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# Interparental Conflict and Children's Depressive and Anxiety Symptoms in Four Residence Arrangements

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#### ABSTRACT

This study examines the relationship between residence arrangements and depressive and anxiety symptoms from children's perspective and the moderating role of interparental conflict. The sample included 454 children from families recruited from family counselling offices across Norway. Mixed effects regression models assessed the association between four residence groups - symmetric shared, asymmetric shared, extended sole, and limited sole - and children's mental health symptoms. Findings indicate that children in different residence arrangements generally displayed similar levels of mental health symptoms, except those in asymmetric shared residence reported fewer depressive symptoms compared to those in limited sole residence. Higher interparental conflict was associated with increased anxiety symptoms, particularly in symmetric shared residence. These results suggest that shared residence may not always be in the child's best interest when there are high levels of interparental conflict. The study reveals variations within the traditional categorizations of "shared" and "sole" residence, highlighting the importance of nuanced differentiation.

#### **KEYWORDS**

Residence arrangements; shared residence; child mental health; interparental conflict; divorce

# Background

The recent increase in shared residence has spurred interest in the research field on child adjustment in different residence arrangements. There has been a shift from the previous standard of sole residence where the child lives only with one parent – typically the mother – to the new standard of shared residence (also known as dual residence, joint physical custody, shared physical custody or shared parenting) where children reside 30–50% of the time with each parent (Bergström et al., 2019; Hakovirta et al., 2023; Steinbach, 2019).

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Although there is broad consensus that shared residence can be beneficial for many children, there is debate as to whether this arrangement is preferable under conditions of high interparental conflict (Kaspiew et al., 2009; Mahrer et al., 2018; Smyth et al., 2016; Spruijt & Duindam, 2009). As shared residence becomes more prevalent, this underscores the importance of understanding under which conditions shared residence might not be in the best interest of the child (Kaspiew et al., 2009; McIntosh & Chisholm, 2008; Smyth et al., 2016).

The current study contributes to this discussion by using self-reports from children whose parents live apart to explore the association between physical residence arrangements and children's depressive and anxiety symptoms. We further explore whether potential associations are influenced by level of interparental conflict. Moving beyond the traditional binary categorization of shared and sole physical residence, we employ a nuanced categorization comprising four residence arrangements: symmetric shared residence (50/ 50), asymmetric shared residence (36-49% of the time with the non-resident parent), extended sole residence (16-35% of the time with the non-resident parent), and limited sole residence (1-15% of the time with the non-resident parent) (Morbech et al., 2023). This captures a broader spectrum of timesharing scenarios, providing a more accurate representation of children's living situations. This nuanced approach aligns with recent advances in the literature showing differences within the shared residence group (Augustijn et al., 2023; Meyer et al., 2017; Steinbach & Augustijn, 2022; Steinbach et al., 2021; Turunen, 2017), and introduces a novel approach by dividing the sole residence group as well (Langmeyer et al., 2022; Morbech et al., 2023).

# The Norwegian context

In Norway, one in four children experience parental separation before reaching adulthood (Wiik, 2022). In line with societal shifts toward gender equality in workforce, household responsibilities, and parental benefits (Kitterød & Lappegård, 2012), there is a growing trend toward shared residence as the preferred option when parents separate. This trend is reflected in figures showing that the proportion of children living in shared residence increased from 8% in 2002 to 25% in 2012, and further to 43% in 2020 (Kitterød & Lyngstad, 2014; Kitterød & Wiik, 2017; Wiik, 2022). However, these figures are based on the legal arrangement parents have for their child, not necessarily on the actual time the child spends with each parent. In Norway, shared residence is a legal term granting equal rights to both parents, with no formal guidelines on the amount of time the child spends with each parent (The Children Act, 1981). For instance, in cases where two children have shared residence as their legal arrangement, one child might divide their time equally between parents, while the other could spend 40% of their time with one parent and 60% with the other. Although the most common form of physical sharing in "shared residence" seems to be 50/50 (Kitterød & Wiik, 2017), this highlights the need for studies defining residence arrangements based on actual time spent with each parent rather than their legal arrangement, which are currently lacking from the Norwegian research literature.

A unique feature of the Norwegian context is mandatory mediation for all separating parents with shared children under the age of 16. This mediation aims to form a written agreement about permanent residence and contact arrangement that is in the child's best interest. While only one mediation session is mandatory, up to seven sessions are offered free of charge. The rise in shared residence may not only reflect changing societal norms but can also be a reflection of policies like mandatory mediation that encourage cooperative parenting arrangements. Studying outcomes within this framework can be of relevance to a wider context, including countries with similar family mediation systems.

# Child depressive and anxiety symptoms in different residence arrangements

Research findings suggest that, on average, children with separated or divorced parents are not as well-adjusted as those in nuclear families (e.g. Amato, 2010; Bauserman, 2002; Härkönen et al., 2017; Spruijt & Duindam, 2009). The parental loss perspective explains a key mechanism in the risk of adjustment problems among children with separated parents. According to this perspective, both parents play essential roles in providing emotional, financial, and practical support as well as serving as role models for their children (Amato, 1993). Thus, shared residence is seen as a means to counteract the risk of adjustment problems, enabling children to benefit from resources and maintain close contact with both parents after separation (Fabricius & Luecken, 2007). This perspective is supported by literature showing that children in shared residence generally exhibit better mental health outcomes compared to their counterparts in sole residence (Bergström et al., 2014, 2015, 2019; Breivik & Olweus, 2006; Fransson et al., 2016; Jablonska & Lindberg, 2007; Nilsen et al., 2017; Steinbach, 2019). However, some studies find no differences between children in these residence arrangements (Spruijt & Duindam, 2009; Vanassche et al., 2013). Yet, alternating between parental households may hold potential risks, such as a lack of stability, adapting to different parental regimes, and exposure to ongoing interparental conflicts (Spruijt & Duindam, 2009; Turunen, 2017).

However, selection effects pose challenges when investigating the association between residence arrangements and child outcomes. Previous research indicates that these effects influence which families adopt specific residence arrangements. Parents who practice shared residence typically differ systematically from those who practice sole residence, often having higher socioeconomic status, better cooperation abilities and lower levels of interparental conflict (Kitterød & Lyngstad, 2014; Møller, Eriksen, et al., 2023). Additionally, the age of the children seems to play a significant role, with shared residence most common among children aged 4–10 years (Juby et al., 2005; Kitterød & Lyngstad, 2014; Morbech et al., 2023; Sodermans et al., 2013; Walper et al., 2021), whereas sole residence is more prevalent among infants and toddlers (Juby et al., 2005) and adolescents (Møller, Askvik, et al., 2023; Skjørten et al., 2007; Spruijt & Duindam, 2009). Therefore, shared residence may not be a "one-size-fits-all" arrangement (McIntosh & Chisholm, 2008; Smyth et al., 2016), underscoring the importance of considering factors such as age when investigating residence arrangements and child outcomes.

A combined measure of depression and anxiety is often used in child mental health research due to the intertwined nature of these emotional disorders. Both depression and anxiety include negative emotions and moods, often cooccurring throughout childhood and adolescence. However, it is important to note that the comorbidity and manifestations of these disorders can vary significantly with developmental stages. For example, anxiety is typically more prevalent in earlier childhood, while depression tends to be more common during adolescence (Kessler et al., 2007). This developmental variation suggests that anxiety symptoms often precede the later onset of depressive symptoms (Pine et al., 1998). Although closely linked, depression and anxiety also present distinct features that need further exploration within the current research field. Depressive symptoms often include the presence of sad, empty, or irritable mood and loss of interest in activities previously enjoyed. Anxiety symptoms, on the other hand, include feelings of tension, excessive worry and apprehensive expectations about various events, such as social interactions (American Psychiatric Association, 2013). The overlapping and distinct features of anxiety and depression have been explained using a tripartite model (Clark & Watson, 1991). This model suggests that anxiety and depression share a general distress factor known as "negative affectivity," but low levels of "positive affectivity" are relatively unique to depression, while somatic tension and arousal are more specific to anxiety. Including separate measures for depressive and anxiety symptoms have the potential to provide distinctions to further understand the mechanisms behind the association between residence arrangements and child mental health.

# Child mental health and interparental conflict in different residence arrangements

It is well-established that high levels of conflict between parents is detrimental to children's mental health (e.g., Harold & Sellers, 2018; Zemp et al., 2016), and exposure to high levels of post-separation interparental conflict is a well-documented risk factor for the development of child psychopathology

(O'Hara et al., 2019). While most families experience a decrease in interparental conflict over time following separation (Amato & Afifi, 2006), some continue to experience ongoing disputes. Qu et al. (2014) reported that approximately 10.7% of mothers and 11.3% of fathers described their coparenting relationship as having "lots of conflicts" five years post-separation, indicating persistent challenges for some families.

Currently, the literature lacks consensus on which residence arrangement is in the child's best interest when parents have ongoing conflicts. Studies examining the moderating role of interparental conflict on the association between residence arrangements and children's mental health yield contradictory results (Elam et al., 2016; Mahrer et al., 2018). Advocates for shared residence argue that despite interparental conflicts, the benefits, such as secure contact with both parents, outweigh potential harms (Fabricius & Luecken, 2007; Warshak, 2014). Some suggest that shared residence may even reduce conflict between parents (Bauserman, 2012). However, a meta-analysis found no systematic variation in interparental conflict levels between shared and sole residence arrangements; rather, the degree of conflict appeared to vary greatly regardless of the residence arrangement (Leclair et al., 2019). However, it is challenging to draw conclusions from this meta-analysis regarding the direction of the relationship, as most of the included studies were cross-sectional rather than longitudinal.

While shared residence may reduce conflicts related to the arrangement itself through equal parental rights and time with the child, it may increase the risk of other types of conflicts. Shared residence could give parents more topics to disagree on, such as care cycles, parenting practices, and equipment for the child. Furthermore, shared residence, with its requirement for equal responsibilities, necessitates ongoing communication and cooperation between parents. This can itself become a source of conflict, as any failure to share responsibilities equally may lead to disputes due to unmet expectations of equality.

When there is ongoing conflict between parents, a more segmented approach to parenting, where each parent independently manages the child's care during their respective time without needing extensive coordination with the other, may be more suitable. This approach may be more feasible with less equal time-sharing arrangements. Consequently, in high-conflict situations, shared residence may not be in the best interest of the child, precisely because it requires a certain level of communication and cooperation between parents that may not be achievable in contentious co-parent relationships (Kalmijn, 2016; Vanassche et al., 2013).

If parents fail to communicate effectively, the child could potentially end up as a messenger between the two households, feeling caught in the middle, and torn between the parents (Afifi & Schrodt, 2003; Amato & Afifi, 2006; Augustijn, 2022; Fehlberg et al., 2011). The conflict hypothesis posits that 360 👄 M. MORBECH ET AL.

spending more time with the non-resident parent is beneficial for child adjustment if conflict level is low, but harmful when conflict level is high. The hypothesis holds that in families with a high level of interparental conflict, more equal time-sharing between parents creates more opportunities for children to be exposed to these conflicts (Baxter et al., 2011; Mahrer et al., 2018; Nielsen, 2017; Vanassche et al., 2013). In line with the conflict hypothesis, a recent study from Germany found that children in shared residence exhibited significantly lower levels of mental health problems - measured by the SDQ Total Difficulties Score - compared to children in sole residence when the level of interparental conflict was low. However, growing up with a high level of interparental conflict seemed to worsen children's mental health problems, especially in the context of shared residence (Augustijn, 2021). Although few studies have investigated the moderating effect of interparental conflict on the association between residence arrangements and children's mental health, these findings suggest that conflict between parents may be associated with more adverse outcomes for children in residence arrangements that necessitate cooperative relationships and effective communication.

# The present study

In the present study, we use children's own report to investigate the association between different residence arrangements and children's depressive and anxiety symptoms, and whether interparental conflict moderates these potential associations. While the existing literature typically compares children living in shared residence with those in sole residence (Steinbach, 2019), we aim to expand this categorization by using a four-part approach, operationalized as 1) symmetric shared residence; 2) asymmetric shared residence; 3) extended sole residence, and 4) limited sole residence. This approach is based on previous studies that differentiate between symmetric shared residence (50/ 50 sharing) and asymmetric shared residence (between 30/35-49% with one parent) (Meyer et al., 2017; Steinbach & Augustijn, 2022; Steinbach et al., 2021; Turunen et al., 2021). What is known as a "normal visitation schedule" has previously been the most common form of residence arrangement in Norway (Lyngstad et al., 2014). This typically entails one afternoon and every other weekend, including overnight stays, and a division of the official holidays between the parents (The Children Act, 1981, § 43). In the current study, we further differentiate residence arrangements by dividing the traditional "sole group" into two groups; extended sole and limited sole residence. "normal visitation schedule" falls within the extended sole residence group in the current study.

Based on this four-part categorization of residence arrangements, we hypothesize that:

- (1) Children in symmetric and asymmetric shared residence arrangements will exhibit lower levels of both depressive and anxiety symptoms compared to those in extended and limited sole residence arrangements. This aligns with the parental loss perspective (Amato, 1993) and previous research (Steinbach, 2019). Specifically, we anticipate that the symmetric shared residence group will exhibit the lowest levels of both depressive and anxiety symptoms, while children in limited sole residence are expected to show the highest levels of symptoms, as they may be more vulnerable due to minimal contact with the non-resident parent.
- (2) Interparental conflict will moderate the association between children's residence arrangements and their depressive and anxiety symptoms. Specifically, higher levels of interparental conflict will be associated with increased depressive and anxiety symptoms, particularly within the context of symmetric and asymmetric shared residence. This expectation is consistent with the conflict hypothesis and previous research (Augustijn, 2021; Kalmijn, 2016).
- (3) The differential effects on depressive and anxiety symptoms will show similar patterns across both types of symptoms.

# Methods

# Data and analytic sample

Data are derived from the Norwegian Dynamics of Family Conflict Study (FamC). The FamC-study is an ongoing study aimed at increasing knowledge about how family dynamics and interparental conflict affect parents and children. Over 2,800 families were recruited for the study when they attended one of 37 family counselling offices across Norway for help related to the parental relationship, the parenting role or when attending mediation due to parental separation or divorce. The mandatory mediation in Norway offers a unique opportunity to identify families where parents are about to move apart and offer help and guidance when parents have a conflictual relationship and are struggling to come to an agreement about a residence arrangement for their child.. Recruitment took place between 2017 and 2019. Therapists and mediators at the family counselling offices were trained to invite all visiting families to participate in the study. The only inclusion criterion was that the parents had at least one common child under the age of 16. Regrettably, we have no information on how many families were invited to participate in the study. Children aged 12-15 completed an online questionnaire, while children aged 7-11 were given the same questionnaire through a structured interview conducted by trained interviewers. The study was approved by the Regional Committee for Medical and Health Research Ethics in Norway (REK approval number: 2017/143), and all study procedures fulfilled the recommendations of the Helsinki Declaration. Several measures were undertaken to protect the children from undo harm as participants in the study (e.g. thorough piloting the questionnaires and interviews and age-appropriate information about participation and who they could contact for questions of worries).

Out of the 931 children who participated at Wave 1, 570 had parents who were not living together, 67 were in the process of separating, and 289 had cohabiting parents. The current analytic sample consisted of children who met the following criteria: 1) their parents were living apart or in the process of separating, 2) they had contact with both parents 3) they had a defined residence arrangement at the time of participation, 4) at least one parent had reported on the time since separation, and 5) they provided valid responses on at least one of the two outcome measures (i.e., symptoms of depression and symptoms of anxiety). After applying these criteria, the final sample included a total of 454 children from 338 families.

Descriptive statistics for all study variables and demographics are displayed in Table 1. Children were between 6.5 and 16 years of age, with a mean of 11 years (SD = 2.48), and there were slightly more girls than boys (52.9%). In the current sample, 64% (n = 290) of the children had symmetric shared residence, 11.5% (n = 52) of the children had asymmetric shared residence, 13% (n = 59) had extended sole residence, and 11.7% (n = 53) of the children had limited sole residence. The average time since separation was 2.7 years and there were 17 children whose parents were about to move apart.

# Measures

*Child depressive symptoms* over the past two weeks were measured with a short form of the Moods and Feelings Questionnaire, Child Version (MFQ-C; Angold & Costello, 1987). The short form comprises 13 items rated on a three-point scale (0 = not true, 1 = sometimes true, 2 = true). Items include "I felt miserable or unhappy" and "I was very restless." A mean score was computed for each child, demonstrating excellent internal consistency ( $\alpha = 0.87$ ).

*Child anxiety symptoms* were assessed using the 5-item version of Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997). Responses were recorded on a three-point scale (0 = not true or hardly ever true, 1 = somewhat or sometimes true, 2 = true or often true). Items include "I get really frightened for no reason at all" and "People tell me that I worry too much." A mean score was calculated for each child with acceptable internal consistency ( $\alpha = 0.60$ ).

*Child residence arrangement* were categorized based on parent reports. If parents reported that the child lived equally with both, the child was categorized as having symmetric shared residence. If parents reported that the child lived more with one parent, they were further asked how many days the child spent with one parent relative to the other in a typical 14-day-period. An open-ended

		Residence Arrangement							
	Symmetric shared M (SD)	Asymmetric shared M (SD)	Extended sole M (SD)	Limited sole M (SD)	All arrangements M (SD)				
Residence arrangement (N, %)	290 (63.9%)	52 (11.5%)	59 (13%)	53 (11.7%)	454				
Child depressive symptoms	0.38 (0.35)	0.32 (0.30)	0.41 (0.34)	0.47 (0.45)	0.39 (0.36)				
Child anxiety symptoms	0.30 (0.35)	0.27 (0.30)	0.29 (0.33)	0.30 (0.31)	0.30 (0.33)				
Child age	11.06 (2.45)	11.24 (2.65)	10.31 (2.17)	11.31 (2.72)	11.01 (2.48)				
Child gender (girls)	155 (53.5%)	22 (42.3%)	36 (61%)	27 (50.9%)	240 (51%)				
CPIC total conflict score	0.53 (0.48)	0.60 (0.47)	0.56 (0.55)	0.60 (0.41)	0.55 (0.48)				
CPIC intensity	0.86 (0.75)	0.84 (0.64)	0.83 (0.85)	0.85 (0.68)	0.85 (0.74)				
CPIC child content	0.16 (0.40)	0.18 (0.37)	0.21 (0.42)	0.20 (0.33)	0.18 (0.39)				
CPIC triangulation	0.28 (0.53)	0.40 (0.62)	0.37 (0.61)	0.43 (0.66)	0.33 (0.57)				
CPIC resolution (reversed)	0.65 (0.67)	0.83 (0.70)	0.69 (0.74)	0.77 (0.63)	0.69 (0.68)				
Time since parental separation (years)	1.93 (2.50)	3.92 (3.26)	4.86 (3.54)	3.42 (3.93)	2.71 (3.13)				
Age mothers	41.19 (4.56)	39.27 (6.37)	37.96 (5.92)	41.18 (7.06)	40.59 (5.32)				
Age fathers	43.05 (5.23)	42.58 (7.37)	41.75 (7.03)	44.64 (9.46)	43.0 (6.08)				
Employed (mothers) (N, %)	211 (91.74%)	32 (96.97%)	43 (97.73%)	23 (71.88%)	309 (91.15%)				
Employed (fathers) (N, %)	209 (94.57%)	27 (87.1%)	28 (93.33%)	21 (87.5%)	285 (93.14%)				
Mothers' financial difficulties	2.48 (0.87)	2.18 (0.85)	2.49 (0.69)	2.85 (0.71)	2.49 (0.84)				
Fathers' financial difficulties	2.37 (0.72)	2.45 (0.51)	2.81 (1.25)	2.64 (0.91)	2.44 (0.80)				

 Table 1. Descriptive sample statistics: N (percentages) or means (standard deviations).

Note. Employment: 0 = not employed (in sick leave, receiving disability benefits or job-seeking). 1 = employed (employed full-or part-time, in education or parental leave.

Financial difficulties: "How do you expect that you will manage financially in the near future?" 1 = 1 will do really well to 5 = 1 will do really poorly.

Age mothers n = 346. Age fathers n = 319.

Employment mothers n = 339. Employment fathers n = 306.

Mothers' financial difficulties n = 344. Fathers' financial difficulties n = 311.

question allowed parents to elaborate on their arrangement, for example, if the child stayed with one parent only during the holidays. Subsequently, children were categorized into four groups: "symmetric shared residence" (50/50), "asymmetric shared residence" (36–49% of the time with the non-resident parent), "extended sole residence (16–35% of the time with the non-resident parent), and "limited sole residence" (1–15% of the time with the non-resident parent).

Interparental conflict was assessed using a composite score derived from four subscales of the validated short form of Children's Perception of Interparental Conflict Scale (CPIC; Holt et al., 2020). Before administering CPIC, interparental conflict was measured through six items ( $\alpha = 0.83$ ), where children rated statements such as "during the past year, have you experienced that your parents disagreed on many things?" on a four-point Likert scale (1 = never, 2 = one or sometimes, 3 = often, 4 = all the time). Children scoring  $\geq 2$  on at least one of these six items proceeded to complete CPIC. The total CPIC score comprised four subscales: Intensity (e.g. "my parents get really mad when they argue"), Resolution (reversed) (e.g. "When my parents argue they usually make up right away"), Child Content (e.g. "My parents' arguments are usually about something I did"), and Triangulation (e.g. "I feel caught in the middle when my parents argue"). Items were rated on a four-point Likert scale (0 = not true, 1 = sometimes true, 2 = quite true, 3 = very true). A mean score was calculated across all four subscales to represent the total interparental conflict index. The CPIC demonstrated acceptable internal consistency (Intensity:  $\alpha = 0.79$ , Resolution:  $\alpha = 0.73$ , Child Content:  $\alpha = 0.77$ , Triangulation  $\alpha = 0.72$ , and Total CPIC:  $\alpha = 0.86$ ). Children who reported that their parents never had conflicts (i.e., scored 1 on all six initial items), had their CPIC total interparental conflict score set to zero. This adjustment was made to ensure the inclusion of most children in the study.

*Control variables* included child age (in years), gender (0 = boys; 1 = girls), and parent-reported *time since separation* (in years). For parents who had lived apart for more than six months, they were asked to specify the exact number of years and months since separation, which was used as their reported time since separation. Parents currently in the process of separating were assigned a value of 0, while those who had lived apart for less than six months received a value of 0.25 (equivalent to three months). Parents who had never lived together were assigned a value for time since separation equivalent to the age of the child. The measurement of time since separation was based on mothers' report, or fathers' report if mothers' report was unavailable. To address any discrepancy between when parents and children completed the questionnaire/had been interviewed, we adjusted for the difference in time (i.e. if the mother reported time since separation as 10 months, but the child completed the questionnaire two months before the mother, the time since separation was adjusted to 8 months).

# Analytic strategy

All analyses were performed in Stata (version 17). To investigate the relationship between residence arrangements, interparental conflict, and children's depressive and anxiety symptoms, respectively, a series of mixed effects linear regression models were estimated. This approach accounted for the nested structure of the data within families, with random intercepts specified for each family. In Model 1, we investigated the relationship between residence arrangement and children's depressive and anxiety symptoms, respectively. In Model 2, interparental conflict and control variables were added. Finally, Model 3 included an interaction term between residence arrangement and interparental conflict. To be able to run all possible comparisons between residence arrangements, we changed the base category in the models.

In the analytic sample, 63 children (13.6%) had one missing value, and 4 children (0.9%) had two missing values on interparental conflict and control variables. Missing values for interparental conflict (n = 55) were imputed using

multiple imputation (chained equations, 20 imputations). Nine children had missing data on time since separation. As we did not have any meaningful measures to base an imputation for this variable on, we excluded these children from the analyses. This resulted in a final analytical sample of 454 children. We compared children with missing data on the conflict measure to those with complete data to assess significant differences across other study variables. There were no significant differences between the groups in terms of gender, time since separation, MFQ, and SCARED. However, children with missing conflict data were significantly older, with an average age difference of 2.16 years compared to those with complete conflict scores.

# Results

The results from the regression models are presented in Table 2 (for symptoms of depression) and Table 3 (for symptoms of anxiety). Addressing our first hypothesis, Model 1 revealed significant differences in children's depressive symptoms across residence arrangements. Specifically, children in asymmetric shared residence reported fewer depressive symptoms compared to those in limited sole residence ( $\beta = -0.15$ , p = .029). This relationship remained significant after including control variables in Model 2 ( $\beta = -0.14$ , p = .025). However, no significant differences were found in children's anxiety symptoms across residence groups (ps > 0.05). Furthermore, Model 2 indicated that higher levels of interparental conflict were related to elevated levels of both depressive ( $\beta = 0.21$ , p < .001) and anxiety symptoms ( $\beta = 0.17$ , p < .001) among children.

To address our second hypothesis, we tested whether interparental conflict moderated the association between residence arrangement and children's depressive and anxiety symptoms, respectively (see Model 3). For children's anxiety symptoms, there was a positive and significant interaction between symmetric shared residence and interparental conflict ( $\beta = 0.21$ , p = .013), compared to extended sole residence (see Table 3, Model 3). Figure 1 illustrates the margins plot for this interaction, showing that the effect of interparental conflict on children's anxiety symptoms is stronger for those in symmetric shared residence compared to other residence groups. Specifically, children in all four residence arrangements showed similar levels of anxiety symptoms when levels of interparental conflict were low. However, under high levels of interparental conflicts, children in symmetric shared residence display higher levels of anxiety symptoms relative to children in extended sole residence. We did not find a significant interaction between residence arrangement and interparental conflict for children's depressive symptoms (see Table 2, Model 3).

Sensitivity analyses using mixed effects models were conducted on data without imputed values using Maximum Likelihood Estimation and listwise

366 🔶 M. MORBECH ET AL.

Ref:	Symmetric shared			Asymmetric shared			Extended sole		
ilen.	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Residence									
arrangemer	nt								
Symmetric				0.06	0.08	0.04	-0.03	-0.01	-0.08
				(0.05)	(0.05)	(0.08)	(0.05)	(0.05)	(0.07)
Asymmetric	-0.06	-0.08	-0.04				-0.09	-0.09	-0.12
	(0.05)	(0.05)	(0.08)				(0.07)	(0.06)	(0.10)
Extended sole	0.03	0.01	0.08	0.09	0.09	0.12			
	(0.05)	(0.05)	(0.07)	(0.07)	(0.06)	(0.10)			
Limited sole	0.09	0.06	0.14	0.15 <sup>*</sup>	0.15*	0.18	0.06	0.06	0.06
	(0.05)	(0.05)	(0.09)	(0.07)	(0.07)	(0.11)	(0.07)	(0.06)	(0.11)
Control	. ,	. ,	. ,	. ,	. ,	. ,	. ,	. ,	. ,
variables									
Interparental		0.19***	0.25***		0.21***	0.18		0.21***	0.12
conflict		(0.01)	(0.04)		(0.03)	(0.10)		(0.03)	(0.08)
Time since		0.01	0.01		0.01	0.01		0.01	0.01
separation		(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)
Child age		0.02**	0.02**		0.02**	0.02**		0.02**	0.02**
		(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)
Child gender		0.10***	0.10**		0.10***	0.10**		0.10**	0.10**
(ref = girls)		(0.03)	(0.03)		(0.03)	(0.03)		(0.03)	(0.03)
Interaction		(,	(,		(,	()		(,	(,
terms									
Symmetric						0.07			0.12
x Conflict						(0.11)			(0.09)
Asymmetric			-0.07			(,			0.05
x Conflict			(0.11)						(0.13)
Extended sole			-0.12			-0.05			(2)
x Conflict			(0.09)			(0.13)			
Limited sole			-0.13			-0.06			-0.01
x conflict			(0.13)			(0.16)			(0.14)
Constant	0.38***	-0.01	-0.03	0.32***	-0.09	-0.08	0.41***	0.00	0.04
	(0.02)	(0.07)	(0.08)	(0.05)	(0.09)	(0.10)	(0.05)	(0.08)	(0.09)

Table 2. Mixed effects linear regression models: the determinants of children's depressive symp-
toms in different residence arrangements ( $N = 452$ ).

*Note*. Standard errors in parentheses; \*p < .05. \*\*p < .01. \*\*\*p < .001.

deletion were conducted. All results from the sensitivity analyses closely aligned with the main results. These results can be obtained upon request to the corresponding author.

# Discussion

The present study examined the relationship between four residence arrangement groups and children's anxiety and depressive symptoms. We also explored whether interparental conflict moderated this relationship, allowing us to better understand the role of interparental conflict across different residence groups with a view to informing family practice. By using children's self-reports, we focused on children's own perspectives of interparental conflict. The role of child perceptions of interparental conflict has been increasingly recognized (Clements et al., 2014; Grych et al., 1992), but there is limited understanding of these perceptions in the context of parental separation and residence arrangements for children's mental health.

Ref:	Syn	Symmetric shared			Asymmetric shared			Extended sole		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	
Residence										
arrangemen	nt									
Symmetric				0.03	0.02	-0.09	0.01	0.03	-0.09	
shared				(0.05)	(0.05)	(0.08)	(0.05)	(0.05)	(0.07)	
residence										
Asymmetric	-0.03	-0.02	0.09				-0.03	0.01	0.00	
shared	(0.05)	(0.05)	(0.08)				(0.06)	(0.06)	(0.09)	
residence										
Extended sole	-0.01	-0.03	0.09	0.03	-0.01	0.00				
residence	(0.05)	(0.05)	(0.01)	(0.06)	(0.06)	(0.09)				
Limited sole	-0.00	-0.00	0.09	0.03	0.02	-0.01	0.01	0.02	-0.01	
residence	(0.05)	(0.05)	(0.08)	(0.07)	(0.06)	(0.11)	(0.06)	(0.06)	(0.10)	
Control										
variables										
Interparental		0.17***	0.24***		0.17***	0.04		0.17***	0.03	
conflict		(0.03)	(0.04)		(0.03)	(0.10)		(0.03)	(0.08)	
Time since		-0.00	-0.00		-0.00	-0.00		-0.00	-0.00	
separation		(0.01)	(0.00)		(0.01)	(0.01)		(0.01)	(0.00)	
Child age		-0.00	-0.00		-0.00	-0.00		-0.00	-0.00	
		(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)	
Child gender		0.18***	0.18***		0.18***	0.18***		0.18***	0.18***	
(girls)		(0.03)	(0.03)		(0.03)	(0.03)		(0.03)	(0.03)	
Interaction										
terms										
Symmetric						0.19			0.21*	
shared						(0.10)			(0.08)	
x conflict										
Asymmetric			-0.19						0.02	
shared			(0.10)						(0.12)	
x conflict										
Extended sole			-0.21*			-0.02				
x conflict			(0.08)			(0.12)				
Limited sole			-0.16			0.04			0.05	
x conflict			(0.12)			(0.15)			(0.13)	
Constant	0.30***	0.16*	0.12	0.26***	0.15	0.21*	0.29***	0.14	0.21*	
	(0.02)	(0.07)	(0.07)	(0.05)	(0.08)	(0.10)	(0.04)	(0.08)	(0.08)	

Table 3. Mixed effects	linear regression mo	dels: the de	eterminants of o	children's anxiety	' symptoms
in different residence a	rrangements ( $N = 45$	51).			

*Note*. Standard errors in parentheses; \*p < .05. \*\*p < .01. \*\*\*p < .001.

A recent contribution to the literature has been the distinction between symmetric shared and asymmetric shared residences (e.g. Steinbach et al., 2021; Turunen et al., 2021). Building on this, our study differentiates between four distinct residence arrangements: symmetric shared residence (50/50), asymmetric shared residence (36–49% of the time with the non-resident parent), extended sole residence (16–35% of the time with the non-resident parent), and limited sole residence (1–15% of the time with the non-resident parent). Our findings indicate that, overall, children with different residence arrangements display similar levels of mental health problems. However, we did find that children in asymmetric shared residence reported lower levels of depressive symptoms compared to children in limited sole residence. Additionally, children who experienced more interparental conflict also exhibited higher level of anxiety symptoms, particularly in symmetric shared residence compared to extended sole residence. The current study highlights

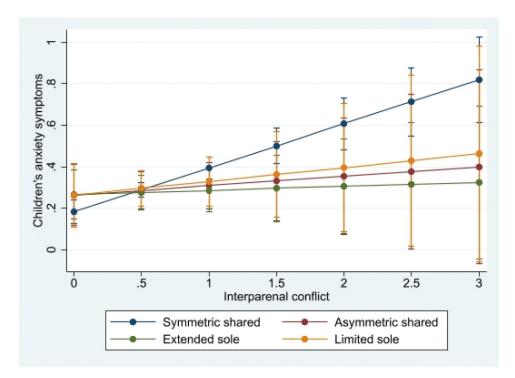


Figure 1. Interaction between interparental conflict and residence arrangements in predicting children's anxiety symptoms (95% confidence intervals).

differences within the traditional categorization of residence arrangements, thereby emphasizing the importance of expanding this differentiation to unveil potentially important differences between children with other forms of arrangement within shared and sole residence.

Several studies have found that children living in shared residence have better mental health compared to children living in sole residence (Bergström et al., 2019; Steinbach & Augustijn, 2021; Vezzetti, 2016). After further differentiating the shared residence group into symmetric and asymmetric shared, our results show that only children in asymmetric shared residence experienced fewer depressive symptoms compared to those in limited sole residence. These findings partially align with our hypothesis that lower levels of mental health symptoms would be seen in both symmetric and asymmetric shared residence, with the highest levels in limited sole residence. The outcome supports the parental loss perspective (Amato, 1993), suggesting that children in asymmetric shared residence might experience fewer emotional, financial, and material losses than those in sole residence, potentially contributing to their lower depressive symptoms. However, this does not clarify why our results did not show similar outcomes for the symmetric shared group, prompting us to encourage further research to examine this. If the amount of time spent with each parent were the primary factor for child adjustment,

we might also expect fewer depressive symptoms among children in the symmetric shared residence group. However, interpreting our findings in light of the parental loss perspective suggests that maintaining close contact with both parents is beneficial, although an equal division of time between parents is not crucial. Furthermore, it is important to note that most previous research has primarily compared sole and shared residence groups, with only a few studies examining more nuanced definitions of residence arrangements like those considered in the present study. One study did find similar trends of lower levels of child mental health symptoms in asymmetric shared residence within a German sample, using mother-reported data (Augustijn et al., 2023). However, it remains unclear why effects may be specific to asymmetric shared residence in the current study. We can speculate that asymmetric shared residence provides children with the positive aspects of both shared and sole residence. Children in asymmetric shared residence can maintain substantial contact with both parents while having a main residence, which may offer more stability. Another interpretation of the current findings could be that, rather than simply adopting the arrangement that seems to be most common or a fair compromise, the group of parents who practice asymmetric shared residence may have opted for this arrangement after careful consideration of their specific situation and the needs of the child and the family. Perhaps this group is also more likely to include the child in the decision-making process regarding residence arrangement. This could result in an arrangement that works well for the family, contributing to better child mental health. These are only speculations, and future research should aim to further examine factors and processes that may help elucidate the current findings.

We hypothesized that we would find similar patterns for depressive and anxiety symptoms; however, we found no differences in anxiety symptoms between residence arrangements - the findings were specific to depressive symptoms. While previous research has suggested that, compared to sole residence arrangements, children in shared residence experience less mental health problems (Bergström et al., 2019; Steinbach & Augustijn, 2021), most of the existing studies have examined broad measures of mental health/psychological problems (Augustijn et al., 2023; Bergström et al., 2019; Steinbach, 2019), or considered other outcomes such as psychosomatic symptoms (Bergström et al., 2015), general wellbeing (Bergström et al., 2013), and selfesteem (Turunen et al., 2017). This study builds on the current understanding by examining residence arrangements specifically for two dimensions of internalizing problems, namely, anxiety and depressive symptoms. The present findings suggest that there may be differential effects on child outcomes, and future research should consider the specificity of risk for child outcomes in the context of a variety of residence arrangements.

In line with the conflict hypothesis and previous research (Amato, 1993; Amato & Sobolewski, 2001; Harold & Sellers, 2018; Kelly, 2012; O'Hara et al.,

2019), our findings indicate that higher levels of interparental conflict are associated with poorer child mental health. Specifically, we found that interparental conflict was associated with both anxiety and depressive symptoms across residence groups. This highlights the importance of addressing interparental conflict in the context of separation, not only to improve parental relationships but also to better the psychological outcomes for children involved.

The cognitive contextual framework suggests that children who perceive interparental conflict as more threatening, or feel that they are unable to cope with the conflict, are more prone to anxiety and feelings of helplessness. This perception may stem from direct exposure to conflict or from the instability and insecurity it creates in their home environment. On the other hand, children who experience self blame attributions are more likely to experience depressive symptoms (Grych, 1998; Harold & Murch, 2005).

While rarely examined, some research suggests that interparental conflict may moderate the association between residence arrangements and child mental health (Augustijn, 2021; Kalmijn, 2016; Langmeyer et al., 2022; Vanassche et al., 2013). We therefore extended previous findings by examining potential moderating effects for both child anxiety and depressive symptoms across different residence arrangements. We observed that interparental conflict was more strongly related to anxiety symptoms in the context of symmetric shared residence compared to extended sole residence. Conversely, while interparental conflict was associated with children's depressive symptoms across all residence arrangements, the interaction between interparental conflict and residence arrangement was not significant for depressive symptoms. While we hypothesized a moderating effect of interparental conflict on the relationship between residence arrangement and *both* anxiety and depression, our findings suggest that the moderating effect of interparental conflict may be specific to anxiety.

As the conflict hypothesis suggests, the amount of time children spend with each parent can affect their adjustment differently depending on the level of interparental conflict. This hypothesis posits that in high-conflict families, equal time-sharing may expose children to more parental disputes, potentially exacerbating child anxiety and stress (Amato & Rezak, 1994; Mahrer et al., 2018; Vanassche et al., 2013). Our findings provide partial support for this, in the context of symmetric shared residence. It is possible that interparental conflict has a more pronounced impact on anxiety within the context of symmetric shared residence, where there might be a heightened need for parents to interact and communicate constructively to meet the demands of this arrangement. If parents opt for this arrangement, which relies on cooperation and communication to work effectively, but fail to collaborate well, the child may end up serving as a messenger between the two. Exposure to two parents who frequently argue – despite ideally needing to co-parent constructively – can significantly stress children, possibly exacerbating their anxiety.

Conversely, in sole residence arrangements, where one parent typically has more autonomy, there may be less need for intensive communication. This could allow parents to manage co-parenting more pragmatically, possibly easing cooperation and reducing potential conflicts. In high-conflict situations, a more independent co-parenting approach, where parents manage their time with the child without needing to coordinate closely, might be a viable option within a sole residence arrangement. However, this approach may not be as effective in symmetric shared residence arrangements. Future research should examine the role of child attributions of interparental conflict and understanding of different residence arrangements to better understand the role of interparental conflict on child adjustment in the context of separation.

# Strengths and limitations

The current study has several strengths. First, it introduces a novel and nuanced categorization of residence arrangements based on the actual time the child spends with each parent, rather than the legal arrangement, which has often been the case in previous studies. Second, the study uses children's self-report of depressive and anxiety symptoms and their own perceptions of interparental conflict. The importance of child perceptions of interparental conflict is increasingly recognized and we therefore consider the inclusion of child-report a strength of the research, especially given the limited research focusing on child perceptions of interparental conflict in the context of separation/divorce. However, future research could consider alternative approaches to assessing child mental health and interparental conflict, such as teacher reports, clinical assessments of child symptoms, or observational assessments of interparental conflict. It is important to note that we considered a broad measure of interparental conflict, capturing different aspects of conflicts, as a moderator of the association between residence arrangement and child mental health. However, different domains of interparental conflict (e.g., intensity, resolution, child content, triangulation) may have varied impacts on child mental health. Future research should examine these domains separately, as well as other dimensions of the interparental relationship.

Third, we considered a range of control variables including age, gender, and recency of parental separation. Consistent with previous research, girls and older children were more likely to experience greater number of depressive/ anxiety symptoms (Zahn-Waxler et al., 2000). We found no effect of time since separation on child mental health. The literature on residence arrangements and child mental health rarely considers recency of parental separation. Some studies suggest that children's mental health deteriorates before and worsens

further after their parents' breakup, indicating a chronic strain from such disruptions (Kravdal & Wörn, 2023; Tullius et al., 2022). Additionally, evidence suggests that conflict typically escalates immediately after separation and subsides over time (Modecki et al., 2015), and that children's adaptation may be explained more by the nature of interparental conflict surrounding the separation rather than the time of the event itself (Harold & Murch, 2005; Harold & Sellers, 2018). The lack of association in the present study may stem from sample characteristics. Specifically, 53.3% (n = 242) of participants were recruited during mediation and 46.7% (n = 212) through family therapy or counseling aimed at improving co-parenting post-separation. The children from the mediation sample may have heightened symptomatology due to the immediate stress of parental separation, while those in counselling might show elevated symptoms due to ongoing familial conflicts and difficulties in coparenting. This variation could obscure the effect of time since separation on child mental health symptoms typically reported in other studies (e.g. Kravdal & Wörn, 2023). Given these considerations, our sample was not optimal for examining time since separation as a primary variable within our main model. Nonetheless, recognizing the potential importance of this variable, we encourage future research to include time since separation as a primary variable to provide an important contextual layer for understanding these dynamics.

Several limitations of the current study should be noted when interpreting and applying the current findings. First, the sample size of three of the residence groups are small. Still, even with small groups, a reasonable interaction effect of interparental conflict was found. This finding calls for further investigations in larger samples. Following this, different sizes in group membership should also be mentioned as a limitation. Second, although this study investigated the role of interparental conflict in the context of different residence arrangements for child mental health, firm conclusions about effects at particular points during this developmental period are not possible due to the wide age range and limited sample size in the study. Future studies should consider the potential role of developmental stage as a moderator in the association between child mental health and residence arrangements. Third, there are some limitations following from the sampling design. All families with children under the age of 16 must attend mediation in Norway, but the family counselling offices do not have descriptive statistics of the families visiting them, making direct comparisons to this sample difficult. All families were invited to participate in the study, independent of their background and previous familial difficulties, but there could be a selection effect for which families agreed to participate. Families recruited from mediation sessions were from a normal population of separating parents, while those recruited from family counselling sessions were actively seeking help after separation, often struggling with various problems. These families might be more vulnerable

and have higher levels of difficulty compared to the general population of families where parents live apart.

Fourth, our study did not include a measure of the actual amount of contact between parents. We interpret our finding based on the assumption that more equal time-sharing necessitates higher levels of communication between parents for successful co-parenting. However, we acknowledge that more equal time-sharing does not necessarily correlate with increased contact between parents. Therefore, we recommend that future studies incorporate a measure of the actual amount of parental contact when exploring the relationship between residence arrangements, interparental conflict, and child mental health. It should also be noted that there may not necessarily be a strict distinction between different residence groups, particularly at the boundaries, such as symmetric shared residence (50/50) and asymmetric shared residence (such as 40–60%).

When investigating associations between residence arrangements and child mental health, it is important to emphasize the issue of selection effects. Like most other studies on residence arrangements, the analyses in this study are based on a cross-sectional design, limiting the ability to clarify the causal effect of residence arrangement on child mental health in the context of high interparental conflict. Understanding the complexities of how these arrangements are chosen and their reflection of broader family dynamics and individual circumstances of both children and parents is important. Previous research has shown that selection effects influence which families practice specific residence arrangements (Cancian et al., 2014; Juby et al., 2005; Kitterød & Lyngstad, 2012; McIntosh & Chisholm, 2008; Morbech et al., 2023; Turunen, 2017). Acknowledging this is essential when interpreting the current findings. Future work should focus on exploring the underlying processes beyond the structural dimensions of residence arrangements, aiming to uncover the mechanisms that drive the association between residence arrangements and child mental health. Longitudinal studies are needed to explore the association between residence arrangements, child mental health, and interparental conflict over time, considering both children's and parents' perspectives. The current findings suggest that the previously observed positive link between shared residence and children's mental health is closely associated with other family-related factors. Longitudinal research should also examine other process variables, such as the parent-child relationship and various aspects of parental dynamics, including the quality of their contact and communication, within the context of different residence arrangements. Studies should additionally consider parents' involvement in their child's everyday life before separation. Moreover, it is essential for longitudinal studies to consider the stability of residence arrangements over time.

# Conclusions

Notwithstanding these caveats, the results of the present study provide insights into the role of residence arrangements and the moderating role of interparental conflict for children's symptoms of anxiety and depression. Given the increasing prevalence of shared residence, understanding the conditions under which such arrangements may be in the best interest of the child is necessary.

The current findings indicate that children with asymmetric shared residence display fewer depressive symptoms than children in limited sole residence. However, overall, children in different living arrangements fare quite similarly regarding mental health problems. These findings contradict some of the previous literature often dominating the debate, which suggests that children in shared residence (often considered as a 50/50 split) have better adjustment than children in sole residence. The current findings may encourage parents to think more about their own situation, their child's needs, and what might work well for them, rather than opting for shared residence as a fair compromise or because it is "most common." Future research should examine factors that might help explain this difference to allow more specific recommendations. Research should also continue to examine the processes that support child mental health across different residence arrangements.

Furthermore, the current data help advance understanding of residence arrangements and interparental conflict for children's mental health. Interparental conflict was important for maladjustment across all groups, highlighting the need to continue supporting parents in managing conflicts in the context of separation to reduce the risk of poorer mental health outcomes for their children. This may be particularly important for parents with a conflictual relationship practicing shared residence, considering the current finding showing that in the context of symmetric shared residence, high levels of interparental conflict may increase risk for children's anxiety symptoms. The current findings also speak to the importance of therapists tailoring their advice and guidance to each individual family. By considering the family's situation, including all surrounding family factors, therapists can help parents choose an arrangement that works well for the specific child and the rest of the family.

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- 376 👄 M. MORBECH ET AL.
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- 378 🔶 M. MORBECH ET AL.
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380 🛞 M. MORBECH ET AL.

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