

The impact of family complexity on social-emotional difficulties in early childhood

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1. Introduction

A large number of studies have documented the impact of family background on child development. Parental investment in children's cognitive and emotional development, well-being, and health is essential. Parental contributions include both economic resources and parental engagement. Family structure, however, influences how parents can provide these resources for their children. This conclusion is supported by a number of research projects whose findings indicate that children who spend their entire childhood in a two-biological-parent family have more positive outcomes on several dimensions than their peers living in other family structures [1–3].

Several theories have been developed to explain the impact on child development of events and changes in families. Amato provided a comprehensive summary of these theories, on which a number of studies have subsequently been based [4].

One explanation for the differences in developmental outcomes between children raised in intact and nonintact families is that children affected by the divorce/separation of their parents suffer a loss of various resources when one parent moves out. After a divorce/separation, economic and material circumstances often deteriorate (inadequate resources theory). The child's relationship with the separating parent can weaken, since the absence of one biological parent can be related to a reduction in both parenting time and energy (parental loss theory). Research on this topic, however, shows that a well-functioning relationship between the child and the non-custodial parent can be a strong protective factor for young children. Children's cognitive development and their mental health are associated with the quality of the parental involvement of non-custodial parents [5].

After divorce/separation, custodial parents may also need to spend more time earning money and working in the household, which limits the time and energy they devote to the child (ineffective parenting theory). This can also have an adverse effect on children's development and psychological well-being.

However, children who do not grow up with both biological parents are heterogeneous: they may live in a single-parent family or in a step-family, and they may experience different sibling compositions. Some children live in a single-parent family from birth, while others experience the divorce/separation of their parents, or the loss of one parent during childhood. Some of the parents go on to form a new relationship and the child receives a step-parent. According to research findings, children growing up in single-parent families are at a disadvantage in multiple domains of child well-being, compared both to their peers living in intact families and to those living in step-families [6].

Step-parents can add to the material, social, and emotional resources in the child's family. At the same time, the relationship between the child and the step-parent is sometimes problematic and conflict-ridden. It can make the child's situation difficult if there is rivalry between adults with different parental roles. It can be difficult for step-parents to handle their step-parenthood, and it is not easy for children to relate to their step-parent, because even if they have a good relationship, the child may feel conflicted in his/her loyalty toward the separated biological parent [7]. The situation may be further complicated if the step-parent also has children from a previous partnership who live in the same or a separate household. Moreover, the biological preference theory (see, for example, [8]) states that step-parents invest less in those children living with them than do biological parents. This assumption is supported by empirical research [9]. Most studies conclude that the majority of children raised in step-families have a higher risk of lower-level outcomes than do those raised in intact families, in terms of academic, social, behavioral, and psychological well-being— something that is presumably related to the lower level of parental investment in these families [10,11]. Beyond the presence of a step-parent, sibling composition itself is also important. There is growing evidence that children raised with a half- or step-sibling often experience worse outcomes—in terms of school achievement and mental health issues—than those raised with only full siblings [12–16].

Family complexity measured at a certain point in time is an imprint of earlier parental and child life events. Of these life events, it is the divorce/separation of parents that is the most significant in terms of both impact and prevalence. Children affected by parental divorce/separation may later experience a variety of family structures, but they will most likely not live with both biological parents again. The question arises as to which of these effects is more important with regard to children's development: the fact that the divorce has taken place or the newly formed family structure in which the children continue to live. Although divorce generally has an adverse impact on children's well-being, cognitive and emotional development [17–23], it does not affect all children in the same way [24] and the negative consequences of divorce can be mitigated or amplified by a number of factors.

Studies show that inter-parental conflict is negatively associated with children's outcomes, including emotional, behavioral, social, and academic development, irrespective of whether the conflict precedes or follows the divorce [25–31]. High levels of conflict between parents are related to less warmth and lower-quality parenting [32], and can spill over into parent–child relationships; this is also a predictor of children's developmental disadvantages (ineffective parental theory). The difference in well-being between children in intact and dissolved families decreases (or even vanishes) when conflict in the childhood family is controlled for [4]. It is also questionable whether the negative effects are really a consequence of divorce, or whether there are selection mechanisms (selection theory): i.e., divorce is more common in families where children's well-being and their cognitive and emotional development are already hampered, mainly due to interparental conflict or socioeconomic factors (e.g., poverty, housing problems, low level of parental education). Several studies have concluded that, after controlling for the effect of low educational attainment among parents and poor financial circumstances, the impact of family structure on cognitive outcomes is modest [33].

The detrimental short- and long-term effect of low socioeconomic status (SES) on children's health, socioemotional well-being, and cognitive development has been reported in a large number of studies (for reviews, see [34–36]); the effects are often explained by differences in parenting practices [37]. Disrupted parenting—including insensitive, unsupportive, harsh, punitive, or over-controlling parenting behavior, low quality and quantity of time spent interacting with the child, and less provision of social and cognitive enrichment—is more common among families experiencing economic hardship and pressure, and has been linked to early childhood internalizing and externalizing problems, problems with literacy in the preschool years, and poor physical health [38]. The lower education level of parents has also been associated in previous Hungarian studies with spending less money on cognitively stimulating tools and services and less time on childcare activities [39], and with children's poorer intellectual and social development [40] and language skills [41]. As in many European countries, children's family structures in Hungary can also be complex. According to the Hungarian Microcensus 2016, in families with at least one child aged 24 or younger, the proportion of intact families was 64%; of step-families—12.4%; and of single-parent families—22.5%. Although research has shown differences between intact, step- and single-parent families in several respects [42–44], to the best of our knowledge the impact of family structure on early childhood development has not yet been studied in Hungary.

Our research uses the nationally representative sample of the Cohort '18 Growing Up in Hungary longitudinal birth cohort study to examine how the children's social-emotional difficulties are influenced by family complexity. Our concept of family complexity refers to how many parents are raising the child; to whether the parents are the biological parents of the child; and to the sibling composition in the family. The following question will be answered: Are there significant differences in the risk of social-emotional difficulties of children according to their family complexity at age 3?

The distribution of family types differs significantly in Hungary between groups, according to the educational attainment of parents. Among parents with at most primary education, only 49.5% are intact families, 11.4% are step-families, and 39% are single-parent families, while among those with a university degree, the corresponding proportions are 73%, 11.5%, and 15.6% [45]. Since the educational attainment of parents in intact families is higher, and since parents with higher socioeconomic status invest more in their children (who in turn have more favorable outcomes), the following questions arises: Are the benefits to children in full biological (intact) families due to a selection effect by high socioeconomic status, measured by parental educational attainment and financial background of the family? There is also the question of the role of regional location of residence, which is partly related to the structural situation of individuals and families and partly to the fact that the infrastructure in more backward areas is less able to support children with developmental problems.

Reflecting on the literature, we also hypothesised that there are factors that are more prevalent in non-intact families and that these may play a role in the less favourable outcomes for children in non-intact families. One of these factors is the conflictuality of the relationship between the biological parents, another is the mental well-being of the mother, and the third is the financial difficulties of the family, the fact that they cannot or can only with great difficulty cover their expenses, after a divorce/separation or the death of one of the biological parents. Our question was therefore to what extent the fact that children in different family types are less well off in the above described dimensions explains their outcomes.

2. Methods

2.1. Data

The source of data is Cohort '18 Growing Up in Hungary. This is a nationally representative, longitudinal, birth cohort study launched by the Hungarian Demographic Research Institute (HDRI) in 2017 [46–49]. The purpose of the survey is to examine the growth and development of almost 8700 children born between spring 2018 and spring 2019 from fetal age to adulthood.

The primary sampling units were the territorial health visitor districts. Thanks to the very high coverage of the Hungarian prenatal care system by health visitors (there were approximately 4000 health visitor districts in Hungary in 2017, with 98% of pregnant women having access to the service) and the relatively low rate of late fetal mortality, the sample covers almost 10% of all children born in that period in Hungary. HDRI selected 628 health visitor districts randomly, based on the expected number of live births in each of the districts (based on Hungarian Central Statistical Office (HCSO) live birth register data from 2015, 2016, and 2017), the geographical location (Budapest; Budapest agglomeration; large towns in Hungary; small- and medium-sized

geographical districts), and the estimated average social status of each health visitor district (calculated from 11 relevant indicators available in the yearly reports of health visitors, such as the proportion of pregnant women requiring enhanced care for environmental reasons, the proportion of perceived child neglect and child abuse cases). The sample design also took into account the estimated response rates: 62–80% by type of settlement [50]. All of the pregnant women whose due date of delivery fell between 1 April 2018 and 30 April 2019 in the selected health visitor districts were included in the sample.

The size of the target population was around 90,000 and the final birth cohort sample was 8700. In all, 8287 women answered the questionnaire in the prenatal wave at the seventh month of pregnancy (t_1) ; 8241 when their child was 6 months old (t_2) ; 4941 when their child was 18 months old (t_3) ; and 5948 when their child was 3 years old (t_4) . During the lockdowns due to the COVID-19 epidemic, data collection of the Cohort '18 study was suspended in waves t3 and t4.

There were 383 retrospective answers during the 6-month wave regarding the pregnancy, and 115 retrospective answers during the 18-month wave regarding the birth: in the first instance, the women who responded had been unable to answer during the prenatal wave; and in the second case, they had not completed the 6-month wave questionnaire.

Health visitors interviewed the mothers during the first two waves of this study, while (after training) professional interviewers took over for the next two waves of this study. The sample of pregnant women was adjusted by a cell weighting procedure, according to maternal educational attainment, parity, official marital status, and the mother's age at birth (based on HCSO vital statistics and population event statistics), and also according to the economic development of the maternal place of residence, based on GDP [50]. The dropout rates were adjusted by weighting, too [48,49].

Participation in this study was voluntary. All participants gave HDRI their written informed consent. The reference number of the Ethical Approval of the Ethical Committee for the Cohort '18 Growing Up in Hungary Study is 2022/1, and the date of approval was 15 November 2022. The methodology of this research was also in accordance with the Helsinki Declaration and the Code of Ethics of the Hungarian Psychological Association.

In this study, we analyze the responses of mothers of 3-year-old children, who did not give birth to twins and have no missing data regarding the predictor variable. The weighted number of cases is n = 5788.

2.2. Measures

2.2.1. Dependent Variable: Social-Emotional Difficulties

Social-Emotional Difficulties

The psychological adjustment of children was measured by the Strengths and Difficulties Questionnaire (SDQ) for 2–4-year olds [56] (Hungarian adaptation: [57]) during the 3-year wave. This 25-item questionnaire subscales: emotional comprises the following 5-item symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior. Mothers rated the items on a 3-point scale (0 = not true, 1 = somewhat true, 2 = certainly true). Missing values were replaced by the mean of the answers to the other questions on the same subscale, provided at least three items on the given subscale were answered. Four subscales used in this study representing problem scores (emotional symptoms, conduct problems, hyperactivity/inattention, and peer problems) were summed to compute a raw total score of between 0 and 40, with a higher score indicating more socio-emotional difficulties (unweighted database: min = 0, max = 31, M = 10.77, SD = 5.52, n = 5844; weighted database: min = 0, max = 31, M = 10.91, SD = 5.58, n = 5770). This total score had good internal consistency (Cronbach's alpha = 0.76). Since population-specific norms are needed to estimate the prevalence of psychological difficulties [58], and since there is no current population-based Hungarian cut-off value validated for 3-year-olds, we followed the practice of Dahlberg et al. [59], and considered the 80th percentile as the cut-off for socio-emotional difficulties (including both borderline and abnormal mental health). Hence, based on the unweighted database, 23% of children (n = 1347, total score \geq 15.0) were identified as having socio-emotional difficulties (constituting 24%, n = 1383, in the weighted database).

2.2.2. Predictor Variable: Family Complexity

The predictor variable—i.e., family complexity in the 3-year wave—is computed by taking into account the partnership status of the cohort child's mother and the role of the cohort child within the family (living with only biological parents and siblings; with biological parents and with any kind of siblings; or with a step-father at the time of the survey wave). Thus, the categories of the family complexity index are the following:

- 1. Biological child, with two parents, only with full (if any) siblings (83.1%);
- 2. Biological child, with two parents with half- and/or step-siblings (8.4%);
- 3. Step-child, with two parents (1.5%);
- 4. Child with a single mother (7%).

2.2.3. Moderator Variables

Mother's Highest Educational Attainment (measured in the 1th wave)

The mother's educational attainment was measured at the seventh month of pregnancy, as reported by the mother during the prenatal wave or retrospectively at the time of the 6-month wave. The three categories of educational attainment are the following: at most vocational education (corresponding to ISCED 97: 0, 1, 2, and 3C categories); secondary education (ISCED 97: 3A, 3B, and 4); and higher education (ISCED 97: 5, 6). Some 28.4% of mothers had at most vocational education; 33.9% had secondary education; and 37.7% had higher education (n = 5781).

Covering Household Expenses at the time of 7th month of pregnancy (measured in the 1th wave)

For evaluation of a household's financial background, we use the response to the question "How do you think your household is able to cover regular expenses?", as answered at the time of pregnancy. The six answer categories (with great difficulty, with difficulty, with some difficulty, relatively easily, easily, very easily) were grouped into four categories: very difficult or difficult (6.8%), slightly difficult (26.1%), rather easy (43.4%), and easy or very easy (23.8%) (n = 5506).

Place of Residence of the mother at the time of 7th month of pregnancy (measured in the 1th wave)

The mother's place of residence was measured at the time of pregnancy. The NUTS2 counties of Hungary were categorized into three groups based on the GDP of the county in 2018. The three categories are the following: Central Hungary (29.3%), as the most developed region; developed NUTS2 counties (32.3%); and less-developed NUTS2 counties (38.3%, n=5554) [50].

Relationship Quality of the Biological Parents of the Children (measured in the 4th wave)

The quality of the relationship between the child's biological parents was based on two measurements. The first is a computed variable for families where the mother is in partnership with the biological father. The second is based on a variable that refers to the relationship of divorced/separated parents.

In the first case, mothers filled in an 11-item version of the Gilford–Bengtson Marital Satisfaction Scale [60,61] (Hungarian adaptation: [62]) with respect to their current partnership at the time of the 3-year wave, using a self-administered questionnaire. In this analysis, a 6-item negative interaction subscale of the total scale was applied. Mothers indicated the frequency of certain negative interactions with their partner on a 5-point scale (1 = hardly ever, 2 = sometimes, 3 = fairly often, 4 = very often, 5 = always). Missing values were replaced by the mean of the answers to the other items, provided at least four questions were answered. Responses

were summed to compute a raw total score of between 6 and 30, with a higher score indicating more frequent conflict (weighted database: min = 6, max = 30, M = 9.90, SD = 3.30, n = 5457). This total score had good internal consistency (Cronbach's alpha = 0.76). A total score of above 12 (i.e., a value of above "hardly ever" or "sometimes" for each item on average) indicates frequently experienced negative relationship interactions between the mother and her partner, which was interpreted as a conflictual relationship (15.4%, n = 839).

Mothers who stated that they were not in a relationship with the cohort child's biological father (weighted database: n = 361) evaluated their relationship quality with the biological father on a 5-point scale (1 = very bad, 2 = bad, 3 = neither good nor bad, 4 = good, 5 = very good, with additional "I don't know" and "Not applicable" response options), unless the biological father was deceased (4.7%, n = 17). These seven response options were grouped into three categories: no relationship with biological father (uncertain and not applicable responses: 15.2%, n = 52); non-conflictual relationship (very good, good, neither good nor bad: 63.6%, n = 219); and conflictual relationship (very bad or bad: 21.3%, n = 73).

Combining these two variables, we computed a three-value relationship quality index measuring a mother's relationship with the biological father (n = 5696): no relationship (0.9%, n = 52); non-conflictual relationship (83.4%, n = 4748); and conflictual relationship (15.7%, n = 896).

Covering Household Expenses (measured in the 4th wave)

This variable indicates the current financial difficulties of the family, measured in the same way as in the first wave. The six answer categories (with great difficulty, with difficulty, with some difficulty, relatively easily, easily, very easily) were grouped into four categories: very difficult or difficult (5.2%), slightly difficult (21.1%), rather easy (39.8%), and easy or very easy (34.0%) (n = 5776).

Maternal mental health (measured in the 4th wave)

The mental health of the mother was described by the presence or absence of the Generalized Anxiety Disorder Symptom. The index with 0-6 values were dichotomized and women with values 3-6 were considered with anxiety (10.3%) and women with values 0-2 with no anxiety (89.7%, n=5700).

2.2.4. Control Variables

Birthweight

The mean birthweight of the children was 3309.9 g (SD: 508.5 g, n = 5748), and 5.3% of children were born weighting less than 2500 g (i.e., with low birthweight, LBW).

Sex of the Cohort Child

We asked the mothers about the sex of the cohort child at the time of the 6-month questionnaire: the proportion of boys was 52.1% and the proportion of girls was 47.9% (n = 5788).

Age of the 3-Year-Old Cohort Child, in Months

The mean age of the children at the time of the 3-year data collection was 36.2 months (SD = 0.9 months). The majority of the children (89.9%) were aged 35-37 months at the time of the 3-year wave. Only 0.2% were younger than 35 months and 10.0% were older than 37 months at the time of the interview.

Maternal Age at Birth of the Cohort Child

The age of the mother at the birth of the cohort child was calculated from the dates of birth of the mother and of her child. We grouped the continuous age variable into three categories: 14–24 years (18.3%), 25–29 years (27.1%), and 30–49 years (54.6%, n = 5788).

Siblings in the Household, by Siblings' Age

A relative majority of 3-year-old cohort children had only older siblings living in the same household (41.4%, n = 5788). The second-highest proportion was made up of those children who did not have siblings in the household (31.6%). The third-highest proportion included children who had only younger siblings in the household (17.2%). Only 9.8% of mothers answered that the cohort child had both younger and older siblings living in the household.

2.3. Statistical Analyses

Our analysis includes 5862 (weighted n = 5788) mothers of 3-year-olds, who had a singleton pregnancy in 2018–2019 (86 mothers with more than one fetus were excluded). The outcome variable is dichotomized index of the child's social-emotional difficulties, based on SDQ scores (see the Measures section above). The predictor variable is the family complexity, measured using four categories (see the Measures section). First, we test the bivariate relationships between the outcome, predictor, and confounding variables, using ANOVA F-tests, the Welch robust test of equality of means, and both LSD and Tamhane multiple comparison tests. Next, we test the multivariate relationships between the predictor variable and the outcome variable, using logistic regression analysis, controlling for several covariates. The three models tested are the following:

In Model 1 (Baseline model), we test the main effect of family complexity, as the predictor variable, controlling for the biological and demographic characteristics of the child and the mother: sex of the child; age of the child at the time of the 3-year interview, in months; birthweight; siblings composition in household by their age (older or younger than the focal child); age group of the mother at the time of the birth.

In Model 2, to the covariates of Model 1 we added socioeconomic variables: highest educational attainment of the mother; ease of covering household expenses; place of residence of the mother, by region. All these variables were measured during the seventh month of pregnancy, as these variables were interpreted as selection effects.

In Model 3, to the covariates of Model 2 we added the variable that measures the partnership quality of the biological parents of the focal child, regardless of whether or not the father was living with the mother. Actual difficulties of covering household expenses and the indicator of mother's mental health were also included into the model.

We report odds ratios and margins with 95% confidence intervals. All multivariate statistical analyses were performed with Stata 14 statistical software, with logistic, margins at means and marginsplot commands, using longitudinal weights.

3. Results

3.1. Bivariate Analyses

Based on SDQ, 24.0% of children have social-emotional difficulties. Compared to the total sample, a significantly higher proportion of the children have social-emotional difficulties if they are not living with biological siblings (30.0%), are step-children (35.8%), or are living with a single mother (40.1%) (Figure 1).



Figure 1. The proportion of 3-year-old children with social-emotional difficulties, by family complexity (%, 95% CI). Note: Significant effects are marked in black. Source: Cohort '18 Growing Up in Hungary, 2017–2022. The authors's calculation.

3.2. Logistic Regression Analyses

According to our results, there is a significant relationship between family complexity and a child's socialemotional difficulties as well, controlling for certain biological and demographic characteristics of the child and the mother. Compared to children living in full biological families, those children who live with both biological parents, but also with step- and/or half-siblings are 1.7 times more likely to have socio-emotional difficulties, and those children who live in single-mother families are 2.1 times more likely—in both cases controlling for the main biological and demographic characteristics of the child and the mother (Figure 2).



Figure 2. The effect of family complexity on the socio-emotional difficulties of the 3-year-old children. *Baseline model*, Notes: Significant effects are marked in black. Controlling for the demographic characteristics of the child and mother, Source: Cohort '18 Growing Up in Hungary, 2017–2022. The authors's calculation.

However, we have found strong selection effects, which partly explain the association between family complexity and children's emotional difficulties. Our data shows that children of mothers with lower levels of education, those whose families have financial difficulties and those who live in less developed regions are more likely to have emotional difficulties than those who do not. Controlling for these variables only those children who live with a single mother have a significantly greater risk of socio-emotional difficulties than children who live in full biological families. Compared to children living in full biological families, those children who live in single-mother families are 1.7 times more likely to have social-emotional difficulties.



Odds ratios (95% CI)

Figure 3. The effect of family complexity on the socio-emotional difficulties of the 3-yearold children controlled by selection effects. *Model 2.,* Notes: Significant effects are marked in black. Controlling also for the demographic characteristics of the child and mother, Source: Cohort '18 Growing Up in Hungary, 2017–2022. The authors's calculation.

In the third model, we examined whether including additional variables that are hypothesized to affect children's outcomes would remove the effect of the family complexity variable. The literature points to the possible explanation that children in non-intact families have worse outcomes because of conflicts between biological parents. This rather than the fact of the family structure in which they live determines children's negative outcomes. Mothers' mental well-being, which is more often negative in non-intact families, may have a similar effect. Finally, the fact that divorce or the loss of a parent can also lead to a deterioration in the family's financial situation, which can have a negative impact on the child's social-emotional difficulties, may also play an important role. If these variables are included in the model, the effect of the family complexity variable disappears completely.



Figure 4. The effect of family complexity on the socio-emotional difficulties of the 3-year-old children controlled by the selection effects, the interparental conflicts, the maternal mental health and covering household expenses. *Model 3.,* Notes: Significant effects are marked in black. Source: Cohort '18 Growing Up in Hungary, 2017–2022. The authors's calculation.

4. Discussion

In our study, we have addressed the question of how the family background of a child determines the socialemotional difficulties in early childhood. Among the family characteristics, we have focused on family structure, which we interpret in a complex manner. Our family complexity indicator takes account not only of whether a child is raised by one (single mother) or two biological parents, but also of whether there is a step-parent in the family, and whether there are children in the family who have only one of the resident parents as a biological parent. Since relatively few studies have interpreted family structure in such a complex way, this diversification of children's pathways enriches the previous literature.

In our baseline models, we analyzed the effects of family complexity on child outcomes, controlling only for the basic biological and demographic characteristics of the child and the mother. In the next steps, the socioeconomic status of the family (mainly the mother) were included in the analyses. And finally, we included three variables into our model that can be related to family functioning and parenting: the conflict between the biological parents, the mental well-being of the mothers and the actual financial difficulties.

The baseline model of children's socio-emotional difficulties shows that, compared to the situation where a child lives in a full biological family, the risks are higher in two types of family: single-parent families (where the risk is highest) and families in which the child is the biological child of both parents, but where there are also half- and/or step-children living in the family. Consistent with the selection theory and with prior research on the topic we have found strong selection effects. The selection effect means that there are pre-existing differences between individuals in the likelihood of living in a particular family type. Parents with lower social status are overrepresented among the non-intact families. This fact partly explains the association between family complexity and social-emotional difficulties. Mothers with less education and living in poorer financial conditions have generally fewer resources, less knowledge, skills and self-confidence to raise children successfully. After controlling for three important selection effects, only children in single-parent families remained at higher risk compared to the reference group.

These results support partly the economic hardship theory and partly the stress theory. Poorer outcomes for children in single-parent families are associated with poorer financial circumstances after divorce or the loss of one parent. On the other hand, family restructuring increases the risk of poor mental health of the mother, which also affects child development.

Our research also points out that poorer outcomes for children of single mothers can be explained by poorer financial circumstances in which they raise their children, more frequent conflict with the biological father of the child, and more generalised anxiety. The worse financial situation of single-parent families has been shown by numerous studies and statistics. For example, EUROSTAT data show that their poverty rates are highest among families with children. Research has also shown that there is a relatively high proportion of children (approximately a quarter of children) who are not financially supported by the separating parent. [63] On the other hand, it is also a well-known fact that in Hungary the conflictual divorces are very common and the parents often remain in conflict for years. This has a negative effect on children. Children react with negative emotions (such as fear, anger, distress), loyalty conflict, they may blame themselves for the interparental conflicts.

When evaluating these results, some limitations must be taken into account. First, children's outcomes were based not on medical or psychological observations or on multiple informants, but solely on mothers' self-reporting. Mothers' responses may vary not only along individual lines, but also according to social patterns. For example, educational attainment can influence not only the parents' parenting practices and the resources they draw upon to support their children, but also their ability to observe their children's development and the problems they perceive with it. Second, given the rare occurrence of family structure changes, we could not take into account the number of changes and the time elapsed since the divorce/separation. Third, inter-parental relationship quality was measured differently for biological parents who lived together in one household and for those who did not. Fourth, the small number of children living with a step-father leads to uncertain results, due to the low statistical power to detect significant results and the large confidence intervals observed.

We should emphasize that in our study we looked at the early stages of child development, at a point in time when the majority of children have not yet experienced significant changes in family structure or the divorce/separation of their parents. In addition, if there has been a change in the family structure, that change has most likely occurred recently, which means that we were measuring the short- or medium-term effect of a change in family structure. It may be assumed that stronger effects would be measured with respect to older children who have been living in a certain family arrangement for a longer period of time. The subsequent waves of the Cohort '18 longitudinal birth cohort study will provide an opportunity to analyze the

outcomes for older children. The longer observation period may also allow us to observe the effect on a child's outcomes of a number of changes in the mother's partnership status.

5. References

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