Welfare Reform and Preschoolers:

Are Certain Children At Risk?

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Abstract

A growing number of studies have examined the effects of welfare and work on young children's development during the era of welfare reform; however, few have investigated the role of individual differences in children's effortful control and emotionality. Drawing data from Welfare, Children, and Families: A Three-City Study, the current investigation (n=445) seeks to identify subgroups of children who may be at risk given children's own characteristics and mothers' welfare and work patterns. Controlling for children's effortful control and emotionality, few associations between mothers' welfare and work experiences and young children's functioning were found. Results suggest that the association between mothers' welfare and work patterns and preschoolers' outcomes depends on preschoolers' effortful control and emotionality. Among children whose mothers moved onto welfare, those who were low in effortful control or high emotionality were at risk for experiencing adverse outcomes. Mothers' exits from employment posed a threat to preschoolers' well-being if children were low in effortful control and high in emotionality.

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In the era of welfare reform, caseloads have dramatically decreased and hundreds of thousands of low-income single mothers have entered employment. A growing body of research has examined the effects of welfare and employment on children's well-being. Studies conducted prior to the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) noted mixed findings for young children (Duncan, Dunifon, Doran, & Yeung, 2001; Hofferth, Smith, McLoyd, & Finkelstein, 2000; Morris, Huston, Duncan, Crosby, & Bos, 2001; Smith, Brooks-Gunn, Kohen, & McCarton, 2001; Zill, Moore, Smith, Stief, & Coiro, 1995). Investigations conducted after the passage of PRWORA have generally found that movements off welfare and into the labor force neither harmed nor benefited preschool-aged children (Chase-Lansdale et al., 2003; Dunifon, Kalil, & Danziger, 2003; Kalil, Dunifon, & Danziger, 2001; Tout, Scarpa, & Zaslow, 2002). Still, among low-income families who may be affected by welfare reform, certain subgroups of children may be at risk. The current investigation is a follow-up study to that of Chase-Lansdale and colleagues (2003), and it seeks to identify such subgroups according to individual differences in children's effortful control and emotionality.

Though the welfare reform literature has largely focused on children only in terms of their outcomes, a developmental perspective underscores the role of children's own characteristics in their development. According to bioecological and transactional theories, the individual, environment, and the interaction between the two propel children's developmental trajectories (Bronfenbrenner & Morris, 1998; Sameroff, 2000). A key influence of this interaction is child temperament, which may shape children's experience in several ways (Caspi,

2000). Children may have different experiences with the same caregiver. A parent may find it more challenging to provide warm, responsive caregiving to a difficult child, but easier to care for an easy child. Children may also have different reactions to the same experience. A change in routines may evoke strong reactions from some children, but not from others.

Children's Effortful Control, Emotionality, and Development

An important area of study in the field of social and emotional development concerns individual differences in effortful control and emotionality. Emotionality refers to children's involuntary, immediate affective responses, including whether children easily become upset or angry. Effortful control speaks to children's voluntary efforts to control such immediate responses or to delay gratification. Scholars view both effortful control and emotionality as susceptible to the influence of heredity, maturation, and experience (Rothbart & Bates, 1998). Effortful control has biological underpinnings, but children also learn to control their behavior over time.

In a long line of studies, emotionality and effortful control have been linked to child adjustment. Children who easily become upset or angry are likely to exhibit greater behavior problems (Bates, Bayles, Bennett, Ridge, & Brown, 1991; Eisenberg, Cumberland, et al., 2001; Lengua, 2002; Rothbart et al., 1994). In contrast, well-regulated children have been found to perform better on assessments of academic achievement (Kurdek & Sinclair, 2000; Martin et al., 1994; Martin, 1989; Miech, Essex, & Goldsmith, 2001; Mischel, Shoda, & Rodriguez, 1989; Shoda, Mischel, & Peake, 1990). Additionally, elevated effortful control has been associated with fewer behavior problems and more social competence (Fabes et al., 1999; Lengua, 2002; Rothbart et al., 1994; Bates, Bayles, Bennett, Ridge, & Brown, 1991; Eisenberg, Cumberland, et al., 2001).

Low Effortful Control and High Emotionality as Risk Factors in the Context of Welfare Reform

Developmentalists have a long tradition of identifying subgroups of children who may be more at risk than others. The risk and resilience literature has identified certain child, familial, and broader environmental characteristics that confer advantages on children's adjustment despite facing adversity (Friedman & Chase-Lansdale, 2002; Luthar, Cicchetti, & Becker, 2000). Here we define adversity as growing up in poverty, and high effortful control is seen as a protective factor, while high emotionality is seen as a risk factor for children's well-being (Li-Grining, Pittman, & Chase-Lansdale, 2003). Studies of low-income children show that certain temperament characteristics, such as regulating one's behavior, support positive adjustment whereas other attributes, such as easily becoming upset, places children at risk (Brody, Dorsey, Forehand, & Armistead, 2002; Li-Grining, Pittman, & Chase-Lansdale, 2003; Mendez, Fantuzzo, & Cicchetti, 2002; Alexander, Entwisle, & Dauber, 1993; Keenan & Shaw, 1994; Werner & Smith, 2001). Yet, virtually no study to date has examined whether emotionality and effortful control play similar roles in the context of welfare reform.

Research Questions

The current study extends the literature by incorporating children's effortful control and emotionality in the study of welfare reform's effect on young children. Two main research questions guide this investigation. First, we conduct a more stringent test of mothers' welfare and employment experiences on children's well-being by controlling for children's individual differences in effortful control and emotionality. Second, we test to see if children's effortful control and emotionality moderate the influence of mothers' welfare and employment patterns on child outcomes. Specifically, we examine whether subgroups of children who are high in

emotionality or low in effortful control are particularly at risk and whether those who are low in emotionality or high in effortful control are at a relative advantage.

Analytical Strategy

Since the families in our study were not randomly assigned to welfare and work transition groups, we must address selection bias statistically. Advantaged and resourceful parents may more easily transition off welfare, may be less likely to experience risk, and may more likely have children who display few behavior problems and show high cognitive achievement. To minimize bias in our estimates, we employ a two-pronged approach. First, we include a host of controls, including demographic variables from wave 1 (i.e., city of residence, child age, race, and gender, and mother age) and human capital characteristics from time 1 (i.e., mother's marital status, education, income-to-needs, whether the mother was the biological mother of the child, whether English was her first language, the number of minors in the household, and whether the child lived with a different primary caregiver at wave 2).

Still, there may be unmeasured characteristics that bias our estimates. Thus, we estimated lagged models. When predicting each outcome at time 2, we included the same outcome at time 1 as an additional control. Coefficients on welfare and work variables in our models thus represent the effects on changes in rates of child development over time (Kessler & Greenberg, 1981). As well, this allows us to control for unmeasured, time-invariant heterogeneity in children captured by the assessment of children's outcomes at time 1 (Cain, 1975; Chase-Lansdale, et al., 2003).

We estimate two models using Ordinary Least Squares (OLS) regression. In our first model, we examine links between child outcomes and mothers' welfare and work patterns, controlling for demographic, human capital, and children's effortful control and emotionality.

$$\text{Child Outcome}_{2i} = B_0 + B_1\text{OffWel}_{2i} + B_2\text{OntoWel}_{2i} + B_3\text{IntoEmp}_{2i} + B_4\text{OutOfEmp}_{2i} + B_5\text{Wel}_{1,2i} + B_6\text{Emp}_{1,2i} + B_7\text{Effortful Control}_{1i} + B_8\text{Emotionality}_{1i} + B_9\text{Child Outcome}_{1i} + B_{10}\text{Other Control Variables} + \varepsilon_i$$

We created two series of interaction terms, one for welfare and one for employment. The first series includes cross-products between effortful control and each welfare variable as well as cross-products between emotionality and each welfare variable. The second series of terms are constructed similarly for employment. In our second model, we test these series of interaction terms separately. One variation of the model included the welfare interaction terms, and another variation included the employment terms. To reduce multicollinearity and to ease interpretation, we center all of the continuous independent variables in the models (Aiken & West, 1991). We used three methods of detecting moderation. First, we examined interactions if the association between outcomes and effortful control varied across at least two welfare groups. We did the same for emotionality and welfare, and then repeated the process with employment. Second, we tested whether adding each series of interaction terms to the main effects model significantly increased the amount of variance explained in each outcome. Third, we conducted simple slope tests to assess whether the slope for each welfare and employment group significantly differed from zero. Furthermore, all analyses were conducted with probability weights. Thus, our results are generalizable to our population of inference, which is preschool-aged children in low-income families living in low-income neighborhoods in Boston, Chicago, and San Antonio (Winston et al., 1999).

Method

Participants

Children in the present analyses participated in Welfare, Children, and Families: A Three-City Study, a large, comprehensive longitudinal study examining the impact of welfare

reform on children and families. In 1999, a household-based, stratified random-sample survey was administered among 2,402 children, ages 0-4 and 10-14, and their caregivers in low-income neighborhoods of Boston, Chicago, and San Antonio. Families were randomly selected from more than 40,000 screened households (response rate of 90%), and families deemed eligible for the study, based on an array of socioeconomic factors, such as race, income, and children's age, were then asked to participate (response rate of 82%), resulting in an overall response rate of 74%. Wave 2 interviews were conducted sixteen months later (response rate of 88%).

In addition to taking part in the survey component of the study, all families with children ages 2-4 were asked to participate in the Embedded Developmental Study (EDS; response rate of 85%). The EDS involved more extensive interviews with 626 primary caregivers, 91% of whom were biological mothers. These also included videotaped observations of mother-child interaction and of children's effortful control. Non-response analyses generally found no significant differences in background characteristics between children and families who took part in the observational component of the EDS and those who were eligible but did not participate. However, mothers of children who took part in the observations were more likely to be married than those of children who did not.

Though the sample was sometimes reduced due to missing data on outcome variables, 445 children had complete data on mothers' welfare and work patterns over time and effortful control, emotionality, and background characteristics assessed at time 1. Across outcomes, samples ranged from n=424 to n=434 in size. Non-response analyses largely detected no significant differences in background characteristics between preschoolers included in the current sample and those who were the basis for Chase-Lansdale et al. (2003). The one

exception was that the current sample included a larger percentage of White children than the sample used in the study of Chase-Lansdale and colleagues (2003).

Procedure

Trained, professional interviewers collected data over two home visits. One child from each eligible household was randomly selected to participate. During the first visit, as part of the larger survey component of the study, mothers completed a two-hour interview on topics including child and family demographic characteristics, family functioning, and children's social competence and problem behaviors. Using a Computer Assisted Personal Interview, responses to interview questions were directly entered into a laptop computer by the interviewers. For approximately 12% of the families, interviews were administered in Spanish. Children who were at least 2-years-old completed individualized cognitive assessments. During the second visit, as part of the EDS, structured tasks were administered and videotaped. Mothers then provided more details on child and family functioning, including ratings of children's emotionality. Both mothers and children participated in the Puzzle Task (Chase-Lansdale, Brooks-Gunn, & Zamsky, 1989; Easterbrooks & Goldberg, 1984; Owen & Henderson, 1988; Sroufe, Matas, & Rosenberg, 1980) whereas field interviewers administered the Snack Delay and Gift Wrap tasks to the children only (Kochanska et al., 1996).

Measures

Child Outcomes

Behavior problems. Mothers completed the Child Behavior Checklist, a well-validated, 100-item questionnaire (Achenbach, 1991, 1992). The externalizing problem behavior score captured aspects of children's behavior such as aggression (for children ages 2-3, α =.90 and for children ages 4-18, α =.88), and the internalizing problem behavior score assessed characteristics

of children's behavior such as depression (for children ages 2-3, α =.81 and for children ages 4-18, α =.87). Alphas for the total score were .95 for both the younger and older children. Dichotomous variables were created to identify children whose scores fell within the borderline or clinical range, meaning that their scores were high enough to indicate that they should be referred to mental health services.

Social competence. Mothers also reported on children's social competence (Quint, Bos, & Polit, 1997). Mothers were given six statements about their children such as "shows concern for other people's feelings" and "is helpful and cooperative" and asked to rate, on a scale of 1 to 5, to what extent the statements described their children. A principal components analysis with a promax rotation resulted in a one-factor structure. Thus, a mean of all items was created (α=.77).

Cognitive achievement. In the main survey component, the field interviewers administered the Applied Problems and Letter-Word Identification subscales of the Woodcock-Johnson Psycho-educational Battery Revised to each child (WJ-R; Woodcock & Mather, 1989, 1990). These subscales measured children's mathematical and reading skills, respectively. If a child's primary language was Spanish, the Spanish version of these subscales was administered (Bateria Woodcock-Munoz: Preubas de Aprovechamiento-Revisada; Woodcock & Munoz-Sandoval, 1996). Scores convey how well each child performed compared to children from nationally representative samples.

Welfare and Work Patterns

Mothers completed monthly retrospective calendars for employment and welfare receipt for up to 2 years prior to each interview. Before data collection, extensive piloting of the survey questions on welfare and work was conducted and quality control measures were taken. Widely considered as an acceptable period for recall, the two-year retrospective time employed here is

consistent with retrospective time frames used in the major national surveys such as the Panel Study of Income Dynamics (PSID) and the National Longitudinal Survey of Youth (NLSY).

Based on these reports, we created variables representing both transitions and stability in welfare and work patterns across two time points. We examined long-term welfare and employment experiences (whether mothers received welfare or were employed at least six of the prior eleven months), with employment defined as full-time (40 hours or more per week). We created two sets of dummy variables, one for welfare and one for employment. For welfare, we create four dummy variables: 1) stably off welfare, 2) stably on welfare, 3) on welfare in wave 1 and off welfare in wave 2, and 4) off welfare in wave 1 and on welfare in wave 2. Dummy variables for employment were constructed similarly[1]. We omit the stably off welfare group and the stably not employed group. We conduct post-hoc analyses to compare non-omitted groups to each other. Prior analyses found the interaction between welfare and work to be nonsignificant; thus a cross-product between welfare and work was not included (Chase-Lansdale, et al., 2003).

Effortful Control

In their homes, under the administration of trained, professional interviewers, children participated in two effortful control tasks, Snack Delay and Gift Wrap, adapted from the laboratory research of Kochanska and colleagues (1996). In the Snack Delay task, children were asked to place their hands flat on a table and then asked to withhold from eating an M&M candy placed on the table in front of them. (For children who could not eat chocolate, other snacks were provided.) During four trials (20, 30, 40, and 60 seconds in length), children were instructed to delay eating until the field interviewer rang a bell. In the Gift Wrap task, field interviewers told

[1] The model used here differs slightly from the model used by Chase-Lansdale and colleagues (2003). However, the two models are mathematically identical.

children that they would be receiving presents. However, the children were told that they could not peek at the presents while they were being wrapped. Field interviewers then instructed children to turn around and not to peek as the interviewers noisily wrapped the presents for 60 seconds.

Trained field interviewers videotaped the administration of effortful control tasks, and a team of seven trained, advanced undergraduate research assistants, who reflected racial and ethnic diversity, coded the videotapes. For each Snack Delay trial, coders judged, on a scale of 0 to 10, the extent to which children attempted to eat the M&M candy before the bell rang (*Snack Delay behavior code*, see Appendix A for complete scale). Coders also recorded how many seconds children waited to eat an M&M (*Snack Delay latency to eat*). Across the four trials, the average behavior code and the average latency to eat were calculated. For the Gift Wrap task, coders rated how well children waited to receive the present on a scale of 0 to 7 (*Gift Wrap behavior code*, see Appendix B for complete scale). They also noted how many seconds children waited to peek at the present (*Gift Wrap latency to peek*) and to turn around toward the present (*Gift Wrap latency to turn*).

To assess interrater reliability, approximately 25% of tapes were double coded by 13 different pairs of coders. Kappas and intraclass correlations were calculated using formulas outlined by Bakeman & Gottman (1997) and Tinsley and Weiss (1975), respectively. The average kappas across coder pairs were .69 for the Snack Delay behavior code and .62 for the Gift Wrap behavior code. The average intraclass correlation across trials for the Snack Delay latency to eat was .98. For the Gift Wrap latency to peek and latency to turn, the intraclass correlations were .94 and .80, respectively.

A correlation matrix of all five effortful control variables showed significant relations among them (*r*s = .33-.49, $p < .01$). Given these results, an overall effortful control composite was made using a mean of the standardized Snack Delay and Gift Wrap variables ($\alpha = .87$).

Emotionality

Children's emotionality was rated using the Emotionality, Activity, Sociability, and Impulsivity (EASI) Temperament Scale (Buss & Plomin, 1975; 1984). On a 1 to 5 scale, items assessed emotionality based on mothers' reports of children's behavior. Negative emotionality was based on the sum of four items (i.e., child gets upset easily; child tends to cry easily; child is easily frightened; and child has a quick temper; $\alpha = .69$).

Results

First, we present descriptive statistics on our sample. Table 1 contains information on welfare, work, and background characteristics, and Table 2 provides data on developmental outcomes. On average, children in this study lived well below the poverty line, with a mean income-to-needs ratio of .71. Most mothers were of a racial and ethnic minority background, with 39% African Americans, 54% Hispanics, 3% Asian American or Biracial, and 4% Non-Hispanic White caregivers. Only 28% of mothers were married, and 41% had less than a high school degree. In addition, households had an average of 3 children under 18-years-old. The mean focal child age was 42-months-old and mean maternal age was 29-years-old. Boys represented approximately half (54%) of the children.

In terms of cognitive achievement, children in the current study generally scored within the average range, with mean scores of 92 and 91 for quantitative skills in waves 1 and 2 and average scores of 99 and 93 for reading skills in waves 1 and 2, respectively. Previous work has shown that in wave 1, preschoolers in the Three-City Study performed similarly to poor children

but lower than nonpoor children in the PSID, a nationally representative study (Lohman, Pittman, Coley, & Chase-Lansdale, in press). Regarding social behavior, children in the current study displayed more serious behavior problems than children in national norming samples. Typically, 16% of children evidence behavior problems in the borderline and clinical range (Achenbach, Howell, Quay, & Conners, 1991). In this sample, 23% and 20% of children were classified as such in waves 1 and 2, respectively.

Main Effects of Mothers' Welfare and Work Experiences and Children's Effortful Control and Emotionality

In Panel 1 of Tables 3 and 4, we present estimates of the association between mothers' welfare and work patterns and children's developmental trajectories, controlling for effortful control and emotionality. Transitions are generally not associated with children's development over time. The few existing results do not show a consistent pattern. Moving out of employment was modestly linked with improvements in reading scores. Similarly, remaining stably on welfare and in employment was largely not linked to children's development. Remaining stably on welfare was related to marginal increases in total behavior problems and externalizing behavior problems, while remaining stably in employment was related to small decreases in internalizing problems.

In contrast, Panel 1 of Tables 3 and 4 shows that children's own temperament was linked to children's development over time. Effortful control was associated with both cognitive and socioemotional skills. Higher effortful control was linked to increases in cognitive achievement and to reductions in behavior problems. A standard deviation increase in effortful control was linked to nearly one-third of a standard deviation rise in quantitative skills over time and to about one-tenth of a standard deviation increase in reading skills. As well, a standard deviation

increase in effortful control was associated with just over one-tenth of a standard deviation reduction in the probability that children would demonstrate behavior problems in the borderline or clinical range.

Emotionality was related to cognitive and socioemotional development. A standard deviation rise in emotionality was linked to about a one-tenth standard deviation reduction in reading skills. Emotionality was also associated with increases in behavior problems and decreases in social competence over time. A standard deviation increase in emotionality was related to one-tenth of a standard deviation rise in the likelihood that children would exhibit total behavior problems and externalizing behavior problems in the borderline or clinical range. Conversely, a standard deviation increase in emotionality was linked to one-tenth of a standard deviation drop in social competence.

Children's Effortful Control and Emotionality as Moderators of Mothers' Welfare and Work Patterns

Panel 2 of Tables 3 and 4 indicates that the association between mothers' welfare patterns and children's outcomes depends on children's effortful control and emotionality. As shown in Panel 3 of Tables 3 and 4, children's effortful control and emotionality moderate the link between mother's employment experiences and children's adjustment. Figures 1-8 illustrate examples of the moderating role of effortful control and emotionality using techniques outlined by Aiken and West (1991). The key of each figure indicates which of the simple slopes correspond to different welfare and work groups. The significance level for each slope is also included in the key.

Effortful Control and Welfare Interactions. In Figure 1, we present results for children's quantitative scores. Here, the main effect of effortful control on quantitative skills can be seen.

Within each welfare group, higher effortful control relates to increases on quantitative scores, indicated by the four upward sloping lines. In fact, three of the four simple slopes are significantly different from zero. Among children whose mothers have transitioned onto welfare, remained off welfare, and stayed on welfare, more effortful control was associated with improvements in quantitative skills. Moreover, among the three groups, the link was especially strong for children whose mothers transitioned onto welfare.

There was a similar finding for quantitative skills and reading skills. For both outcomes, effortful control was positively linked to cognitive achievement among children whose mothers remained off welfare. There was also a modest main effect of effortful control on the development of reading skills. In contrast, however, this finding was driven by children whose mothers remained off welfare. There was a steep upward slope for these children, and this line was significantly different from zero. However, the simple slopes for the other welfare groups do not significantly differ from zero.

Figure 2 depicts the association between effortful control and the likelihood that children will exhibit behavior problems in the borderline and clinical range. Effortful control was linked with decreases in the likelihood that children will exhibit extreme behavior problems. The three downward sloping lines show that this was the case for most of the welfare groups. Indeed, there was a main effect of effortful control on the probability of being classified in the borderline and clinical range. Effortful control was especially important for two groups, for children whose mothers transitioned onto welfare and for those whose mothers remained on welfare. The simple slopes for these lines significantly differed from zero, but this was not the case for children in other welfare groups, where mothers left welfare or remained off welfare.

In Figure 3, the relation between effortful control and social competence is presented. There was no main effect of effortful control on increases in social competence. However, there are two upward slopes, for children whose mothers continued to receive welfare payments and for those whose mothers joined the welfare rolls. Only the line for children whose mothers transitioned onto welfare was significantly different from zero.

In sum, a pattern emerges across these interactions, such that effortful control was salient for a two groups of children. For children whose mothers shifted onto welfare and for those whose mothers remained on welfare, high levels of effortful control were related to improvements in quantitative skills and social competence and to declines in extreme behavior problems. Conversely, low levels of effortful control were associated with decreased quantitative skills and social competence and heightened behavior problems.

Emotionality and Welfare Interactions. Figures 4 and 5 illustrate how emotionality moderated the relation between mothers' welfare experiences and children's outcomes. There was a main effect of emotionality on the development of social competence, where emotionality was negatively related to competence. Figure 4 suggests that children whose mothers underwent welfare transitions drove this main effect. For children whose mothers either left or moved onto welfare, the simple slopes significantly differed from zero. For children whose mothers did not change welfare status, the simple slopes were not significantly different from zero.

Figure 5 depicts the relation between emotionality and quantitative skills. Emotionality did not have an overall main effect on changes in quantitative scores. However, Figure 5 shows a sharp downward slope for children whose mothers left the welfare rolls. The simple slope for this group differs significantly from zero, but the other lines do not. Though not shown here, emotionality acted in a similar way for reading skills among this group of children. There was a

main effect of emotionality on reading scores, and one group drove this finding. For children whose mothers left welfare, there was a negative association between emotionality and reading scores. The simple slope for this group was significantly different from zero, but it was not so for children in the other welfare groups.

There was also an interaction effect on changes in the probability that children would display extreme internalizing behavior problems. Emotionality did not have an overall main effect on internalizing problems, but there was a significant relation between emotionality and internalizing problems for children whose mothers entered the welfare system. Unexpectedly, the association between emotionality and internalizing problems was negative.

In general, a pattern can be gleaned from the interactions where emotionality was particularly important for children whose mothers underwent transitions in welfare status. For children whose mothers went onto the welfare rolls, emotionality was related to decreases in social competence. Among children whose mothers left welfare, emotionality was associated with declines in social competence, quantitative skills, and reading skills. However, there was an unexpected negative link between emotionality and extreme internalizing behavior problems for children whose mothers moved onto welfare.

Effortful Control and Work Interactions. As shown in Figures 6 and 7, effortful control moderated the association between mothers' work experiences and children's development. Across all preschoolers in the study, effortful control was negatively linked to being classified in the borderline and clinical range for the total behavior problems score. Figure 6 shows that this association was especially strong for children whose mothers exited employment. There was a steep downward slope for this group, and it was significantly different from zero. In contrast, the association between effortful control and behavior problems was nonsignificant for children

whose mothers gained employment, for those whose mothers remained employed, and for those whose mothers stayed out of the labor force. A similar pattern was found for internalizing problems, though it is not presented here. There was a significant association between effortful control and reductions in extreme internalizing behavior problems for children whose mothers left their jobs, but not for children in other employment groups.

Effortful control was positively related to the development of children's reading skills regardless of their mothers' employment patterns, as indicated by the main effect of effortful control on reading scores. Figure 7 suggests that this association was present for three of four employment groups. The figure shows three upward slopes, which all significantly differ from zero. The link between effortful control and reading scores was particularly strong for children whose mothers left employment. As well, there was a positive relation between effortful control and reading skills for children whose mothers gained employment and for those whose mothers remained employed. However, the line for children whose mothers remained stably unemployed did not significantly differ from zero.

Emotionality and Work Interactions. Figure 8 shows how emotionality links to change in quantitative skills for children in each employment group. Among children whose mothers left jobs, emotionality was significantly related to the development of quantitative skills. However, a significant association was not detected for children in the other three employment groups. The simple slopes are flat for children whose mothers entered employment, for those whose mothers remained employed, and for those whose mothers stayed out of the labor force. Two other interactions were in line with this finding. Among children whose mothers left a job, emotionality was negatively linked with reading skills. As well, emotionality was positively related to extreme internalizing behavior problems for children whose mothers experienced job

loss. However, neither of these slopes was significantly different from zero. There was an additional finding for children whose mothers entered employment, which involved a significant link between emotionality and the development of internalizing behavior problems. For children whose mothers remained employed, a significant association between emotionality and reading skills was also detected.

In sum, the employment interactions reveal that effortful control and emotionality were salient for children whose mothers exited the workforce. Among children in this group, effortful control was linked with decreases in behavior problems and improvements in reading skills, and emotionality was negatively related to quantitative skills. There was some indication that effortful control and emotionality functioned similarly for children whose mothers entered work or remained employed, but the findings were more sporadic.

Discussion

The current investigation extends existing research by incorporating children's effortful control and emotionality into the study of low-income children's development in the era of welfare reform. Moreover, we tested these associations using rigorous methods, including the employment of in-depth measurement; a combination of survey, observational, and individual assessment data; and controlling for a host of child and family background characteristics, including child outcomes at time 1. Controlling for children's effortful control and emotionality, mothers' welfare and work experiences were, on the whole, not linked to children's development over time.

In contrast, children's own characteristics were associated with their development over time. Elevated effortful control predicted slight increases in quantitative and reading skills and modest decreases in the probability of exhibiting extreme behavior problems. A rise in

emotionality showed the opposite pattern, with marginal decreases in reading skills and social competence and modest increases in the development of total behavior problems and externalizing behavior problems. Children high in effortful control and low in emotionality showed positive adjustment despite facing adversities associated with living in poverty.

Among children whose mothers underwent transitions in welfare and work status, effortful control acted as a protective factor and emotionality functioned as a risk factor. More specifically, for children whose mothers entered the welfare system, effortful control enhanced the development of children's quantitative skills, behavior problems, and social competence. In this same group of children, emotionality exacerbated the development of children's social competence. For children whose mothers left employment, effortful control was associated with decreases in total behavior problems and internalizing behavior problems and increases in reading skills. Among children in this group, there was also a significant negative association between emotionality and quantitative skills. A similar pattern was found for the development of reading skills and internalizing behavior problems, but these associations were nonsignificant.

Children whose mothers moved onto welfare or left employment may be particularly at risk. Moving onto welfare in the era of welfare reform may signal that a crisis has occurred in children's lives. Similarly, it is likely that exiting employment creates a riskier environment for low-income children. Mothers' job loss could be seen as a serious problem for low-income families. Most of the families in our sample who left employment have never received welfare. Without employment and welfare, no safety net may exist for these families. In a climate where most mothers remained employed or entered employment, mothers who lost jobs may experience more stress. Children who are highly emotional or who have difficulty controlling their behavior may be particularly sensitive to the negative effects associated with elevated maternal stress.

Furthermore, children with these characteristics may aggravate mothers' stress and therefore increase their own vulnerability. However, children low in emotionality and high in effortful control may be better equipped at coping with an increase in mothers' stress. Additionally, being well-regulated and less emotional may provide an advantage for children as mothers may find it easier to care for children with these characteristics.

Taken together, both effortful control and emotionality were salient for children whose mothers moved onto welfare and for those whose mothers left employment. Both experiences involve a change in children's environments, and the transitions themselves may pose a risk to children's development. Moreover, these specific transitions – moving onto welfare and into unemployment – may signal that families are particularly vulnerable. When these transitions are coupled with child risk factors, children's well-being may be especially threatened. Conversely, child protective factors may be particularly helpful for these families. Alternatively, mothers may be more willing to leave a job to care for a well-regulated child or one who does not easily become emotional.

There was some evidence that effortful control acted as a protective factor for the development of quantitative skills and behavior problems among children whose mothers continued to receive welfare payments. Emotionality did not act as a risk factor for this group. Families staying on welfare may be the most vulnerable among the welfare groups. Indeed, 35% of children whose families remained on welfare showed serious behavior problems compared to 11% among those never on welfare as shown in Table 2. Rather than viewing the stability of remaining on welfare as providing an effective safety net, it appears that the most vulnerable families continue to stay on welfare (Lohman, Pittman, Coley, & Chase-Lansdale, in press; see Smith 2001 for review). It could be the case that moving onto welfare and remaining on welfare

both signal that a crisis has occurred for families. Thus, under both circumstances, effortful control becomes particularly salient.

Effortful control did not confer benefits and emotionality did not pose risks to children whose mothers remained out of employment. Families who remained out of employment may be the most vulnerable among the employment groups. It may be the case that in the context of accumulating numerous environmental risks over time, child factors such as high effortful control and low emotionality can do little to protect children's development.

There were some results for children whose mothers left welfare. Emotionality posed a risk to social competence, reading skills, and quantitative skills, but effortful control did not function as a protective factor. Results were not prevalent for children whose mothers entered employment. There were sporadic findings for children whose mothers remained employed and for those whose mothers remained off welfare. Effortful control and emotionality may not moderate the way these particular welfare and work experiences link to children's functioning because these circumstances provide buffers to children's well-being.

In conclusion, the current study expands the welfare reform literature by recognizing how preschoolers' effortful control and emotionality were related to their own development. Mothers' experiences with welfare and work were generally not linked to young children's development, controlling for individual differences in children's effortful control and emotionality. However, children's effortful control and emotionality were linked to their development, showing that low effortful control and high emotionality posed a risk to children's socioemotional and cognitive adjustment. Moreover, subgroups of children in certain welfare and work groups were placed at risk. Among children whose mothers transitioned onto welfare and among those whose mothers exited employment, those with high effortful control and low

emotionality experienced improvements in cognitive achievement and social competence and decreases in behavior problems. Conversely, cognitive scores, social competence, and behavior problems worsened when children in these groups were low in effortful control and high in emotionality.

Despite the contributions of this study, its limitations must be acknowledged. It could be that families with children who are low in effortful control or high in emotionality select themselves into certain welfare and work groups. Mothers of children with such temperamental characteristics may find it more difficult to exit welfare or to remain employed. Also, the number of families who moved out of employment was relatively small, and the time between waves was relatively short. Lastly, though we made an effort to address time-invariant omitted variables, time-varying omitted variables may still bias our estimates.

Nevertheless, the current investigation provides a new way of examining subgroups of low-income children who may be at risk in the era of welfare reform, which could be used to help policies and programs better target families in need. Policymakers often focus on changing low-income children's environments to improve their school readiness without recognizing the contributions of children's own characteristics. With the goal of creating effective policies, it is important to understand the nuances of how broad policies such as welfare reform may affect children. This study suggests that some children may be especially at risk and others may particularly benefit from certain maternal welfare and work experiences. Without an explicit focus on children, and not just on their environments, welfare reform alone may not improve preschoolers' well-being; rather, a partnership with other existing services, such as screening for developmental delays, could help target resources to children who are especially in need.

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Table 1

Welfare, Work, Child, and Family Characteristics

	Mean or %	Standard deviation
Welfare receipt		
On Welfare	18	
Welfare Leavers	19	
Past Leavers	6	
Nonentrants	58	
Employment status		
Unemployed	69	
Into Employment	14	
Out of Employment	6	
Employed	12	
Temperament		
Effortful control	.03	.78
Emotionality	39	9
City		
Boston	36	
Chicago	29	
San Antonio	36	
Child characteristics		

Age (months)	42	10
White	4	
Black	39	
Hispanic	54	
Other racial/ethnic background	3	
Male	54	
Maternal & household characteristics		
Maternal age (years)	29	8
Mother married	28	
Maternal education		
Less than high school	41	
High school degree	46	
Greater than high school	13	
Income-to-needs ratio	.71	.54
Biological mother	93	
English is first language	68	
Number of children under 18 in household	3	1

Note. Values in table are weighted.

Table 2

Child Well-Being at Waves 1 and 2

	Total Sample	Welfare Receipt				Employment Status			
		On Welfare	Welfare Leavers	Onto Welfare	Non-entrants	Not Working	Into Work	Out of Work	Working
Total Behavior Problems									
Wave 1	.23 (.42)	.31 (.46)	.24 (.43)	.15 (.36)	.21 (.41)	.25 (.44)	.16(.37)	.39(.50)	.12(.33)
Wave 2	.20 (.40)	.35 (.48)	.33 (.47)	.11 (.31)	.11 (.32)	.21 (.41)	.25(.43)	.12(.34)	.09(.29)
Externalizing Problems									
Wave 1	.25(.43)	.27(.45)	.31(.47)	.10(.30)	.23(.42)	.25(.43)	.30(.46)	.38(.49)	.14(.35)
Wave 2	.18(.39)	.34(.48)	.26(.44)	.08(.28)	.12(.32)	.20(.40)	.17(.38)	.14(.35)	.10(.30)
Internalizing Problems									
Wave 1	.23(.42)	.36(.48)	.27(.44)	.08(.28)	.19(.40)	.26(.44)	.18(.39)	.33(.48)	.11(.31)
Wave 2	.16(.37)	.29(.46)	.19(.39)	.11(.32)	.11(.32)	.19(.40)	.12(.33)	.08(.28)	.02(.14)
Social Competence									
Wave 1	4.11(.67)	4(.74)	4(.68)	4(.66)	4(.65)	4.12(.67)	4.18(.71)	4.28(.48)	3.93(.70)
Wave 2	4.13(.64)	4(.75)	4(.64)	4(.79)	4(.57)	4.14(.65)	4.20(.62)	3.99(.61)	4.08(.60)
Applied Problems									
Wave 1	92.22(16.08)	86(13)	92(16)	95(13)	94(17)	92(16.71)	94(17)	93(12)	91(13)
Wave 2	90.74(17.52)	86(17)	90(18)	96(16)	92(17)	91(17.86)	90(16)	92(20)	89(17)
Letter-Word Identification									
Wave 1	98.93(13.61)	95(11)	97(14)	100(11)	101(14)	99(14.08)	100(13)	102(12)	94(11)
Wave 2	93.50(12.40)	89(12)	94(13)	95(9)	94(12)	92(12.17)	95(11)	103(14)	96(12)

Note. Weighted means and standard deviations (in parentheses) are presented.

Table 3.

Predicting Children's Cognitive Achievement Over Time from Mothers' Welfare and Work Patterns and Children's Effortful control and Emotionality

	Woodcock-Johnson Applied Problems		Woodcock-Johnson Letter-Word	
Main effects regression models				
Mothers' welfare patterns				
Welfare recipients	-0.08		-0.09	
Welfare leavers	-0.06		0.01	
Onto Welfare	0.00		-0.01	
Mothers' work patterns				
Employed	-0.06		0.04	
Into employment	-0.05		0.03	
Out of employment	0.02		0.12	*
Children's effortful control	0.27	***	0.13	+
Children's emotionality	-0.04		-0.09	+
F of model	3.36	***	7.88	***
R-squared	0.25		0.39	
Welfare interaction effects regression models				
F of joint test for all welfare interaction terms	2.27	*	1.81	+
Mothers' welfare patterns				
Welfare recipients x Effortful Control	-0.46		-2.99	+
Welfare leavers x Effortful Control	-2.70		-1.68	
Onto Welfare x Effortful Control	6.86	*	-3.24	+
Mothers' welfare patterns				
Welfare recipients x Emotionality	0.56		0.03	
Welfare leavers x Emotionality	-1.02		-0.83	+

Onto Welfare x Emotionality	0.61		0.79	
F of model	4.49	***	7.95	***
R-squared	0.27		0.41	
Employment Interaction effects regression models				
F of joint test for all work interaction terms	1.55		2.80	*
Mothers' work patterns				
Employed x Effortful Control	4.15		4.10	+
Into employment x Effortful Control	-2.14		4.57	+
Out of employment x Effortful Control	-2.52		3.01	
Mothers' work patterns				
Employed x Emotionality	-0.66		-0.97	*
Into employment x Emotionality	0.06		-0.32	
Out of employment x Emotionality	-3.18	*	-0.27	
F of model	3.17	***	8.81	***
R-squared	0.27		0.41	

Note. Control variables include: city of residence, child age, race, child gender, mother age, mother's marital status, maternal education, household income-to-needs ratio, whether the mother was the biological mother of the child, whether English was mother's first language, number of minors in the household, and whether the child lived with a different primary caregiver at wave 2; Standardized beta coefficient shown for main effects models. OLS coefficients shown for interaction effects models.

Table 4.

Predicting Children's Socioemotional Behavior Over Time from Mothers' Welfare and Work Patterns and Children's Effortful Control and Emotionality

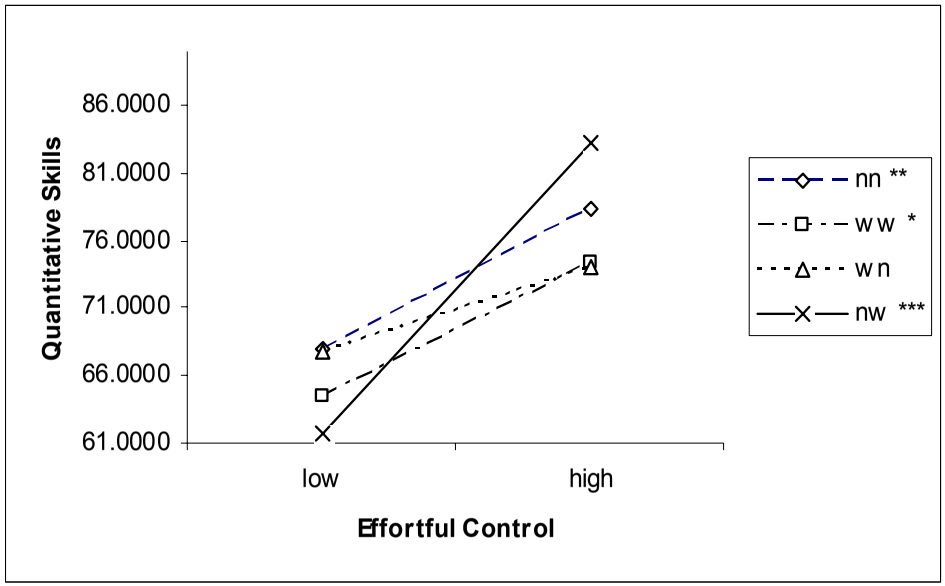
	CBCL Total Behavior Problems Clinical/Borderline		CBCL Internalizing Behavior Problems Clinical/Borderline		CBCL Externalizing Behavior Problems Clinical/Borderline		Social Competence	
Main effects regression models								
Mothers' welfare patterns								
Welfare recipients	0.11	+	0.02		0.18	*	-0.05	
Welfare leavers	0.07		-0.06		0.06		0.03	
Onto Welfare	0.02		0.00		0.01		-0.05	
Mothers' work patterns								
Employed	-0.03		-0.08	+	-0.01		0.05	
Into employment	0.03		-0.03		-0.02		0.02	
Out of employment	-0.07		-0.08		-0.01		-0.11	
Children's effortful control	-0.13	*	-0.02		-0.06		0.02	
Children's emotionality	0.11	+	0.10		0.11	+	-0.11	+
F	5.86	***	2.87	***	2.82	***	3.22	***
R-squared	0.31		0.18		0.19		0.21	
Welfare interaction effects regression models								
F of joint test for all welfare interaction terms	1.97	+	1.50		1.25		2.49	*
Mothers' welfare patterns								
Welfare recipients x Effortful Control	-0.1697	*	-0.1313	+	-0.0522		0.1876	

Welfare leavers x Effortful Control	-0.0497		-0.0103		0.0877		-0.0096	
Onto Welfare x Effortful Control	-0.1435	+	-0.1111		0.1039	+	0.3034	*
Mothers' welfare patterns								
Welfare recipients x Emotionality	0.0089		0.0007		0.0039		-0.0361	
Welfare leavers x Emotionality	-0.0040		-0.0013		0.0251		-0.0570	*
Onto Welfare x Emotionality	-0.0324		-0.0411	*	0.0040		-0.1599	*
F of model	5.13	***	2.11	***	2.49	***	4.04	***
R-squared	0.33		0.20		0.21		0.25	
Employment Interaction effects regression models								
F of joint test for all work interaction terms	1.36		2.22	*	1.00		1.56	
Mothers' work patterns								
Employed x Effortful Control	0.0619		0.0803		0.0183		0.0048	
Into employment x Effortful Control	-0.0366		-0.0140		-0.1232	+	-0.1855	
Out of employment x Effortful Control	-0.2123	+	-0.2436	*	-0.1532		-0.2731	
Mothers' work patterns								
Employed x Emotionality	0.0061		-0.0040		0.0071		-0.0159	
Into employment x Emotionality	0.0220		0.0283		0.0017		0.0101	
Out of employment x Emotionality	0.0308		0.0316		0.0331		-0.0599	
F of model	4.99	***	2.61	***	2.68	***	2.82	***
R-squared	0.32		0.21		0.21		0.23	

Note. Control variables include: city of residence, child age, race, child gender, mother age, mother's marital status, maternal education, household income-to-needs ratio, whether the mother was the biological mother of the child, whether English was mother's first language, number of minors in the household, and whether the child lived with a different primary caregiver at wave 2; Standardized beta coefficient shown for main effects models. OLS coefficients shown for interaction effects models.

Figure 1

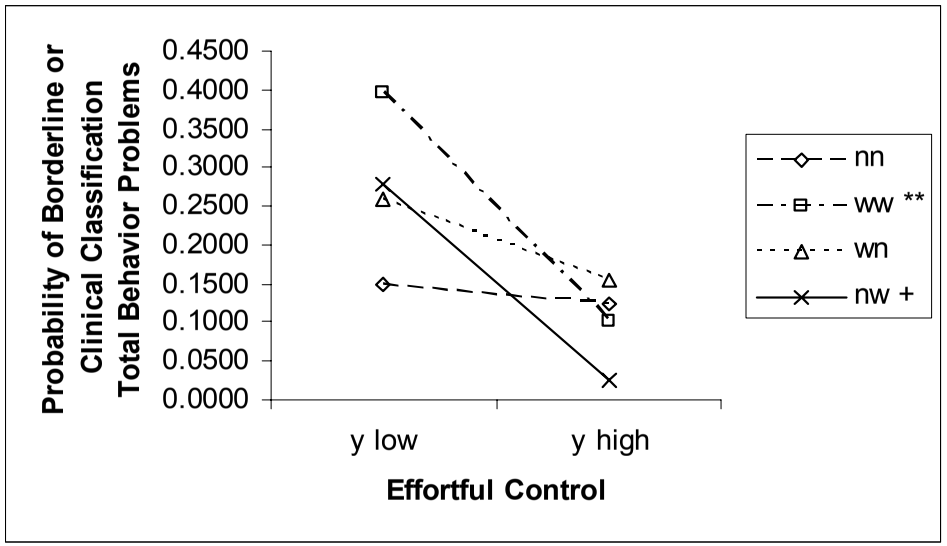
Interaction between children's effortful control and mothers' welfare patterns predicting children's quantitative skills



Note. nn = mothers never on welfare; ww = mothers consistently on welfare; wn = mothers who leave welfare; nw = mothers who move onto welfare between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 2

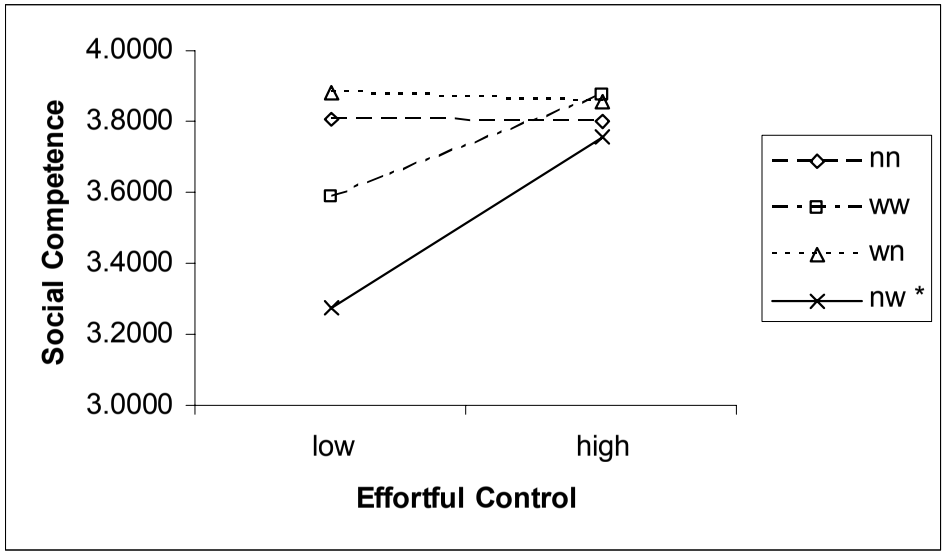
Interaction between children's effortful control and mothers' welfare patterns predicting the likelihood that children will exhibit behavior problems in the borderline and clinical range



Note. nn = mothers never on welfare; ww = mothers consistently on welfare; wn = mothers who leave welfare; nw = mothers who move onto welfare between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 3

Interaction between children's effortful control and mothers' welfare patterns predicting children's social competence



Note. nn = mothers never on welfare; ww = mothers consistently on welfare; wn = mothers who leave welfare; nw = mothers who move onto welfare between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

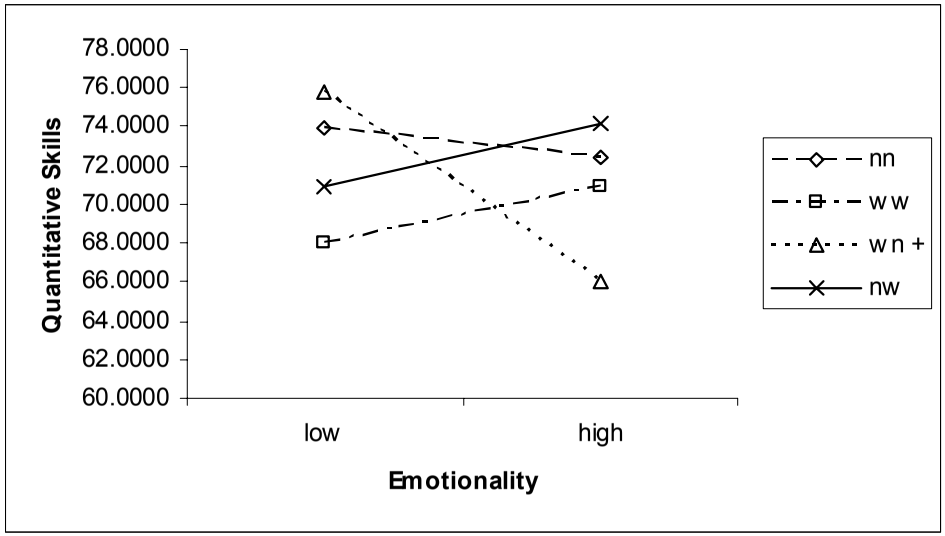
Figure 4

Interaction between children's emotionality and mothers' welfare patterns predicting children's social competence

Note. nn = mothers never on welfare; ww = mothers consistently on welfare; wn = mothers who leave welfare; nw = mothers who move onto welfare between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 5

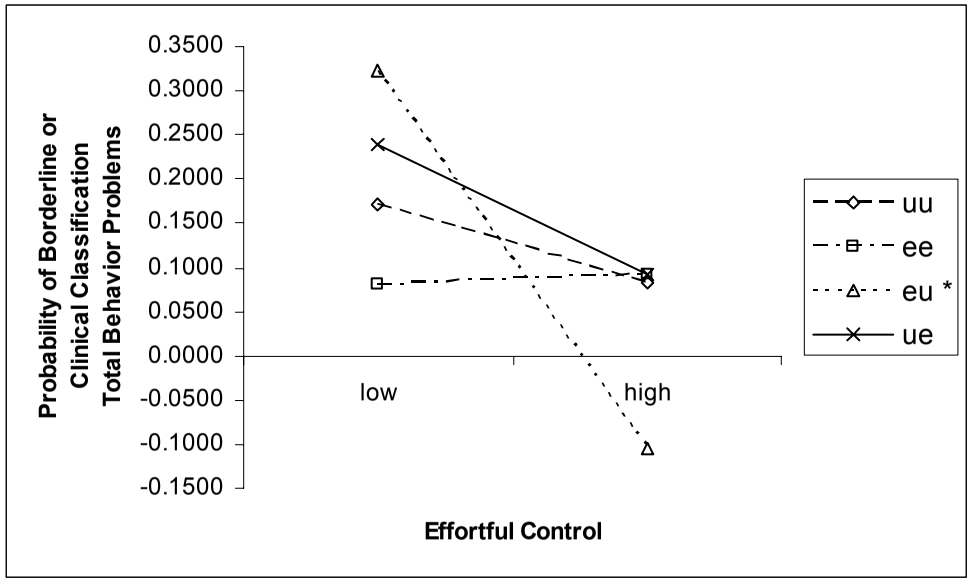
Interaction between children's emotionality and mothers' welfare patterns predicting children's quantitative skills



Note. nn = mothers never on welfare; ww = mothers consistently on welfare; wn = mothers who leave welfare; nw = mothers who move onto welfare between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 6

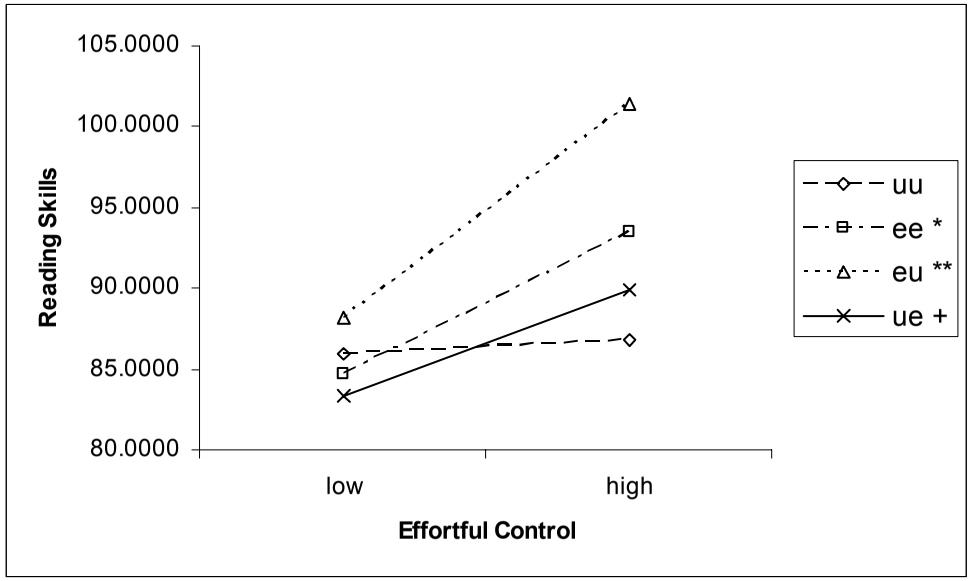
Interaction between children's effortful control and mothers' work patterns predicting the likelihood that children will exhibit behavior problems in the borderline and clinical range



Note. uu = mothers not employed; ee = mothers consistently employed; eu = mothers who leave employment; ue = mothers who move into employment between waves 1 and 2; *+ p < .10; * p < .05; ** p < .01; *** p < .001*

Figure 7

Interaction between children's effortful control and mothers' work patterns predicting children's reading skills



Note. uu = mothers not employed; ee = mothers consistently employed; eu = mothers who leave employment; ue = mothers who move into employment between waves 1 and 2; + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 8

Interaction between children's emotionality and mothers' work patterns predicting children's quantitative skills

Note. uu = mothers not employed; ee = mothers consistently employed; eu = mothers who leave employment; ue = mothers who move into employment between waves 1 and 2; $+ p < .10$; $* p < .05$; $** p < .01$; $*** p < .001$