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Family structure, maternal employment, and change in children's externalizing problem behaviour: Differences by age and self-regulation

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Abstract

This study used a latent difference score growth model to investigate how changes in family structure (biological father and stepfather residence) and maternal employment are associated with American children's externalizing problem behaviors (EPB) from ages 4 to 10 and whether these associations vary by children's level of self-regulation. For all 4 year old children, living with a biological father at age 4 was associated with reductions in EPB at ages 4–6 and later years, with no variation by child self-regulation. Living with a stepfather at age 4 was associated with higher levels of EPB at age 4; however, for less-regulated children, stepfather residence at ages 4 and 8 was associated with reductions in EPB between ages 4–6 and from 8–10, respectively. Greater employment hours were associated with increased EPB in the next two years for less-regulated children of all ages; however, except for the age 4–6 transition, there was a lagged association that reduced behavior problems after two years and outweighed short-term increases.

Keywords

behavioral problems; family structure; fathers; maternal employment

Research on American school-age children and adolescents shows increased levels of externalizing problem behavior (EPB) from low levels in the 1970s to high levels in 1999 (Achenbach et al., 2003; Collishaw et al., 2012). These rates are alarming given that EPB is the most common and persistent form of childhood maladjustment with long-term lasting effects (Campbell, 1995, 2000). Although the causes of this increase include multiple individual and family-level factors, the centrality of the home in children's development is undisputable. The psychological literature has rightly focused on the parent-child relationship as an important contributor to children's behavior. Other aspects of the home have received less attention in the psychological literature, but have emerged in the sociological literature as important influences on U.S. children's development, namely maternal employment and family structure (e.g., father/stepfather residence). Recently, these aspects of family life have undergone dramatic shifts. From the 1970s to 1990s, the labor force participation of married mothers with a preschool age child increased from 37% in 1975 to 62% in 2009 and the proportion of children living with a biological mother and

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father declined from 77% in 1980 to 59% in 2010 (U.S. Census Bureau, 2012). These family structure changes (e.g., fathers exit or step fathers enter the family) as well as changes in maternal employment are important to consider in understanding changes in children's behaviors because they are likely to reduce the amount and quality of time parents have with their children, which may disrupt behavior especially for children with limited regulatory skills (Bachman et al., 2011; Grusec, 2011; Rubin et al., 2003).

Research linking family structure and maternal employment to children's EPB is limited in several ways. First, research on maternal employment focuses on the first years of life and pays less attention to the later childhood period (Han, Waldfogel & Brooks-Gunn, 2001). Second, although research has shown that father residence in early childhood is linked to children's adjustment in adolescence (Cabrera, Cook, McFadden, & Bradley, 2012), less is known about how father residence might be linked to children's EPB across the early childhood period, especially during transitional periods which represent change and turmoil for some children (Cavanagh & Huston 2008). Family changes might be especially trying during transitions into middle childhood or adolescence (Bachman et al., 2011; Cavanagh & Huston 2008). Third, it is unclear how the entry of a stepfather influences children's behavior across early childhood. Fourth, children's ability to cope with change in light of their self-regulatory behaviors has not been considered in past research (Cummings, El-Sheikh, Kouros, & Buckhalt, 2009). To address these gaps we use data from the 1979 National Longitudinal Survey of Youth (NLSY79) (Center for Human Resource Research, 2004) to seek answers for the following questions: (1) are father/stepfather residence, maternal employment, and child's self-regulation associated with children's EPB at age 4; (2) are father/stepfather residence and maternal employment associated with change in children's EPB differently across ages 4 to 10; and (3) does the association between father/stepfather residence and maternal employment and change in EPB vary by children's level of self-regulation?

Changes in Children's EPB

Externalizing behaviors, normative among toddlers, decline with age; as children get older they are able to regulate their emotions and communicate their feelings with others. By school entry, most children (more than 70% by some national estimates) are age-appropriately compliant, prosocial, and cooperative; only a small proportion (12% by some accounts) continues to show antisocial behaviors (NICHD Early Childcare Research Network, 2004).

Contribution of Family Structure to Changes in EPB

We frame this paper using resource theory that parents with more resources (e.g., human capital, including education, and income) are able to invest more in their children (e.g., providing cognitively stimulating experiences) than those with fewer resources (Haveman & Wolfe, 1994). Thus, children living in two-parent households are likely to have access to more resources, including parental time and stimulating experiences, than those who live with just one parent. Moreover, living in two-parent households with one's biological father can facilitate father-child interactions, which have been shown to be linked to children's

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social competence (Cabrera, Shannon, & Tamis-LeMonda, 2007; Tamis-LeMonda et al., 2004). Not only are children living with just their mothers less likely to interact with their biological fathers, but they are also more likely to experience a new father figure, which might be beneficial (e.g., bringing additional resources to the household) or detrimental (e.g., creating emotional upheaval) (Amato, 1993).

Research of the last decade has shown that children who grow up living with both parents are less likely to exhibit EPB than children who do not (Hetherington & Stanley-Hagan, 1995; Hofferth, 2006). Magnuson and Berger (2009) found that children living in single-mother and social-father families exhibited increased behavior problems over time, although another study found this association to be stronger for white than black children (Fomby & Cherlin, 2007). There is also evidence that changes in family structure are positively associated with behavioral problems (Osborne & McLanahan, 2007). And a recent study found that compared to children who did not reside with their fathers, children who resided with them in early childhood reported having a better father-child relationship, which was predictive of fewer EPB in adolescence (Cabrera et al., 2012).

However studies to date have utilized an aggregate measure of father involvement – the proportion of time in a two biological parent family – which can underestimate the effect because it cannot ascertain that the EPB was related to particular transition of interest (e.g., entry of a stepfather) that may have occurred years before the EPB was assessed (Fomby & Cherlin 2007; Magnuson & Berger 2009; Osborne & McLanahan 2007). Additionally, current methods cannot detect sleeper effects; that is, changes in behavior may show up several years later. For example, instability in early childhood has been linked with outcomes in middle childhood (Cavanagh & Huston 2008). In this study we improve on past studies by including a measure of behavior soon after the family changes and by examining delayed associations.

Contribution of Maternal Employment to Changes in EPB

Maternal employment can increase resources to the family and reduce maternal stress and hence improve parenting and reduce child EPB. But, it can also reduce the available time mothers have to spend with their children, which may lead to an increase in EPB. Research has shown that maternal employment has a positive influence on children's behavior, but after the child's first year (Han, et al., 2001). Because mothers fit their employment around their child's schedule (Sayer et al., 2004), the income gained may offset much of the potential negative impact on children (Coley et al., 2007). However, older children may demand more time and attention from their parents than younger children and thus it is possible that maternal employment may influence children differently across the early childhood period. Mothers with long hours of work might be more fatigued and less able to monitor their preschool children's needs and behaviors than mothers who work fewer hours. One study found that fluctuating hours or unstable work was associated with children's EPB (Johnson, et al. 2012). These findings suggest that it is important to examine not just the short-term but also the long-term association of employment and children's EPB at different ages, especially during the transition to formal school and into adolescence when children's needs might be heightened and place more demands on parents.

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Contribution of Children's Self-regulation to Changes in EPB: Main and Moderating Effects

The variability observed in EPB might also be related to differences in children's self-regulation, defined as the ability to manage one's behavior, emotions, and attention voluntarily and adaptively (Rothbart, Sheese & Posner, 2007). Regulated children are able to control emotions and can relax, focus, and enjoy social interactions. Self-regulation is commonly assessed with maternal reports of children's demandingness, soothability, and distress in a novel situation. A consistent finding is that as children get older they should be able to self-regulate and when they do not they are more likely to exhibit more EPB (Burgess et al. 2003; Leve et al., 2005). Less regulated children are also more likely to be influenced by negative parenting than more regulated children (Larsson et al., 2008). A study found that 4 year olds who showed early dysregulated behaviors were more likely to exhibit externalizing problems when they experienced maternal negativity at age 4 than better regulated children (Rubin, Burgess, Dwyer & Hastings, 2003). It is likely, then, that children who are less regulated may have a difficult time dealing withnew situations especially when it results in fathers moving out of the house, a new stepfather moving in, or mothers working longer hours.

Hypotheses

We examine the influence of the timing of father residence, stepfather residence, and maternal employment on initial level of EPB at age 4 and then changes in EPB from ages 4 to 10. We test the following hypotheses: (1) children who reside with a biological father, who do not reside with a stepfather, who have a mother working fewer hours, and who are self-regulated will exhibit lower levels of EPB at age 4 than their counterparts; (2) children who do not live with their biological fathers, who live with a stepfather, and who have mothers who work more hours at age 4 are more likely to exhibit increased EPB over the following 2 years than children who experience no such changes, especially during transition periods; and (3) children who have low levels of self-regulation will exhibit more EPB when a father moves out, a new stepfather moves in, or mothers work longer hours than children who are more regulated. We control throughout for the following individual and family variables because they are linked to EPB: child gender and language ability, family income and size, and maternal education, drug and alcohol use, and harsh parenting.

Methods

Data: NLSY79

This analysis uses data on the children of female youth interviewed as part of the NLSY79, which obtained detailed information on the children from the mother every other year beginning in 1986. We used information from the 1988 through 2004 waves to measure the behavior and family circumstances of birth cohorts of children at ages 4, 6, 8, and 10.

Exclusions—To have complete data for all children, we excluded children who did not have self-regulation data. Identical analyses of the complete sample of 9,324 and of the final

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sample of 4,967 produced the same results, indicating no systematic bias. The sample was weighted using customized weights from the NLSY79, so the results are representative of the children born in 1979 to American women between the ages of 14 to 21.

Measures: Dependent Variable

Children's externalizing problem behaviors (EPB) were measured using the Behavior Problems Index, a parent-reported measure of the incidence and severity of child EPB using items originally drawn from the Achenbach scale (Achenbach et al., 2003) and validated for use in the NLSY79. The present study focused on the subset of 11 items identified by the NLSY79 as assessing EPB (α = .81). Indicators, coded as 1 = not true, 2 = sometimes true, 3 = often true, include: moody, high strung, cheats, argues, bullies, disobeys, does not get along, not liked, irritable, has a temper, breaks things. The total score for each age is the sum of these 11 items,

Independent Variables

Residential biological father is based on the maternal report of whether the child's biological father was present in the household at each wave (1 = yes, 0 = no). If the biological father was not in the household and the mother reported that her husband/partner lived in the household, then *residential stepfather* was coded 1, otherwise it was coded 0. Because father behavior was not a focus of the early years of the mother-child supplement to the NLSY79, father and stepfather residence in the household up to age 10 are the only measures of father involvement available.

Maternal employment at child ages 4, 6, 8 and 10 was defined as the average number of hours per week worked since the last interview two years earlier.

Child self-regulation was assessed in the year the child was 4 years old by using three mother-report indicators (α = 0.57): (1) Soothability. How often does the mother have trouble soothing the child when upset; (2) Distress: When you leave the room and leave the child alone, how often does s/he get upset; and (3) Demandingness: How often is the child demanding and impatient even when you're busy. Each of these variables was coded on a 5-point scale: 1 = almost never, 2 = less than half the time, 3 = about half the time, 4 = more than half the time, 5 = always. Higher scores indicate that the child has a lower degree of self-regulation. Confirmatory factor analysis was used to evaluate the measurement of this latent construct.

Control Variables

The *gender of the child (*1 = female, 0 = male) was measured using the 2004 survey wave. *Children's language ability* was assessed using the total raw scores on the Peabody Picture Vocabulary Test-Revised Form L (PPVT) for the year the child was 4 years old. *Family income* (natural log) was taken when the child was 4, 6, 8, and 10 from key variables in NLSY79 (total net pre-tax family income from last calendar year, truncated). The *total number of children in the household* was the sum of biological, adopted, step, and foster children assessed when the child was age 4, 6, 8, and 10.

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Harsh parenting was measured when the child was 4 years of age. The mother was asked what her response would be if her child hit her. If she responded that she would either hit the child back or spank the child, then it was coded as harsh parenting (1); if she reported that she would send child to room, talk to child, ignore child, or give child a chore, then it was coded as non-harsh parenting (0).

Maternal education is a continuous measure of the highest grade the mother completed by the interview when the child was age 4 (1 = 1st grade through 20 = 8th year of college or more).

Maternal drug and alcohol use was assessed regularly but inconsistently across waves in the NLSY79. Mother's ever use of drugs up to when the child was age 4 (0 = no drugs, 1 = one drug only, 2 = two drugs) was created from questions asking about marijuana and cocaine/crack cocaine use. Maternal alcohol use when the child was 4 was measured by the number of days the mother reporting drinking alcohol in the last month.

Analytic Plan

The 4-, 6-, 8-, and 10-year measures of EPB were modeled using a latent difference score model (McArdle & Hamagami, 2001). Although one could proceed in two phases (unconditional growth model and then a conditional growth model), we elected to proceed directly to the conditional model given the theoretical rationale for the covariate. As shown in Figure 1, latent variables (circles) were constructed so as to represent the intercept (EPB at age 4) and changes in EPB from years 4 to 6, 6 to 8, and 8 to 10. The observed outcomes (rectangles) were the sum of the intercept and change in EPB in all temporally preceding adjacent pairs of latent variables. The covariates were self-regulation (latent in the first model and observed when examining group differences) and the family environment variables (observed) – father residence, stepfather residence, and maternal employment at age 4, 6, 8, and 10. Time-dependent covariates (family income and number of children at each age) and time-independent covariates (e.g., gender) were included in the models, as appropriate. Residuals of the latent difference portion of the model were also allowed to covary above and beyond the covariates' influences.

Modeling was conducted using the EQS 6.1 structural equation modeling software with missing data estimated by full information maximum likelihood (FIML). Model fit was evaluated using the comparative fit index (CFI) and the root mean square error of approximation (RMSEA).

Based on children's self-regulation scores (range 1 – 15), 1,324 children in the upper quartile with scores from 7 to 15 were assigned to the "low regulation" group and 3,643 children in the lower three-quarters of the distribution, with scores from 1 to 6, were assigned to "high regulation." The conclusions of the study were not sensitive to the cut point. To test the overall hypothesis of differences in the models for the two self-regulation groups, we computed the chi-square statistic for a model with all parameters constrained to be equal across groups and for a model without these constraints. Chi-square change ($\Delta\chi^2$) was used to assess statistical significance. We used the same strategy to test for similarity of

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sets of coefficients. Effect sizes were calculated by dividing significant unstandardized coefficients by the standard deviation of age-specific externalizing behavior.

Results

Descriptive Analyses

Based on the unconditional means, average levels of EPB were stable from ages 4 to 10 (Table 1). Other variables displayed expected trends over time. Maternal weekly work hours increased from 15 at age 4 to 20.9 at age 8. Sixty-nine percent of children were living with a residential father at age 8, compared with 76% at age 4; the proportion of children living with a stepfather increased from 7% at age 4 to 10% at age 8. Family income and family size remained relatively constant. On average, mothers had completed 13 years of schooling when the child was age 4.

Children in our sample averaged 5.3 out of 15 on the self-regulation scale (assessed as the sum of three indicators: trouble soothing, gets upset, and demanding), suggesting moderate levels of self-regulation. Less regulated 4-year-old children were reported to have higher levels of EPB (2.32 points more) than those who were more self-regulated (Table 1). The results were similar at ages 6, 8, and 10, though the difference declined over time. The EPB of self-regulated children remained stable over ages 4 to10, (14.78 to 15.09), whereas those of less regulated children declined, from 17.10 to 16.33.

Fewer less regulated children were living with a residential father at age 4 and at later ages than more regulated children; only residence with a stepfather at age 6 differed by level of self-regulation.

Measurement Model

The confirmatory factor analysis of the indicators of low self-regulation for the full sample shows that the model fits the data with a CFI of .999 (Table 2). “Child is demanding” and “gets upset when left” are the items most closely linked to the construct of self-regulation and “trouble soothing” is the item least linked. In this study the construct of self-regulation measures the ability of the child to inhibit responses and control his/her emotions.

EPB-- Full Sample

The overall fit for the full sample model was excellent, with a CFI of 0.995 and an RMSEA of .028 with a 90% confidence interval of .025 to .031.

EPB at age 4—Examining the structural model of EPB at age 4 (the Intercept column in Table 3), the variables included in the model explain 42% of the variance in externalizing behavior at age 4 because of the strong contribution of low self-regulation. With poorer self-regulation, mothers reported increased child EPB.

At age 4, biological father residence was not related to EPB. Children living with a stepfather exhibited significantly higher EPB, controlling for level of self-regulation and other variables. Maternal work hours were not related to the child’s EPB in the full sample. Results for control variables are presented in the tables but not described in the text.

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Change in EPB from age 4 to age 6—Children living with a biological father at age 4 showed a greater decline in EPB from age 4 to 6 than those not living with their biological father at age 4. Compared to more regulated children, less regulated children, who had higher levels of EPB at age 4, exhibited a greater decline in EPB from 4 to 6 but it was not enough to bring them to the level of more regulated children.

Change in EPB from age 6 to age 8—Neither family structure nor maternal employment was linked to change in EPB from 6 to 8. Less regulated children's high level of EPB at age 4 remained high at age 6, even with a small reduction between 4 and 6 (Table 1), and they experienced a greater decline in EPB between ages 6 and 8 than those who were more regulated.

Change in EPB from age 8 to age 10—Children who were less regulated at age 4 experienced continued but small declines in EPB between ages 8 and 10. Even after previous declines, the average level of EPB of less regulated children was higher at age 10 than that of children who were more regulated (a difference of 1.24; Table 1).

Externalizing Problems by Level of Self-Regulation

As shown above, self-regulation is an important predictor of children's EPB at age 4 and through age 10. When children were divided into high self-regulation (Table 4) and low self-regulation (Table 5) groups, the contribution of other environmental variables becomes clearer.

Overall level of EPB at age 4—The models for the overall level of EPB at age 4 (Intercept columns) are similar for children in the low and high regulation groups. One exception is that longer maternal work hours at age 4 were associated with having fewer EPB at age 4 only for less regulated children. Below we summarize the association between father and stepfather residence with EPB, followed by maternal employment and EPB, by regulation group.

Father and Stepfather Residence

For the less regulated children, living with a residential biological father at age 4 was associated with reduced EPB between age 4 and age 6 ($b = -.652$, effect size = .17) and living with a stepfather was also related to a reduction in EPB ($b = -.524$, effect size = .14) over that period. Family structure was not associated with EPB change for the more regulated group. Living with a biological father at age 6 was associated with reduced EPB between 6 and 8 for more regulated children. Although this association was not significant for the group of children who were less regulated, later tests indicated that the coefficients did not differ across the groups. Therefore, we conclude that it is likely that living with the biological father at age 6 had the same association with EPB for less regulated children. The association of stepfather residence at age 6 with EPB between age 6 and 8 was not significant for either regulation group. Less regulated children who lived with either a biological father or a stepparent at age 8 had a significantly lower risk of increased EPB between ages 8 and 10 compared with children who did not live with a stepparent or a biological father.

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Maternal Employment

Maternal work hours played an important part in child EPB for the less regulated group. Less regulated four-year-old children whose mothers worked more hours increased their EPB between 4 and 6 more than children of mothers who worked fewer hours, but the effect was small. Less regulated children's EPB between 6 and 8 also increased slightly if the mother had a work hour increase when the child was age 6. However, this latter increase was offset by reduced behavioral problems between 6 and 8 if a work hour increase had occurred at age 4. Greater work hours at 8 were associated with EPB growth between 8 and 10, but this was offset by a reduced EPB if the mother worked more when the child was age 6. Increased work hours were consistently associated with increased EPB in the subsequent two years whereas after 2 years they reduced EPB.

Test for Invariance across Self-regulation Groups—The overall fit for the multiple group analysis was excellent, with a CFI of 0.996 and an RMSEA of .017 with a 90% confidence interval of .010 to .023. The comparison of the model with all coefficients constrained to be equal across self-regulation groups to the unconstrained model indicated that the models were significantly different (χ^2 (50) = 84.891, $p < .01$). Not all variables differed across models. Our interest was whether the coefficients for father/stepfather residence and for maternal employment differed across self-regulation groups.

Although the individual coefficients for biological father residence were more likely to be statistically significant for children who were less regulated than more regulated, the coefficients were similar in size and direction ($\Delta\chi^2$ (7)= 6.689, *ns*), suggesting that the association between father residence and children's EPB is the same across self-regulation groups. For stepfathers, in contrast, tests for invariance confirmed that the association between stepfather residence and EPB varied across the self-regulation groups, particularly in the age 4–6 and 6–8 transitions ($\Delta\chi$2 (2)= 6.099, $p <.05$).. Finally, the overall test for invariance confirmed that the association between maternal employment and child EPB differed across self-regulation groups ($\Delta\chi^2$ (7) = 16.094, $p < .05$).

Differences in the Associations between Family Structure, Maternal Employment, and EPB across Age Groups, Less Regulated Children

The latent difference model is justified if associations are likely to vary across age groups. Because the results do not differ by children's self-regulation for biological father residence, and there are no significant associations of either stepfather residence or maternal employment with EPB change for more regulated children, we summarize the results only for less regulated children. The full table is provided as an on-line Appendix. For biological father and stepfather residence the two-year associations with EPB (e.g., age 4 and ages 4–6 change compared with age 6 and 6–8 change) differed across ages. Only one set of lagged associations with EPB differed for biological fathers: between age 4 and ages 4–6 and age 4 and ages 6–8. There was no difference in lagged associations for stepfathers. For maternal employment, the two-year associations did not differ, whereas all the lagged associations differed across ages.

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Discussion

Using a latent difference score model in a 4-wave nationally representative longitudinal study of U.S. mothers, we explored how the timing of changes in family structure (father and stepfather residence) and maternal employment are associated with changes in children's EPB in early childhood from ages 4 to 10. We also examined whether these associations vary by children's level of self-regulation and age.

Controlling for family and child-level characteristics, we found that children's ability to self-regulate (assessed in this study as mothers' report of children's ability to inhibit responses and control their emotions) was most predictive of EPB at age 4. EPB began at a higher level and declined over time for less regulated children, whereas levels were low and stable for more regulated children. Our hypothesis that family structure would be related to EPB at age 4 was partially supported. Living with a biological father was not associated with children's EPB at age 4, whereas living with a stepfather was initially associated with higher EPB. This finding supports research showing that a change in living arrangements – the introduction of a stepfather in the early years – is difficult for young children as they may be unable to deal with the emotional distress of not only having a new father figure but also not living with their biological fathers (Amato 1993).

We found no support for our hypothesis that maternal employment at age 4 is associated with children's higher EPB at age 4. This finding is consistent with past studies that maternal employment is not harmful and might even be beneficial for children *after* the first year (Dunifon, Kalil & Bajracharya, 2005; Han et al., 2001).

A central goal of this study was to examine how the association between changes in family structure (father and stepfather presence), maternal employment, and EPB over ages 4 to 10 varied by children's level of self-regulation assessed at age 4. We found that living with a biological father at age 4 was protective for all children during the age 4–6 transition to school regardless of level of self-regulation. But, supporting our third hypothesis, during important transitions such as entering school with its more rigid rules and structure, less-regulated children not only seem to benefit from living with their biological fathers but also benefit from living with a stepfather. Less-regulated children living with a stepfather at age 4 were reported to have fewer EPB during the transition to school (4–6) than those not living with a father. Similarly, living with a stepfather at age 8 was associated with an 11–12% standard deviation reduction in EPB from age 8 to age 10, just prior to middle school, another sensitive period for children. These findings suggest that less-regulated children do better in households with either a biological father or stepfather. The benefits might be conferred directly and indirectly through positive effects on family functioning. It is worth reiterating, however, that initially (at age 4) the introduction of a stepfather into the household resulted in more EPB. The "initial shock to the system" of having a stepfather, particularly in the child's early years, may have created a temporary spike in EPB, but this is not sustained over time.

Our findings offer new information about the ways in which maternal employment might influence children's EPB over time. We found that maternal employment was linked to both

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increases and decreases in EPB, but only for less regulated children, who might have difficulty coping with their mothers working longer hours. It had no association with EPB for more regulated children. We find that although greater employment hours at age 4 are associated with increased EPB during the transition to school – ages 4 to 6 – they are also associated with decreased EPB at 6 to 8. This pattern of immediate increases in EPB after maternal employment change followed by lagged declines holds across the entire childhood period. This finding suggests that once children become used to increased maternal employment, and perhaps settle on a routine, the benefits of maternal employment (more money, less stress) might result in subsequent EPB decline.

Study Limitations

The first limitation of this study was the lack of detailed information about family process during key transitions, father involvement, and the father-child relationship prior to the child's age 10. The second limitation was the narrow measurement of self-regulation. Although unfortunate, it is important to reiterate that these questions were innovative 25 years ago when the study began. Offsetting these limitations is the large nationally representative sample, high data quality, and advantage of having multiple waves of data following children and their behavior for 6 years over the early and middle childhood period.

Conclusions

In conclusion, our findings show that fathers and stepfathers make an important difference in children's EPB over time, especially during transitions, a time of added stress for children. They support the view that fathers who live with their children have more opportunities to engage with them in ways that encourage social adaptation (Flanders, et al., 2010). Although most children can cope with transitions, living with a biological father early (at age 4) is protective for children during the transition to school (4–6), and this does not differ by level of self-regulation. However, less regulated children are more likely to have difficulties and hence the presence of a stepfather seems to be protective during these transitions. Maternal employment is associated with both increases and decreases in EPB; overall, it appears to be beneficial for children over time, although there may be an initial period of adjustment. This provides a more nuanced understanding of how more vulnerable children, those who have less ability to self-regulate, may react to changes in family structure and routines both immediately and over time.

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Appendix for On-line Listing

Biological father residence

Appendix Table 1 shows the t values for differences in coefficients for EPB change for lagged associations starting with the same initial age group (Panel A) and for two-year associations across different initial ages (Panel B). Beginning with Panel A, the association of biological father residence at 4 with EPB change from ages 4–6 differed from that with EPB change from ages 6–8; only the former was significant (text Table 5). In contrast, the association between biological father residence at age 4 with EPB change from ages 4–6 did not differ from that with EPB change from ages 8–10. This implies that the association between biological father residence and change in EPB was strongest within the following two years. There were no lagged associations.

Even if the two-year association is the strongest, the two-year associations between biological father presence and EPB change may differ across two-year periods. Panel B

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shows significant differences in the association between father residence and EPB change for the association between age 4 father residence and age 4–6 EPB change and age 6 residence and age 6–8 EPB change, and for the association between age 6 father residence and age 6–8 EPB change and age 8 father residence and age 8–10 EPB change. These results support the hypothesis that the association of father residence with EPB varied across developmental periods.

Stepfather residence

For the less regulated sample, the associations between stepfather residence at age 4 and change in EPB between 4–6 and 6–8 or between 6–8 and 8–10 were similar, as was the association between stepfather residence at 6 and change in EPB between 6–8 and 8–10 (Table A-1, Panel A). There is no evidence for lagged associations of stepfather residence with child EPB.

Examining Panel B, we see significant differences in the association between stepfather residence and change in children's EPB across age groups. The association between stepfather residence at 4 and EPB change from 4–6 differed from that between stepfather residence at 6 and EPB change from 6–8. There was also a significant difference in the association between stepfather residence at 6 and EPB change from 6–8 and that between stepfather residence at age 8 and EPB change from 8–10. This suggests that, as for biological father residence, there were variations in the contributions of stepfathers to EPB change across the middle childhood years.

Maternal employment

In the less regulated sample, the association between maternal work hours at age 4 and EPB change from 4–6 differed from that between work hours at age 4 and EPB change from 6–8 and EPB change from 8–10 (Table A-1, Panel A). Maternal employment when the child is age 4 was related to increased EPB from 4–6. However, there was a delayed effect such that maternal work hours at 4 were associated with reduced EPB from 6–8. Similarly, work hours at child age 6 were associated with increased EPB 6–8 and with reduced EPB 8–10. Here there were lagged associations. At each age, maternal employment at the beginning of the period was associated with a short-term two-year increase in EPB; however, this was offset by a negative impact on behavior problems of the mother having had more employment experience. At ages 6–8 and 8–10 the fact that the mother had been working more hours in the past more than compensated for any negative impact of increased current employment (text Table 5).

Based on Panel B, there were no significant differences in the associations of maternal employment with change in EPB over the next two years. That is, the short-term two-year association of maternal employment hours with EPB was the same regardless of the age of the child at the beginning of the period.

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Table A-1

T values for Differences in EBP Change Coefficients across Ages, Less Regulated Children.
Panel A: Lagged Associations Across Same Initial Age.
Panel B: Two Year Associations Across Different Initial Ages.

	Panel A: Lagged Associations		Panel B: Two-Year Associations	
Initial Age and Change in Age	**Same Initial Age and 6–8 Change**	**Same Initial Age and 8–10 Change**	**Age 6 and 6–8 Change**	**Age 8 and 8–10 Change**
Biological Father Resident				
Age 4 and 4–6 Change	3.92***	1.47	3.49***	1.04
Age 6 and 6–8 Change	--	0.68	--	2.16*
Stepfather Resident				
Age 4 and 4–6 Change	1.30	0.45	2.85**	0.10
Age 6 and 6–8 Change	--	0.88	--	3.07**
Maternal Employment				
Age 4 and 4–6 Change	4.17***	3.88***	0.31	0.36
Age 6 and 6–8 Change	--	4.61***	--	0.00

* p < .05,
** p < .01,
*** p<.001

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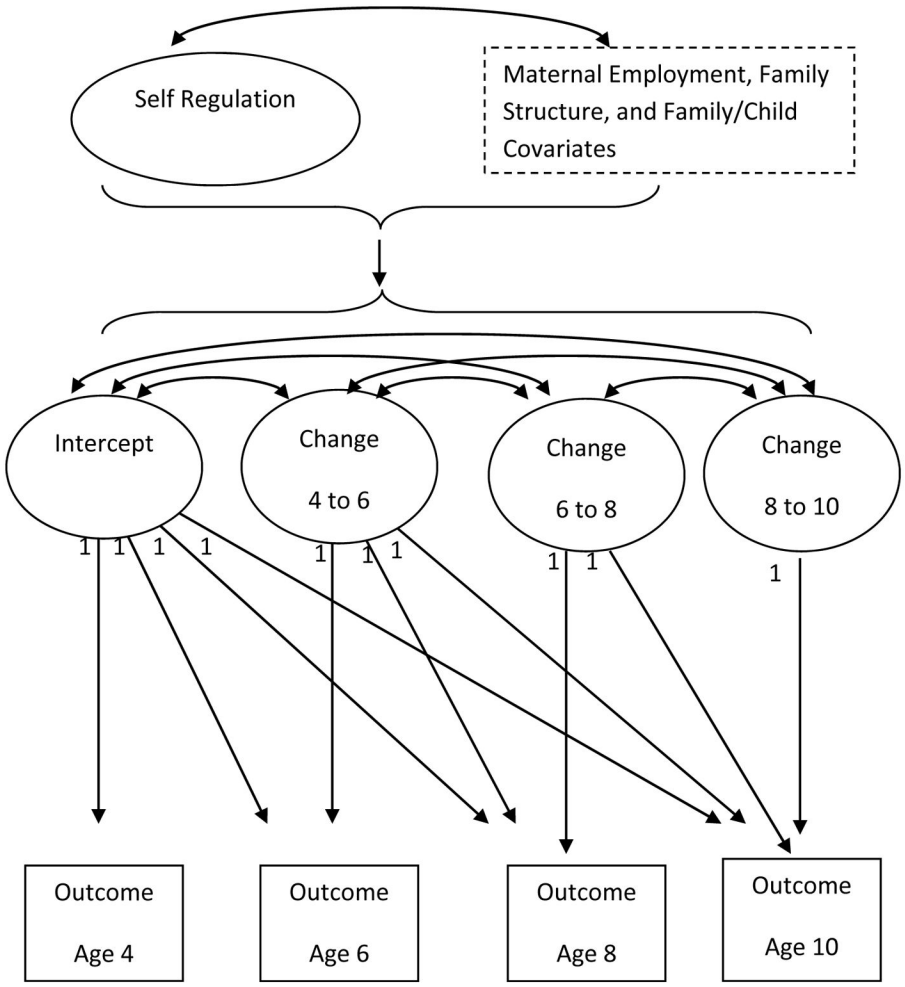

Figure 1.
Latent difference score model, with covariates

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Table 1

Weighted Means, Proportions, and Standard Deviations

	Full Sample		More Self-Regulated		Less Self-Regulated		t-Test
Variable Description	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Significance[a]**
Externalizing (4)	15.24	3.42	14.78	3.14	17.10	3.87	<.001
Externalizing (6)	15.23	3.54	14.95	3.40	16.66	4.00	<.001
Externalizing (8)	15.31	3.62	15.08	3.53	16.59	4.07	<.001
Externalizing (10)	15.24	3.64	15.09	3.56	16.33	3.96	<.001
Mother's education	13.00	2.38	12.78	2.40	12.00	2.32	<.001
Female	0.49	0.50	0.50	0.50	0.50	0.50	*ns*
Trouble soothing	1.62	0.99					
Gets Upset	1.40	0.85					
Demanding	2.54	1.16					
Low self-regulation	5.31	2.40					
PPVT	48.61	18.21	45.85	18.67	39.91	17.74	<.001
Alcohol	3.78	4.91	3.52	4.64	3.44	4.86	*ns*
Drug use	0.60	0.49	0.56	0.50	0.52	0.50	*ns*
Harsh parenting	0.43	0.50	0.49	0.50	0.55	0.50	<.05
Maternal work hours (4)	15.05	14.57	14.45	14.00	13.93	14.47	*ns*
Maternal work hours (6)	18.03	16.05	17.19	15.48	16.70	15.98	*ns*
Maternal work hours (8)	20.94	17.00	20.53	16.74	20.26	17.52	*ns*
Family income (4)	10.36	0.99	10.22	0.98	9.92	1.06	<.001
Family income (6)	10.45	1.04	10.33	0.98	10.00	1.08	<.001
Family income (8)	10.51	1.03	10.39	1.00	10.09	1.08	<.001
Residential father (4)	0.76	0.43	0.71	0.45	0.61	0.49	<.001
Residential father (6)	0.72	0.45	0.68	0.47	0.56	0.50	<.001
Residential father (8)	0.69	0.46	0.64	0.48	0.54	0.50	<.001
Stepfather (4)	0.07	0.26	0.09	0.29	0.06	0.24	*ns*
Stepfather (6)	0.08	0.27	0.09	0.28	0.10	0.29	<.05
Stepfather (8)	0.10	0.30	0.10	0.30	0.10	0.30	*ns*
Number of children (4)	2.30	1.09	2.40	1.14	2.39	1.25	*ns*

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	Full Sample		More Self-Regulated		Less Self-Regulated		t-Test
Variable Description	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Significance**[a]
Number of children (6)	2.35	1.15	2.48	1.18	2.42	1.28	*ns*
Number of children (8)	2.39	1.19	2.52	1.23	2.39	1.32	<.05
N	4967		3643		1324		

[a]Result of a *t* -test comparing children who are more self-regulated with those who are less self-regulated.

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Table 2

Measurement Model

Self-Regulation	Standardized Loading
Trouble soothing child	0.388
Child gets upset when left	0.576
Child is demanding	0.634
N	4967

$\chi^2 = 766.757$, 3 df, $p < .001$

CFI = 0.999; reliability coefficient rho = 0.567

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Table 3

Coefficients from the Structural Model of Parent Involvement, Full Sample (N = 4967)

	A				B				C				D			
	Intercept				Change age 4–6				Change age 6–8				Change age 8–10			
Variable Description	**Beta**		***b***	**SE**	**Beta**		***b***	***SE***	***Beta***		***b***	***SE***	***Beta***		***b***	***SE***
Mother's education	0.004		0.006	0.026	-0.040	*	−0.050	0.023	−0.010		−0.013	0.024	0.007		0.008	0.028
Child female	−0.039	*	−0.264	0.103	−0.020		−0.116	0.092	−0.022		−0.129	0.094	0.027		0.149	0.082
Child PPVT score	0.051	*	0.010	0.004	0.006		0.001	0.004	0.012		0.002	0.004	−0.015		−0.002	0.004
Alcohol	0.025		0.017	0.012	0.017		0.010	0.011	−0.011		−0.006	0.012	0.048	*	0.027	0.011
Drug use	0.034	*	0.239	0.111	−0.010		−0.058	0.097	0.006		0.037	0.100	0.009		0.053	0.099
Harsh parenting	0.044	*	0.302	0.111	0.005		0.032	0.096	0.037	*	0.223	0.100	−0.023		−0.130	0.099
Maternal work hours (age 4)	−0.002		0.000	0.004	−.012		−0.002	0.003	−0.008		−0.002	0.005	−0.023		−0.005	0.005
Maternal work hours (age 6)									0.000		0.000	0.004	−0.032		−0.006	0.005
Maternal work hours (age 8)													0.022		0.004	0.003
Family income (age 4)	−0.076	*	−0.259	0.071	0.001		0.002	0.063	0.028		0.082	0.073	−0.043		−0.120	0.073
Family income (age 6)									−0.012		−0.035	0.062	0.001		0.002	0.068
Family income (age 8)													−0.026		−0.069	0.061
Bio Father resident (age 4)	0.023		0.180	0.153	−0.042	*	−0.295	0.132	0.032		0.220	0.200	0.011		0.069	0.213
Bio father resident (age 6)									−0.017		−0.115	0.183	0.007		0.045	0.222
Biofather resident (age 8)													−0.019		−0.115	0.163
Stepfather resident (age 4)	0.035	*	0.456	0.223	0.016		0.180	0.183	−0.014		−0.163	0.194	0.016		0.177	0.193
Stepfather resident (age 6)									0.002		0.020	0.171	0.005		0.054	0.178
Stepfather resident (age 8)													−0.012		−0.118	0.145
Number of children (age 4)	0.028		0.087	0.053	0.004		0.011	0.047	−0.024		−0.066	0.070	0.014		0.036	0.075
Number of children (age 6)									0.041		0.105	0.062	−0.073	*	−0.178	0.075
Number of children (age 8)													0.038		0.090	0.059
Low self-regulation	0.639	*	4.962	0.320	−0.131	*	−0.889	0.182	−0.059	*	−0.401	0.184	−0.074	*	−0.472	0.170
			R^2 =	0.423			R^2 =	0.019			R^2 =	0.008			R^2 =	0.013
													Model Fit:			
					Likelihood Ratio χ^2 = 380.028						CFI:		0.995			

	A			B			C			D		
	Intercept			Change age 4–6			Change age 6–8			Change age 8–10		
Variable Description	**Beta**	**b**	**SE**	**Beta**	***b***	***SE***	***Beta***	***b***	***SE***	***Beta***	***b***	***SE***
			df = 68. *p* <. 001					RMSEA:		0.028		
								90% CI RMSEA:		.025–.031		

* *p* <.05

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Table 4

Coefficients from the Structural Model of Parent Involvement, Children who are More Self-Regulated (N = 3643)

	A				B				C				D			
	Intercept				Change age 4–6				Change age 6–8				Change age 8–10			
Variable Description	**Beta**		**b**	**SE**	**Beta**		***b***	***SE***	***Beta***		***b***	***SE***	***Beta***		***b***	***SE***
Mother's education	−0.059	*	−0.077	0.023	-0.030		−0.037	0.024	0.014		0.017	0.026	0.025		0.016	0.025
Child female	−0.019		−0.120	0.093	−0.046	*	−0.281	0.099	−0.023		−0.141	0.101	0.021		0.174	0.098
Child PPVT score	−0.080	*	−0.014	0.004	0.028		0.005	0.004	0.019		0.003	0.004	−0.010		−0.003	0.004
Alcohol	0.054	*	0.037	0.011	0.024		0.016	0.012	−0.017		−0.011	0.013	0.047	*	0.028	0.012
Drug use	0.068	*	0.432	0.093	−0.025		−0.151	0.100	0.020		0.118	0.105	0.009		0.119	0.101
Harsh parenting	0.102	*	0.639	0.092	−0.012		−0.074	0.098	0.005		0.029	0.102	−0.020		−0.095	0.100
Maternal work hours (age 4)	**−0.017**		**−0.004**	0.003	**−0.014**		**−0.003**	0.004	**0.024**		**0.005**	0.005	**−0.049**		**−0.007**	0.005
Maternal work hours (age 6)									**−0.031**		**−0.006**	0.004	**0.012**		**0.001**	0.005
Maternal work hours (age 8)													**−0.010**		**−0.001**	0.004
Family income (age 4)	−0.100	*	−0.318	0.062	−0.031		−0.095	0.066	0.026		0.078	0.078	−0.014		−0.083	0.081
Family income (age 6)									0.010		0.032	0.066	−0.032		−0.070	0.080
Family income (age 8)													−0.023		−0.050	0.078
Bio Father resident (age 4)	−0.014		−0.096	0.112	−0.019		−0.126	0.119	0.047		0.313	0.171	0.030		−0.068	0.180
Bio father resident (age 6)									−0.068	*	−0.437	0.153	0.004		0.239	0.203
Biofather resident (age 8)													−0.008		−0.120	0.160
Stepfather resident (age 4)	0.021		0.227	0.193	0.035		**0.362**	**0.207**	−0.010		−0.106	0.226	0.001		0.197	0.232
Stepfather resident (age 6)									−0.023		**−0.238**	**0.151**	0.026		0.195	0.181
Stepfather resident (age 8)													−0.020		−0.182	0.177
Number of children (age 4)	−0.015		−0.041	0.040	0.023		0.060	0.043	0.007		0.019	0.073	−0.032		−0.017	0.079
Number of children (age 6)									0.023		0.058	0.066	−0.093	*	−0.169	0.082
Number of children (age 8)													0.069		0.063	0.063
			R^2=	0.062			R^2 =	0.009			R^2 =	0.005			R^2 =	0.012

Bolded coefficients differ across self-regulation groups

Model Fit:

Likelihood Ratio χ^2 = 84.891 CFI: 0.996

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	A			B			C			D		
	Intercept			**Change age 4–6**			**Change age 6–8**			**Change age 8–10**		
Variable Description	**Beta**	**b**	**SE**	**Beta**	***b***	***SE***	***Beta***	***b***	***SE***	***Beta***	***b***	***SE***
				50 df, $p < .01$				RMSEA:		0.017		
								90% CI RMSEA:		010–.023		

* p<.05

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Table 5

Coefficients from the Structural Model of Parent Involvement, Children Who are Less Self-Regulated (N= 1324)

	A				B				C				D			
	Intercept				Change age 4–6				Change age 6–8				Change age 8–10			
Variable Description	**Beta**		**b**	**SE**	**Beta**		***b***	***SE***	***Beta***		***b***	***SE***	***Beta***		***b***	***SE***
Mother's education	−0.077	*	−0.128	0.028	−0.024		−0.036	0.028	−0.022		−0.033	0.029	−0.014		−0.019	0.028
Child female	−0.056	*	−0.435	0.113	−0.040	*	−0.281	0.113	0.009		0.064	0.116	0.032		0.207	0.111
Child PPVT score	0.010		0.002	0.004	0.065	*	0.013	0.004	−0.031		−0.006	0.004	0.047	*	0.009	0.004
Alcohol	−0.015		−0.012	0.013	−0.002		−0.001	0.013	−0.034		−0.024	0.014	0.063	*	0.042	0.013
Drug use	0.058	*	0.450	0.116	0.030		0.213	0.116	0.001		0.010	0.121	−0.028		−0.178	0.115
Harsh parenting	0.047	*	0.368	0.113	−0.014		−0.096	0.113	0.075	*	0.526	0.117	−0.018		−0.115	0.112
Maternal work hours (age 4)	**−0.102**	*	**−0.027**	0.004	**0.035**	*	**0.008**	0.004	**−0.091**	*	**−0.022**	0.006	**0.050**		**0.011**	0.006
Maternal work hours (age 6)									**0.044**	*	**0.010**	0.005	**−0.131**	*	**−0.026**	0.006
Maternal work hours (age 8)													**0.052**	*	**0.010**	0.004
Family income (age 4)	−0.095	*	−0.347	0.072	0.029		0.096	0.074	0.021		0.069	0.086	0.016		0.048	0.088
Family income (age 6)									−0.012		−0.038	0.072	0.069	*	0.206	0.086
Family income (age 8)													−0.055	+	−0.164	0.084
Bio Father resident (age 4)	0.033		0.260	0.136	−0.090	*	−0.652	0.136	0.037		0.265	0.194	−0.022		−0.143	0.201
Bio father resident (age 6)									0.016		0.113	0.172	0.047		0.302	0.227
Biofather resident (age 8)													−0.065	*	−0.421	0.177
Stepfather resident (age 4)	0.008		0.133	0.239	**−0.035**	*	**−0.524**	0.239	−0.004		−0.066	0.260	0.007		0.100	0.262
Stepfather resident (age 6)									**0.027**		**0.318**	0.172	0.008		0.089	0.203
Stepfather resident (age 8)													−0.045	*	−0.492	0.197
Number of children (age 4)	−0.046	*	−0.142	0.049	0.029		0.081	0.049	−0.018		−0.050	0.083	0.009		0.023	0.089
Number of children (age 6)									−0.025		−0.069	0.075	0.031		0.078	0.092
Number of children (age 8)													0.017		0.042	0.070
			R^2=	0.042			R^2 =	0.013			R^2 =	0.015			R^2 =	0.019

Bolded coefficients differ acros self-regulation groups

Model Fit:

Likelihood Ratio χ^2 = 84.891 CFI: 0.996

	A			B			C			D		
	Intercept			Change age 4–6			Change age 6–8			Change age 8–10		
Variable Description	**Beta**	**b**	**SE**	**Beta**	***b***	***SE***	***Beta***	***b***	***SE***	***Beta***	***b***	***SE***
					50 df, $p < .01$			RMSEA:		0.017		
								90% CI RMSEA:		.010–.023		

* $p < .05$

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