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Trajectories of maternal harsh parenting in the first 3 years of life

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Abstract

Objective—Despite the high prevalence rates of harsh parenting, the nature of developmental change in this domain early in life and the factors that contribute to changes in harsh parenting over time are not well understood. The present study examined developmental patterns in maternal harsh parenting behavior from birth to age 3 years and their related longitudinal risk factors (contextual and intrapersonal). Partner aggression was also tested as a time-varying predictor to examine its time-specific influence on maternal harsh parenting.

Methods—Longitudinal data from four assessments of a community sample of 488 at-risk mothers were analyzed using latent growth curve modeling. Maternal risk factors and harsh parenting behaviors were assessed at birth and at ages 1, 2, and 3 years.

Results—There was a significant increase in maternal harsh parenting from birth to age 3, particularly between ages 1 and 2. There was a significant direct effect of maternal alcohol use and abuse history on maternal harsh parenting at age 3, and maternal age was positively associated with change in maternal harsh parenting over time. In addition, partner aggression was significantly and positively associated with maternal harsh parenting at each time point.

Conclusions—The findings suggest possible developmental trends in the emergence of maternal harsh parenting during infancy and toddlerhood. Further investigation is needed to elucidate individual differences in the developmental patterns and to differentiate predictive factors that persist across time and factors that are unique to specific developmental stages.

Practice implications—The overall high prevalence rates of harsh parenting behavior and growth of such behavior in infancy and toddlerhood support the need for developmentally sensitive early intervention programs.

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Introduction

Researchers have indicated that harsh verbal and physical parenting during infancy and toddlerhood is a relatively common parenting practice in the United States (McKee et al., 2007; Straus & Field, 2003; Straus & Stewart, 1999). Although evidence has consistently suggested that such practices negatively impact a range of developmental outcomes, including child self-esteem and internalizing and externalizing behaviors (McKee et al., 2007; Solomon & Serres, 1999), harsh parenting has received attention only when it is chronic and severe enough to be reported to protection agencies (Gracia, 1995). Thus, many of the findings about the etiology and effects of harsh parenting have been based on child maltreatment research (Simons, Johnson, & Conger, 1994), particularly regarding certain types of maltreatment (i.e., categorical outcomes). However, harsh parenting is most accurately conceptualized along a continuum of parenting, with child maltreatment at the extreme end (Gershoff, 2002a), and the developmental patterns of harsh parenting along this continuum and the predictors of those patterns are not well understood (Lansford et al., 2009; Parke, 2002). Parent–child relationships are continually transformed and renegotiated across developmental stages, being influenced by parent, child, and environmental changes (Park, 2002). Thus, harsh parenting may be best conceptualized from a developmental perspective (Parke, 2002), taking into account that harsh parenting may vary over time and may be influenced by factors that vary over time.

In the current study, we used longitudinal data from a community sample of at-risk mothers to examine developmental patterns in maternal harsh parenting from birth to age 3 years and to identify related risk factors (contextual and intrapersonal factors as time-invariant predictors). In addition, we examined partner aggression (an interpersonal risk factor) as a time-varying predictor. The time-invariant predictors were conceptualized as being relatively stable over time and exerting influence on the developmental process of maternal harsh parenting, and the time-varying predictor was conceptualized as exerting proximal contemporaneous effects on maternal harsh parenting independent of the developmental process (see Hussong, Curran, Moffitt, Caspi, & Carrig, 2004). This conceptual framework allowed us to examine the contributions of risk factors to the trajectory of maternal harsh parenting and to time-specific changes in maternal harsh parenting over time. Differentiating these influences has potentially important clinical implications. Because the risk factors that influence the trajectory of maternal harsh parenting may differ from those contributing to time-specific changes, prevention and intervention targets may vary depending on the type and timing of such influences.

Harsh parenting and development

The findings from research on harsh parenting have indicated that verbal aggression alone has significant detrimental effects on child self-esteem and psychological adjustment (Solomon & Serres, 1999). Furthermore, such verbal or psychological aggression is often accompanied by physically harsh parenting, the combined effects negatively affecting a wide range of child behaviors (Deater-Deckard & Dodge, 1997; McKee et al., 2007). In particular, early exposure to harsh parenting appears to disrupt the development of security, self-worth, and self-regulatory skills, all of which facilitate the development of positive adjustment across the life span (Bradley & Corwyn, 2007). Recent evidence further indicates that early adversity (e.g., harsh or abusive parenting) has significant effects on the maturation of a number of neurobiological systems involved in self-regulation, placing children at increased risk for various forms of psychopathology across development (Fisher, Gunnar, Dozier, Bruce, & Pears, 2006; Gunnar, Fisher, & Early Experience, Stress, and Prevention Network, 2006).

Overall, the results from these studies suggest that harsh parenting compromises subsequent child development more seriously in earlier development than in later development (Carlson, Furby, Armstrong, & Schlaes, 1997; Manly, Kim, Rogosch, & Cicchetti, 2001; Weiss, Dodge, Bates, & Pettit, 1992). Additionally, parents who use harsh discipline, particularly corporal punishment, might be more likely to become abusive (Gershoff, 2002b; Straus, 2000). Thus, understanding the etiology of early harsh parenting practices might be critical in efforts to prevent abusive parenting and subsequent child adjustment problems.

Developmental patterns of harsh parenting in early childhood

The risk for harsh parenting appears to increase across infancy and toddlerhood. In Windham and colleagues' (2004) study of at-risk mothers and children, maternal psychological aggression toward children (i.e., "self-esteem assault") increased from 10% to 21% between ages 1 and 2 years and to 26% by age 3 years. Notably, severe physical discipline increased from 1% to 4% between ages 1 and 2 years but decreased to 3% by age 3 years. In a nationally representative survey, Straus and Stewart (1999) found that 35% of infants and 94% of toddlers experienced some form of physical discipline during the previous year, peaking at age 2 years. Using the same survey data, Straus and Field (2003) found psychologically harsh parenting to reach 90% by age 2 years.

Although these findings suggest that children are particularly at risk for harsh parenting during infancy and toddlerhood and that there may be developmental changes in parenting behavior over time, most of the above studies were based on cross-sectional data. In the present study, our first goal was to examine developmental patterns of harsh parenting using longitudinal data from a community sample of at-risk mothers and their children. The trajectories of maternal harsh parenting were expected to increase significantly from birth to age 3 years.

Correlates of harsh parenting

In previous studies (Belsky, 1984; Cicchetti & Valentino, 2006), researchers have suggested that parenting behaviors such as harsh discipline are determined by intrapersonal parental characteristics and interpersonal dynamics in addition to being influenced by the social context and that risk and protective factors in each of these domains interact over time. One of the most significant predictors of parenting behavior is parent psychopathology (Belsky & Jaffee, 2006), including internalizing and externalizing behavior. Maternal depressive symptoms have long been implicated in the etiology of problematic parenting behavior (Bishop & Leadbeater, 1999; Chaffin, Kelleher, & Hollenberg, 1996), possibly owing to these mothers having more negative, disengaged interactions and fewer positive interactions with their children (Downey & Coyne, 1990). Externalizing behaviors in the form of substance use and antisocial behaviors also contribute to risk for harsh discipline. Researchers have consistently shown that excessive alcohol use can lead to harsh forms of punishment (Jaudes, Ekwo, & Van Voorhis, 1995; Walsh, MacMillan, & Jamieson, 2003) and that parents with histories of antisocial behavior tend to be more coercive, hostile, and abusive with their children (Bosquet & Egeland, 2000; Fagot, Pears, Capaldi, Crosby, & Leve, 1998; Verlaan & Schwartzman, 2002).

Parental psychopathology may also stem from a parent's childhood experiences (Belsky & Jaffee, 2006; Simons, Whitbeck, Conger, & Chyi-In, 1991), with individuals exposed to harsh discipline as children being more likely to use such practices as parents (Simons et al., 1994; Straus & Smith, 1990). Kaufman and Zigler (1989) estimated that children who had experienced harsh corporal discipline were 5 times more likely to use harsh parenting. This cross-generational association remains significant even when controlling for personality factors, emotional well-being, and SES (Simons et al., 1994).

Several contextual variables may also contribute to parent psychopathology (Brown, Cohen, Johnson, & Salzinger, 1998; Kotch, Browne, Dufort, & Winsor, 1999; Sidebotham, Golding, & Avon Longitudinal Study of Parents and Children Study Team, 2001). For example, maternal age and SES may contribute to the use of harsh and abusive parenting practices (Sidebotham et al., 2001). Younger parents are more likely to use harsh parenting tactics than older parents (Straus & Field, 2003; Straus & Stewart, 1999), and this increased risk may be confounded by a lack of economic resources. In a meta-analytic review, Gershoff (2002a) found that, as parents' SES declined, the level of corporal punishment increased. Indeed, externalizing and internalizing behavior problems among children from economically disadvantaged families may be mediated through harsh parenting (Dodge, Pettit, & Bates, 1994). On the other hand, other researchers have found no SES effects on the use of corporal punishment (Mahoney, Donnelly, Lewis, & Maynard, 2000). It has been argued that a mother's contextual risk factors have limited influence on harsh parenting when maternal psychopathology is accounted for (Chaffin et al., 1996; Windham et al., 2004). Such incongruities point to the need for additional population-based studies to elucidate the mechanisms through which contextual risk factors affect parenting behaviors.

Aspects of a parent's partner relationships (i.e., partner aggression) can also affect parenting behavior (Cummings & Davies, 2002). The co-occurrence rate of partner aggression and harsh discipline is high (Straus & Smith, 1995) and presents significant risk for child verbal abuse, physical punishment, and physical abuse (Straus & Smith, 1995; Tajima, 2000). Appel and Holden (1998) suggested that this high co-occurrence rate results from affective spillover, though this has not been systematically examined with longitudinal data.

Although the above factors have been implicated in the development of harsh parenting, researchers have not yet examined the associations of these factors to harsh parenting over time. Thus, our second goal was to examine the associations of intraindividual maternal characteristics, partner relationships, and contextual factors to changes in maternal harsh parenting between birth and age 3 years. We included maternal depressive symptoms, alcohol use, history of childhood abuse, history of criminality or mental illness, age, and income as time-invariant predictors that we expected to be positively related to the initial status of maternal harsh parenting. Given the lack of longitudinal studies in the literature, we did not make hypotheses regarding the extent to which specific variables would predict changes in maternal harsh parenting over time. We also included partner aggression as a time-varying predictor at ages 1, 2, and 3 years to examine its proximal time-specific influence on maternal harsh parenting. Consistent with the literature on affective spillover, we expected that increases in partner aggression would be positively related to maternal harsh parenting at each time point. In the present study, we expanded upon the existing research base in several ways. Past researchers have heavily relied on retrospective designs (Keiley, Howe, Dodge, Bates, & Pettit, 2001), whereas we examined a sample of at-risk community mothers and children. Furthermore, we examined the effects of a time-varying predictor on the developmental processes of maternal harsh parenting to help to differentiate the effects of the time-invariant and time-varying predictors on the growth of and time-specific changes in maternal harsh parenting.

Methods

Participants

The data for the present study came from the Healthy Families America–San Diego Clinical Trial (approved by the Institutional Review Board at Child and Adolescent Services Research Center in San Diego), in which 488 at-risk mothers were selected through a 2-stage process at time of their children's birth at a single hospital from February 1996 to

March 1997. Research staff members used hospital computer systems to identify at-risk families via hospital admission, census, medical, and clinical data.

First, we identified the mothers who met study eligibility criteria (i.e., residing in the target area, nonmilitary, and English or Spanish speaking). Second, we screened the eligible mothers for 15 risk factors based on the Hawaii Risk Indicators checklist (Hawaii Family Stress Center, 1994), which was developed for the Healthy Start Program (Duggan et al., 1999). The mothers who were not married, received inadequate prenatal care, or had or attempted to have an abortion or who exhibited two or more risk factors were further assessed using the Kempe's Family Stress Checklist (Kempe & Kempe, 1976), a 10-item measure designed to identify risk for child abuse. Any mother who scored 25 or greater was invited to participate in the study as long as she did not have an open case with child protective services.

Annual assessments of the mothers, the children, and the home environment were conducted at baseline (within 2 weeks of birth) and at 1, 2, and 3 years postbaseline in the families' homes by trained research interviewers. Spanish-speaking interviewers were available for the interviews as requested ($\approx 20\%$ of the sample).

At baseline, maternal age ranged 14–42 years (with about half of the mothers being 22 years old or younger), 54.3% of the mothers had not completed high school, and 14.6% of the mothers were married. The ethnicity breakdown of the mothers was as follows: 24.2% Caucasian, 26.8% English-speaking Hispanic, 19.5% African American, 19.3% Spanish-speaking Hispanic, and 10.2% Asian or other. The retention rates at the follow-up assessments were 89%, 82.6%, and 82.8%, respectively. There were no significant statistical differences between the mothers who remained in the study or withdrew from the study on any of the screening items, major demographic variables, or study variables assessed at baseline. Further information on the recruitment process may be found in Landsverk et al. (2002).

Measures

Maternal harsh parenting—We administered a modified version of the Parent–Child Conflict Tactics Scales (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) to assess maternal harsh parenting at ages 1, 2, and 3 years. In the present study, we included summed scores across 16 items: 5 items from the Psychological Aggression subscale and 11 items from the Physical Assault subscale. The response scale ranged from 0 (*never*) to 6 (*more than 20 times*). If none of the behaviors occurred in the past year but were reported prior to that time, the respondents scored 7. Based on Straus et al.'s suggestion, each response category was recoded to its midpoint to compute annual frequencies of partner aggression. Thus, categories 3–6 were recoded to 4, 8, 15, and 25, and category 7 was recoded as 0. The subscales were combined to examine overall levels of maternal harsh parenting; in our preliminary analysis, the 2 types of harsh parenting often co-occurred (.53–.60), which is consistent with the literature (McGee, Wolfe, & Wilson, 1997). Chronbach alphas for the composite scores were .62, .73, and .72 for ages 1, 2, and 3 years, respectively. The means for each time point were 10.61 ($SD = 15.80$), 20.88 ($SD = 25.96$), and 20.92 ($SD = 25.40$), respectively. Because the study was focused on harsh parenting, we did not include the Nonviolent Discipline subscale in the composite score.

Maternal age at baseline—Mean maternal age at baseline was 23.52 ($SD = 6.08$).

Household income at baseline—At baseline, the mothers' reported their gross annual household income in the past year on an 18-point scale: 1 (*less than \$2,000 per year*) to 18 (*\$50,000 or more per year*). The median category was \$9,000–9,999.

Maternal history of criminality and mental illness—We assessed maternal history of criminality and mental illness at baseline using a single item from the Kempe's Family Stress Checklist rated on an 11-point scale: 0 (*not being problematic*) to 10 (*severely problematic*). Approximately 56% of the mothers indicated moderate to severe criminal or mental problems.

Maternal history of abuse—At age 3 years, we used an instrument adapted from the Conflict Tactics Scale (Straus, 1979) to assess maternal emotional and physical abuse in childhood. We included the frequencies on three items constituting emotional abuse and eight items constituting physical abuse. The response categories were recoded as follows to reduce skew: 0 (*none*), 1 (*1–2 times*), 3 (*3–5 times*), 6 (*6–10 times*), 11 (*11–20 times*), and 20 (*more than 20 times*). Internal reliabilities were .80 and .87 for emotional and physical abuse, respectively. Both scales were significantly correlated at .75 ($p < .001$), and were thus combined for the present analysis. The mean composite score ranged 0–5 ($M = 1.30$, $SD = 2.11$).

Maternal depressive symptoms—To assess maternal depressive symptoms at each time point (baseline and ages 1, 2, and 3), we administered the Center for Epidemiological Studies of Depression Scale (Radloff, 1977), a 20-item measure designed to assess depressive symptomatology among adults in the general population. The mothers reported about the past week on a 4-point scale: 0 (*rarely or none of the time*) to 3 (*most or all of the time*). The summed scores could range 0–60. Internal reliabilities were over .80. Maternal depressive symptoms were very stable over time ($r = .32-.53$, $p < .000$); thus, the scores from all four time points were averaged. The composite score ranged .50–40.25 ($M = 14.20$, $SD = 6.87$).

Maternal alcohol use—Maternal alcohol use was assessed using 2 items at baseline and at ages 1, 2, and 3. The first item assessed drinking frequency in the past year using an 8-point scale: 0 (*not at all*) to 7 (*every day*). The second item was an open-ended question about how many drinks the mother usually had when she drank. The composite score for alcohol use was the product of frequency and quantity (Capaldi, Stoolmiller, Kim, & Yoerger, 2009; White, Xie, Thompson, Loeber, & Stouthamer-Loeber, 2001). Alcohol use was highly stable over time ($r = .42-.61$, $p < .000$); thus, the scores from all 4 time points were averaged. The mean composite score ranged 0–72.25 ($M = 3.28$, $SD = 6.47$).

Partner aggression—We administered 12 items from the Conflict Tactics Scale 2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) at ages 1, 2, and 3 to assess partner psychological and physical aggression in the past 12 months. Each mother reported on her aggression toward her partner and on her partner's aggression toward her on 4 items from the Psychological Aggression subscale and 8 items from the Physical Assault subscale using the following scale: 0 (*this has never happened*) to 6 (*more than 20 times in the past year*). If none of the behaviors occurred in the past year but were reported prior to that time, the respondents scored 7. As with maternal harsh parenting, categories 3–6 were recoded to 4, 8, 15, and 25, and category 7 was recoded as 0. The means could range 0–25. Mother aggression and partner aggression were strongly correlated ($r = .68-.87$, $p < .000$); thus, the mother and partner scores were combined at each time point to create a composite partner aggression score. Partner aggression tended to be relatively stable in the sample with correlations across 3 time points, ranging .31–.53 ($p < .001$). The internal reliabilities ranged .77–.87 across time. The means were 1.64 ($SD = 1.98$), 1.39 ($SD = 2.12$), and 1.97 ($SD = 1.82$) at ages 1, 2, and 3 years, respectively.

Analysis plan

We used latent growth curve modeling using Mplus 5.2 (Muthén & Muthén, 2008) to examine changes in maternal harsh parenting. Maternal ratings on the Parent–Child Conflict Tactics Scales were used to estimate 2 latent factors (intercept and slope) on measures of maternal harsh parenting. The intercept factor was centered at age 3 years to correspond to the final measurement of maternal harsh parenting. Thus, the intercept factor can be interpreted as the estimated level of maternal harsh parenting at age 3. Because the predictors were assessed at baseline and across time, placing the intercept at age 3 allowed us to examine prospective predictive patterns into toddlerhood. The latent growth curve model also included a covariance between the intercept and the slope factor. Because maternal harsh parenting scores were skewed, log transformation was used in the latent growth curve model.

The model was first fitted without any predictors to examine overall patterns in maternal harsh parenting behavior over time. The hypothesized time-invariant and time-varying predictors were subsequently added to examine how these risk factors were related to changes in maternal parenting behavior. Thirty-six (7.4%) participants were missing all three data points for the harsh parenting. Although these 36 cases were not included in the unconditional model, all 488 participants were analyzed in the conditional model using the full information maximum likelihood (FIML) function in Mplus, which allows for the inclusion of participants with partial data on dependent variables. The mothers who were missing all three data points for the harsh parenting variable were not systematically different from the rest of the sample in terms of demographic factors and major study variables except that these mothers were slightly older. In addition, the model without these 36 cases resulted in the same findings. Therefore, the findings from the full sample are presented below.

Results

Overall, the mean levels of maternal harsh parenting increased significantly between ages 1 and 2 years and remained relatively high at age 3. As is shown in Table 1, maternal contextual risk factors were not related to maternal harsh parenting, whereas maternal intrapersonal risk factors (in particular, history of criminality and mental illness, history of abuse, and alcohol use) tended to be positively related to maternal harsh parenting across time. Partner aggression was significantly and positively related to maternal harsh parenting across time. Maternal age and household income showed limited associations with maternal harsh parenting. In general, partner aggression was significantly associated with maternal intrapersonal risk factors.

Unconditional growth model of maternal harsh parenting

As is indicated above, maternal harsh parenting behavior stabilized after age 2 years, suggesting that the overall trend during toddlerhood might not be linear. Therefore, a linear growth model and a linear spline growth model (Stoolmiller, 1995) were tested to determine the baseline model that adequately captured the developmental pattern of maternal harsh parenting. In the linear growth model, the intercept factor loadings were all fixed at 1, and the slope factor loadings were fixed at -2 , -1 , and 0 for ages 1, 2, and 3, respectively. As was expected, the overall fit index for the linear model indicated that the model did not fit the data well, $\chi^2(3) = 51.24$, $p = .00$, CFI = .89, TLI = .89, RMSEA = .19. To accommodate potential nonlinearity for some individuals in the sample, the linear spline model was fitted. As in this model, the intercept factor loadings were all fixed at 1. The slope factor loading at age 1 was fixed at -1 , and the slope factor loading for age 3 was fixed at 0 ; the middle slope factor loading was freely estimated. Fixing the 2 end points while the freeing middle points

is often recommended to facilitate the interpretation of the slope mean factor (Muthén, n.d.). Thus, the slope mean in the present study represents the overall rate of change in maternal harsh parenting from age 1 through age 3. The linear spline model had a significantly better fit, $\chi^2(2) = 0.79$, $p = .67$, CFI = 1.00, TLI = 1.00, RMSEA = .00. By freeing one parameter, the chi-square statistic was reduced from 51.24 to 0.79, nested $\chi^2(1) = 50.45$, $p < .00$; thus, the linear spline model was used in the remaining analyses.

The means of the intercept and slope factor in the unconditional linear spline model were 2.37 ($z = 36.44$) and .78 ($z = 10.79$), respectively, indicating that both were significantly different from zero. These values represented the average initial levels and growth rates across all individuals (i.e., group means). The positive slope factor mean indicated that, on average, there were significant increases in maternal harsh parenting over time. The intercept and slope factor had variances of 1.17 ($z = 10.40$) and .64 ($z = 4.17$), respectively. Both variances represent the individual variability in the initial level and slope (i.e., individual differences). The significant intercept and slope factor variances indicate substantial individual variability in both the initial level (at age 3) and in the growth rates of maternal harsh parenting. The significant, positive correlation between the intercept and slope factor was .27 ($z = 2.73$), suggesting that initial status had significant bearing on the rate of change in maternal harsh parenting.

Factors predicting growth in maternal harsh parenting over time

Maternal age, income, history of abuse, history of criminality and mental illness, alcohol use, and depressive symptoms across time were allowed to impact the intercept and slope factor as time-invariant predictors. Partner aggression was included at the postbaseline assessments as a time-varying predictor. In addition, covariances among the time-invariant and time-varying predictors and between the intercept and the slope factor were included in the model. The model fit the data reasonably well, $\chi^2(13) = 21.47$, $p = .06$, CFI = .98, TLI = .95, RMSEA = .04. The means of the intercept and slope factor in the conditional linear spline model were 1.55 ($z = 5.38$) and $-.19$ ($z = -.56$), respectively, suggesting that the mean of the slope factor was no longer significant when the time-invariant and the time-varying predictors were included. The intercept and slope factor had variances of .82 ($z = 9.63$) and .56 ($z = 4.10$), respectively, indicating that significant individual variances in the growth factors still remain even in the presence of the time-invariant and the time-varying predictors. The covariance between the intercept and slope factor was no longer significant in the conditional model.

There were significant positive direct effects of maternal alcohol use and history of abuse on the intercept factor (i.e., maternal harsh parenting at age 3). In addition, maternal age was significantly and positively related to the slope factor, suggesting that older mothers tended to report increasing harsh parenting over time. Furthermore, partner aggression at each postbaseline assessment was significantly and positively associated with maternal harsh parenting, suggesting time-specific influences of partner aggression on maternal parenting behavior above and beyond the trajectory process. The trajectory process and the time-varying predictor in the model predicted 70% (age 1), 67% (age 2), and 70% (age 3) of the variance in maternal harsh parenting. As is shown in Table 1, many of the covariances among the time-invariant predictors were significant. The covariances among partner aggression (the time-varying predictor) at ages 1, 2, and 3 were also significant. (A complete report of the model is available from authors upon request.) The model accounted for 18% of the variance in the intercept ($p = .00$) and 11% of the variance in the slope ($p = .05$) of harsh parenting. This suggests that a significant amount of variance in the intercept factor was accounted for by risk factors included in the conceptual model but less much so for the slope factor. As is described above, the variances of the intercept and slope factor in the conditional model decreased compared to the unconditional model but still remained

significant, indicating that the variables included in the present study only partially explained the variance in the developmental pattern of maternal harsh parenting.

Discussion

In the present study, we examined the developmental patterns of harsh parenting among at-risk mothers from birth to age 3 years using longitudinal data. The level of maternal harsh parenting behavior increased significantly between ages 1 and 2 and remained high and stable at age 3. This is consistent with previous studies showing increases in harsh parenting behaviors during toddlerhood (Straus & Field, 2003; Straus & Stewart, 1999). Although past researchers have assumed that the occurrence of harsh parenting behavior was largely episodic (Straus & Field, 2003), our results suggest a significant developmental aspect in maternal harsh parenting, with a particular change in behavior during the 2nd year of life.

The results from the present study also confirm that maternal harsh parenting with infants and toddlers is quite widespread among at-risk families: nearly 87% of the mothers reported using one or more forms of harsh parenting between ages of 2 and 3 (vs. 67% at age 1). Researchers have shown that parents with higher levels of contextual risk and psychopathology are more likely to escalate to harsher forms of parenting and to develop coercive interaction processes (Capaldi, DeGarmo, Patterson, & Forgatch, 2002). As children become physically more independent and active from birth to age 3, discipline becomes an increasingly salient issue (Windham et al., 2004). The mothers in the present sample showed multiple risk characteristics and might have lacked effective parenting skills and personal resources to help them to gain better skills. Thus, when faced with the increased demands for independence and the challenges to parental authority often exhibited by toddlers, these mothers might have been more likely to rely on harsh parenting tactics, which could help to explain the increase in maternal harsh parenting after age 1. Although the onset of maternal harsh parenting was not systematically examined in the present study, these findings highlight the need for preventive interventions to reduce maternal harsh parenting early in development, especially in at-risk populations.

It is noteworthy that significant increases in maternal harsh parenting between ages 1 and 2 years are somewhat different than developmental patterns related to reported maltreatment. According to the Administration for Children and Families (US Department of Health and Human Services, 2007), 32% of all victims of reported maltreatment were younger than age 4 years, and infants (< 1 year old) were more likely to be maltreated than toddlers. This difference in the age pattern might be due to the fact that the maternal harsh parenting measure we used did not include items pertaining to neglect or that the present study focused on the mother's behavior only and did not take into account harsh parenting by other parental figures.

Our examination of the potential predictors of developmental trajectories of maternal harsh parenting revealed that maternal alcohol use had a significant direct effect on harsh parenting at age 3 (i.e., the intercept factor). This supports the well-established finding that parental substance abuse is linked to a higher risk for harsh parenting (Gershoff, 2002a; Kelleher, Chaffin, Hollenberg, & Fischer, 1994). This finding is also consistent with Chaffin et al.'s (1996) finding that parental substance use predicts the onset of physically abusive and neglectful parenting behavior. Maternal alcohol use showed stronger direct effects than the contextual risk factors in predicting the onset of maternal harsh parenting. Although mothers with substance use problems have been largely understudied (Peterson, Gable, & Saldana, 1996), researchers have indicated that such mothers often experience multiple sources of stress, including low SES, single parenthood, lack of social support and resources, and mental health problems such as depression (Marcenko, Kemp, & Larson,

2000; Windham et al., 2004) and that their substance use may mediate the effects of other contextual risk factors on parenting behavior (Belsky & Jaffee, 2006). Our data allowed us to examine only the direct effects of risk factors for maternal harsh parenting; thus, further examination of potential mediating pathways regarding alcohol use is needed.

Maternal history of abuse was also a significant predictor of maternal harsh parenting at age 3. Researchers investigating the intergenerational transmission of harsh and abusive parenting have consistently indicated that such histories are precursors to harsh and abusive parenting (Pears & Capaldi, 2001; Simons et al., 1991). Simons et al. (1994) found that the significant cross-generational association of harsh parenting was not fully mediated through factors such as SES, personality, and parenting beliefs, supporting the direct-modeling perspective. However, a history of abuse is likely to lead to psychopathology and other psychosocial maladjustment, which in turn serves as a predictor of harsh parenting (Pears & Capaldi, 2001). Although we did not examine the specific mechanisms by which maternal history of abuse affected maternal harsh parenting, our findings support the long-term adverse effects of early abuse experience throughout life.

The positive relationships between maternal age and increases in maternal harsh parenting over time were somewhat unexpected. In the present study, maternal age at baseline ranged 14–42 years. However, 50% were 22 years or younger, and approximately 90% of the entire sample was 30 years or younger. These young mothers were more likely to live with young partners with similar high-risk backgrounds (e.g., our preliminary analysis indicated that partners' and mothers' risk characteristics [young age, low SES, and psychopathology] were significantly correlated), thus increasing the likelihood of harsh parenting.

The time-varying predictor used in this study (i.e., partner aggression) allowed us to test and find support for the affective spillover hypothesis. Several researchers have examined the transmission of partner conflict to parenting behaviors (Davies, Sturge-Apple, Woitach, & Cummings, 2009), but few researchers have statistically tested contemporaneous effects of partner aggression on harsh parenting across time as implied in the hypothesis. Our finding confirms the close link between partner relationships and the mother–child relationship during the first 3 years of life. In addition, including partner aggression as a time-varying predictor indicated that the developmental patterns of maternal harsh parenting are due to a joint contribution of the underlying trajectory and time-specific influences. Because of concerns with power, the present analysis did not allow multiple time-varying predictors; thus, more research is needed to examine the diverse time-specific individual and environmental factors.

Some limitations of the present study should be noted. First, maternal self-report of harsh parenting was the sole measure of this outcome because most of the mothers were unmarried at baseline and remained unmarried over the course of the study. As such, reporting biases might have led to underestimations of harsh parenting. Because most of the other study variables were also mother reported, some of the significant associations may have resulted from correlated measurement errors; however, it is unlikely that these findings resulted primarily from shared reporter biases because bivariate correlations among the study variables ranged moderate to low. Related to this, the role of paternal figures in maternal harsh parenting could not be addressed in the present study. A systematic examination of maternal and paternal figures would help illuminate the links between parental risk factors and harsh parenting.

Second, we did not examine child gender on maternal harsh parenting. To date, the findings regarding child gender differences in harsh parenting are inconclusive. Some researchers have found that boys tend to receive more verbally and physically harsh parenting than girls

(Mahoney et al., 2000; McKee et al., 2007). Conversely, Windham et al. (2004) found that child gender does not play a significant role in the development of psychologically or physically harsh parenting over time. This finding parallels the results from our preliminary analysis (i.e., child gender was not significantly related to the onset or changes in maternal harsh parenting over time). However, the role of child gender in the long-term trajectories of harsh parenting has yet to be widely studied.

Finally, the findings from the present study need to be replicated. The relatively small effect sizes suggest that there might be heterogeneous subgroups even within the at-risk populations with varying degrees of risk. Additionally, protective factors or other risk factors that were not considered in the present study might play a role in explaining further variance in the trajectories of maternal harsh parenting. Our future work will focus on subgroup variations in the etiological factors and mechanisms of maternal harsh parenting.

Despite these limitations, the present study enabled us to examine the longitudinal patterns of harsh parenting in at-risk community mothers with a focus on the time-invariant and time-varying predictors. Although it is not clear from our results why certain risk factors affect developmental patterns of harsh parenting differentially (e.g., why maternal alcohol use predicts the level of maternal harsh parenting at age 3 but not growth over time), our results provide significant insights into potential mechanisms of maternal harsh parenting, which could inform more developmentally sensitive intervention programs. Due to our focus on children residing with their families of origin, our results might not be readily generalizable to clinical-level samples. However, our findings have implications for more general harsh parenting. Specifically, the results from this study support Windham et al.'s (2004) argument that intervention programs that include specific foci on maternal psychopathology, especially alcohol use and abuse histories, might be more effective in stopping abusive parenting. Furthermore, the significant effects of partner aggression on maternal harsh parenting suggest the importance of focusing on parental relationships in the prevention of harsh parenting. Overall, the findings from the present study suggest that successful prevention and intervention programs for such populations require a multidimensional and developmental approach.

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Figure 1. Trajectories of maternal harsh parenting

Note. The model included covariances among the time-invariant and time varying predictors. A complete report of the results is available from the authors.

⁺ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1

Correlations Among Major Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Maternal harsh parenting at age 1											
2. Maternal harsh parenting at age 2	.49***										
3. Maternal harsh parenting at age 3	.50***	.66***									
4. Maternal age at baseline	-.08	-.02	.07								
5. Household income at baseline	.01	.09	.09	.15**							
6. History of criminality and mental illness	.08	.17**	.21***	.00	.07						
7. History of abuse	.16**	.23***	.38***	.09	.05	.21***					
8. Maternal depressive symptoms	.08	.08	.11	-.03	-.12	-.11	.21***				
9. Maternal alcohol use	.15**	.24***	.29***	.06	.14*	.37***	.13*	-.09			
10. Partner aggression at age 1	.26***	.14*	.29***	.06	.04	.19**	.09	.22**	.23***		
11. Partner aggression at age 2	.17*	.31***	.26***	-.03	.15*	.19**	.20**	.21**	.11	.39***	
12. Partner aggression at age 3	.13	.25***	.40***	.11	.12	.18**	.27***	.25***	.17*	.31***	.55***

* $p < .05$.** $p < .01$.*** $p < .001$.