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Family Instability and Child Maladjustment Trajectories During Elementary School

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Abstract

This study examines the relation between family instability and child maladjustment over a 6-year period in 369 children from four communities. Measures were collected annually from kindergarten through fifth grade. In associative growth curve models, family instability trajectories predicted children's externalizing and internalizing behavior trajectories during this time period. High levels of family instability also incrementally predicted the likelihood of meeting criteria for a DSMIV diagnosis during elementary school, above and beyond prediction from earlier measures of maladjustment. However, the timing of family instability had a different effect on externalizing versus internalizing disorders. In general, stronger relations were found between family instability and externalizing behaviors relative to internalizing behaviors, although children with comorbid disorders experienced the highest levels of family instability.

Keywords

family instability; life events; externalizing; internalizing; trajectory

Children's development cannot be understood separately from the life course of other family members. As a result, events that change family life are also likely to influence children's behavioral trajectories, and may contribute to development of maladjustment. Examples of family life events that have been the focus of study in higher-risk child populations include marital/cohabitation transitions (e.g., Ackerman, Brown, D'Erama, & Izard, 2002; Capaldi & Patterson, 1991), residential moves (e.g., Eckenrode, Rowe, Laird, & Braithwaite, 1995), parent-child separations (e.g., Milan & Pinderhughes, 2000; Tennant, 1988), and job loss (e.g., Elder, Nguyen, & Caspi, 1985; McLoyd, Jayaratne, Ceballo, & Borquez, 1994). Clearly, many of these events are common in our society and not necessarily negative. When they occur frequently and in concurrently, however, they may contribute to an unpredictable family environment that disrupts child development. From this perspective, the accumulation of these events is a measure of family instability (Ackerman, Kogos, Youngstrom, Schoof, & Izard, 1999).

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Research suggests that family instability is a distinct construct within the family environment. For example, correlations between socioeconomic disadvantage and negative family life events in low-income samples are small in magnitude, suggesting that family instability is not simply a marker of differences in financial resources (Ackerman et al., 1999; Guerra, Huesmann, Tolan, Van Acker, & Eron, 1995). Similarly, family instability is only modestly related to other family risk factors, such as harsh discipline strategies or maternal depression, and predicts child maladjustment above and beyond these factors (Ackerman et al., 1999; Greenberg, Lengua, Coie, Pinderhughes, & the Conduct Problems Prevention Research Group, 1999; Mathijssen, Koot, & Verhulst, 1999; Milan, 2002). Together, these findings support the conception of family instability as a unique, and possibly potent, aspect of children's environments.

Research on the effects of family instability has been embedded primarily in the life events and coping literature. Within this body of literature, family instability has been shown to predict increases in internalizing behavior (Ackerman et al., 1999; Nolen-Hoeksema, Girgus, & Seligman, 1992) and externalizing behavior (Compas, Howell, Phares, Williams, & Giunta, 1989; Berden, Althaus, & Velhulst, 1990), as well as academic problems (Dubois, Felner, Meares, & Krier, 1994). Significant predictive relations have been found when symptoms are reported by children (Ge, Lorenz, Conger, Elder, & Simons, 1994), mothers (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996), peers (Guerra et al., 1995), teachers (Ackerman et al., 1999), and formal records (e.g., suspensions; Campbell et al., 1996). Despite some inconsistent findings (summarized in Dubois et al., 1994), these cumulative results suggest that the occurrence of family instability may contribute to maladjustment for some children. However, there are several areas in which additional study is needed to attain a better developmental perspective on the relation between negative family events and child maladjustment.

First, the majority of relevant studies in this area have relied on relatively short time periods or only two points of data collection, yet trajectories of symptomatic behavior vary from child to child. Consequently, understanding the impact of contextual risk factors such as family instability on change in children's behavior is best accomplished with data from multiple time points across an extended time period. With some exceptions (e.g., Ge et al., 1994; Nolen-Hoeksema et al., 1992), this type of inquiry has been relatively rare in the family life events literature. The current study uses prospective data collected annually over a 6-year period to describe how changes in problematic behavior within the individual are related to variations in exposure to family instability over the course of elementary school.

Second, although longitudinal studies have shown a relation between family life events and children's behavior problems, researchers have not examined whether measures of family instability can augment early identification of children likely to exhibit severe maladjustment. Despite the high degree of stability in problematic behavior, early identification of children who will exhibit prolonged behavior problems has been only somewhat successful (Bennett et al., 1999; Campbell et al., 1996; Lochman et al., 1995). Limitations in early identification may occur for at least two reasons besides measurement error. First, initial assessments may be too narrow in focus. Although environmental factors have been considered in prediction (e.g., Lochman et al., 1995), most studies have included only measures of early behavior to predict later maladjustment. Alternatively, early identification may be constrained because subsequent environmental conditions contribute to change in behavior after initial assessment.

Given these two possibilities, it is important to determine not only if environmental factors such as family instability contribute to the likelihood of subsequent maladjustment, but also whether the timing of measurements of family instability matters. The implications are different if the accuracy of predicting a subsequent diagnosis is improved by family instability assessed at the same time as measures of early adjustment (i.e., broader measurement at the time of early maladjustment measures can improve identification) or cumulative family

instability after initial assessment (i.e., subsequent environmental conditions may limit the potential for correct identification). In the literature on family instability, there is indication that early family instability may have a particularly potent effect on subsequent child adjustment (Egeland & Kreutzer, 1991; Nolen-Hoeksema et al., 1992; Campbell et al., 1996). Consequently, early measures of family instability may be particularly useful in early identification efforts.

Finally, although family instability has been linked with externalizing and internalizing behaviors in existing research, comorbidity is quite prevalent in child populations (Angold, Costello, & Erkanli, 1999). However, most research on the impact of family instability on childhood maladjustment has not examined the specificity of effects. Therefore, it is not clear if family instability is a common feature of general maladjustment (i.e., distinguishing normal versus symptomatic children), or if it is associated with specific forms of maladjustment (i.e., distinguishing children with internalizing versus externalizing symptoms). Determining whether a putative risk factor is a common aspect of various forms of maladjustment or a feature of only specific forms of maladjustment is important for understanding the etiology of different disorders and tailoring treatment (Weiss, Suesser, & Catron, 1998). Although studies have linked family instability to both externalizing and internalizing behavior, the co-occurrence of these behaviors has not been considered in these studies. Consequently, it is unclear if family instability has specific effects on only one type of maladjustment or has independent effects on both externalizing and internalizing behavior problems.

The current study attempts to address these voids in the extant literature on family instability and child maladjustment. The conceptualization of family instability used in this paper is drawn from recent work by Ackerman and colleagues, in which family instability is viewed as “an aggregate of several kinds of events that challenge the daily continuity and cohesiveness of family life for a child” (Ackerman et al., 1999, p. 258). Family instability in this study reflects the repeated occurrence of the following events: residential move, entry or exit of a spouse or co-habiting adult into the home, death of a family member, birth of a sibling or new child entering the home, change in employment status resulting in a significant increase/decrease in the time a caretaker spends at home, and temporary parent–child separation. Although some of these events (e.g., birth of a sibling) can be positive experiences, previous examination of the family instability construct (Milan, 2002) suggests when these events occur frequently in a child's life they tend to have a neutral or negative impact on child adjustment. Specifically, within the Fast Track normative sample, correlations between maladjustment in the fifth grade and the frequency of experiencing each discrete event during elementary school (e.g., the number of times a child experienced birth of a sibling from kindergarten through fifth grade) were positive, although not always statistically significant (r values ranging from .07 to .21). For each of these types of events, however, correlations between the frequency of occurrence and maladjustment were smaller in magnitude than the relation between the composite measure of all events (i.e., family instability) and child maladjustment. In other words, the accumulation of different events that may disrupt family life had a greater impact on child adjustment than the frequent occurrence of any one type of event.

This study builds on existing findings by examining the relation between family instability and child maladjustment across an extended time period, and determining whether family instability can augment early identification of children likely to exhibit serious maladjustment and if family instability has specific effects on different forms of maladjustment. In light of existing research, we hypothesized that: (1) child maladjustment trajectories would be predicted from family instability over the course of elementary school; (2) measures of family instability in the early years would predict serious maladjustment in subsequent years, beyond the influence of early maladjustment measures; and (3) family instability is independently related to both externalizing and internalizing symptoms.

Methods

Participants

Participants included 369 children and their parents who comprise the normative sample of a multi-site investigation of the development and prevention of conduct problems in children (The Conduct Problems Prevention Research Group (CPPRG), 1992). The normative sample did not receive any prevention services. The sample was selected from four geographic sites that represented a cross-section of the U.S. population including: Durham, North Carolina; Nashville, Tennessee; Seattle, Washington, and Central Pennsylvania, a mostly rural area with low- to middle-SES, European American families. Within each of the four sites, schools with historically high rates of children exposed to risk factors for the development of conduct problems (e.g., neighborhood poverty) were identified. From these schools, a “normative” sample was constructed by selecting 100 kindergarten children at each site (87 in Seattle). Children were selected to represent the site population in regard to gender, race, and level of teacher-reported aggressive behavior. At each site, ten children were randomly selected from each decile of the distribution of scores on a teacher-report screen for aggressive behavior. Of these 387 children, 18 were eliminated from the current analysis because of missing data (see Missing Data section for further explanation). Of the 369 children in this sample, 51% were male, 49% were ethnic/racial minorities (predominantly African American), 60% were from one of the two lowest SES groups as classified by the Hollingshead system, and 40% resided in single-parent families. The mean age at entrance into first grade across the sample was 6 years, 4 months ($SD = 5$ months).

Measures

Family Instability—Annual family instability was operationalized as a count of the following occurrences during the past year: residential move, death of a family member, divorce or separation from a spouse or co-habiting partner, remarriage/reconciliation/entry into home of a new partner, temporary parent-child separation, birth of a sibling or entry into home of a new child (e.g., an informal kinship care arrangement), and parental job loss or change in employment status resulting in a 20 hr/week difference in time spent at work. Annual scores could range from 0 to 7. The presence or absence of these family transitional events was determined in two ways. First, the event was considered to have occurred if a parent reported its presence on a Life Changes Scale. This 16-item measure was developed for Fast Track and assesses major life events that were experienced by the target child during the previous year. Second, annual demographic information forms reported by the parent about the family were compared across years. Proximal yearly records were examined for changes in family household rosters (e.g., birth of a sibling), the presence of a male partner in the house, and changes in job status. Two metrics of family instability were used in analyses: annual family instability, which reflects events that have occurred over the past year, and cumulative family instability, which reflects all events that have occurred up until that time during the study period.

Child Behavior Checklist and Teacher Reporting Form (CBCL and TRF; Achenbach, 1991)—These are widely used 113-item checklists of child behavioral problems completed by parents (CBCL) or teachers (TRF). Items are summed to yield two scores: externalizing symptoms (e.g., aggression) and internalizing symptoms (e.g., anxiety/depression), which can be compared to age norms. Annual scores from kindergarten to fifth grade were included in this investigation with two exceptions. First, because families participated in an extensive diagnostic interview in third grade, CBCL measures were not completed in this year. Second, because a systematic subset of children did not have TRF scores in first and second grade, these grades were excluded in longitudinal analyses of teacher-reported behavior problems.

Diagnostic Interview Schedule for Children (DISC 2.3; Costello, Edelbrock, & Costello, 1985)—The DISC 2.3 is a standardized, structured clinical interview in which information is collected from both parents and children and used to generate DSM IV diagnoses, if appropriate. The DISC 2.3 yields scores on 27 hierarchically ordered symptom areas, as well as for the chronology, duration, and associated impairments. Information about the reliability and validity of the DISC 2.3 can be found in Shaffer, Fisher, and Dulcan, Davis (1996). The DISC 2.3 was administered by trained clinical interviewers when study participants were in third grade. Of interest in this study was the presence of any internalizing (e.g., Major Depression) or externalizing disorder (e.g., Oppositional Defiant Disorder, ADHD). A disorder was considered present if a child met diagnostic criteria based on parent or child report.

Procedures

A complete description of procedures in the Fast Track investigation is provided elsewhere (CPPRG, 1992). Briefly, participating families were visited annually by Fast Track interviewers during the summer. The dating of measures in this study (e.g., CBCL-Grade 1) indicates that the measure was collected the summer after the grade designated. Data collection began in 1991 (i.e., children were in kindergarten during 1990–91 school year). Interviewers included graduate students and hired research assistants representing the various gender and racial/ethnic backgrounds found in the sample. Parents and children were individually interviewed in the home. Children were read items aloud by the interviewer; parents were read items only when there was an indication of limited reading ability. In the spring of each academic year, teachers were provided measures to assess child adjustment. Parents, children, and teachers were paid for participation.

Analyses

An SEM approach to growth curve modeling was used to determine the relation between family instability and children's externalizing and internalizing behavior. More detailed information on growth curve modeling is provided in Willett, Singer, and Martin (1998). In SEM approaches to growth curve modeling, observed variables (e.g., CBCL scores from five time points) are used as indicators of two latent factors, an intercept factor and a slope factor. This is achieved by setting unitary factor loadings from maladjustment scores at the five time points to the intercept factor, and setting factor loadings from the maladjustment scores to the slope factor to equal some metric reflecting time (e.g., factor loadings in a linear pattern might be constrained to 0, 1, 2, 3, 4). If the “shape” of individuals' trajectories generally does not follow a linear pattern, the slope factor can take different metrics by adding another factor reflecting a polynomial term. Once an appropriate fitting model is established, the next step is to determine if significant variance exist in individual intercept and slope values within a group of individuals. If so, it is possible to explore factors that may account for this variability. In associative growth curve modeling, parameter estimates from one trajectory (e.g., family instability intercept and slope) are used to predict parameter estimates from another trajectory (e.g., externalizing behavior slope).

Prior to analyses, data were analyzed for normality and the presence of outliers using univariate and graphical approaches. Like many variables based on frequency counts, annual family instability measures were positively skewed because of a floor effect. This potential analytic problem was addressed in three ways. First, the majority of analyses involving family instability utilized cumulative measures reflecting more than 1 year of family instability, and most of these variables were normally distributed. Second, tests of multivariate normality in the SEM models were conducted for each analysis and these were nonsignificant. Finally, non-parametric methods were used when annual family instability was used as a correlate.

Missing Data

Fast Track includes extensive efforts to reach all participants annually; thus, the vast majority of participants (86%) in the normative sample have largely complete data. In addition, the SEM techniques employed in this study use full-information maximum likelihood methods of estimation, which generates estimates based on all available data and has been shown to provide largely unbiased parameter estimates in simulation studies of the effect of missing longitudinal data (Wothke, 2000). Nonetheless, missing data points do create a specific problem for the way in which cumulative family instability was measured in this study. Specifically, because cumulative family instability reflects the sum of all annual family instability measures in previous years, missing data at intermediate time points are in effect treated like zero values. As a result, total family instability scores are potential underestimates for children with intermediate missing data; however, censoring these children limits the sample size and potentially affects generalizability of findings. Analyses were conducted first including only those children with all annual family instability scores and then with all children in the sample. The pattern of results was extremely similar in both approaches. Since either approach may be somewhat biased, an intermediate strategy was employed in which cumulative family instability scores in a given year were not computed for any child who did not have data for half of the possible annual family instability scores, resulting in a sample size of $n = 369$. Parameter estimates generated from this approach were in between those generated in the previous two strategies in magnitude.

Results

On average, children experienced one transitional event comprising the family instability measure a year. Average annual family instability scores ranged from a low of .94 ($SD = .98$) to a high of 1.21 ($SD = 1.19$). A repeated measures ANOVA indicated that children in this sample did not experience consistent levels of annual family instability ($F = 3.29$, Wilks Lambda = .94, $p < .01$). Annual differences in family instability scores were due largely to yearly differences in residential moves ($F = 3.90$, $p < .01$) and job loss ($F = 3.45$, $p < .01$), as well as a decline in the frequency of having a new sibling enter the home ($F = 5.45$, $p < .001$). In general, lower annual family instability scores were reported in later elementary school years (grades 4 and 5). Over the course of 6 years, children on average experienced 6.31 ($SD = 3.75$; Range 0–21) family life events. The most typical experiences were residential moves and death of an important person. Intercorrelations of annual family instability based on Spearman rho nonparametric correlations ranged from .24 to .30, with an average of .25. These significant correlations suggest moderate year-to-year stability in the number of events experienced by a family. Correlations between cumulative family instability and initial demographic characteristics (race, marital status, SES, maternal birthage) were no greater than .16, indicating that family instability is not simply a marker of early sociodemographic differences within this sample.

Next, a growth model was fit to cumulative family instability measures from each year in order to generate parameter estimates describing children's environmental trajectories. A linear growth model with serially correlated error terms was first fit to the data; however, fit indices suggested that this model did not provide an adequate fit ($\chi^2 = 105.01$, $df = 11$, $p < .01$, NFI = .97, RMSEA = .15). This finding is not surprising given the lower frequency of annual family instability in later years evident in descriptive analyses. This pattern of annual family instability suggests that the incremental rate of growth in cumulative family instability trajectories should decrease over time for a substantial proportion of children in this sample. A quadratic term was therefore added to the model to account for this pattern, which improved model fit considerably ($\chi^2 = 5.55$, $df = 7$, $p = .4$, NFI = .99, RMSEA = .01). Parameter estimates were as follows: intercept mean = 1.07 ($SE = .06$, $p < .01$), linear slope mean = 1.21 ($SE = .06$, $p < .01$), and

quadratic effect mean = $-.03$ ($SE = .01$, $p < .01$). This model indicates that children on average experienced approximately one transitional event per year, although the rate of increase diminished over time for a group of children. In addition, there was significant variability in the intercept ($\sigma^2 = 1.12$, $SE = .22$, $p < .01$), slope ($\sigma^2 = 0.97$, $SE = .12$, $p < .01$), and quadratic terms ($\sigma^2 = 0.01$, $SE = .001$, $p < .01$), indicating that children differed in how much family instability they experienced in kindergarten and over the course of elementary school.

Family Instability and Child Maladjustment Trajectories

Means and standard deviations of parents and teachers reports of maladjustment (CBCL and TRF) and correlations between maladjustment measures and annual and cumulative family instability are presented in Table I. Correlations between annual family instability and children's concurrent maladjustment ranged from .10 to .23 for parent reports and $-.07$ to .14 for teacher reports. Correlations between annual measures of family instability and child maladjustment did not differ significantly by year, giving no evidence of developmental differences in concurrent associations between recent family instability and child maladjustment. Cumulative family instability measures were more strongly associated with concurrent adjustment than annual family instability measures, although correlations were still generally small (i.e., .15 to .30). These results indicate that family instability, in accumulation, is modestly associated with concurrent parent and teacher reports of maladjustment, with children who experience the most family instability showing higher levels of externalizing behavior at home and school and higher levels of internalizing behavior at home.

The findings thus far do not indicate if family instability is associated with change in child adjustment. To address this issue, we first modeled unconditional growth trajectories of maladjustment across the five assessment periods between kindergarten and fifth grade using parent reports of child externalizing and internalizing behavior. Initial attempts to fit a linear growth model were not successful in terms of fit indices for externalizing or internalizing behavior. A quadratic term was added to each model, which improved fit considerably: (externalizing symptoms $\chi^2 = 7.34$, $df = 4$, $p = .19$, NFI = .99, RMSEA = .036; internalizing symptoms $\chi^2 = 8.26$, $df = 4$, $p = .14$, NFI = .99, RMSEA = .043). Parameter estimates are presented in Table II. Given the significant or marginally significant variance in most of the parameter estimates, we next examined if family instability trajectories account for variability in maladjustment trajectories. Specifically, an associative growth model was used to determine if family instability parameters significantly predict the linear slope and quadratic effect factors of the externalizing and internalizing trajectories. As shown in Table III, the parameter estimates of the family instability trajectories significantly predicted externalizing behavior trajectories, together accounting for 7% of the variability in linear slope values and 2% of the variability in quadratic effect values. Cumulative family instability parameter estimates also significantly predicted internalizing behavior trajectories, together accounting for 3% of the variability in linear slope values and 2% of the variability in quadratic effect values. These results indicate that a small but significant amount of the variability in how much children's externalizing and internalizing behaviors changed between kindergarten and fifth grade was predicted by differences in family instability during that time.

Figures 1 and 2 show externalizing and internalizing behavior trajectories for children experiencing varying levels of family instability during elementary school. Children were categorized as having experienced low (bottom 1/3 of sample), moderate (middle 1/3 of sample), and high (top 1/3 of sample) family instability. These graphs suggest that most of the effect of family instability on maladjustment is evident in children experiencing moderate levels of family instability. Specifically, children experiencing moderate family instability became increasingly similar in their level of behavior problems to children with high family instability, and increasingly dissimilar from children with low family instability over time.

Because measures of maladjustment were not collected from all teachers every year, hierarchical regression was used to test the incremental effect of family instability on teachers' reports of maladjustment in fifth grade, controlling for maladjustment in first grade. Results from these analyses are presented in Table IV. As shown, cumulative family instability was a significant predictor of change in teacher-reported externalizing behavior but not internalizing behavior, although the additional amount of variance accounted for was small ($\Delta R^2 = .02$).

Family Instability as a Predictor of Disorder

The next set of analyses explored if family instability measures can augment early identification of children who subsequently exhibit serious maladjustment. We used hierarchical regression to test if family instability incrementally predicted the likelihood of being diagnosed with a disorder in the middle of elementary school (3rd grade), above and beyond the effect of kindergarten maladjustment. In third grade, 343 children in the sample completed the DISC 2.3 (Costello et al., 1985). Forty-two children received some externalizing diagnosis and 102 children received some internalizing diagnosis. Because demographic characteristics (geographic site, race, gender, SES) were associated with diagnosis, these variables were entered in the first block. Kindergarten maladjustment measures from mothers and teachers were entered in the second block. Family instability during kindergarten and family instability between 1st and 3rd grade were entered in the last two blocks. These variables were entered separately to determine if early family instability has an effect separate from early maladjustment measures and later family instability.

As shown in Table V, the overall set of criterion variables significantly predicted the likelihood of being diagnosed with an externalizing disorder (model $\chi^2 = 88.03$, $df = 10$, $p < .001$, Nagelkerke $R^2 = .53$) and, to a lesser extent, an internalizing disorder (model $\chi^2 = 22.13$, $df = 10$, $p < .05$, Nagelkerke $R^2 = .11$). Above and beyond demographic factors and kindergarten maladjustment, kindergarten family instability significantly predicted receiving an externalizing diagnosis in third grade ($\Delta R^2 = .05$; Adjusted OR = 1.77, 95% CI = 1.30–2.45); however, cumulative family instability between grade 1 and 3 did not make an additional contribution to the model. In contrast, kindergarten family instability did not predict receiving an internalizing diagnosis in third grade, but cumulative family instability between grade 1 and grade 3 did augment the predictive model ($\Delta R^2 = .03$; Adjusted OR = 1.15, 95% CI = 1.03–1.42). These results indicate that beyond measures of maladjustment in kindergarten, higher levels of family instability in kindergarten increased the likelihood of subsequently meeting criteria for an externalizing disorder. In contrast, higher levels of cumulative family instability after initial assessment (i.e., between grades 1 and 3) increased the likelihood of meeting criteria for an internalizing disorder in third grade.

Specificity of Family Instability Effects

Finally, to clarify the specificity of family instability effects on different types of maladjustment, post hoc comparisons were conducted examining cumulative family instability in four mutually exclusive groups based on the DISC 2.3: No Diagnosis ($n = 240$), Internalizing Diagnosis Only ($n = 82$), Externalizing Diagnosis Only ($n = 20$), Comorbid (both internalizing and externalizing diagnoses, $n = 22$). One-way ANOVAs using kindergarten family instability and Grade 1–3 cumulative family instability as dependent measures were conducted. As shown in Fig. 3, significant differences emerged for both kindergarten family instability ($F(3,339) = 6.09$, $p < .01$) and Grade 1–3 cumulative family instability ($F(3,339) = 5.95$, $p < .01$).

Post hoc tukey tests indicated that children in the Internalizing Diagnosis group were no different from children in the No Diagnosis group on either kindergarten family instability or Grade 1–3 cumulative family instability. However, children in the Externalizing Diagnosis and Comorbid groups experienced significantly more kindergarten family instability and Grade 1–

3 cumulative family instability than children in the Internalizing Diagnosis and No Diagnosis groups. In addition, children in the Comorbid group also differed significantly from children in the Externalizing Diagnosis group in that they experienced significantly more Grade 1–3 cumulative family instability. High family instability scores were common in the Comorbid group, with 90% of these children having Grade 1–3 cumulative family instability above the sample median. In addition, 50% of children with comorbid diagnoses had experienced two or more events a year on average, whereas similar levels of annual family instability were found in only 7% of children with no diagnosis, 10% of children with only an internalizing diagnosis, and 20% of children with only an externalizing diagnosis. These results suggest that family instability is more strongly associated with externalizing disorders than internalizing disorders, and may be associated with internalizing symptoms only in the context of comorbid disorders.

Consistent with this interpretation, follow-up analyses using the CBCL and TRF indicated that partial correlations between Grade 5 cumulative family instability and externalizing behaviors controlling for internalizing behaviors were significant for mother and teacher reports (CBCL $r = .19, p < .01$, TRF $r = .21, p < .01$); however, partial correlations between Grade 5 cumulative family instability and internalizing behaviors controlling for externalizing behaviors were not significant (CBCL $r = .06, p = .48$; TRF $r = -.01, p = .51$).

Discussion

In this study, we examined how one aspect of the family environment, family instability, may shape children's development. An understanding of family instability in the lives of youngsters can provide a richer picture of the developmental ecology of children growing up in sub-optimal family conditions. On average, children in this sample experienced one transitional family life event a year; however, there was considerable variability in the amount of family instability experienced during the course of elementary school (range = 0–21). Residential moves and death of an important person were the most common events. Families who experienced relatively more family instability in any 1 year tended to have higher family instability in other years as well, suggesting moderate stability in this aspect of the family environment. In addition, the quadratic function necessary to model family instability trajectories suggests that a substantial proportion of children in this sample experienced fewer transitional events in later elementary grades relative to early elementary school grades.

The Effect of Family Instability on Child Maladjustment

The underlying assumption of this study is that frequent and chronic family life events create an environment with potentially adverse consequences for child development. Consistent with this assumption, family instability histories were associated with concurrent maladjustment and change in maladjustment during elementary school years. Family instability histories accounted for approximately 4% of the variance in concurrent maladjustment measures; however, such concurrent associations are not surprising since family adversity and child behavior problems can co-occur for various reasons. More importantly, our results demonstrate that family instability is associated with change in child adjustment, accounting for approximately three to seven percent of the variability in children's internalizing and externalizing symptom trajectories during elementary school.

Much of the effect of family instability on change in externalizing and internalizing behavior appeared to occur in families experiencing moderate family instability. Over time, the behavior of these children became more similar to children experiencing high family instability and less similar to children experiencing low family instability. In contrast, children in families with high levels of family instability tended to show heightened behavior problems at all times. In other words, there was little indication that family instability was associated with worsening of behavior (i.e., change) in this highest-risk group. In these families, the impact of family

instability on child maladjustment may have occurred prior to elementary school (e.g., Campbell et al., 1996). Alternatively, these children may be members of multi-problem families in which family instability and child maladjustment are prevalent and chronic, but perhaps not causally related. Although interpretations must be tentative, this pattern of results suggests there may be thresholds to the impact of family instability. High levels of family instability may occur in the context of multiple risk factors, and thus not have a unique effect on child behavior. Moderate levels of family instability may occur in families with fewer risk factors overall, and therefore exert an apparent negative effect on children's behavior.

Family Instability as a Predictor of Serious Maladjustment

The current study also explored the relation between family instability and formal diagnosis based on DSM IV criteria to determine if measures of family instability can facilitate early identifications of children likely to exhibit severe maladjustment. We found that high levels of family instability increased the likelihood that a child would meet criteria for diagnosis in third grade, beyond the predictive accuracy attained through early measures of behavior problems from teachers and mothers. The pattern of results was different for externalizing and internalizing disorders, however. For children with externalizing disorders, parent and teacher reports of early externalizing behavior were highly predictive of subsequent diagnosis. Family instability experienced in kindergarten accounted for an additional 3% of the variance in diagnostic status; however, family instability experienced after kindergarten did not contribute any further. These findings suggest that independent of early maladjustment indicators, assessing concomitant environmental conditions such as family instability may enhance early identification of children on developmental pathways characterized by subsequent externalizing disorders. Given the high cost of such disorders, delineating environmental factors that incrementally predict children at greatest risk for subsequently exhibiting externalizing disorders is an important goal (Lochman et al., 1995).

Family instability was also significantly predictive of third grade internalizing diagnoses, above and beyond parent and teacher reports of kindergarten internalizing symptoms. In this case, however, it was the accumulation of family instability between first and third grade that made a significant contribution. The contributory role of family instability was fairly small in magnitude; nonetheless, its predictive utility was as strong as demographic factors and early measures of internalizing behavior from both teachers and mothers. Although overall prediction of internalizing disorders in this sample was low, the significant effect of cumulative family instability in predicting internalizing disorders but not externalizing disorders suggests that it may be ongoing exposure to family risk factors that contributes to internalizing symptoms in some children. If it is the chronicity of environmental risk that is important in the development of internalizing disorders, predicting diagnoses over an extended period of time may be difficult.

The limited ability to predict internalizing disorders in this sample is consistent with other studies showing less continuity in internalizing symptoms relative to externalizing symptoms (e.g., Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). More accurate prediction of internalizing disorders from family instability may require using children's self-report (e.g., Ge et al., 1994; Nolen-Hoeksema et al., 1992). In addition, prediction in this sample may have been limited by the sheer number of children meeting criteria for an internalizing disorder. The high prevalence of internalizing disorders relative to externalizing disorders in this sample may have emerged because the sample was selected specifically to equally represent the full range of externalizing behaviors in kindergarten (i.e., very low levels to very high levels) but not internalizing behaviors. However, other studies (e.g., Buckner & Bassuk, 1997) using the DISC 2.3 in low-income populations have reported a similarly high prevalence of internalizing disorders. Thus, there may be multiple environmental risk factors for internalizing disorders

in these communities, thereby limiting the predictive accuracy achievable with measures of any one risk factor. Finally, it should also be noted that the most prevalent internalizing diagnoses in this sample were simple phobias (16%) and social phobia (11%); in contrast, diagnoses of depressive disorders were less common (2%). Consequently, our results may be more applicable to anxiety disorders relative to depressive disorders.

Specificity of Family Instability Effects

A final goal of this study was to examine the specificity of family instability effects on types of child maladjustment. We found that the presence of an externalizing disorder, whether occurring alone or with a concomitant internalizing disorder, was associated with substantially more family instability in early years and a continuing history of instability. In addition, a high level of family instability was ubiquitous among youngsters displaying comorbid disorders, and the accumulation of family instability over time distinguished children with externalizing disorders from those with comorbid disorders. Consistent with other studies, these results suggest that it may be the accumulation of environmental family adversity that distinguishes children with comorbid disorders from children with singular disorders (see Angold et al., 1999). In addition, our results raise the possibility that family instability is associated with internalizing symptoms only because of heightened family instability in the lives of children with comorbid externalizing and internalizing disorders. Family instability may not be a factor in internalizing symptoms and disorders occurring in isolation.

Potential Mechanisms of Influence

The primary goal of this study was to establish the interlocking nature of family instability and changes in child adjustment over time. We did not, however, explore underlying mechanisms through which family instability may affect child adjustment. Plausibly, family instability may contribute to child maladjustment both directly, through its effect on children's cognitions and behavior regulation, and indirectly, through its effect on other family members.

As an example of direct effects, the experience of repeated, uncontrollable events may result in a generalized tendency to perceive events as outside one's control or to attribute cause in a maladaptive manner. These cognitive styles then place a child at risk for subsequent pathology (for review, see Chorpita & Barlow, 1998). Alternatively, family instability may directly interfere with a child's capacity for affect regulation. Consistent with the "emotional security" hypothesis put forth by Cummings and Davis (1996), chronic uncertainty in familial relationships may lead a child to become hypersensitive to their environment and consequently react to normative as well as stressful events in a manner that differs from developmental expectations. It is also possible that transactional effects exist, in which children's early behavior problems actually lead to greater family instability. Although reciprocal relations between child maladjustment and negative life events have been documented (e.g., Adrian & Hammen, 1993), we did not find indication of this process in the current sample (Milan, 2002).

Family instability also may have indirect effects on child maladjustment when it incurs disruptions in parental functioning. Following divorce, for example, mothers often supervise their children less and become more lax or negative in their discipline strategies (Hetherington, Bridges, & Insabella, 1998). Similarly, events such as job loss tend to increase parental symptomatology (Elder et al., 1985; McLoyd et al., 1994). In these cases, family instability may alter the quality of care parents provide their children, which in turn contributes to child maladjustment. Delineating mechanisms by which family instability influences child maladjustment is an important area for future inquiry and necessary for designing appropriate interventions to reduce the negative impact of family instability on children's adjustment.

Limitations

The current findings must be interpreted in light of several study limitations. First, our measure of family instability was comprised of only some of the possible events that potentially influence day-to-day family life for a child. Although we attempted to capture the most common events children might experience, there are likely many less common events that influence children's development. In addition, the validity of this measure is dependent on the accuracy of parent's reporting; however, parents may forget certain events or intentionally not report an event (e.g., a new partner in the home). As a second limitation, there may be other characteristics that lead to both family instability and childhood maladjustment (i.e., "third" variables) in this sample. For example, maternal antisocial behaviors have been shown to account for the relation between family transitions and child maladjustment (Capaldi & Patterson, 1991). In an earlier examination of possible "third" variables (e.g., maternal depression), we did not find any factors that accounted for the relation between family instability and childhood maladjustment (Milan, 2002). However, measures of parent characteristics such as maternal antisocial behavior and parental substance use were not available, and these characteristics may be particularly important in the study of family instability.

Conclusion

In sum, this study aimed to provide a developmental perspective on the role of family instability in childhood maladjustment. Although the methodology employed in this study cannot establish causation, our findings provide additional support for the assumption that family instability interferes with child development. Further, our results suggest that family instability may be more closely related to externalizing behavior problems, although the timing of family instability may alter its impact on externalizing versus internalizing symptoms. Overall, the results of this study are consistent with a developmental contextualist approach to child adjustment (Elder et al., 1985), in which the intertwining nature of trajectories within a family is viewed as a central force in shaping child outcomes. Although this perspective complicates research efforts, empirically considering children's changing social context is an essential step in advancing our knowledge about optimal and disrupted child development.

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Fig. 1. CBCL externalizing behavior trajectories for children with different levels of family instability during elementary school. CBCL: Child Behavior Checklist (Achenbach, 1991).

Fig. 2. CBCL internalizing behavior trajectories for children with different levels of family instability during elementary school. CBCL: Child Behavior Checklist (Achenbach, 1991).

Fig. 3.

Mean kindergarten family instability and Grade 1–3 family instability scores for children with different third grade DISC diagnostic outcomes.

Means and Standard Deviations of Maladjustment Measures and Concurrent Correlations Between Maladjustment Measures and Family Instability

Parent report ^a				Teacher report ^b			
Outcome	Means (SD)	Annual family instability	Cumulative family instability	Outcome	Means (SD)	Annual family instability	Cumulative family instability
Externalizing KI	53.80 (10.27)	.23**	.23**	Externalizing KI	55.95 (11.83)	.11*	.11*
Externalizing G1	53.62 (10.63)	.18**	.24**	Externalizing G2 ^c	60.36 (11.77)	.05	.20**
Externalizing G3	53.71 (10.61)	.13*	.20**	Externalizing G3	55.78 (11.62)	.14*	.25**
Externalizing G4	50.81 (11.39)	.19**	.30**	Externalizing G4	54.85 (11.12)	.10	.24**
Externalizing G5	50.02 (11.53)	.15**	.26**	Externalizing G5	55.99 (12.03)	.06	.21**
Internalizing KI	51.71 (9.73)	.19**	.19**	Internalizing KI	50.98 (10.48)	.07	.07
Internalizing G1	53.16 (10.78)	.11*	.16**	Internalizing G2 ^a	54.00 (9.96)	.11	.20**
Internalizing G3	53.76 (11.12)	.11*	.18**	Internalizing G3	52.53 (10.06)	.14*	.23**
Internalizing G4	50.22 (10.90)	.10	.24**	Internalizing G4	50.71 (10.37)	-.07	.09
Internalizing G5	48.69 (11.04)	.19**	.23**	Internalizing G5	52.16 (10.52)	.06	.09

^aParent reports of maladjustment were based on the Child Behavior Checklist (CBCL; Achenbach, 1991).

^bTeacher reports of maladjustment were based on the Teacher Report Form (TRF; Achenbach, 1991).

^cSystematic missing data in TRFs from grade 2.

* $p < .05$.

** $p < .01$.

Table II
Parameter Estimates from Unconditional Growth Curves Models of Caretaker Reports of Externalizing and Internalizing Behavior

Parameter	Mean estimate		Variance estimate	
	(SE)	<i>P</i>	(SE)	<i>P</i>
CBCL ^a externalizing:				
Intercept	11.72 (.43)	<.01	53.27 (6.81)	<.01
Linear slope	.20 (.26)	.43	6.27 (3.01)	<.05
Quadratic term	-.13 (.05)	<.01	.22 (.13)	.10
CBCL ^a internalizing:				
Intercept	6.65 (.28)	<.01	21.42 (3.19)	<.01
Linear slope	1.12 (.21)	<.01	5.91 (2.94)	<.05
Quadratic term	-.28 (.01)	<.01	.18 (.11)	.07

^aCBCL: Child Behavior Checklist (CBCL; Achenbach, 1991).

Prediction of Parameter Estimates of Externalizing and Internalizing Behavior Trajectories from Family Instability Trajectories
(Associative Growth Curve Model; $n = 369$)

Table III

Outcome	Predictors					
	Family instability trajectory intercept factor		Family instability trajectory linear slope factor		Family instability trajectory quadratic term factor	
	B (SE)	β	B (SE)	β	B (SE)	β
CBCL ^a externalizing trajectory parameter estimates						
Linear slope factor	-.16 (.09)	-.07	.52 (.13)	.21**	3.52 (1.02)	.19**
Quadratic term factor	-.02 (.02)	-.05	.08 (.03)	.18**	.61 (.70)	.17**
CBCL internalizing trajectory parameter estimates						
Linear slope factor	-.04 (.07)	-.02	.36 (.10)	.11*	2.65 (.75)	.12*
Quadratic term factor	-.01 (.01)	-.02	.07 (.02)	.12*	.50 (.15)	.12*

^aCBCL: Child Behavior Checklist (Achenbach, 1991).

* $p < .05$.

** $p < .01$.

Table IV
Hierarchical Regressions Predicting Change in Teacher-Reported of Maladjustment from Cumulative Family Instability ($n = 337$)

Block ^a and variable	B (SE)	β	ΔR^2	Adj. R^2	Model F
TRF ^b Externalizing Grade 5					39.09**
2. TRF externalizing-kindergarten	.58 (.05)	.59**	.31**	.40**	
3. Cumulative family instability Grade 1–5	.42 (.27)	.11*	.02*	.42**	
TRF Internalizing Grade 5					4.15**
2. TRF internalizing-kindergarten	.21 (.06)	.21**	.04*	.06**	
3. Cumulative family instability grade 1–5	.17 (.19)	.05	.00	.06**	

^aDemographic factors (site, gender, and race) were entered in the first block.

^bTRF: Teacher Report Form (Achenbach, 1991).

* $p < .05$.

** $p < .01$.

Table V
Hierarchical Logistic Regressions Predicting Externalizing and Internalizing Diagnoses on the DISC 2.3 ($n = 328$)

Outcome	Final odds ratio	Final B (SE)	Block χ^2 value, df	Model χ^2 value, df	Nagelkerke total R^2
Externalizing diagnosis:					
Block 1: Demographics ^a				83.03 ^{**} , $df = 10$	
Block 2: Early maladjustment			39.39 ^{**} , $df = 6$		.27 ^{**}
1. Maternal CBCL ^b externalizing	1.10	.10 (.03) ^{**}	33.19 ^{**} , $df = 2$		.47 ^{**}
2. Teacher TRF ^c externalizing	1.05	.05 (.02) ^{**}			
Block 3: Kindergarten family instability	1.77	.57 (.21) ^{**}	8.81 ^{**} , $df = 1$		.52 ^{**}
Block 4: Grade 1-3 family instability	1.14	.13 (.10)	1.64, $df = 1$		.53 ^{**}
Internalizing diagnosis					
Block 1: Demographics				22.13 ^{**} , $df = 10$	
Block 2: Early maladjustment			9.22, $df = 6$		.05
1. Maternal CBCL internalizing	1.04	.04 (.02) ^{**}	7.52 ^{**} , $df = 2$		.08 [*]
2. Teacher TRF internalizing	.98	-.02 (.01)			
Block 3: Kindergarten family instability	.91	-.11 (.13)	0.01, $df = 1$		.08 [*]
Block 4: Grade 1-3 family instability	1.15	.13 (.06) ^{**}	5.38 [*] , $df = 1$		.11 [*]

^aDemographic characteristics included geographic site, gender, race, and SES.

^bCBCL: Child Behavior Checklist (Achenbach, 1991).

^cTRF: Teacher Report Form (Achenbach, 1991).

* $p < .05$.

** $p < .01$.