

Parenting and Children's Externalizing Problems in Substance-Abusing Families

Catherine Stanger, Levent Dumenci, Jody Kamon, and Marcy Burstein

Department of Psychiatry, University of Vermont

This study tested associations in path models among positive and negative parenting and children's rule-breaking behavior, aggressive and oppositional behavior, and attention problems for families with a drug-dependent parent. A structural model tested relations between parenting and children's externalizing problems for 251 families with 399 children between the ages of 6 and 18, controlling for nonindependence of ratings at the family level. The model also tested potential moderators, including child age, gender, and ethnicity (White vs. other), and caregiver gender (families with a female substance-abusing caregiver vs. families with a male substance-abusing caregiver). Results indicated that caregiver ratings of monitoring predicted rule-breaking behavior and use of inconsistent discipline predicted ratings of all 3 externalizing syndromes, after controlling parenting and externalizing problems for the effects of the moderators and after controlling significant relations among types of parenting and types of externalizing problems.

Approximately 2.4 million adults receive substance-abuse treatment each year in the United States (Substance Abuse & Mental Health Services Administration, 2000). Approximately 20% of adults in treatment for drug dependence live with and parent children (Stanger et al., 1999). Several studies conducted in the United States have shown that children living with parents in treatment for drug dependence have higher rates of internalizing and externalizing problems than demographically matched children in the general population (Nunes et al., 1998; Stanger et al., 1999; Wilens, Biederman, Kiely, Bredin, & Spencer, 1995). However, the majority of children of substance-abusing parents do not show clinically significant levels of problems. Because a substantial number of children of substance-abusing parents do not display significant levels of child psychopathology, it is important to identify what processes within families with a substance-abusing parent lead to better or worse outcomes for children. These risk and protective factors may be different from those operating in families with no substance-abusing parent (Li, Pentz, & Chou, 2002).

One potential pathway to poor child outcomes in families with a substance-abusing parent is poor parenting. Parents with a substance-abuse history are more likely than parents without a substance-abuse history to show more negative parenting and less positive parenting (Kumpfer & DeMarsh, 1985; Tarter, Blackson, Martin, Loeber, & Moss, 1993). Chilcoat, Breslau, and Anthony (1996) reported that parental substance use was related to poor monitoring. However, none of these studies have tested the specificity of relations between different types of parenting and different types of externalizing problems in families with a substance-abusing parent.

Many psychological theories assume that parental behavior is an important determinant of child behavior. Although parenting is a broad construct consisting of many dimensions, ranging from discipline to affection, certain family behavior management practices have been found to predict child behaviors. For example, parental monitoring, defined as parental awareness and supervision of a child's activities, has been identified as one of the most consistent predictors of youth conduct problems (Baer, 1999; Barnes & Farrell, 1992; Barrera, Biglan, Ary, & Li, 2001; Pettit, Bates, Dodge, & Meece, 1999; Wasserman, Miller, Pinner, & Jaramillo, 1996). However, there is some controversy about whether associations between monitoring and children's externalizing problems arise because measures of monitoring typically reflect child defiance of parent rules in addition to parent efforts to monitor (Stattin & Kerr, 2000). Inconsistent discipline practices have also been strongly linked to externalizing problems (Lindahl & Malik, 1999; Patterson & Stout-

This work was supported by NIDA Grant DA-10821.

We would like to acknowledge the generous donation of staff time at participating sites by Stephen Higgins, Warren Bickel, and Alan Budney at the University of Vermont, John Grabowski and Joy Schmitz at the University of Texas, and Leslie Amass at the Friends Institute in Los Angeles as well as the hard work of the research staff at each site.

Requests for reprints should be sent to Catherine Stanger, University of Vermont, Treatment Research Center, 54 W. Twin Oaks Terrace, Suite 9, South Burlington, VT 05403. E-mail: Catherine.Stanger@uvm.edu

hamer-Loeber, 1984), as has positive parenting behaviors such as praise, guidance, physical affection, warmth, and spending time together (Armistead, Forehand, Brody, & Maguen, 2002; Barnes & Farrell, 1992).

Although most studies have tested one type of positive or negative parenting as predictors, some have tested more than one simultaneously. Results have indicated that, although poor monitoring and inconsistent discipline are significantly related to each other, both account for independent variance in children's conduct problems (Patterson & Stouthamer-Loeber, 1984; Sampson & Laub, 1994). When both positive and negative parenting are included as predictors, relations are generally stronger for negative than positive parenting (Barrera et al., 2001; Forehand, Miller, Dutra, & Chance, 1997; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Patterson & Stouthamer-Loeber, 1984). Further, changes in negative but not positive parenting appear to mediate treatment-related improvements in externalizing problems among children with attention deficit hyperactivity disorder (Hinshaw et al., 2000).

Similarly, few studies have tested effects of types of parenting separately on aggressive behavior, rule-breaking or delinquent behavior, and attention problems. Often, aggressive behavior, rule-breaking behavior, and attention problems are combined into a single variable (e.g., Baer, 1999; Barnes & Farrell, 1992; Barrera et al., 2001; Pettit et al., 2001; Wasserman et al., 1996). The few studies that have compared relations between parenting and specific types of externalizing problems have produced conflicting results. Some have shown stronger relations between monitoring and rule breaking than aggressive behavior (Griffin et al., 2000), whereas others have shown similar relations between monitoring and both oppositional defiant disorder and conduct disorder (Bird et al., 2001). Many studies have also reported weak relations between parenting and problems with attention and hyperactivity after controlling for level of conduct problems (Anderson, Hinshaw, & Simmel, 1994; Hinshaw, 2002; Johnston, Murray, Hinshaw, Pelham, & Hoza, 2002; Stormshak, Bierman, McMahon, & Lengua, 2000). However, one study reported strong relations between poor discipline and both hyperactive and antisocial behavior (Patterson, DeGarmo, & Knutson, 2000).

There are numerous potential moderators of relations between parenting and children's externalizing problems. Among these are child age, child gender, parent gender, and family ethnicity. Studies of relations between parenting and children's externalizing problems have shown stronger relations in preschool samples than in school-age samples but similar relations for older compared to younger school-age children (Rothbaum & Weisz, 1994). However, the similar relations in older and younger school-age samples may be due to the fail-

ure to distinguish among types of parenting. For example, Frick, Christian, and Wootton (1999) reported that low parental involvement was more strongly associated with conduct problems in adolescents (ages 13 to 17), whereas use of corporal punishment was more strongly related to conduct problems in middle childhood (ages 9 to 12). In terms of child gender, relations between parenting and children's externalizing problems appear similar for adolescent boys and girls, with some evidence of stronger relations between maternal parenting and externalizing for preadolescent boys than girls (Griffin et al., 2000; Rothbaum & Weisz, 1994). However, little is known about how relations among specific types of positive and negative parenting and specific types of children's externalizing problems vary with child age, gender, or both.

The research on relations between parenting and externalizing problems has largely used samples comprised of White youth and has not explicitly assessed potential ethnic differences. Some research conducted on minority samples has shown relations between parental monitoring and adolescent externalizing behavior, with similar results across age and gender (Florsheim, Tolan, & Gorman-Smith, 1996; Forehand, Armistead, & David, 1997; Griffin et al., 2000). More recent research suggests that relations between monitoring and externalizing problems may be significant only for African American youth in urban but not rural settings (Armistead et al., 2002). Research directly comparing relations between parenting and externalizing problems in different ethnic groups is rare but has generally shown similar relations across ethnic groups (e.g., Barrera et al., 2001; Bird et al., 2001). For example, Lindahl and Malik (1999) reported ethnic differences in risk for externalizing but similar relations between lax and inconsistent parenting and externalizing problems for Hispanic American and European American families. However, an interaction between ethnicity and physical discipline in predicting externalizing problems has been reported, with physical discipline related to risk for peer- and teacher-rated externalizing problems among European American but not African American youth (Deater-Deckard, Dodge, Bates, & Pettit, 1996).

Parent gender may also moderate relations between parenting and externalizing problems, with some evidence of stronger relations for mothers than fathers (Rothbaum & Weisz, 1994). For example, maternal monitoring predicted externalizing problems (combining rule-breaking and aggressive behavior) for boys and girls across three ethnic groups (European American, African American, Mexican American), but paternal monitoring was a significant predictor only in the European American group (Baer, 1999). Other studies have also reported stronger relations between maternal parenting and children's externalizing problems (Barnes & Farrell, 1992; Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003).

Based on this research, it is important to study the relations between parenting and externalizing problems in families of drug-dependent parents, considering specific dimensions of parenting and externalizing problems and considering potential moderators of these relations. In an earlier report that included a subsample of these participants ($N = 211$; Stanger et al., 2002), we tested associations in structural models among parent individual problems (e.g., severity of drug problems, medical problems, psychiatric symptoms), family problems (e.g., lack of support and acceptance, conflict, difficulty making decisions), and children's internalizing and externalizing problems. These analyses used one randomly selected child per family. Results were compared for cocaine- versus opiate-dependent caregivers, male versus female caregivers, boys versus girls, and older versus younger children (ages 4 to 11 vs. 12 to 18). In structural models, family problems but not parent problems directly predicted children's internalizing and externalizing symptoms. Models were similar across all groups compared, with the exception of parent gender, with significant relations found between parent and family problems for women but not for men. These results suggest that the personal problems of drug-dependent women may influence children's problems indirectly by increasing family problems. For drug-dependent men, family problems were an independent predictor of children's problems.

This study sought to expand on these prior results, focusing on differentiating among type of parenting and type of externalizing problem and testing the main and interactive effects of child gender, age, and ethnicity, and caregiver gender. A structural model tested relations between parenting and children's externalizing problems simultaneously for up to 5 children in each home, controlling for the nonindependence in scores obtained from one parent rating multiple children in the home. We hypothesized that there would be significant covariances among the parenting variables and among the externalizing syndromes. We also hypothesized that there would be significant relations between each type of negative parenting and rule-breaking and aggressive behavior, after accounting for relations among the three types of externalizing problems. However, we expected that once relations between attention problems and conduct problems (i.e., rule-breaking and aggressive behavior) were controlled, negative parenting would not contribute independent variance to attention problems.

Method

Participants

Participants for this study were recruited from March 1996 to June 2003 in Vermont and from Febru-

ary 1998 to June 2003 in Houston and Los Angeles. Inclusion criteria for caregivers included (a) adult 18 years or older, (b) in treatment for substance dependence, (c) meets *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev. [DSM-III-R], or 4th ed. [DSM-IV], American Psychiatric Association, 1987, 1994) criteria for substance dependence, and (d) self-identifying as living with and parenting at least one child between the ages of 2 and 18 years. Participating outpatient clinics included the Substance Abuse Treatment Center (treating cocaine and opiate dependence) and the Treatment Research Center (treating marijuana dependence) at the University of Vermont, the DayOne program (treating alcohol and drug dependence) and the Chittenden Center (treating opiate dependence) at Fletcher-Allen Health Care in Burlington, the Substance Abuse Research Center (treating cocaine and opiate dependence) at the University of Texas in Houston, and the Matrix Center in Los Angeles (treating opiate dependence). Diagnoses based on DSM-III-R or DSM-IV of cocaine, opiate, alcohol, and marijuana dependence were made by trained intake workers under the supervision of doctoral level psychologists.

To identify substance-dependent patients living with and parenting children between the ages of 2 and 18 years, we screened 2,757 patients receiving treatment for substance abuse. Of those screened, 2,185 patients (79%) were not living with and parenting children. Of the ineligible patients, about half had no children ($n = 1,121$, 51%); 33% did not live with their children ($n = 717$); 11% had children who were less than 2 or more than 18 years of age ($n = 246$); 4% were ineligible for reasons that are unknown ($n = 77$); and 1% were either reentering substance abuse treatment and had already participated in this study ($n = 17$) or did not parent the children in the home ($n = 7$).

Of the 572 (21%) eligible patients, 143 (25%) dropped out of treatment before they could be asked to participate, 39 (7%) were not asked to participate before they completed treatment, and 81 (14%) refused to participate. Five participants (0.9%) who provided flawed data (e.g., responded randomly or provided inconsistent responses) were excluded from the study. Three hundred four families (53% of eligible families) participated in this study. Because children ages 2 through 5 years were assessed using different age-appropriate measures, they were not included in these analyses ($n = 53$ families). There were 251 substance-abusing caregivers who completed forms about 399 children between the ages of 6 and 18 ($M = 11.0$ years, $SD = 3.7$).

The 251 participants (60% female and 40% male) ranged in age from 20 to 65 years ($M = 37.8$ years, $SD = 7.6$). Women were significantly more likely to live without a partner than were men (23.8% of women vs. 9.7% of men), $\chi^2(1) = 6.75$, $p < .01$. We obtained re-

ports from second caregivers in the home. However, only 67% of caregivers had a partner; 84% of those gave us permission to contact their partner, but only 51% of partners contacted participated. Thus, we did not include partner ratings in these analyses. These analyses focused exclusively on reports of parenting and externalizing from 251 families with a male or female substance-abusing caregiver. Parent mean socioeconomic status was 4.7 ($SD = 2.0$, range: 1 to 9) on the Hollingshead (1975) nine-step occupational scale. Primary drugs of abuse were 36% cocaine, 35% opiates, 23% alcohol, and 6% marijuana. Of the participants, 80% lived in Vermont, 13% in Texas, and 7% in Los Angeles.

The 399 children (51% male and 49% female) were 77% White, 12% African American, 6% Hispanic, 3% Native American, 2% mixed or other, and 0.3% Asian American. Of the children, 77% were the biological or adoptive children of the substance-abusing caregiver, 10% were stepchildren, and 13% had some other relationship (e.g., child of the patient's boyfriend or girlfriend, grandchild, and so on). There were 139 families with only 1 child in this age range (56.5%), 80 with 2 (32.5%), 23 with 3 (9.3%), 3 with 4 (1.2%), and 1 with 5 children (0.4%). In the 12 months prior to their assessment, 24% of the children had been referred for mental health services.

Assessment Procedure

In each substance abuse treatment clinic, all patients identifying themselves as filling a parental role were asked to rate all children 2 through 18 years living in their home. Clinic staff described the study to eligible patients and requested their participation within the first 30 days of treatment. Patients with difficulty reading were administered the forms orally. Patients were compensated \$20 to \$50 depending on their timeliness in completing the forms.

Measures

Parenting. Patients completed the Alabama Parenting Questionnaire (APQ; Frick, 1991) for each child in their home between the ages of 6 and 18. The APQ is a 42-item questionnaire with response scales that range from 1 (*never*) to 5 (*always*) and can be scored for five subscales: Involvement, Positive Parenting, Inconsistent Discipline, Poor Monitoring, and Corporal Punishment (the complete instrument appears in Shelton, Frick, & Wootton, 1996). The Involvement scale measures the degree to which a parent plays with, shows interest toward, and interacts with his or her child. The Positive Parenting scale examines the degree to which a parent offers praise, affection, and other forms of positive reinforcement to his or her child. Higher scores on these two scales reflect in-

creased use of positive parenting practices. The last three scales measure negative types of parenting (Wootton, Frick, Shelton, & Silverthorn, 1997). Poor Monitoring refers to the degree to which the child is outside parental supervision, and Inconsistent Discipline refers to how unpredictable a parent's discipline is with regard to the kind of punishment used and the degree to which parents enforce stated consequences. Corporal Punishment assesses the degree to which a parent uses physical means of disciplining his or her child. Higher scores on these three scales reflect increased use of negative parenting practices. Factor analyses of APQ items using the multimodal treatment of attention deficit hyperactivity disorder sample showed a poor monitoring factor, a higher order negative parenting factor combining the Inconsistent Parenting and Corporal Punishment scales, and a higher order positive parenting factor combining the Involvement and Positive Parenting scales (Wells et al., 2000). APQs were missing for 18 of 399 children (4.5% of the sample).

Child externalizing. Patients completed either the Child Behavior Checklist for Ages 4 to 18 (CBCL/4–18; Achenbach, 1991; $N = 74$; used from 1996 to 1997) or the more recent version, the Child Behavior Checklist for Ages 6 to 18 (CBCL/6–18; Achenbach & Rescorla, 2001; $N = 325$; used from 1998 to 2003), both of which obtain ratings of 20 competence items, 118 specific behavioral–emotional problem items, and 2 open-ended problem items. The CBCL/6–18 includes some new items that replaced CBCL/4–18 items that did not load on any syndrome. The test–retest reliability of the CBCL has been demonstrated, as has validity with respect to discrimination between referred and nonreferred samples and numerous other validity criteria (Achenbach, 1991; Achenbach & Rescorla, 2001; Bérubé & Achenbach, 2001). The CBCLs were scored using the CBCL/6–18 syndrome definitions. Three syndromes were included in analyses of externalizing problems: Rule-Breaking Behavior, Aggressive Behavior, and Attention Problems. Items on the Aggressive Behavior scale include items concerning verbal and physical aggression as well as oppositional behavior and moodiness. Raw syndrome scores were converted to z scores separately for the CBCL/4–18 and CBCL/6–18 to control for the additional items on the latter syndromes. There were no missing CBCL data.

Data Analysis

The analyses were conducted using the 381 children with no missing data.

We first computed correlations among the parenting and externalizing variables. Any parenting variables not correlated with any externalizing syndromes were

dropped from further analyses. We then tested a structural path model that tested relations between types of parenting and externalizing. This path model included directional path coefficients between the parenting variables and the three externalizing syndromes (Rule-Breaking Behavior, Aggressive Behavior, and Attention Problems). It included the covariances among the parenting variables and among the three externalizing syndromes. The model included directional path coefficients from each of the four potential moderators (child age, child gender, child ethnicity scored as White vs. other, and caregiver gender) to the parenting and child externalizing variables. It also included directional path coefficients from the interaction terms (products of each centered moderator and each centered parenting variable) to each child externalizing variable. Finally, the model included covariances among the interaction terms and their component variables (e.g., between the Child Age \times Poor Monitoring interaction and child age and between the same interaction and Poor Monitoring). Covariances among the four moderator variables were set to zero as well as the covariances among the four moderator variables and the interactions that did not include them as components (e.g., between the Child Age \times Poor Monitoring interaction and child gender). The correlations were computed and the models were estimated using the complex sample modeling method in *Mplus* (Muthén & Muthén, 2001), which takes into account the nonindependence of observations due to clustering in computing standard errors and tests of model fit. Family was used as the clustering variable in these analyses, and this procedure allowed us to include all children from each family in the analysis. Because of the large numbers of parameters in the model, we discuss only those estimates significant at $p < .01$.

To understand the nature of any significant interactions between the moderators and parenting, we used multigroup path analyses. The multigroup analyses proceeded in stages. First, we computed an unconstrained baseline model that allowed all parameter estimates to differ for groups defined by the moderator variable. To test differences in the variable means and intercepts for moderator groups, we compared this unconstrained model to three nested partial-invariance models. In the first nested model, the means of the demographic variables were constrained to be the same for the moderator groups. A chi-square difference test between this partial invariance model and the unconstrained baseline model described later tested the null hypothesis that the demographic variables had similar distributions in the moderator groups. In the second nested model, the externalizing syndrome intercepts were constrained to be the same for the moderator groups. A chi-square difference test between this model and the unconstrained baseline model tested the null hypothesis that externalizing syndrome scores

were the same for the moderator groups. In the third nested model, the parenting means were constrained to be the same for the moderator groups. A chi-square difference test between this partial invariance model and the unconstrained baseline model described later tested the null hypothesis that the parenting means were the same for the moderator groups.

After testing for invariance across groups in demographic variables and levels of parenting and externalizing, we used additional nested models to test for invariance across groups in relations among demographic variables, parenting, and externalizing. In the first of these nested models, the covariances were forced to be the same for the moderator groups, and the means and regression coefficients were allowed to differ. This model comparison-tested whether relations among the parenting variables and among the three externalizing variables were different for the moderator groups. In the final nested model, all regression coefficients between parenting and externalizing problems were constrained to be the same for the moderator groups. This model comparison-tested whether relations between parenting and externalizing problems were the same for the moderator groups. When a model with more constraints showed a similar fit to a model with fewer constraints, the model with more constraints was adopted.

To compute the chi-square difference tests for nested models, we used the formula recommended by Muthén & Muthén (2001). Under random sampling, the chi-square difference test is the difference in the chi-square values between the more restrictive and less restrictive models (i.e., $T_0 - T_1$). Under cluster sampling, the difference is not chi-square distributed because neither test statistic is chi-square distributed. When comparing the fit of nested models, the difference test statistic is divided by a correction factor (Muthén & Muthén, 2001), thus making the difference test asymptotically chi-square distributed. Because the chi-square statistic is greatly affected by sample size and is highly sensitive to minor departures from multivariate normality (Bollen & Long, 1993; Hu & Bentler, 1999), we supplemented the chi-square tests with the Tucker–Lewis Index (TLI) and the root mean squared error of approximation (RMSEA; Bollen & Long, 1993) to determine the goodness of fit.

Results

Correlations among the parenting and externalizing variables in the model are presented in Table 1. All variables were significantly correlated with each other, with the exception of Corporal Punishment, which was not correlated with any other parenting variable or any externalizing variable. Corporal Punishment was dropped from all subsequent analyses. Effect sizes

Table 1. Correlations and Standardized Parameter Estimates Among Parenting and Child Externalizing Problems (N = 385)

	Parenting				Externalizing			
	Poor Monitoring	Inconsistent Discipline	Positive Parenting	Involvement	Corporal Punishment	Rule-Breaking Behavior	Aggressive Behavior	Attention Problems
Parenting								
Monitoring		.33*/.34*	-.19*/-.18*	-.30*/-.28*	.08/na	.45*/.32*	.19*/.15	.19*/.09
Inconsistent			-.11/-.10	-.26*/-.26*	.12/na	.37*/.24*	.36*/.27*	.32*/.25*
Positive				.67*/.68*	-.03/na	-.17*/-.14	-.14*/-.13	-.19*/-.15
Involved					.02/na	-.16*/.09	-.16*/.00	-.21*/-.04
Corporal						.03/na	.08/na	.08/na
Externalizing								
Rule breaking							.73*/.52*	.63*/.42*
Aggressive								.73*/.53*
Attention								

Note: Bivariate correlations appear on the left, standardized parameter estimates on the right.
*p < .01.

Table 2. Standardized Beta Coefficients for Relations Between Demographic Moderators and Parenting and Children’s Externalizing Problems

	Poor Monitoring	Inconsistent Parenting	Positive Parenting	Involvement
Child Age	.55*	.01	-.25*	-.19*
Child Gender	-.08	-.02	-.01	.06
Child Ethnicity	-.08	.07	-.14*	-.08
Caregiver Gender	.03	.15	.20*	.15

	Rule-Breaking Behavior	Aggressive Behavior	Attention Problems
Child Age	-.03	-.21	-.17*
Child Gender	-.07	-.04	-.15*
Child Ethnicity	-.01	.04	.02
Caregiver Gender	.07	.06	-.04

Note: Child and caregiver gender scored 1 = male, 2 = female; child ethnicity scored 1 = White, 0 = other.
*p < .01.

were small ($r < .30$) for relations between Involvement and Positive Parenting and all three externalizing syndromes and between Poor Monitoring and Aggressive Behavior and Attention Problems. Effect sizes were medium ($r_s = .30$ to $.50$) for relations between Poor Monitoring and Rule Breaking Behavior, and between Inconsistent Discipline and all three externalizing syndromes.

Modeling Relations Between Parenting and Children’s Externalizing Problems

The model fit the data well, $\chi^2(54) = 67.65, p = .10$; TLI = .97; RMSEA = .02. Table 2 shows the parameter estimates for relations between each parenting variable and each moderator and the three externalizing syndromes. There were significant relations between Poor Monitoring and Rule-Breaking Behavior ($B = .32, p < .01$) and between Inconsistent Discipline and Rule-Breaking Behavior ($B = .24, p < .01$), Aggressive Behavior ($B = .27, p < .01$), and Attention Problems ($B = .25, p < .01$). Neither positive parenting score predicted any externalizing syndrome, after the covari-

ances among the parenting variables were partialled out. All the covariances among the externalizing syndromes were significant, with r_s ranging from $.42$ to $.53$. Covariances among the parenting scales were significant for all scales except between Inconsistent Discipline and Positive Parenting, with r_s ranging from $-.18$ to $.68$. Overall, the model accounted for 33% of the variance in Rule-Breaking Behavior, and 22% and 23% of the variance in Aggressive Behavior and Attention Problems, respectively.

The most consistent effect for the demographic variables was observed for age. There were significant effects of age on Aggressive Behavior ($B = -.21, p < .01$) and Attention Problems ($B = -.17, p < .01$), indicating more externalizing problems for younger than older children. In addition, Poor Monitoring increased with age ($r = .55, p < .01$), and Involvement and Positive Parenting decreased with age ($r_s = -.19$ and $-.25$, respectively, $p < .01$). There was one significant effect of child gender on Attention Problems, reflecting higher scores for boys than girls ($B = -.15, p < .01$). There was one significant effect of child ethnicity on Positive Parenting, reflecting lower scores for White

children ($B = -.14, p < .01$). There was also one significant effect of caregiver gender on Positive Parenting, reflecting higher scores for female caregivers ($B = .20, p < .01$). There was only one significant interaction between a demographic variable and a parenting variable. The interaction between the gender of the substance-abusing caregiver and Poor Monitoring in predicting Attention Problems was significant ($B = .17, p < .01$), indicating stronger relations between Poor Monitoring and Attention Problems for female than male caregivers.

The results suggest that after controlling for the main and interactive effects of child age, gender, and ethnicity and the gender of the substance-abusing caregiver on parenting and externalizing, negative parenting, especially Inconsistent Discipline, was significantly related to all three types of children's externalizing problems. In addition, Poor Monitoring showed more specific relations with Rule-Breaking Behavior. The demographic variables, especially age, were directly related to both parenting and children's externalizing problems, but did not typically interact with the parenting variables in the prediction of externalizing problems.

Estimating Relations Between Parenting and Externalizing Problems for Families With Female Versus Male Substance-Abusing Caregivers

To test whether relations between parenting and children's externalizing problems were similar for families with a female compared to male substance-abusing caregiver, we first tested a model similar to the model described previously but estimated simultaneously for families with female and families with male caregivers. The two-group model did not include caregiver gender as a predictor variable because this variable was used as the grouping variable. In addition, the two-group model did not include the interactions between child age, gender, and ethnicity and the four parenting variables, as none of these interactions were significant in the single-group model. As in the single-group model, correlations among the three demographic variables were set to zero. This two-group model estimated all parameters separately for families with a female substance-abusing caregiver and families with a male substance-abusing caregiver, and it fit the data very well, $\chi^2(6) = 4.96, p = .55$; TLI = 1.01; RMSEA = .00.

To assess whether there were significant differences in mean levels of demographic, parenting, or externalizing variables for female and male caregivers, we compared this unconstrained model to three nested models. In the first nested model, the three demographic variables (child age, gender, and ethnicity) were constrained to be the same for female and male

caregivers. This model fit extremely well, $\chi^2(9) = 7.28, p = .61$; TLI = 1.02; RMSEA = .00, and the difference between the chi-squares for the unconstrained model and this demographic-constrained model was not significant, $\Delta\chi^2(3) = 1.69, p > .05$, indicating similar distributions of child age, gender, and ethnicity in families with a female and male substance-abusing caregiver. In the second nested model, the three externalizing intercepts were constrained to be the same for female and male caregivers. This model also fit well, $\chi^2(9) = 9.729, p = .37$; TLI = .99; RMSEA = .02, and the difference between the chi-squares for the unconstrained model compared to this intercept-constrained model was not significant, $\Delta\chi^2(3) = 4.47, p > .05$, indicating similar levels of externalizing problems reported by caregivers in families with female and male substance-abusers. In the third nested model, the four parenting variable means were constrained to be the same for female and male caregivers. This model fit did not fit well, $\chi^2(10) = 25.95, p = .004$; TLI = .88; RMSEA = .09, and the difference between the chi-squares for the unconstrained model compared to this parenting mean-constrained model was significant, $\Delta\chi^2(4) = 14.75, p < .01$. These results indicate a worse fit for the model in which parenting means were held constant for female and male caregivers than for the model in which they were allowed to differ. Female caregivers reported more negative parenting and more positive parenting than male caregivers. Based on these results, we estimated a new baseline model in which demographic means and externalizing intercepts were constrained to be the same for families with male and female caregivers, but the parenting means were allowed to vary, $\chi^2(12) = 11.91, p = .45$; TLI = 1.00; RMSEA = .00. In this model, all estimates between parenting and externalizing were larger for families with a female caregiver.

The next nested model constrained the 21 covariances (3 among the externalizing syndromes, 6 among the parenting variables, and 12 among the 3 moderator variables and 4 parenting variables) to be the same for female and male caregivers, plus the intercepts and demographic means. This model fit very well, $\chi^2(33) = 34.68, p = .39$; TLI = 1.00; RMSEA = .02, and the difference between the chi-squares for the new baseline model compared to this covariance-constrained model was not significant, $\Delta\chi^2(21) = 14.52, p > .05$. These results indicate a highly similar fit for the model in which covariances are held constant for female and male caregivers compared to the model in which they are allowed to differ, suggesting highly similar relations among the parenting variables and among the externalizing variables, as well as a similar pattern of relations among the demographic and parenting variables when rated by female and male substance-abusing caregivers.

In the final nested model, all 21 regression coefficients between the 4 parenting variables, the 3 modera-

tor variables, and the 3 externalizing syndromes problems were constrained to be the same for female and male caregivers, $\chi^2(33) = 42.782, p = .12$; TLI = .98; RMSEA = .04. This model did not fit significantly worse than the new baseline model, $\Delta\chi^2(21) = 28.67, p > .05$, suggesting similar relations between each parenting variable and each demographic moderator and the three externalizing syndromes for female versus male caregivers.

Because there was only one interaction between parenting and caregiver gender in the single-group model, we also estimated a model in which only the path representing that interaction from Poor Monitoring to Attention Problems was constrained for female and male caregivers. This model fit significantly worse than the new baseline model, $\Delta\chi^2(1) = 6.98, p < .01$. In the new baseline model, relations between Poor Monitoring and Attention Problems were significant for female caregivers ($B = .32, p < .01$), but not for male caregivers ($B = -.13, p > .05$).

Discussion

We tested associations in path models among positive and negative parenting and children's rule-breaking behavior, aggressive-oppositional behavior, and attention problems among families with a drug-dependent parent. The structural model tested relations between parenting and children's externalizing problems simultaneously for up to 5 children in each home. After controlling for associations among the types of parenting and among the types of externalizing problems, two types of negative parenting were independent predictors of externalizing problems. Parental ratings of poor monitoring predicted rule-breaking behavior, and use of inconsistent discipline predicted ratings of rule-breaking behavior, aggressive/oppositional behavior, and attention problems, after controlling significant relations among type of parenting and among externalizing problems. It is important to note that we chose to consider parenting as the independent and child externalizing as the dependent variables. However, our results are equally supportive of the hypotheses that parenting influences child behavior and that child behavior influences parenting.

Positive and negative types of parenting were related, indicating that caregivers who show higher rates of positive parenting tend to show lower rates of negative parenting. Effects were generally larger within type of parenting (e.g., Poor Monitoring with Inconsistent) than across type of parenting (e.g., Poor Monitoring with Positive Parenting), with large effects for relations between Positive Parenting and Involvement and medium effects for relations between Poor Monitoring and Inconsistent. These results are consistent with the pattern of correlations reported in Shelton et

al. (1996) and with findings that Positive Parenting and Involvement load on a higher order positive parenting factor (Well et al., 2000). In addition, others have shown relations between monitoring and inconsistent parenting (Patterson & Stouthamer-Loeber, 1984; Sampson & Laub, 1994). These relations were essentially unchanged after controlling for effects of child age, gender, and ethnicity and caregiver gender on each type of parenting.

There were also significant relations among rule-breaking behavior, aggressive-oppositional behavior, and attention problems, after controlling the effects of potential moderators on each. These results are similar to those observed for the CBCL standardization sample (Achenbach, 1991; Achenbach & Rescorla, 2001). These relations were somewhat smaller after controlling for effects of child age, gender, and ethnicity and caregiver gender on each type of externalizing.

The results of the path analysis differ from the results of the bivariate correlations that indicated that all four types of parenting were related to all three types of externalizing problems (with only one exception). The path model was used to test the independence of these relations, demonstrating more specificity once the relations among the parenting variables and externalizing syndromes were controlled. Our results demonstrate that positive parenting was not independently related to any of the externalizing syndromes, once the covariance with negative parenting was controlled. Results were similar to those reported by others (Barrera et al., 2001; Forehand et al., 1997; Griffin et al., 2000; Patterson & Stouthamer-Loeber, 1984).

Corporal punishment was also not related to other types of parenting or to externalizing problems. This may be due to the lack of reliability of the scale, as opposed to the lack of importance of physical punishment as a predictor of externalizing problems. Prior research with the APQ has found that the Corporal Punishment scale has low reliability ($\alpha < .5$; Shelton et al., 1996) and that it predicted conduct problems only among children ages 9 to 12, suggesting curvilinear relations between corporal punishment and externalizing problems as a function of age (Frick et al., 1999).

Negative parenting was associated with externalizing problems. Inconsistent discipline was related to rule-breaking behavior, aggressive-oppositional behavior, and attention problems, but monitoring was related only to rule-breaking behavior, after controlling associations among types of parenting and controlling relations among the types of externalizing problems. Our findings are consistent with those of Patterson and Stouthamer-Loeber (1984) and Sampson and Laub (1994), showing that monitoring and inconsistent discipline each account for independent variance in delinquent or rule-breaking behavior. They are also consistent with those of Griffin et al. (2000) showing that monitoring was related to delinquency but not aggres-

sion. Some of the association between monitoring and rule breaking behavior may be due to construct overlap, item overlap, or both. For example, although there is no item overlap between items on the CBCL Rule-Breaking Behavior and the APQ Poor Monitoring scale, there are several APQ items that are worded to reflect child behavior (e.g., "Your child fails to leave a note or to let you know where he/she is going"; "Your child goes out with friends you do not know"). High scores on such items could reflect either child defiance of parental rules or limits, or parental inability, unwillingness, or lack of interest in setting and enforcing rules and limits. Future research on parental monitoring should differentiate between parent and child behavior to clarify these relations.

Inconsistent parenting showed strong relations with both rule-breaking and aggressive/oppositional behavior. These results are consistent with prior research on inconsistent parenting showing relations with externalizing problems combining rule-breaking behavior and aggressive behavior into a single variable (e.g., Lindahl & Malik, 1999; Patterson & Stouthamer-Loeber, 1984), but extend them by showing that inconsistent parenting accounted for unique variance in both types of externalizing problems, after their common variance was controlled. Contrary to our hypothesis, we also found relations between inconsistent parenting and attention problems, after controlling for variance shared with other types of externalizing problems. Although others have reported weak relations between parenting and problems with attention and hyperactivity after controlling for level of conduct problems (Anderson et al., 1994; Hinshaw, 2002; Johnston et al., 2002; Stormshak et al., 2000), these studies have all tested relations exclusively among clinically referred children or children with attention deficit hyperactivity disorder. The lack of relations in such samples may have been due to limited variability in attention problems and overactivity. The study showing strong relations between poor discipline and both hyperactive and antisocial behavior (Patterson et al., 2000) used an at-risk sample more similar to ours in terms of the distributions of problem scores.

There were few moderating effects of the demographic variables on parenting or externalizing problems. The only significant interaction indicated significant relations between monitoring and attention problems for female but not for male caregivers. The multiple-group models showed more positive and negative parenting in families with a female substance-abusing caregiver than a male substance-abusing caregiver. Despite these mean differences in the level of parenting problems and higher parameter estimates for female than male caregivers, relations between parenting and externalizing problems were not significantly different for families with a female substance-abusing caregiver compared to a male substance-abus-

ing caregiver. Others have reported significant relations between maternal but not paternal parenting and children's problems (e.g., Baer, 1999; Barnes & Farrell, 1992; Thornberry et al., 2003). However, the statistical significance of such differences is not typically tested. Our results suggest that relations between parenting and children's externalizing problems may be stronger for female than male caregivers, but that parent gender differences may not account for much variance overall.

This study has several limitations. First, these data are cross-sectional and thus the direction of effects cannot be tested. In addition, only one parent per family rated their own parenting and their children's problems, potentially inflating relations between parenting and externalizing. Drug abusers also might be less accurate informants relative to other informants, making it important to replicate our findings using other informants (e.g., coparents, teachers, older children). Further, results obtained from families with either a female or male substance-abusing caregiver might not generalize when comparing male and female parents in families without substance abuse. Although results were highly similar across the demographic variables tested, there may be other important moderators not included, or the demographic variables may show higher order interactions that were not tested (e.g., Child Age \times Child Gender \times Parent Gender).

These substance-dependent caregivers were all in drug treatment. Thus, results may not generalize to the entire population of drug-abusing caregivers. The majority of persons with substance abuse or dependence do not seek treatment (Regier, Shapiro, Kessler, & Taube, 1984; Shapiro et al., 1984), and treatment seekers show greater family disruption (Carroll & Rounsaville, 1992; Rounsaville & Kleber, 1985). It will be important to replicate our results in samples of untreated drug abusers. Relations we found between parental drug use and children's problems may also not be specific to parental substance use and may be similar to problems found among children of psychiatrically ill or incarcerated parents, for example.

One final limitation that should be emphasized is that these results may generalize only to children living with drug-dependent caregivers. Approximately 26% of the drug-dependent adults receiving treatment that we screened had children but they did not live with them. Results might differ for children not living with their drug-dependent parents. This study was designed to test relations among parenting by caregivers living in the home and children's externalizing problems. Testing relations for children not living with their drug-dependent parents would require more complex models that incorporate variables assessing information about the noncustodial biological substance-abusing parent and the custodial parent.

Overall, these results suggest that parenting, especially inconsistent parenting, may be an important risk factor for a variety of children's externalizing problems within families with a substance-abusing caregiver. In future analyses, we plan to explore longitudinal relations between parenting and children's problems, including children's problems as a predictor of later parenting. We also seek to identify whether parenting mediates relations between other parental problems (e.g., psychopathology) and children's problems in substance-abusing families. By identifying pathways that lead to externalizing behaviors among children of drug-dependent parents, we can design intervention programs within substance-abuse treatment centers that target the families of individuals, rather than just the individual substance abuser. Targeting parenting skills of parents in substance-abuse treatment might serve to protect their children from developing emotional and behavioral problems, including substance use, later in life.

References

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for ASEBA School-Age forms and profiles*. Burlington: University of Vermont, Research Center for Children, Youth, and Families.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Anderson, C. A., Hinshaw, S. P., & Simmel, C. (1994). Mother-child interactions in ADHD and comparison boys: Relationships with overt and covert externalizing behavior. *Journal of Abnormal Child Psychology*, 22, 247-265.
- Armistead, L., Forehand, R., Brody, G., & Maguen, S. (2002). Parenting and child psychosocial adjustment in single-parent African American families: Is community context important? *Behavior Therapy*, 33, 361-375.
- Baer, J. (1999). Family relationships, parenting behavior, and adolescent deviance in three ethnic groups. *The Journal of Contemporary Human Services*, xx, 279-285.
- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family*, 54, 763-776.
- Barrera, M. J., Biglan, A., Ary, D., & Li, F. (2001). Replication of a problem behavior model with American Indian, Hispanic, and Caucasian youth. *Journal of Early Adolescence*, 21, 133-157.
- Bérubé, R. L., & Achenbach, T. M. (2001). *Bibliography of published studies using ASEBA instruments: 2001 edition*. Burlington: University of Vermont, Research Center for Children, Youth, and Families.
- Bird, H. R., Canino, G. J., Davies, M., Zhang, H., Ramirez, R., & Lahey, B. B. (2001). Prevalence and correlates of antisocial behaviors among three ethnic groups. *Journal of Abnormal Child Psychology*, 29, 465-478.
- Bollen, K. A., & Long, J. S. (1993). *Testing structural equation models*. Beverly Hills, CA: Sage.
- Carroll, K. M., & Rounsaville, B. J. (1992). Contrast of treatment-seeking and untreated cocaine abusers. *Archives of General Psychiatry*, 49, 464-471.
- Chilcoat, H. D., Breslau, N., & Anthony, J. C. (1996). Potential barriers to parent monitoring: Social disadvantage, marital status, and maternal psychiatric disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35, 1673-1682.
- Deater-Deckard, K., Dodge, K., Bates, J. E., & Pettit, G. S. (1996). Physical discipline among African American and European American mothers: Links to children's externalizing behaviors. *Developmental Psychology*, 32, 1065-1072.
- Florsheim, P., Tolan, P. H., & Gorman-Smith, D. (1996). Family processes and risk for externalizing behavior problems among African American and Hispanic boys. *Journal of Consulting and Clinical Psychology*, 64, 1222-1230.
- Forehand, R., Armistead, L., & David, C. (1997). Is adolescent adjustment following parental divorce a function of predivorce adjustment? *Journal of Abnormal Child Psychology*, 25, 157-164.
- Forehand, R., Miller, K. S., Dutra, R., & Chance, M. W. (1997). Role of parenting in adolescent deviant behavior: Replication across and within two ethnic groups. *Journal of Consulting and Clinical Psychology*, 65, 1036-1041.
- Frick, P. J. (1991). *The Alabama Parenting Questionnaire*. Tuscaloosa: University of Alabama.
- Frick, P. J., Christian, R. E., & Wootton, J. (1999). Age trends in the association between parenting practices and conduct problems. *Behavior Modification*, 23, 106-128.
- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors*, 14, 174-184.
- Hinshaw, S. P. (2002). Preadolescent girls with attention-deficit/hyperactivity disorder: I. Background characteristics, comorbidity, cognitive and social functioning, and parenting practices. *Journal of Consulting and Clinical Psychology*, 70, 1086-1098.
- Hinshaw, S. P., Owens, E. B., Wells, K. C., Kraemer, H. C., Abikoff, H. B., Arnold, L. E., et al. (2000). Family processes and treatment outcome in the MTA: Negative/ineffective parenting practices in relation to multimodal treatment. *Journal of Abnormal Child Psychology*, 28, 555-568.
- Hollingshead, A. B. (1975). *Four Factor Index of Social Status*. Unpublished doctoral dissertation, Yale University, New Haven, CT.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria vs. new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Johnston, C., Murray, C., Hinshaw, S. P., Pelham, W. E., Jr., & Hoza, B. (2002). Responsiveness in interactions of mothers and sons with ADHD: Relations to maternal and child characteristics. *Journal of Abnormal Child Psychology*, 30, 77-88.
- Kumpfer, K. L., & DeMarsh, J. (1985). Family environmental and genetic influences on children's future chemical dependency. *Journal of Children in a Contemporary Society*, 18, 49-91.
- Li, C., Pentz, M. A., & Chou, C.-P. (2002). Parental substance use as a modifier of adolescent substance use risk. *Society for the Study of Addiction to Alcohol and Other Drugs*, 97, 1537-1550.
- Lindahl, K. M., & Malik, N. M. (1999). Marital conflict, family processes, and boys' externalizing behavior in Hispanic American and European American families. *Journal of Clinical Child Psychology*, 28, 12-24.
- Muthén, L., & Muthén, B. (2001). *Mplus user's guide* (2nd ed.). Los Angeles: Authors.
- Nunes, E. V., Weissman, M. M., Goldstein, R. B., McAvay, G., Seracini, A. M., Verdell, H., & Wickramaratne, P. J. (1998).

- Psychopathology in children of parents with opiate dependence and/or major depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37, 1142–1151.
- Patterson, G. R., DeGarmo, D. S., & Knutson, N. (2000). Hyperactive and antisocial behaviors: Comorbid or two points in the same process? *Development and Psychopathology*, 12, 91–106.
- Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development*, 55, 1299–1307.
- Pettit, G. S., Bates, J. E., Dodge, K. A., & Meece, D. W. (1999). The impact of after-school peer contact on early adolescent externalizing problems is moderated by parental monitoring, perceived neighborhood safety, and prior adjustment. *Child Development*, 70, 768–778.
- Regier, D. A., Shapiro, S., Kessler, L. G., & Taube, C. A. (1984). Epidemiology and health service resource allocation policy for alcohol, drug abuse, and mental disorders. *Public Health Reports*, 99, 483–492.
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin*, 116, 55–74.
- Rounsaville, B. J., & Kleber, H. D. (1985). Untreated opiate addicts: How do they differ from those seeking treatment? *Archives of General Psychiatry*, 42, 1072–1077.
- Substance Abuse & Mental Health Services Administration. (2000). *National Household Survey on Drug Abuse*. Retrieved October 17, 2003 from www.samhsa.gov/oas/nhsda/2kdetailedtabs/pdf/2kNHSDAtables-PDF.htm
- Sampson, R. J., & Laub, J. H. (1994). Urban poverty and the family context of delinquency: A new look at structure and process in a classic study. *Child Development*, 65, 523–540.
- Shapiro, S., Skinner, E. A., Kessler, L. G., Von Korff, M., German, P. S., Tischler, G. L., et al. (1984). Utilization of health and mental health services. Three epidemiologic catchment area sites. *Archives of General Psychiatry*, 41, 971–978.
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, 25, 317–329.
- Stanger, C., Higgins, S. T., Bickel, W. K., Elk, R., Grabowski, J., Schmitz, J., et al. (1999). Behavioral and emotional problems among children of cocaine- and opiate-dependent parents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38, 421–428.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, 71, 1072–1085.
- Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parenting practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology*, 29, 17–29.
- Tarter, R. E., Blackson, T. C., Martin, C., Loeber, R., & Moss, H. B. (1993). Characteristics and correlates of child discipline practices in substance abuse and normal families. *The American Journal on Addictions*, 2, 18–25.
- Thornberry, T. P., Freeman-Gallant, A., Lizotte, A. J., Krohn, M. D., & Smith, C. A. (2003). Linked lives: The intergenerational transmission of antisocial behavior. *Journal of Abnormal Child Psychology*, 31, 171–184.
- Wasserman, G. A., Miller, L. S., Pinner, E., & Jaramillo, B. (1996). Parenting predictors of early conduct problems in urban, high-risk boys. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35, 1227–1236.
- Wells, K. C., Epstein, J. N., Hinshaw, S. P., Conners, C. K., Klaric, J., Abikoff, H. B., et al. (2000). Parenting and family stress treatment outcomes in attention deficit hyperactivity disorder (ADHD): An empirical analysis in the MTA study. *Journal of Abnormal Child Psychology*, 28, 543–553.
- Wilens, T. E., Biederman, J., Kiely, K., Bredin, E., & Spencer, T. J. (1995). Pilot study of behavioral and emotional disturbances in the high-risk children of parents with opioid dependence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 34, 779–785.
- Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and childhood conduct problems: The moderating role of callous–unemotional traits. *Journal of Consulting and Clinical Psychology*, 65, 301–308.

Received January 16, 2003

Accepted February 17, 2004