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Personality and Social Psychology

Externalizing behaviors and attachment disorganization in children of different-sex separated parents: The protective role of joint physical custody

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The aim of this study was to examine the relationship between externalizing behaviors and the quality of attachment representations in preschool children, and to determine if family type and custody arrangement had a moderating effect on this relationship. The participants were 33 girls and 31 boys ($n = 64$) aged between three and six years ($M = 4.75$; $SD = 0.87$ years) and their mothers. Among them, 36 came from “intact” families, 13 were living mainly with their mothers and 15 were in joint physical custody. Children’s attachment representations were assessed with the Attachment Story Completion Task (Bretherton, Ridgeway & Cassidy, 1990). Mothers reported on their child’s behavior problems using the Child Behavior Checklist (Achenbach & Rescorla, 2001) and on their alliance with the father using the Parenting Alliance Inventory (Abidin & Brunner, 1995). Although children’s externalizing behaviors were found to be associated with the disorganization of their attachment representations, this relationship was significantly weaker and was non-significant for children in joint physical custody. Thus, the results of this pilot study suggest that joint custody may protect children of separated parents from the effects of attachment disorganization on externalizing behaviors.

Key words: Attachment, externalizing behaviors, joint physical custody, preschool children, representations.

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INTRODUCTION

The increase in the number of separations and divorces over the past few decades has led to a concomitant increase in the proportion of children living in single-parent or re-composed families. The percentage of children living in such different family configurations in metropolitan France rose from 25% in 1999 to 30% in 2011 (INSEE, 2015). In 2012, according to Carrasco and Dufour (2015) the French courts ordered 73% of children to live primarily with their mother, 7% with their father and 17% to live with time shared equally between parents. The last 3 percent were classified as “other” by the authors. Such arrangements have led to considerable debate in the literature: while researchers more or less agree that parental separation can have negative effects on socialization and academic achievement, disagreement remains regarding the effects of joint physical custody on the developmental and psychological health of these children (McIntosh, 2011; McIntosh, Smyth & Kelaher, 2015; Nielsen, 2018; Warshak, 2014, 2018; Steinbach, 2019), including between attachment researchers (Lamb, 2012, 2018; Main, Hesse & Hesse, 2011; Sroufe & McIntosh, 2011; Van IJzendoorn, Bakermans-Kranenburg, Duschinsky & Skinner, 2019).

Divorce or separation of the parental couple upsets both the structure and interpersonal dynamics of the family and can increase the risk of children developing externalizing behaviors (Eriksen, Hvidtfeldt & Lilleor, 2017; Gosselin, Romano, Bell *et al.*, 2014; Weaver & Schofield, 2015). Externalizing behaviors are characterized by manifestations such as physical aggression, defiance, temper tantrums, hyperactivity, and attention problems.

Such behaviors can be identified in children from the age of eight months (Lorber, Del Vecchio & Slep, 2015) and, although they are often part of normal behavior in preschool children, if they are either severe or very frequent they can also predict future developmental issues (Lorber *et al.*, 2015; Stacks, 2005).

Although the child’s individual characteristics as well as contextual factors may influence the relationship between the dissolution of the parental couple and the development of externalizing behaviors in children, the parental separation itself can have a significant impact on children’s physical and mental health (Amato, 2000; Demir-Dagdas, Isik-Ercan, Intepe-Tingir & Cava-Tadik, 2018). A meta-analysis that included data from over 13,000 children provided strong evidence for the association between parental divorce and behavior problems (Amato & Keith, 1991). More recently, a study of children aged 8–11 years found that even after controlling for risk factors such as the child’s sex, parental mental health, and family income, those with separated parents displayed more externalizing behaviors than children living in intact families (Eriksen *et al.*, 2017). In addition, the high level of externalizing behaviors in the children of separated parents was not related to any previous adaptation difficulties (prior to the dissolution of the parental couple). A longitudinal study showed that children’s behavioral problems at age 6 (reported by teachers) and 15 (reported by the mothers) increased significantly in cases of parental separation (Weaver & Schofield, 2015). In general, externalizing problems occurred around 20% more often in children with separated parents compared to intact families.

As well as the dissolution of the couple, family restructuring post-separation, especially the time spent with each parent, can

influence child development. Recently, two literature reviews (Nielsen, 2018; Steinbach, 2019) and a meta-analysis of 19 studies (Baude, Pearson, & Drapeau, 2016) suggested that time-sharing, rather than living primarily with one parent, was associated with fewer behavioral problems including aggression, substance abuse and hyperactivity. This effect was also found in the case of post-separation conflict (Nielsen, 2018). However, some attachment researchers argued that joint physical custody could have harmful effects on child adjustment, in particular for those younger than 6 years. According to them, at that age overnight visits to the other parent may have negative repercussions on children's attachment to their primary caregiver (George, Solomon & McIntosh, 2011; McIntosh, 2011; Sroufe & McIntosh, 2011).

Indeed, parental separation is stressful for both children and parents and can have large repercussions on attachment (Feeney & Monin, 2016). For parents, separation often represents the dissolution of an extremely important attachment relationship: both parties must not only transform the relationship with their partner or spouse into a new and affiliative relationship but they must also share responsibility for the child as well as accepting all of the changes that follow. Separation itself is a considerable source of stress which can influence parents' emotional availability and their capacity to respond to the child's needs (Page & Bretherton, 2001). The dissolution of their parental couple may lead some children to reorganize their existing attachment representations. According to Bowlby (1980), these "internal working models" are based on children's interactions with their attachment figures and allow them to interpret situations, anticipate events and to know how to behave in a context of threat or distress (Gloger-Tippelt & König, 2007). Along with the development of cognitive performance and theory of mind, these representations are believed to play an increasingly important role from the age of 3–4 years. They allow children to feel secure, even in the absence of their primary caregiver and, furthermore, these models can be applied to all of their intimate relationships (Bowlby, 1980; Bretherton, 1985). Individual differences have been highlighted, however, in the quality of children's attachment relationships and representations. Therefore, although attachment relationships and representations are classically categorized as "secure," "insecure-avoidant," "insecure ambivalent-resistant" (Ainsworth, Bell & Stayton, 1971) and "insecure disorganized-disoriented" (Main & Solomon, 1988), they could be assessed according to two key dimensions: security and coherence of organization (Spangler & Grossmann, 1999). Moreover, two meta-analyses concluded that attachment could predict children's social-emotional development. Attachment insecurity to the mother was linked to the development of externalizing problems in children (Fearon, Bakermans-Kranenburg, Van IJzendoorn & Lapsley & Roisman, 2010; Groh, Fearon, van IJzendoorn, Bakermans-Kranenburg & Roisman, 2017). In addition, among the different attachment categories, disorganized attachment appeared to be the strongest risk factor for the development of externalizing behaviors. More recently, a meta-analysis of 116 studies that included 24,689 families with children aged 3–18 years reported a moderate association between externalizing behaviors and the disorganization of children's attachment representations ($d = 0.58$ (CI [0.42–0.74]) (Madigan, Brumariu, Villani, Atkinson & Lyons-Ruth, 2016).

However, little research evidence is available regarding the effects of parental separation and custody arrangements on child attachment. A few studies found that, when compared to children from intact families, children of different-sex separated parents have often less secure and more disorganized attachment relationships with both their mother (Altenhofen, Biringer & Mergler, 2010; Nair & Murray, 2005; Tornello, Emery, Rowen, Potter, Ocker & Xu, 2013) and father (Solomon & George, 1999), as well less secure and more disorganized attachment representations (Gloger-Tippelt & König, 2007). For example, one study of 6-year-old children in Germany that used the Attachment Story Completion Task showed that children of separated parents who lived only with their mother were less likely to be secure and more likely to have avoidant or disorganized attachment representations in comparison to children from intact families (Gloger-Tippelt & König, 2007). Several factors have been reported to explain or alter the association between the quality of attachment relationships/representations and parental separation. High levels of both maternal education and income appear to play a protective role with regards to the effects of parental separation (Feeney & Monin, 2016). The custody arrangements, particularly the number of overnight visits to the father (who, in most studies, is considered *a priori* as a secondary caregiver), is also considered as a potentially important variable. In the Solomon and George (1999) study, babies (aged 12–20 months) who had overnight visits to their father were found to be significantly less likely to be secure and more likely to be disorganized with their mothers in comparison with children from intact families, but no differences were found with children who had no overnight arrangements (Solomon & George, 1999). Thus, Solomon (2013) herself denounced the use of that study to argue that overnight visitation could be harmful for babies of separated parents. In addition, a recent re-analysis of those data showed that attachment disorganization was more strongly predicted by parental conflicts than by overnight visits (Van IJzendoorn *et al.*, 2019). Finally, in a sample of underprivileged families, Tornello *et al.* (2013) found that children from separated parents who had frequent overnight visits to their father (more than once a week during their first year and more than 35% of nights between the ages of 1 and 3) were less secure with their mother compared with other children. However, in that study, attachment was assessed by mother reports of their children's attachment security, thus the validity of the results is highly questionable (Van IJzendoorn *et al.*, 2019).

Purpose and aims

As explained above, very few studies have examined the quality of children's attachment relationships and representations in relation to custody arrangements, and available research findings are inconsistent. In addition, few studies have evaluated the associations between attachment and behavioral difficulties in children of separated/divorced parents (Leon, 2003) and, to our knowledge, no studies have investigated the effects of custody arrangement on the relationship between their attachment representations and behavioral problems. The aim of this pilot study, therefore, was to test the relationship between externalizing behaviors

and attachment representations in young children aged between 3 and 6 years and to investigate how the family type and custody arrangements influenced this relationship. Based on existing data, we hypothesized that children's externalizing behaviors would be associated with attachment disorganization and that joint physical custody would have a protective effect on the socio-emotional development of children from separated parents. We also expected to find a weaker relationship between externalizing behaviors and attachment representations in children who spent approximately equal amounts of time with both parents (joint physical custody) compared with those who lived mainly with one parent, in this case their mother (sole physical custody).

METHOD

Participants

A convenience sample of 64 children (33 girls) aged between three and six years ($M = 4.75$; $SD = 0.87$ years) was included, 28 (15 girls) of whom had separated parents. All children came from heteroparental families. The majority ($n = 26$) of separated couples had been apart for at least 1 year prior to the beginning of the study; the mean time since separation was 2.32 years ($SD = 1.63$). For the 28 children from separated families, 13 lived mainly with their mother ($\geq 70\%$; sole physical custody); the remaining 15 shared the time approximately equally with their mother and father (joint physical custody). Time since separation did not differ significantly as a function of custody arrangement ($t(26) = 1.629$, $p = 0.115$). Thirty-six children lived with both parents ("intact families"). The income of most families ranged from 30,000 to 49,999 € per annum, which is higher than the median income of 30,040€ reported in 2015 for metropolitan France (INSEE, 2018a). The mothers in the study had spent around 16 years (since the age of 6 years) in formal education ($M = 16.38$, $SD = 2.57$ years). In comparison to the number of years of education in France at the time, this was slightly above average since, for women, in 2015–2016 schooling expectation was 18.6 years (since the age of 2 years) (INSEE, 2018b).

Procedure

Families were recruited via schools and poster advertisements. Parents (or mothers, in case of parental separation) were given an information letter and a consent form that they had to sign before data were collected. All tests were administered in the parents' home or, if the parents were separated, in the mother's home. All data were collected by two masters-level research students trained in data collection. One researcher gave the questionnaires to the mother whilst the other undertook the Attachment Story Completion Task with the child. Most Story Completion Tasks were completed in the child's bedroom but if the child wished to remain in the same room as the mother, this was accepted. In total, four children wanted to stay in the same room as their mother. However, the experimenters made sure that the distance between them was sufficient for the child to complete the stories without the mother intervening or hearing the content of the stories. This research was carried out in accordance with the ethical principles of the declaration of Helsinki (1964, revised in 2013) and was approved by the ethics committee of the first author's laboratory.

Measures

The Attachment Story Completion Task. The quality of children's attachment representations was evaluated using the Attachment Story Completion Task (Bretherton, Ridgeway & Cassidy, 1990). Each child was asked to complete six story-beginnings using dolls that represented a

family (a mother, a father, a grandmother and two children of the same sex as the target child). The sessions were filmed and lasted, on average, for 20 minutes. The first story, about a birthday party, was not taken into account in the coding procedure as it was included to familiarize the child with the task. The children then completed the remaining 5 stories, each of which was related to the theme of attachment.

The coding procedure that was used in this study was developed by Miljkovitch and Pierrehumbert (2008). This procedure was inspired by the Q-sort method (Waters & Deane, 1985). The experimenter had to sort 65 cards relating to the child's behavior during the task and the content of the stories into seven piles according to their degree of pertinence. At the end of the procedure, each pile contained a limited number of cards and each item was scored from 1 to 7 according to the pile where it had been placed (where 1 = *least applicable* and 7 = *most applicable*). The scores were then compared to the prototypical scores of secure, insecure avoidant, insecure ambivalent/resistant, and insecure disorganized/disoriented children with regard to attachment. Correlation coefficients (termed "Q scores") were obtained that ranged between -1 and $+1$. In this study, both the Q scores for attachment security and disorganization were considered. Then, they were transformed into standardized scores using the procedure proposed by Miljkovitch and Pierrehumbert (2008). This procedure allows comparison with the results obtained in the validation study, in which a score of 50 corresponds to the mean and 10 to one standard deviation. Furthermore, 21 of the 64 codings (33%) were carried out twice, by two different experimenters to evaluate interrater reliability. The intraclass correlation coefficients computed were 0.97 [0.930–0.988] for the security score and 0.96 [0.869–0.985] for the disorganization score, demonstrating excellent interrater reliability.

The Child Behavior Check List. Externalizing behaviors were evaluated by the mothers using the Child Behavior Checklist (CBCL) for children aged 18 months to 5 years (Achenbach & Rescorla, 2001). The CBCL consisted of 100 items describing frequently observed behaviors in children of this age group. For this study, the mother was asked to evaluate the frequency of each behavior on a three-point scale ("not true," "sometimes true," and "often true"). Most of the items were grouped into one of seven sub-scales that evaluated: (1) emotional reactivity; (2) symptoms of anxiety; (3) somatic complaints; (4) social withdrawal; (5) sleep problems; (6) attention problems; and (7) aggressive behavior, and the scores were combined. Given the high correlation between attention problems and aggressive problems ($r = 0.61$; $p < 0.001$), these two scores were collapsed into an externalizing behaviors score. Then, each child's score for externalizing behaviors was converted into a standardized score ($m = 50$, $SD = 10$). A higher score indicated an increased presence of behavioral and emotional problems and thus an increased risk of the child presenting with social and emotional difficulties.

The Parenting Alliance Inventory (PAI). Parental cooperation was evaluated using the Parenting Alliance Inventory (PAI), originally developed by Abidin and Brunner (1995). The French version, translated by Rouyer, Huet-Gueye, Baudé and Mieyaa (2015), was composed of 17 items. In this study the mothers were asked to complete the PAI using a five-point gradual scale from 1 ("totally disagree") to 5 ("totally agree"). The total score for each child was then calculated. The alpha coefficient computed from all the items (in order to test the internal consistency of the questionnaire) was 0.95.

RESULTS

Statistical power

Statistical power was calculated post hoc using G*power software version 3.1.9.4 (Faul, Erdfelder, Buchner & Lang, 2009). The results showed a power of 0.65 to detect a moderate effect ($f^2 = 0.15$, or $\eta^2 = 0.022$) and 0.97, to detect a large effect ($f^2 = 0.35$, or $\eta^2 = 0.109$).

Descriptive statistics

Descriptive statistics relating to the key study variables (i.e., CBCL's externalizing behaviors, parental alliance, attachment disorganization, attachment security, and maternal education) are presented in Table 1. All data, except the mother's number of years of education, were normally distributed (based on values of skewness and kurtosis between -1 and 1). The data for maternal education were distributed around the mean; such a non-normal distribution was to be expected based on the nature of the variable. Indeed, the number of years in education is partly determined by the French education system which has mandatory schooling between 6 and 16 years. Furthermore, only comparatively few people complete further education for higher degrees such as doctorates and master's degrees. The security and disorganization scores were close to those obtained in the reference population ($M = 50$; $SD = 10$). According to the classification system proposed by Miljkovitch and Pierrembert (2008), the attachment representations of 43 children were categorized as secure (67.2%), 10 as insecure avoidant (15.7%), one as insecure ambivalent-resistant (1.5%), and 10 as disorganized (15.7%). The distribution of the externalizing problems scores indicated a predominance of low scores that were within a somewhat narrow range (no outliers). Although deviations from normality were identified, previous simulations of parametric tests (e.g., t-test and linear regression) showed that they are quite robust to much larger normality deviations than were present in this study (Lumley, Diehr, Emerson & Chen, 2002). The number of years of maternal education was therefore used without transformation in subsequent analyses.

The variable means were then compared according to the family type/custody arrangement using a series of one-way ANOVAs. The level of parental alliance differed significantly, depending on family type and custody arrangement, $F(2, 61) = 26.4$, $p < 0.001$. Tukey post hoc tests showed that, as for intact families ($M = 75.3$, $SD = 7.3$), parental alliance scores were significantly higher for children in joint physical custody ($M = 63.7$, $SD = 16.2$) compared with those in sole physical custody, that is, living mainly with their mothers ($M = 50.6$, $SD = 11.2$). The quantity of externalizing problems also varied with family/custody type, although this was not significant, $F(2, 61) = 3.14$, $p = 0.051$. Post hoc tests on externalizing scores showed that children in joint physical custody had lower scores for externalizing behaviors ($M = 43.3$, $SD = 10.8$) compared to those who lived primarily with their mothers ($M = 52.1$, $SD = 11.3$), but no significant difference ($p = 0.150$) was found

when the children of intact families ($M = 46.4$, $SD = 7.9$) were compared with the other two groups. No significant group differences were found for attachment security [$F(2, 61) = 0.08$, $p = 0.924$], disorganization [$F(2, 61) = 0.94$, $p = 0.394$], or maternal education [$F(2, 61) = 1.39$, $p = 0.257$].

Correlation analysis

Table 2 shows the correlations between the study variables. Externalizing behaviors were moderately but positively related to the disorganization, and weakly but negatively correlated to the security of attachment representations, parenting alliance, and the mother's level of education. There was a moderate correlation between the sex of the child and attachment representations, suggesting that girls had less disorganized and more secure attachment representations than boys. Finally, when we consider only children from separated families, the time since the separation was only related to child sex: it was longer for girls than for boys.

Regression analyses

Regression analyses were carried out using R software (Revelle, 2018) to test the influence of family type and custody arrangement on the relationship between externalizing behaviors and attachment representations. Externalizing behaviors was entered as the variable to be predicted with maternal education and parenting alliance as control variables, as well as attachment scores, family/custody type, and their interaction as predictive variables. The assumptions for this regression model were verified using regression diagnostics. Thus, not only were the residual errors normally distributed, but they were also found to have equal variance. In addition, no bivariate outlier or leverage point was identified.

The results showed that, when the two attachment scores were entered simultaneously in the model, only disorganization was significantly related to externalizing behaviors after controlling for maternal education and parenting alliance ($b = -0.106$, $p = 0.351$ for security and $b = 0.542$, $p = 0.006$ for disorganization). Furthermore, although the family/custody type only was weakly related to externalizing problems, the relationship with attachment disorganization depended on whether children lived in intact families, primarily with their mother (sole physical custody) or if they shared residency between parents (joint physical custody). In comparison with the results for children from separated families

Table 1. Descriptive statistics for the study variables and comparisons according to family type/custody arrangement

Variable	N	Mean (\pm SD)	Min. – Max.	Kurtosis	Skewness	Means X family/custody type†
Externalizing Behaviors	64	46.83 (\pm 9.72)	26–71	–0.14	0.14	SPC > JPC
Parental Alliance	64	67.58 (\pm 14.46)	30–85	–0.01	–0.91	JPC/IF > SPC
Attachment Disorganization	64	49.96 (\pm 11.76)	35–78	–0.14	0.90	n/s
Attachment security	64	49.51 (\pm 11.39)	15–65	0.79	–1.07	n/s
Maternal Education	64	16.38 (\pm 2.57)	10–26	2.37	0.42	n/s
Time since separation	28	2.32 (\pm 1.63)	0–6	–0.67	0.59	N/A

Notes: n/s = not significant; N/A = Not applicable; IF = intact families; SPC = sole physical custody; JPC = joint physical custody.

†Only the significant ($p \leq 0.05$) mean differences detected in a post hoc test are shown.

Table 2. Correlations between study variables

Variable	1	2	3	4	5	6	7
1. Externalizing Behaviors ^a	–						
2. Parenting Alliance ^a	–0.26*	–					
3. Attachment Disorganization ^a	0.32*	0.07	–				
4. Attachment security ^a	–0.26*	–0.10	–0.63**	–			
5. Maternal Education ^a	–0.27*	–0.12	–0.24	0.14	–		
6. Child sex(0 = boy; 1 = girl) ^a	–0.18	–0.11	–0.32*	0.20	0.20	–	
7. Time since separation ^b	0.05	–0.02	0.07	–0.35	–0.21	–0.44*	–

^a $n = 64$,^b $n = 28$,* $p < 0.05$,** $p < 0.01$.

living primarily with their mother, the relationship between externalizing behaviors and attachment disorganization was significantly weaker ($b = -0.315$, $p < 0.001$), and was non-significant for the children in joint physical custody. However, there was no difference in this relationship between the children in joint physical custody and those in intact families ($b = -0.935$, $p = 0.131$) (Fig. 1).

DISCUSSION

The primary aim of this study was to evaluate the effect of family/custody type for children aged between 3 and 6 years on the relationship between externalizing behaviors and the quality of their attachment representations. Our results suggest that the attachment representations of children in joint physical custody are not significantly more disorganized than those of children either from intact families or those who live primarily with one parent, in this case, their mothers. These results differ from other studies that evaluated the association between the quality of children's attachment relationships or representations, parental separation, and overnight visits to the father. A few studies found that, in comparison with children from intact families, the children of separated parents were less secure and more disorganized in their attachment relationships and representations (Altenhofen *et al.*, 2010; Gloger-Tippelt & König, 2007; Nair & Murray, 2005; Solomon & George, 1999; Tornello *et al.*, 2013). Several hypotheses can be formulated to explain these differences. The first is that all of the mothers in this sample had a relatively high level of education and income compared with the general population; this has been shown to play a protective role in the development of attachment relationships and representations in the children of separated parents (Feeney & Monin, 2016). The second hypothesis relates to the time that had passed since the separation. In the present study, all but two of the 28 separated families had separated at least one year earlier and of those 26, 14

had split up more than two years previously. According to Gloger-Tippelt and König (2007), it takes 2 years for children to adapt to a separation and, if necessary, to reorganize their internal working models. It is, therefore, possible that at the time of the study, sufficient time had elapsed post-separation for most of the children to adapt to the dissolution of the parental couple and to their new living arrangement. Another possible explanation could lie in the children's attachment history. It may be simply that most of these children had secure relationships with their parents prior to the separation and that they were better armed to cope with the dissolution of the parental couple.

In contrast to attachment, however, the results did suggest a relationship between externalizing behaviors and the current family type and custody arrangement. Children whose residency was equally divided between both parents had fewer reports of behaviors like aggression, attention problems, and hyperactivity in comparison with the children who lived primarily with their mothers. These results agree with other work in this area which showed that even in the case of severe conflict between the parents, children whose time was more evenly divided between their separated parents had fewer behavioral problems throughout their childhood (Baude *et al.*, 2016; Nielsen, 2018; Steinbach, 2019). One explanation for this finding could arise from the benefits of maintaining children's relationship with their fathers. At the time of writing, fathers are more commonly the secondary caregiver as they are not granted custody of children following a divorce or separation as often as are mothers. Time-sharing requires fathers to actively participate in all aspects of the care and education of their children, even if they were already involved in their child's life before the separation. Instead of viewing joint custody negatively, that is, as a separation from their mother, a substantial paternal involvement should instead be perceived as a means for children to benefit from the time with their father. Having a good child–father relationship has been proposed to help children to manage their emotions in a more

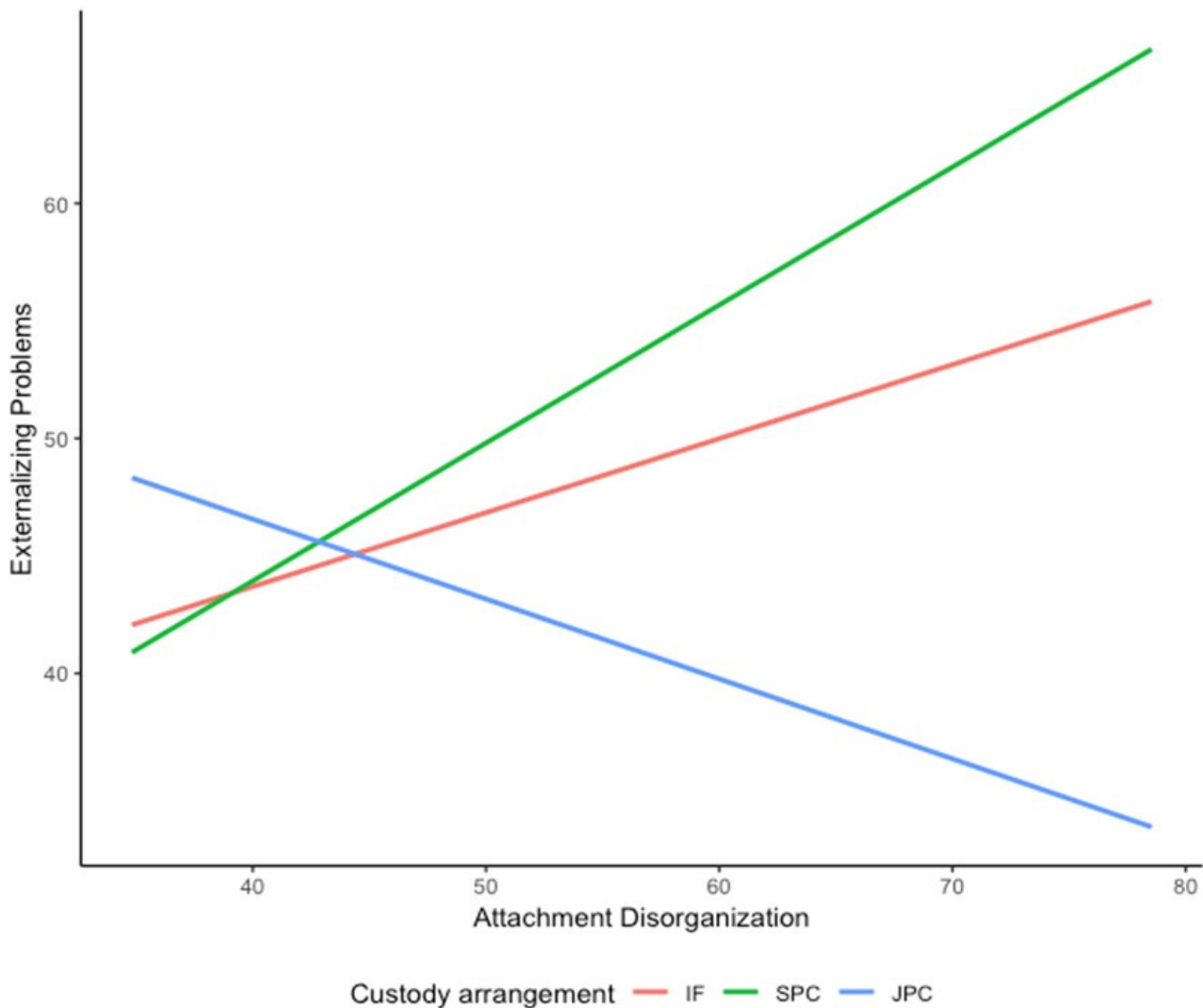


Fig 1. Effect of family/custody type on the relation between externalizing behaviors and the disorganization of attachment representations. Note: IF = Intact Families, SPC = Sole Physical Custody, JPC = Joint Physical Custody. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/sjop.12681)]

socially acceptable manner (Paquette, 2004). Moreover, a good quality relationship with their father could protect children from developing behavioral problems, even in the presence of individual and contextual risk factors (Bureau, Martin, Yurkowski *et al.*, 2017; Hovee, Dubas, Eichelsheim, Van der Laan, Smeenk & Gerris, 2009; Karreman, de Haas, van Tuijl, van Aken & Deković, 2010). The benefits of the father–child relationship are not unidirectional; an active involvement in fatherhood also has positive effects on fathers (Bartlett, 2004). Such effects trigger a cycle of rewarding behavior for the father: paternal engagement generates wellbeing in the father, encouraging his continued engagement with his child.

In summary, the results of the correlation and regression analyses in the current study suggest that children’s externalizing behavior problems, such as aggression, inattention, and hyperactivity stem, at least in part, from the disorganization of their attachment representations. These findings agree with many other published studies (Madigan *et al.*, 2016). Children with externalizing problems are unable to intrinsically develop an effective strategy to cope with moments of distress. As a result,

they may have difficulty regulating their emotional state with regards to the society in which they live. They may also misconstrue the behavior of others, perceiving benign interactions as threatening, for example, or not paying sufficient attention to what is going on around them and so misinterpreting potentially dangerous indications. Interpretation bias, for instance, may also be induced by disorganized attachment, and can lead children to overreact by using aggression or taking flight in response to earnest attempts by those around them to interact.

Regression analyses confirmed our hypothesis regarding the “moderating” effect of residing with both parents, even after their separation, on the relationship between externalizing problems and attachment disorganization. The relationship was much weaker for those in joint physical custody whereas it was particularly strong in those children who lived primarily with their mothers. These data suggest that exclusive residency with one parent could be a risk factor for amplification of the effects of attachment disorganization on the future development of externalizing problems. In contrast, joint custody could protect the children from the effects of attachment disorganization. It seems

reasonable to suppose that one reason for this is that greater involvement of the father in the child's life may buffer the effects of attachment insecurity and disorganization on the social-emotional development of children from separated families.

Finally, this study has several limitations that should be considered when interpreting the results. The first is that we did not have any information regarding the reasons for divorce. This is noteworthy, given the effect that parental conflict, frightening/frightened behavior and unresolved parental loss or trauma can have on children's attachment disorganization (Madigan, Moran, Schuengel, Pederson & Otten, 2007). Second, the sample size was small and of convenience rather than randomized. Third, the cross-sectional approach used in this study did not allow the directionality of the effects between attachment disorganization and externalizing problems to be determined. Although longitudinal studies and meta-analyses have confirmed that attachment disorganization was a significant predictor for the development of behavioral problems, those studies were undertaken in intact rather than separated families. Fourth, the children's behavior was evaluated by their mothers. As a key player in the separation, which is itself an emotional and stressful event, a mother cannot be considered a reliably objective reporter. For example, she may have downplayed her child's difficulties if she felt that she and her ex-partner could be partly responsible. Finally, this study used the original version of the Attachment Story Completion Task, an instrument that was designed to assess generalized attachment representations (Bretherton *et al.*, 1990). Thus, no distinction was made between the relationships with the father or the mother, which would seem particularly relevant for children of separated parents. To conclude, longitudinal studies evaluating attachment representations to both fathers and mothers separately are necessary in order to improve our understanding of the effects of separation and reorganization of the parental roles on the development and well-being of children.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request

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