers may have, as fathers, a complementary role in caregiving, displaying less sensitivity and responsiveness than female caregivers but stimulating the child more in exploration and play (e.g., Grossmann et al. 2008). However, differences that were found between fathers and mothers might be less prominent in male and female caregivers, since sensitivity and responsiveness are highly expected characteristics of professional caregivers (Aigner et al. 2012; Brandes et al. 2012). So, on the other hand, male caregivers may have a parallel role in childcare, displaying similar levels of sensitivity and responsiveness and stimulating the child in exploring the world as female caregivers. This study explores which role fits male staff best.

Sex roles of male and female caregivers

Not only caregivers' biological sex, but also sex roles might influence their interactions with children. According to Bem, Martyna, and Watson (1978), individuals of both biological sexes can be feminine, masculine or androgynous (i.e., a single individual has an equal amount of both feminine and masculine characteristics). As care giving is generally considered a rather feminine task in Western society (Paquette 2004), it could be that men who choose to work with young children are more nurturing and caring (i.e., feminine) than men who choose other professions. In line with this, male caregivers in early education are classified as more feminine and less masculine (Galbraith 1991). Also, evidence was found that caregivers with masculine sex roles preferred more masculine traits in children, like being tough, courageous, aggressive, and independent. A feminine sex role was associated with more feminine-preferred attitudes toward children, like being gentle, sensitive, affectionate and soft-hearted (Robinson 1982). Further, a study by Bem et al. (1978) revealed that feminine and androgynous individuals are more nurturant toward babies than masculine individuals, regardless of their biological sex. Taken together, these findings suggest that gender-related personality characteristics in male caregivers might affect their behavior towards children. However, the abovementioned studies date back to three decades ago and in recent studies of Aigner et al. (2012) and Brandes et al. (2012) sex roles of caregivers are not included.

So far, no studies have explored the relation between gender and sex role when investigating the interaction between caregiver and child.

Children's sex-stereotyped behaviors

Both male and female caregivers reinforce stereotypical girls' activities (e.g., playing with dolls or clay) more than stereotypical boys' activities (e.g., building blocks, climbing) in childcare (Robinson and Canaday 1987). Hence, not only caregiver gender, but also child gender might influence interactions between professional caregivers and children. In fact, a study of Winer and Phillips (2012) with only female caregivers revealed that boys receive poorer quality interactions than girls. This finding may be explained by a social learning perspective, which assumes that children can more easily identify and build high quality relationships with same-gender caregivers (Bussey and Bandura 1999). According to this theory, female caregivers identify easier with girls than with boys, who can be more active, aggressive, impulsive and adventurous (Paquette 2004). Also, male caregivers may understand the risk-taking behavior of boys better than the quieter girls' behavior. Hence, it can be hypothesized that male caregivers, who are expected to activate exploration in children, understand this specific boys' behavior and react to it differently than their female colleagues, who may provide a secure environment and minimize risk-taking in children. This motivates further research that takes into account the gender of both staff and children.

Current study

Elaborating on an extended attachment perspective, the first goal of this study was to examine differences in sensitive and challenging behavior of male and female caregivers toward three-year-old boys and girls. Extending theories on fathers' distinct roles in caregiving (Lamb 2000; Paquette 2004), we examine whether male caregivers either complement their female colleagues by challenging children more than female caregivers, or have a gender-parallel role by behaving as sensitive and challenging as female caregivers. In line with earlier findings (Paquette and Bigras 2010), caregivers were expected to be more challenging toward boys than toward girls. An additional aim of this study was to gain insight in different sex roles of male and female caregivers. Regarding research on nurturant behavior related to feminine, androgynous and masculine sex roles (Bem 1978), it was hypothesized that caregivers with higher levels of feminine and androgynous sex roles would show more sensitive interactions toward boys and girls. Based on earlier findings on gender-preferred attitudes of caregivers in childcare (Robinson 1982), it was expected that caregivers with higher levels of feminine sex role behavior would have more sensitive and stimulating interactions with girls, whereas caregivers with higher levels of masculinity will have more sensitive and stimulating interactions with boys. Moreover, we hypothesized that caregivers with feminine sex roles would show more sensitive behavior, while caregivers with masculine sex roles would show more stimulating behavior.

Method

Participants

The sample consisted of 37 professional caregivers, 19 male and 18 female, working at registered childcare centers throughout the Netherlands, working on 21 care groups with mixed-gender staff. Participants were recruited through twelve Dutch childcare organizations between April 2012 and June 2013. The participants were employed as permanent pedagogical staff in childcare centers; caregivers following an internship were not included in the study. Participating caregivers were employed at least three months in one of three different types of day care: full-time day-care groups with children 0–4 years of age ($n = 3$), full-time day care with children aged 2- to 4-years-old ($n = 16$), or preschool play groups with half day programs for children aged 2 to 4 ($n = 2$). Caregivers shared the same day-care group for an average of 32.93 months ($SD = 17.45$). Caregivers were on average 38 years old ($SD = 8$, range 21–50 years), had 138 months of working experience in childcare, of which 49 months in the participating day-care group. On average, caregivers worked 27 hours per week in the participating day-care group.

In each care group one boy and one girl ($N = 38$, 19 boys) were randomly selected to participate in this study. Participating children were on average 36.2 months old ($SD = 1.4$; range 33–38 months).

Procedure

Male caregivers received an informed consent letter prior to participation, providing information on the goal and procedures of this study, as well as anonymity of their participation. Once male caregivers gave permission to participate in this study, they asked one of their female colleagues working in the same care group to collaborate in the study. No reward was given for participation.

Next, an active consent form was sent to the parents of all participating children to inform them about the study and ask permission for videotaping their children. When a child could not participate, another child from the group matching in age and gender was selected. In three cases caregivers were not able to select a child that met the selection criteria; these care groups were excluded from the videotaped observation. The project was approved by the Ethics Committee of the Faculty of Social and Behavioral Science of the University of Amsterdam, registration number 2013-CDE-3290.

The experimenter visited each caregiver in the day-care center during a routine day in order to make the observation. One week later, the experimenter visited the group again. After the observation, participants were asked to complete the online version of the Bem Sex Role Inventory (BSRI; Bem 1978) to measure caregivers' sex role. At the time the questionnaire was sent, some caregivers ($n = 10$, five males) were no longer employed at their initial care group and, therefore, could not be contacted to complete the questionnaire. This resulted in a total sample of 26 caregivers who completed the BSRI. There were no statistically significant differences between caregivers who completed the questionnaire and those who did not complete the questionnaire on the dimensions attention ($M_{diff} = -12.13$, $SD = 22.16$), $t_{(31)} = -.55$, $p = .59$; sensitivity ($M_{diff} = 2.00$, $SD = 6.47$), $t_{(31)} = 0.31$, $p = .76$; non-sensitivity ($M_{diff} = -1.18$, $SD = 0.72$), $t_{(31)} = -0{,}71$, $p = .48$; and stimulation ($M_{diff} = -3.00$, $SD = 3.76$), $t_{(31)} = -1.20$, $p = .24$).

Measures

Observation of caregiver–child interactions

A semi-structured videotaped observation was used to explore interactions of male and female caregivers during the semi-structured play of a three-year-old boy and girl at the day-care center. Two fine motor skills games were selected for these sessions: *Animal-upon-animal* (HABA®) and *Buckaroo* (Hasbro®). The game *Animal-upon-animal* consists of small wooden animal figures that can be built into a tower. In the game *Buckaroo*, small objects can be hung on the back of a horse that jumps when too much pressure is put on its saddle. The difficulty level of these games was assumed to provide opportunities for caregivers to stimulate children and to provide support. Male and female colleagues each played a different game, so that children played both games once. Games were randomly assigned, counterbalancing game type across caregiver gender (in total, 10 men and nine women played *Buckaroo* and the other nine men and eight women played *Animal-upon-animal*). Short instructions for the games were provided to the caregiver before starting the session, emphasizing that caregivers were free to use the game by their own discretion. The first 10 minutes of interaction were videotaped.

Coding the observation

Videotaped interactions of male and female caregivers with children were coded with the computer program The Observer XT 11.5 (Noldus Observer 2013). Since some games were completed in less than 10 minutes, the first eight minutes of each interaction were coded using a multi-categorical coding scheme (see Table 1). This measure was developed to investigate professional caregivers' interaction behavior on four dimensions: attention,

Table 1. Description of observed caregiver behavior.

Caregiver behavior	Description
Attention	Caregiver gazes at child or clearly interacts with child
Sensitivity	
Responsiveness	Caregiver responds adequately to a child, e.g., reacts to questions, confirms what a child is doing or saying
Comforting	Caregiver comforts a child, responds to emotions of child
Praising	Caregiver gives positive feedback, such as compliments, applause or thumbs-up
Touching-affective	Caregiver touches child in an affective way, e.g., cuddling, patting
Non-sensitivity	
Non-responsiveness	Caregiver does not react to the clear signals of a child, such as a child calling the caregiver's name or a child asking the caregiver a question
Ignoring	Caregiver does not respond to *two or more* consecutive clear signals of a child, such as child calling caregivers name or asking a question
Intrusiveness	Caregiver discourages child through telling them that they cannot fulfill trhe task, e.g., 'this game is too difficult', or intrusive helping
Critique	Caregiver gives negative feedback, such as saying 'you did it wrong' or explicit sighing
Touching-aversive	Caregiver touches child in aversive way, such as hitting or pulling
Stimulation	
Encouraging	Caregiver supports child to fulfil action independently, e.g., saying 'you can do it', 'try again'
Stimulating	Caregiver stimulates child to explore game (e.g., setting a higher aim, suggest playing game in a different way, challenge children to perform a difficult action) or to think by prompting or asking activating questions ('think again', 'is it really a shoe?')
Informing	Caregiver provides children general knowledge (e.g., 'a mole lives underground') or corrects what a child says or informs children about the rule of the game or demonstrates game.
Giving space	Caregiver provides space for child initiatives, e.g., accepts idea of child, lets child choose how to play the game
Setting limits	Caregiver sets limits for a child or restricts a child, e.g., saying 'don't do that' or 'wait', give reprimands.

sensitivity, non-sensitivity, and stimulation. Caregivers' *attention* indicated the amount of time the caregiver directed the gaze to or clearly interacted with the child and could be pointed at the boy, the girl or both children at the same time. Behaviors in the *sensitivity* dimension indicate the extent to which caregivers respond adequately to the signals of children (behaviors include responsiveness, comforting, praising, and affective touching). *Non-sensitivity* refers to interaction behaviors where caregivers do not respond or respond inadequately to the child (behaviors include non-responsiveness, ignoring, intrusiveness, and critique). The dimension of *stimulation* includes behaviors that relate to caregivers' activation of children's independent exploration of the game (encouraging, stimulating, informing, setting limits, and giving space). Behaviors in this dimension relate to the way that caregivers guide, stimulate and teach children during the game.

Attention was scored as a continuous state event and the total observed duration was used in the analyses. Sensitivity and stimulation were scored as state events, with mutually exclusive subcategories. The frequencies (number of occurrences) of these behaviors were used in the analyses. Caregiver behaviors that were scored could be verbal as well as non-verbal (e.g., caregiver can tell the child it did well or applauded instead of using words).

Four observers independently coded the videos after training with three observations and consultation with a trained coder. Since all children participated in two play situations, two different observers coded each child dyad. To estimate the reliability of individual coders' ratings, 20% of the observations were coded by two observers. Mean inter-rater reliability rates (Cohen's kappa) of the observation scale were $\kappa = .75$ for attention, .83 for the sensitivity dimension, and .81 for the stimulation dimension.

Bem sex role inventory

To explore caregivers' sex roles, caregivers completed an online version of the short BSRI (Bem 1978). This questionnaire consists of 20 personality characteristics of which 10 are considered stereotypically feminine (e.g., affectionate, understanding) and 10 are stereotypically masculine (e.g., assertive, independent). Subjects indicate how well each item describes himself or herself on a scale ranging from 1 ('never or almost never true') to 7 ('always or almost always true'). Since it was expected that the sample in this study would score high on femininity and androgyny and below average on masculinity, the *t*-ratio method was used, instead of the median-split method. Based on the androgyny *t*-ratio, subjects are classified as having a masculine sex role if the masculinity score was significantly higher than the subject's femininity score. If the subject's femininity score was higher than the masculinity score, the subject was classified as having a female sex role. Subjects whose femininity and masculinity score were approximately equal were classified as androgynous. In the current study, Cronbach's alpha was .83 for the masculinity score and .80 for the femininity score.

Statistical analyses

Non-affective touching was not observed and was therefore excluded from analyses. Further, the data for sensitivity, non-sensitivity and stimulation did not meet the assumption of normality. These interaction behaviors were, therefore, analyzed using generalized estimating equations (GEE). GEE serve as an extension of the generalized linear model

(GLM) and can be used to analyze correlated data with binary, discrete or continuous outcomes when the assumptions of normality and independent observations are not met (see Zeger and Liang 1986; Zeger, Liang, and Albert 1988), as is the case in repeated measures designs. Data were analyzed using a negative binomial regression model to take into account a skewed distribution (sensitivity, non-sensitivity and stimulation), and a linear regression model in case of a normal distribution (attention) with attention, sensitivity, non-sensitivity, and stimulation as dependent variables. Caregiver and child gender were entered as within-factors to control for shared variance in the sample, and an independent correlation structure was applied. The Wald test was used to test the significance of the effects. In order to test the direction of the effects, regression coefficients β, and Sidak's pairwise comparisons were computed. Next to the GEE, effect sizes were computed in order to measure the strength of the effects, using Cohen's d; $d = 0.20$ is considered a small effect, $d = 0.50$ a medium effect and $d = 0.80$ a large effect. Statistical power is relatively weak for smaller effects and we, therefore, also report trend effects ($p < .10$).

Results

Caregivers' interaction behaviors

Descriptive statistics of the observed behaviors are shown in Table 2. Overall, both male and female caregivers showed high rates of responsiveness and only few non-sensitive interactions. Stimulation occurred less frequently than sensitivity, but more often than non-sensitivity. The effect sizes indicate only small effects for caregiver gender and small to medium effects for child gender. As shown in Table 3, the GEE analysis revealed no significant effects of caregiver gender or child gender on all caregiver behavior dimensions. Male and female caregivers showed similar levels of attention, sensitivity, non-

Table 2. Means and standard deviations and effect sizes for observed number of caregiver behaviors toward boys and girls during each observation.

	Boys		Girls		Cohen's *d*
Caregiver behavior	*M*	*(SD)*	*M*	*(SD)*	*(boys-girls)*
Attention					
Male caregivers ($n = 19$)	191.00	(45.98)	170.27	(47.62)	0.44
Female caregivers ($n = 18$)	204.38	(36.93)	176.76	(53.35)	0.62
Total ($n = 37$)	197.51	(41.80)	173.43	(49.28)	0.53
Cohen's *d (male-female)*	−0.32		−0.13		
Sensitivity					
Male caregivers ($n = 19$)	30.21	(9.89)	26.37	(12.83)	0.34
Female caregivers ($n = 18$)	30.72	(8.51)	26.50	(10.16)	0.45
Total ($n = 37$)	30.46	(9.12)	26.43	(11.45)	0.39
Cohen's *d (male-female)*	−0.06		−0.01		
Non-sensitivity					
Male caregivers ($n = 19$)	1.32	(1.06)	0.84	(1.39)	0.39
Female caregivers ($n = 18$)	1.39	(1.82)	0.89	(1.23)	0.32
Total ($n = 37$)	1.35	(1.46)	0.86	(1.29)	0.36
Cohen's *d (male-female)*	−0.05		−0.04		
Stimulating					
Male caregivers ($n = 19$)	13.74	(6.56)	12.84	(7.34)	0.13
Female caregivers ($n = 18$)	16.22	(5.64)	12.39	(7.17)	0.55
Total ($n = 37$)	14.95	(6.18)	12.62	(7.16)	0.35
Cohen's *d (male-female)*	−0.41		0.06		

Table 3. Regression coefficients and statistics for caregivers' attention, sensitivity, non-sensitivity and stimulation toward boys and girls.

		Regression coefficients		95% CI of B		Test statistics	
Reference situation	Situation	*B*	*SE*	Lower	Upper	Wald χ^2 (1)	*p*
Attention	Caregiver	13.38	11.60	−9.35	36.11	1.33	.25
	Child	−20.73	15.61	−51.32	9.87	1.76	.18
	Caregiver*child	−6.89	16.51	−39.25	25.47	0.17	.68
Sensitivity	Caregiver	0.84	2.64	−4.33	6.01	0.10	.75
	Child	−3.84	2.82	−9.36	1.68	1.86	.17
	Caregiver*child	−0.38	2.75	−5.76	5.00	0.02	.89
Non-sensitivity	Caregiver	0.07	0.39	−0.70	0.84	0.04	.85
	Child	−0.45	0.35	−1.13	0.24	1.63	.20
	Caregiver*child	0.00	0.42	−0.82	0.83	0.00	.99
Stimulation	Caregiver	2.56	2.23	−1.62	6.73	1.44	.23
	Child	−0.90	1.80	−4.43	2.64	0.25	.62
	Caregiver*child	−2.94	2.70	−8.22	2.34	1.19	.28

sensitivity and stimulation toward children. Also, boys and girls received similar levels of attention, and were equally involved in sensitive, non-sensitive and stimulating interactions.

Caregivers' sex roles

Using the androgyny *t*-ratio (Bem 1978), all caregivers in the current sample were classified as having either a feminine sex role ($n = 10$, two males) or an androgynous sex role ($n = 16$, 11 males). Hence, no caregiver was classified as having a masculine sex role. A chi-square test showed no relation between caregiver gender and sex role χ^2 (1, $N = 22$) = 0.01, $p = .94$. Also, an independent t-test revealed no significant differences in sex roles between male caregivers ($M_{diff} = 7.75$, $SD = 8.70$) and female caregivers ($M_{diff} = 10.30$, $SD = 14.62$), $t_{(20)} = -0.51$, $p = .62$. Hence, no differences were found between male and female caregivers' sex roles. Female caregivers had similar levels of femininity and androgyny.

Finally, the association between caregivers' interaction behavior and their sex roles (i.e., *t*-ratio) was explored, through correlations for men and women separately (see Table 4). For male caregivers, no relation was found between their sex roles and interactions with boys and girls. For female caregivers, stimulation toward girls was positively related to a feminine sex role. No association was found between female caregivers' sex role and attention, non-sensitivity and stimulation toward boys and girls, nor for sensitivity toward boys.

Table 4. Spearman's correlations for observed caregiver behavior and caregiver's sex role.

	Sex role			
	Male caregivers		Female caregivers	
Caregiver behavior	Boys	Girls	Boys	Girls
Attention	−.05	−.00	−.04	.25
Sensitivity	−.04	−.15	.19	.51
Non-sensitivity	−.23	.39	−.15	−.06
Stimulation	.14	.26	.36	.67*

*$p < .05$ (2-tailed).

Discussion

The purpose of this study was to examine gender effects on caregivers' sensitive and stimulating interactions with children in childcare. In contrast to earlier research on mothers and fathers and previous findings for some childcare studies, we found no differences between male and female caregivers in attention, sensitivity, and stimulation. Furthermore, the interactions with boys and girls were similar and they received the same amount of attention and sensitive and stimulating interactions. All caregivers had a feminine or an androgynous sex role (none of the caregivers was classified as masculine). A significant effect for sex role was found; female caregivers' higher level of femininity was related to more stimulation toward girls. No sex role effect was found for attention and sensitivity. Also, for male caregivers no effect of sex role was found on all behavior dimensions.

Furthermore, our study suggests that overall male and female caregivers may have parallel roles, and respond to children's signals and activate them to explore in a similar way. These results are in line with Brandes et al. (2012), who found no differences in sensitive or challenging interactions of male and female caregivers.

The findings of this study do not support the hypothesis that male caregivers, just as fathers, have an activating interaction style that stimulates children to explore (Grossmann et al. 2008). Contrary to previous findings from research on parental interaction styles (e.g., Lamb 2010; Paquette 2004), there were no gender differences in interactive behavior of male and female professional caregivers. This can possibly be explained by the similar sex roles of male and female caregivers. For most jobs a specific professional profile is required, which can result in a relatively homogeneous pattern of personality characteristics within members of the same occupation (Simpson 2005). Also, men and women who work in childcare likely share important pedagogical-oriented traits that made them choose to become professional caregivers, even before they entered vocational training. During this vocational training, all students, female or male, are educated within the same curriculum.

Moreover, due to the skewed gender ratio in early childcare, male caregivers are exposed to a wide range of female-specific attitudes, behaviors, and interactions. This raises the question whether the female-oriented childcare environment influences male caregivers' interaction style. Extending earlier research, in which it was found that caregivers with different ethnical backgrounds adopt each other's rearing beliefs (Huijbregts et al. 2009), one might argue that prolonged exposure to female behavior leads to the adoption of a feminine interaction style. Conversely, female caregivers with male colleagues can adopt male behavior as well. Hypothetically, mixed-gender staff might result in an interaction environment that is relatively homogenous, gender-balanced from an intrapersonal perspective (i.e., all caregivers will share both male- and female-specific characteristics), but at the same time, also less diversified from an interpersonal perspective (i.e., caregivers' gender-specific differences will decrease). In order to explore this hypothesized process of assimilation, it is interesting to compare groups with mixed caregiver dyads and with female caregiver dyads.

In our study, female caregivers with high levels of femininity showed high rates of stimulation and sensitivity toward girls. Possibly, feminine female caregivers understand and appreciate female-specific behavior of girls. Conversely, girls may prefer and

respond to female-specific behavior that fits female caregivers with feminine sex roles, which may, in turn, be rewarded by more sensitivity and stimulation. Conceivably, the same relation was not found for male caregivers and boys, because none of the male caregivers in this sample was masculine. In order to explore a same-gender identification mechanism, sex roles of boys and girls should also be included.

The lack of caregivers with masculine sex roles and male-specific behavior in this sample raises issues about gender balance in childcare. Though the Council of the European Union (2011) states that the proportion of men in childcare should be increased in order to have role models of both sexes and, hence, to break gender-stereotyped perceptions, the impact of caregivers' role models in this occupation may be questioned. In our study, male professional caregivers were not found to behave and interact differently from their female colleagues, nor did they have masculine sex roles. Socialization of children may be influenced in different ways and perhaps the presence of men in childcare may still influence boys and girls. However, future research should explore to what extent caregivers with masculine versus feminine sex roles differ in sex-stereotyped behaviors and interactions with boys and girls. Therefore, from a research perspective, it would be interesting to evaluate whether male and female caregivers with masculine sex roles interact differently with children as compared to caregivers with feminine or androgynous sex roles. In this early childhood education and care sample none of the caregivers was masculine, and staff with masculine sex roles maybe could be found in primary education or after-school care.

Limitations and future research

This study into gender effects on interactions of professional caregivers has a number of limitations. First, the small sample size of the current study restricts the statistical power. Even though this small sample strongly reflects the population, a larger sample of male and female caregivers would increase this study's power. Second, interactions were captured during semi-structured play with only one boy and one girl. An important advantage is that the semi-structured situation in which the caregiver interacts with a boy and a girl, makes it possible to compare these interactions more accurately. However, during daily occurring situations in childcare, like playing outside or having lunch, caregivers interact with more than two children and male caregivers possibly initiate other activities than female caregivers in this context. Future research should also include group interactions during diverse natural situations. Finally, child behavior was not included in this study. Although male and female caregivers were observed with the same children, limiting bias effects of child characteristics, it is possible that boys and girls behave differently when interacting with male versus female caregivers. Assessing how children behave toward male and female caregivers will lead to a better understanding of gender differences in child–caregiver interactions.

Since female caregivers' level of femininity was positively related to stimulation of girls, we suggest to explore interactions of masculine caregivers with boys and girls. Possibly, caregivers with higher levels of masculinity might interact differently with boys (e.g., stimulate boys more often) and provide a more balanced interaction environment. Future research may deepen our understanding of the complicated relation between gender and sex roles.

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