Children's Experiences of Stress in Joint Physical Custody

Lara Augustijn¹

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Abstract

Background Joint physical custody is a parental care arrangement in which children live roughly an equal amount of time with each parent after family dissolution, residing alternately in each of the two parental households. Because joint physical custody is characterised by fathers' continued involvement in their children's lives, this care arrangement is believed to compensate for the negative effects of family dissolution, and to contribute to children's well-being in post-separation families.

Objective This study aims to investigate potential differences in the experiences of stress of children living in joint physical custody and sole physical custody arrangements, while considering both the proportion of time the children spend with each of their parents and the number of transitions the children make between the parental households.

Methods Based on data from the Family Models in Germany (FAMOD) study, a national convenience sample, linear regression models were estimated for 297 children between the ages of 11 and 14.

Results The statistical analysis suggests that there was no significant association between the physical custody type (sole physical custody vs. joint physical custody) and the children's levels of stress. In addition, the results revealed that children's experiences of stress did not depend on how often they moved between their parents' households.

Conclusions This study does not corroborate the assumption that joint physical custody has a protective effect on children, but instead suggests that different physical custody arrangements are associated with different stressors that lead to similar levels of stress in children living in different post-separation families.

Keywords Child well-being · Family Models in Germany (FAMOD) · Joint physical custody · Sole physical custody · Stress · Transitions

✉ Lara Augustijn
lara.augustijn@uni-due.de

¹ Department of Sociology, University of Duisburg-Essen, Lotharstrasse 65, D-47057 Duisburg, Germany

Children's Experiences of Stress in Joint Physical Custody

In light of the high separation and divorce rates across Western countries, children's well-being in post-separation families has become an increasingly important topic for research. Over the last decades, a large number of empirical studies have provided convincing evidence that family dissolution can have negative effects on the well-being of children (Amato 1994, 2010; Härkönen et al. 2017; Hetherington et al. 1985). For instance, it has been shown that, compared to children living in nuclear families, children in post-separation families score, on average, lower on a number of emotional, social, behavioural, and academic outcomes (Amato 2010; Härkönen et al. 2017). Moreover, parental separation or divorce is typically accompanied by factors that have the potential to contribute to children's experiences of stress, including the loss of contact with the non-residential parent, the adjustment of the residential parent, high levels of interparental conflict, and a declining standard of living (Amato 1993, 1994). However, research has also found considerable variability in how well children adjust to parental union dissolution (Amato 1993, 1994; Havermans et al. 2017). One factor that may explain some of the differences among children in post-separation families is the physical custody arrangement that a given family practices.

The term *joint custody* can either refer to “shared physical custody, with children spending equal or substantial amounts of time with both parents, or shared legal custody, with primary residence often remaining with one parent” (Bauserman 2002, p. 93). *Joint physical custody* is a new physical custody arrangement in which children live roughly an equal amount of time with each parent after family dissolution, residing alternately in each of the two parental households (Steinbach 2019). Due to the emerging view that mothers and fathers are “equally important and mutually exchangeable caregivers” (Sodermans et al. 2014, p. 127) for their children, joint physical custody has become a widespread phenomenon across many Western societies (Bergström et al. 2015; Melli and Brown 2008; Spruijt and Duindam 2009), even though its prevalence is still low in Germany, with only about 4–5% of all post-separation families practicing this type of physical custody arrangement (Walper 2016).

Because joint physical custody is characterised by fathers' continued involvement in their children's lives, this new care arrangement is seen as a promising alternative to the more traditional parental care arrangement of *sole physical custody*, in which children live primarily or exclusively with one parent (Meyer et al. 2017). Thus, joint physical custody is believed to compensate for the negative effects of family dissolution, and to contribute to children's well-being in post-separation families (Bastais and Pasteels 2019; Bauserman 2002; Braver and Votruba 2018). However, living alternately in two parental households is also associated with a wide range of factors that may lead to higher levels of stress in children. These factors include a lack of stability, the need to adapt to different parental regimes, and exposure to interparental conflicts that may result from a greater need for coordination (Turunen 2017).

Despite the considerable attention the issue of joint physical custody has received in the past, researchers have almost completely neglected the question of how joint physical custody affects children's experiences of stress. However, studying the potential relationship between joint physical custody and children's stress perceptions is an important topic for research, as the prevalence of stress has increased significantly among children and adolescents in Western countries over recent years (Martinez 2014). Furthermore, in light

of the growing evidence that chronic stress can have detrimental effects on an individual's health, well-being, and psychological functioning (Lyon 2000; Martinez 2014), examining the association between physical custody arrangements and children's experiences of stress is particularly relevant, as living in a given physical custody arrangement may be associated with severe and chronic stressors for children.

Thus, to help fill this research gap, the present study contributes to the current body of literature by examining whether physical custody arrangements in post-separation families are related to children's experiences of stress. Based on data from the Family Models in Germany (FAMOD) study, linear regression models are estimated for 297 children between the ages of 11 and 14. The purpose of the statistical analysis is to investigate potential differences in the experiences of stress of children living in sole physical custody arrangements and children living in joint physical custody arrangements. Furthermore, this study makes a significant contribution to the existing body of literature by being the first study to examine the relationship between joint physical custody and children's experiences of stress in Germany, and to consider both the proportion of time the children spend with each of their parents and the number of transitions the children make between the two parental households.

Physical Custody Arrangements

When analysing physical custody arrangements, researchers have to consider that these arrangements generally consist of at least two different dimensions (Sodermans et al. 2014). The first dimension relates to the *proportion of time* that children spend in each of their parents' households. Joint physical custody (also shared physical custody, shared parenting, or shared residence) refers to a post-separation care arrangement in which children spend substantial amounts of time with each parent—usually more than 30 % of their time with the non-residential parent (Steinbach 2019). In this regard, joint physical custody can be differentiated from sole physical custody, which is still the norm in most Western countries. In a sole physical custody arrangement, the children live either primarily or exclusively with one parent—in the majority of cases with the mother—while having no or only limited contact with the non-residential parent (Cancian et al. 2014). With respect to the proportion of time, five different forms of physical custody can be identified (Meyer et al. 2017; Steinbach et al. 2021):

1. *Sole physical custody with the mother* (children spend more than 70 % of their time in their mother's household).
2. *Asymmetric joint physical custody with the main residence being the mother's household* (children spend between 51 % and 70 % of their time in their mother's household).
3. *Symmetric joint physical custody* (children spend 50 % of their time in their mother's and their father's household).
4. *Asymmetric joint physical custody with the main residence being the father's household* (children spend between 51 % and 70 % of their time in their father's household).
5. *Sole physical custody with the father* (children spend more than 70 % of their time in their father's household).

The second dimension of physical custody is the *number of transitions* the children make between the two parental households. Although previous research has shown that the number of transitions is usually related to the physical custody type (Sodermans et al. 2014), the

number can vary greatly between different arrangements, and also within the same physical custody type. For instance, in symmetric joint physical custody arrangements (50:50 arrangements), children may change households daily or after longer intervals (e.g., after weeks or months). Because the two dimensions of physical custody arrangements are linked, both aspects—the proportion of time spent with each parent and the number of transitions the children make—need to be considered when investigating the effects of post-separation care arrangements on children's experiences of stress.

Joint Physical Custody and Children's Experiences of Stress

When investigating potential differences in the well-being of children in either joint physical custody or sole physical custody families, several theoretical arguments need to be considered that may explain why joint physical custody could have negative effects on children's experiences of stress. For instance, research has suggested that children living in joint physical custody arrangements may experience high levels of instability, because they have to adapt not only to different locations, but to different parenting regimes and a different set of family members (Spruijt & Duindam 2009; Turunen 2017). These demands, which are greater in joint physical custody than in sole physical custody arrangements, may contribute to higher levels of stress in children, particularly if the children are unable to meet these demands and expectations.

Furthermore, these negative effects could be especially harmful to children if their parents' relationship is characterised by high levels of conflict (Lucas et al. 2013). Turunen (2017) argued, for example, that joint physical custody may be related to higher levels of interparental conflict, because this physical custody type requires the two parents to have higher levels of contact. Moreover, in joint physical custody arrangements, both parents invest substantial amounts of financial and emotional resources in their children, which could trigger new conflicts or further aggravate existing conflicts between the separated or divorced parents. Although previous research has suggested that joint physical custody is “popular among low-conflict and cooperative parents, [...] it is also increasingly used as a compromise among high-conflict couples” (Sodermans et al. 2013, p. 837). Additionally, even if levels of interparental conflict are low, children living in joint physical custody arrangements may be more exposed to interparental conflict and may be more vulnerable to arguments and fights between their parents due to the closer parent-child relationships in joint physical custody families (Bastaits and Pasteels 2019). Because interparental conflict “frightens children, makes them feel torn between their parents, [and] exposes them to inconsistent parenting” (Steinbach 2019, p. 358), living in a joint physical custody arrangement may increase children's stress levels.

On the other hand, there are also reasons to assume that joint physical custody may have positive effects on children's experiences of stress. Unlike sole physical custody arrangements, joint physical custody is characterised by fathers' greater involvement in their children's lives. Therefore, it has been proposed that joint physical custody may counter the negative outcomes that result from a parental separation or divorce. One explanation for the positive influence of joint physical custody on children's experiences of stress is related to the availability of resources. Children in post-separation families who live primarily or exclusively with their mother are often greatly affected by the loss of or the reduction in their access to their non-residential father's psychological, social, and economic resources

(Steinbach 2019). For instance, it has been established that children in one-parent households are, on average, less affluent than children in nuclear families (Bernardi and Larenza 2018), and that they often experience a loss of emotional attachment to their father (McLanahan 1999). As both of these factors are associated with increased levels of stress, it is believed that joint physical custody can reduce the negative effects of family dissolution by enabling children to spend a substantial amount of time with their father.

In line with this assumption, previous research has been able to demonstrate that joint physical custody is associated with more frequent parent-child contact and stronger parent-child bonds (Melli and Brown 2008; Spruijt and Duindam 2009). Having frequent contact and close relationships with both parents may further reduce children's stress levels, because the children do not have to carry the burden of worrying about and feeling responsible for their non-residential parent (Turunen 2017). Moreover, the burden of sole physical parenting—particularly having to combine employment and childcare responsibilities—may lead to increased levels of stress in the residential parent (Bernardi et al. 2018). As joint physical custody is likely to ease the stress levels of parents, including the negative emotions and feelings the parents may experience as a result of their exposure to stressors, it could also reduce the children's own risk of experiencing negative emotional states (Augustijn 2020), and the stress that may result from such states.

Empirical studies on the relationship between physical custody arrangements and children's well-being in post-separation families generally suggest that joint physical custody has either neutral or positive effects on child well-being (for overviews, see Baude et al. 2016; Bauserman 2002; Berman and Daneback 2020; Steinbach 2019). However, despite this extensive body of literature, only two previous empirical studies have examined the impact of joint physical custody on children's experiences of stress. The first study by Fransson et al. (2014) compared the distribution of salivary cortisol between children in nuclear families and children living in joint physical custody arrangements. Their sample consisted of 157 Swedish adolescents between the ages of 14 and 16, and the results of their analysis suggested that there were no significant differences between adolescents living in nuclear families and adolescents living in joint physical custody families. However, as no children from sole physical custody families were considered in this study, disparities between children in different post-separation care arrangements could not be investigated.

The only study that has taken into account potential differences between children in sole physical custody and joint physical custody arrangements was conducted by Turunen (2017). His analyses were based on pooled data from the Swedish Surveys of Living Conditions (ULF) from 2001 to 2003. The study's results suggested that children between the ages of 10 and 18 living in joint physical custody arrangements were less likely to experience high levels of stress than children living in sole physical custody arrangements. Even after controlling for potentially confounding factors, such as the quality of the parent-child relationship, the interparental relationship, and the parents' income, the association remained significant. Based on these findings, Turunen (2017) concluded that joint physical custody reduced children's experiences of stress because living in both their mother's and their father's household was associated with a variety of positive outcomes, including the limited loss of economic and emotional resources, stronger parent-child relationships, the development of beneficial parenting styles, and the reduced burden of childrearing for the residential parent. Taking all of these findings into account, the first hypothesis of the present study

is that *children living in joint physical custody arrangements are at lower risk of experiencing stress than children living in sole physical custody arrangements (H_1)*.

Number of Transitions and Children's Experiences of Stress

There are also reasons to expect that the number of transitions between the two parental households may have an independent effect on children's experiences of stress in post-separation families (Sodermans et al. 2014). Just as commuting can be a source of great stress for adults (Gottholmseder et al. 2009), frequent transitions between the parental households may be stressful for children. For instance, having to make a large number of transitions between their parents' households may have negative effects on children because they find having to move frequently between households time-consuming and stressful, especially if their parents live far away from each other. Moreover, having to make a large number of transitions may be problematic because moving between households requires high levels of coordination, not only by the parents, but by the children.

Research on the relationship between the number of transitions children make between their parents' households and the children's well-being is extremely sparse. Based on a sample of 878 adolescents from Flanders, Sodermans et al. (2014) were able to show that frequent transitions were related to an increased level of depression in children, indicating that a high number of transitions can be stressful for children. In accordance with this finding, qualitative research has demonstrated that children tend to experience great difficulties with frequent transitions between their parents' households. Moreover, it has been shown that children's unwillingness to move between their parents' households can be a significant factor in a family's decision to change their physical custody arrangement (Birnbaum and Saini 2015). Consequently, the second hypothesis is that *frequent transitions between the two parental households increase the children's risks of experiencing stress (H_2)*.

The German Context

Although divorce rates in Germany have declined somewhat in recent years, they are still at a comparatively high level, with approximately one-third of all marriages ending in divorce (Wagner 2019). It has been estimated that half of these divorces involve minor children (Geisler et al. 2018), with post-separation families currently constituting about one-third of all families with minor children in Germany (Steinbach et al. 2016). In combination with a simultaneous decline in marriage rates, these trends suggest that marriage may no longer be seen as a prerequisite for family formation in Germany. This assumption is further confirmed by the finding that about one-third of all births in Germany in 2017 were to parents in cohabiting unions (Walper et al. 2020).

Since the implementation of legislative changes in 1997, both married and unmarried parents have a duty and a right of contact with their minor children, and children have a right to contact with both of their parents. As a result, joint legal custody has become the default model when parents separate or divorce, and is seen as an important step in terms of parental equality, as it allows the non-residential parent to be involved in making important decisions concerning his or her child, including decisions about the child's place of residence, the choice of the child's school or kindergarten, and the child's medical treatments that go beyond routine treatments (Geisler et al. 2018). However, despite this trend towards the

modernisation of legal custody, in terms of physical custody, sole physical custody is still the norm in Germany, and is thus the default model when parents go to court over the physical custody of their children (Steinbach and Helms 2020). A court can order joint physical custody under exceptional circumstances only, and when it is ordered, it must be proven that joint physical custody is in the best interests of the child, and more advantageous than other physical custody arrangements (Helms and Schneider 2020). Thus, unlike in other Western countries, there are no laws or policies in Germany that would encourage parents or courts to choose a joint physical custody arrangement (Steinbach and Helms 2020).

This legal framework is reflected in the prevalence of joint physical custody in Germany. While the numbers of joint physical custody families are already relatively high in Northern European countries (Fransson et al. 2018; Kitterød and Wiik 2017), the prevalence of joint physical custody in Germany is still low (Steinbach et al. 2021). Although empirical evidence on this topic is almost completely missing, previous research suggests that 4–5% of all post-separation families in Germany practice joint physical custody (Walper 2016). According to other sources, 4% of separated or divorced parents practice symmetrical joint physical custody (defined not only as a 50:50 arrangement, but as any arrangement up to a 60:40 distribution), whereas 5% of separated or divorced parents practice asymmetrical joint physical custody (Geisler et al. 2018).

Method

Data and Sample

The present study uses data from the Family Models in Germany (FAMOD) survey (Steinbach et al. 2020), a national convenience sample that was conducted in 2019. The main objective of the FAMOD study was to explore the well-being of family members in post-separation families across Germany, with a special focus on joint physical custody arrangements. The FAMOD survey includes information about the family life of 1,554 nuclear and post-separation families (with both sole physical custody and joint physical custody arrangements) with at least one child under the age of 15. The sample was stratified by (a) the family model (nuclear, sole physical custody, and joint physical custody families) and (b) the age of a selected target child (0–6 years and 7–14 years). Furthermore, in post-separation families, the target child had to have contact with both biological parents for the family to be included in the survey (Steinbach et al. 2020). The study was not presented to a research ethics committee, because an approval was not requested by the German Research Foundation (DFG) due to the de-identified and public nature of the data. Because joint physical custody is still a rare phenomenon in Germany, and because these families cannot be identified using official statistics, families practicing joint physical custody were oversampled in the FAMOD study. Respondents were recruited with the help of professional interviewers from Kantar Public, who identified families practicing joint physical custody, and who used snowball procedures to identify rare groups within joint physical custody families. Thus, the FAMOD is the first study conducted in Germany that has produced findings that can be used to investigate this new post-separation care arrangement.

Another special feature of this survey is its use of a residential calendar (see also Sodermans et al. 2014), through which parents in post-separation families could give detailed

information about the amounts of time their children were living with each of their biological parents after family dissolution. One major advantage associated with the use of such a residential calendar is that it allows researchers to clearly distinguish between sole physical custody and joint physical custody arrangements without relying on parents' self-assessments. Furthermore, the FAMOD study employs a multi-actor design; thus, it provides researchers with information from four different groups of respondents: the residential parent (*anchor*), one selected target child between the ages of seven and 14 (both interviewed using computer-assisted personal interviewing (CAPI)), the target child's non-residential parent, as well as the anchor's new partner (both interviewed using a paper-and-pencil questionnaire (PAPI)). For the present study, information from two different FAMOD questionnaires was used. The first is the *anchor questionnaire*, which collected information on a wide range of topics, including the parents' socio-demographic characteristics, their well-being, and the separation or divorce from the other biological parent of the target child. The second is the *child questionnaire*, which concentrated on different dimensions of child well-being, the child's relationships with other family members, and various aspects of the family dissolution. The majority of these survey instruments were based on items and scales from other family-related surveys, particularly international surveys with a focus on post-separation families (Kantar Public 2020; Steinbach et al. 2020).

Because the focus of the present study is on children's experiences of stress in post-separation families, and because the item measuring the children's levels of stress was administered exclusively to children above the age of 10, the sample consisted of 323 target children between the ages of 11 and 14 living in joint physical custody and sole physical custody arrangements. After deleting all missing values on the dependent variable ($n = 26$), missing values on all other variables were imputed by means of multiple imputation. Consequently, the final analytical sample consisted of 297 children.

Dependent Variable

The dependent variable—*children's experiences of stress*—was based on each child's self-reported answer to the question: "How often did you feel stressed during the last months? Please do not think about how stressed you feel today, but how stressed you felt during the last six months". This item, which is derived from the Surveys of Living Conditions (ULF) (see also Turunen 2017), had response categories ranging from *rarely or never* (1) to *daily* (5), with higher values indicating higher levels of stress.

Independent Variables

The independent variables—the child's *physical custody type* and the child's *number of transitions* between the two parental households—are based on information provided by the residential parent through the use of the residential calendar. In a first step, the residential parent was asked to indicate how many days and nights the target child was living with either the residential or the non-residential parent during the first two weeks of a typical month. If those two weeks were not representative of the last two weeks of a typical month, the respondents received a second calendar that displayed the last two weeks of the month. Based on this information, the proportions of time the child was living with his or her residential parent and non-residential parent could be calculated. If the child was living less

than 30% of the time with one of his or her parents, the family was identified as practicing *sole physical custody* (0). Correspondingly, if the child was living at least 30% of the time with each parent, the family was identified as practicing *joint physical custody* (1). The number of transitions between the parental households was calculated by counting how often the target child moved between the households during the typical month. This variable was dichotomised, and the sample was divided into two groups: *up to 4 transitions* (0) and *more than 4 transitions* (1).

Covariates

To determine a child's *gender*, each child was identified as either *male* (0) or *female* (1). The child's *age* ranged between 11 and 14 years; and, for the statistical analysis, the sample was split into two groups: *11–12 years* (0) and *13–14 years* (1). To determine whether a child had *siblings*, the analytical sample was again divided into two groups: *no siblings* (0) and *siblings* (1). Based on information provided by the residential parent in the anchor questionnaire on his or her current partnership status and the current partnership status of the child's other biological parent, the number of *stepparents* was determined, and the sample was divided into three groups: *no stepparents* (0); *one stepparent* (1); and *two stepparents* (2). A child's *economic well-being* was assessed using items from the economic deprivation scale (see Thönnissen et al. 2020). As the analytical sample consisted exclusively of children in post-separation families, the economic situation in both the paternal and the maternal household was considered: "In my father's household, we usually do not have enough money"; "In my father's household, we must often do without something we would like because we have to watch our budget"; "In my mother's household, we usually do not have enough money"; and "In my mother's household, we must often do without something we would like because we have to watch our budget". These four items were combined to form a mean scale with responses ranging from *correct* (1) to *not correct* (3), indicating increasing levels of economic well-being (Cronbach's $\alpha = 0.71$).

To determine the *mother's educational level* and the *father's educational level*, the analysis drew on information about the parents' general school-leaving certificates. Based on the answers provided, the sample was split into three groups for mothers and fathers, respectively: *low educational level* (0); *medium educational level* (1); and *high educational level* (2). To measure the number of *years since the family dissolution*, the study asked the following question: "In which year did the relationship with the biological father [mother] of [target child] end?" In combination with the year in which the data were collected, the number of years since the family dissolution could be calculated. To measure the quality of the *mother-child relationship* and the *father-child relationship*, the study drew on the child's assessments using the following questions: "How good or bad is your relationship with your mother?" and "How good or bad is your relationship with your father?" The response categories for these two items ranged from *very bad* (1) to *very good* (5). To determine the *level of interparental conflict*, the study drew on the child's assessments using the following question: "How often do your [biological] parents argue?" Because this variable was not normally distributed, it was dichotomised. Children who indicated that their parents did not have any contact with each other, or who reported that their parents never or seldom argued, were characterised as experiencing *low levels of interparental conflict* (0); whereas children who indicated that their parents sometimes, often, or very often argued were characterised

as experiencing *high levels of interparental conflict* (1). The descriptive statistics for all variables are displayed in Table 1.

Table 1 Descriptive Sample Statistics: Percentages or Means (Standard Deviations)

	All post-separation families	Sole physical custody	Joint physical custody
Child's experiences of stress (1: rarely or never–5: daily)	2.4 (0.1)	2.3 (0.1)	2.4 (0.1)
Physical custody type			
Sole physical custody	54.9		
Joint physical custody	45.1		
Number of transitions between the parents' households			
Up to 4 transitions	63.7	75.5	49.6
More than 4 transitions	36.3	24.5	50.4
Child's gender			
Male	44.8	43.6	46.3
Female	55.2	56.4	53.7
Child's age			
11–12 years	42.1	42.3	41.8
13–14 years	57.9	57.7	58.2
Siblings			
No siblings	48.8	40.5	59.0
Siblings	51.2	59.5	41.0
Stepparents			
No stepparents	22.8	22.1	23.7
One stepparent	39.1	36.9	42.9
Two stepparents	38.1	41.9	33.4
Child's economic well-being (1: correct–3: not correct)	2.7 (0.0)	2.6 (0.0)	2.8 (0.0)
Mother's educational level			
Low educational level	19.1	24.9	11.9
Medium educational level	41.9	42.0	41.8
High educational level	39.0	33.1	46.3
Father's educational level			
Low educational level	24.1	32.4	14.0
Medium educational level	38.7	36.7	41.2
High educational level	37.2	30.9	44.8
Years since the family dissolution	6.5 (0.2)	7.4 (0.3)	5.3 (0.2)
Mother-child relationship (1: very bad–5: very good)	4.5 (0.0)	4.4 (0.1)	4.7 (0.0)
Father-child relationship (1: very bad–5: very good)	4.2 (0.1)	3.9 (0.1)	4.6 (0.1)
Levels of interparental conflict			
Low levels of conflict	79.5	74.3	85.8
High levels of conflict	20.4	25.7	14.2
Number of observations	297	163	134

Note. Family Models in Germany (FAMOD)

Table 2 *Linear Regression Models: The Determinants of Children's Stress Perceptions in Post-Separation Families (Standardized Coefficients)*

	Model 1	Model 2	Model 3
Joint physical custody (Ref.: Sole physical custody)	0.01 (0.14)	0.01 (0.15)	0.05 (0.16)
Number of transitions between the parents' households			
Up to 4 transitions		Ref.	Ref.
More than 4 transitions		0.00 (0.16)	0.06 (0.16)
Child is female (Ref.: male)			0.19** (0.14)
Child is 11–12 years old (Ref.: 13–14 years)			0.07 (0.15)
Child has siblings (Ref.: no siblings)			0.02 (0.15)
Stepparents (Ref.: no stepparents)			
One stepparent			-0.02 (0.20)
Two stepparents			0.09 (0.21)
Child's economic well-being			-0.14* (0.19)
Mother's educational level (Ref.: low educational level)			
Medium educational level			0.08 (0.21)
High educational level			0.15 (0.24)
Father's educational level (Ref.: low educational level)			
Medium educational level			-0.04 (0.20)
High educational level			0.03 (0.22)
Years since the family dissolution			0.01 (0.02)
Mother-child relationship			-0.12* (0.12)
Father-child relationship			0.04 (0.09)
High levels of interparental conflict (Ref.: low levels of interparental conflict)			
High levels of conflict			0.05 (0.19)
Constant	2.34*** (0.10)	2.34*** (0.10)	3.48*** (0.72)
Adjusted R ²	0.00	0.00	0.10
N	297	297	297

Note. Family Models in Germany (FAMOD); Standard errors in parentheses; *** $p < .001$, ** $p < .01$, * $p < .05$.

Results

To investigate the relationship between physical custody arrangements and children's experiences of stress in post-separation families, stepwise linear regression models were estimated. The results of the regression models are presented in Table 2. The first model shows the bivariate correlation between the physical custody type and the children's experiences of stress. The second model further includes the number of transitions the children made between the two parental households. Finally, the third model adds all relevant control variables to the regression. The VIF scores for the full model ranged between 1.03 and 2.85, indicating that multicollinearity did not pose a problem in this analysis. It is important to note that the FAMOD study is a convenience sample, and that the respondents were not sampled randomly. Thus, the p-values reported in Table 2 should be interpreted accordingly.

The results in Table 2 show that there was no significant relationship between the physical custody type and the children's experiences of stress. Across all three regression models, the coefficients were small and statistically insignificant. Therefore, it cannot be concluded that living in a joint physical custody arrangement was associated with a lower risk of experiencing high levels of stress for children than living in a sole physical custody arrangement. On the contrary, the results indicate that feelings of stress did not differ noticeably depending on whether children were living in a joint physical custody or a sole physical custody arrangement. Therefore, the first hypothesis, which stated that children living in joint physical custody arrangements are at lower risk of experiencing stress than children living in sole physical custody arrangements (H_1), had to be rejected.

When the number of transitions the children made between the two parental households was added to the regression in Model 2, the results indicated that higher transition rates were also not related to the children's risks of experiencing stress, as no significant differences were found between children who changed households up to four times per month (i.e., approximately once a week) and children who changed households more frequently. Again, the effects were comparatively small. Consequently, it appears that the children's levels of stress were independent of the number of transitions they made between their parents' households. Thus, the second hypothesis, which stated that frequent transitions between the two parental households increase the children's risks of experiencing stress (H_2), also had to be rejected.

With regard to the control variables, the results in Model 3 indicate that there were significant gender differences, as girls reported higher levels of stress than boys. Furthermore, the results suggested that there was a negative and significant association between a child's economic well-being and his or her experiences of stress, with higher levels of economic well-being being related to a lower risk of suffering from stress. Moreover, a better mother-child relationship was also associated with the child having lower stress levels. In contrast, no significant associations were found between a child's experiences of stress and the child's age, the presence of siblings and stepparents, the parents' educational levels, the time since the family dissolution, the quality of the father-child relationship, and the level of interparental conflict.

Discussion

The purpose of the present study has been to investigate the association between physical custody arrangements in post-separation families and children's experiences of stress by examining potential differences between children living in sole physical custody arrangements and children living in joint physical custody arrangements. Based on data from the Family Models in Germany (FAMOD) study, a German convenience sample of nuclear and post-separation families, linear regression models were estimated for a sample of 297 children between the ages of 11 and 14 living in post-separation families. Because the FAMOD study employed a residential calendar that allows for the exact determination of the two dimensions of physical custody arrangements—the proportions of time a child spent in the mother's and the father's household, and the number of transitions the child made between the two parental households—both dimensions could be considered in the statistical analysis.

The results of the multivariate analysis suggest that there was no statistically significant association between the physical custody type (i.e., between joint physical custody and sole physical custody) and children's levels of stress. Similarly, the results revealed that the experiences of stress of children in post-separation families were not related to how often they changed households. Therefore, it must be concluded that neither the proportion of time the children spent with each of their parents, nor the number of transitions the children made between the parents' households, were significantly associated with their perceptions of stress. In addition, the low explanatory power of the linear regression models—which included the two dimensions of physical custody arrangements, the children's and the parents' socio-demographic characteristics, the children's economic well-being, and the quality of family relationships—seemed to indicate that the children's stress levels were, in general, more strongly influenced by factors outside the family environment than by the type of post-separation family the children were living in. These factors may include school-related issues (e.g., high academic demands) or the children's relationships with their peers (e.g., experiences of peer problems or feelings of rejection).

One explanation for the failure of this study to find a correlation between the physical custody type and children's experiences of stress is that different physical custody arrangements are associated with specific sets of stressors, which can, in turn, lead to similar levels of stress in children living in different types of post-separation families. For instance, living in a sole physical custody arrangement may be associated with having fewer resources, a weaker emotional attachment between the child and the non-residential parent, and higher levels of stress for the residential parent. In contrast, living in a joint physical custody arrangement may be accompanied by high levels of instability and the constant need to adjust to different living conditions. The observation that the number of transitions the children made between the parental households was unrelated to their experiences of stress may be ascribed to the way transitions are organised in post-separation families. For instance, a child's risk of experiencing stress may be lowered if the parents drive the child to the other parent's residence, or if the child integrates the transitions into other daily routines (e.g., school attendance). Furthermore, the findings of this study may be partially explained by the children's ages. As the children included in the analytical sample were 11 to 14 years old, they may have been better equipped than younger children would be to deal with frequent

transitions between their parents' households. Thus, investigating younger age cohorts could yield very different results.

While this study's findings are in line with other research that found that joint physical custody has neutral effects on the well-being of children (Steinbach 2019), the results seem to refute the earlier findings of Turunen (2017), who reported that children living in joint physical custody arrangements experience lower levels of stress than children living in sole physical custody arrangements. However, there are several factors that make the findings of the two studies difficult to compare. These factors include the different societal contexts and the varying prevalence of joint physical custody in Germany and Sweden, which may affect the well-being of children in different types of post-separation families. Similarly, the two studies investigated children from different age groups (although the ages of the two samples overlapped to some extent); and, more importantly, the two studies used different definitions and measurements of physical custody arrangements. These technical issues should be considered when comparing the findings of the two studies.

This study has some strengths. For example, the statistical analysis was based on data from the Family Models in Germany, a study that provides researchers with data on substantial numbers of families practicing either joint physical custody or sole physical custody arrangements, as well as detailed information about the living conditions of the children in these families. Furthermore, because the FAMOD study employed a residential calendar, the effects of both dimensions of physical custody arrangements—the proportion of time and the number of transitions—on children's experiences of stress could be investigated. Another advantage of this study is that the statistical analysis was based on children's self-reported levels of stress, instead of on proxy information from the parents that may be skewed by the parents' imperfect knowledge about their children.

However, this study also has some limitations. One limitation is that the question concerning the children's experiences of stress was administered only to children between the ages of 11 and 14. Therefore, this study cannot draw any conclusions about the perceived stress levels of children of other age groups. A related limitation is the use of a single item to measure the children's experiences of stress. Generally, it cannot be ruled out that the finding that there was no link between the physical custody arrangements and the children's stress levels resulted from an unreliable measurement with respect to the dependent variable. However, the significant relationships that were found between the children's experiences of stress and their gender and economic well-being tend to contradict this interpretation of the results, and thus give the conclusions of this study more validity. Nevertheless, it would be a significant advantage if future studies used a set of items when measuring levels of stress in children that either corroborated or refuted the findings of the present study. Another limitation is that the FAMOD survey was designed as a convenience sample. As a result, the findings of the analysis are not representative of all post-separation families in Germany, and thus need to be interpreted with caution. However, Steinbach et al. (2020) were able to show that the distribution of some of the residential parents' socio-demographic characteristics in the FAMOD study (e.g., age, educational level, and health) were quite comparable to the corresponding characteristics of respondents from other German surveys that are representative of the German population of parents, which adds to the generalisability of this study's findings.

Finally, the causal relationship between the type of post-separation care arrangement and the children's experiences of stress could not be determined based on the cross-sectional

data used in this study. Consequently, it could not be tested whether selectivity at the level of the parents could explain this study's findings. However, when analysing differences in children's well-being depending on whether they are living in sole physical custody or joint physical custody arrangements, the issue of selectivity among the parents needs to be addressed. In the past, several studies have found that parents who practice joint physical custody differ significantly and systematically from parents in other post-separation families in terms of several factors that may enhance children's overall well-being, and thus lower their risk of experiencing stress. Parents practicing joint physical custody are, for example, known to have comparatively high educational levels, high incomes, and low levels of interparental conflict (Cancian et al. 2014; Kitterød and Lyngstad 2012; Sodermans et al. 2013). Furthermore, these parents might have more equal gender role expectations (Juby et al. 2005); they might be more cooperative; and they might be more child oriented (Turunen 2017). Consequently, a potential relationship between joint physical custody arrangements and children's experiences of stress may be due to selection processes among the parents who chose joint physical custody and the parents who chose more traditional post-separation care arrangements. This may still be the case, even if the socio-demographic profile of joint physical custody families appears to have become more heterogeneous as joint physical custody families have become more prevalent within a country (Sodermans et al. 2013). In line with previous research, the present study provided some support for the assumption that parents practicing joint physical custody may differ from parents who practice sole physical custody. For instance, the statistical analysis has shown that parents in joint physical custody arrangements had, on average, higher educational levels than parents in sole physical custody arrangements, and that children in joint physical custody families reported experiencing lower levels of interparental conflict than their counterparts in sole physical custody families. However, this study has not provided any indications that these characteristics are positively or negatively related to levels of stress in children living in post-separation families.

Although the FAMOD study was designed as a convenience sample, and although the findings of the statistical analysis of the present study should be interpreted with caution, this study has provided some important initial insights into the well-being of children living in joint physical custody families in Germany. In sum, this study did not find any evidence that children in joint physical custody arrangements fare better than children in sole physical custody arrangements with regard to their perceptions of stress. However, even if living in a joint physical custody arrangement does not necessarily reduce children's risks of experiencing stress, the current body of literature has not provided any evidence that joint physical custody is harmful to children in terms of their experiences of stress. Still, stress is only one aspect of the larger concept of child well-being, and other dimensions need to be considered as well by, for example, policymakers or practitioners in the legal context. Furthermore, there is some evidence that several family-related factors moderate the relationship between joint physical custody and children's well-being, including levels of interparental conflict (Augustijn 2021; McIntosh and Chisholm 2008; Vanassche et al. 2013), the quality of the parent-child relationships (Vanassche et al. 2013), and the extent to which fathers were involved in childrearing prior to family dissolution (Poortman 2018). Therefore, additional empirical studies are needed to shed more light on the association between post-separation care arrangements and children's perceptions of stress, including research on mechanisms and moderating factors. Moreover, future studies that investigate the effects of physical

custody arrangements on the various dimensions of child well-being should always consider the possibility that parents who practice joint physical custody may be a positively selected group with regard to several factors that may positively affect children's overall well-being. As a result, more studies that employ a longitudinal design are needed.

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Code Availability Not applicable.

Declarations

Ethics Approval: The study was not presented to a research ethics committee, because an approval was not requested by the German Research Foundation (DFG) due to the de-identified and public nature of the data.

Conflict of Interest The authors declare that they have no conflict of interest.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent for Publication Not applicable.

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