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Emotional and Behavioral Problems of Children Living With Drug-Abusing Fathers: Comparisons With Children Living With Alcohol-Abusing and Non-Substance-Abusing Fathers

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Although the effects of paternal alcoholism on the psychosocial adjustment of children are well documented, the impact of fathers' illicit drug abuse on their children is poorly understood. The purpose of this study was to compare the adjustment of children living in families with drug-abusing fathers ($n = 40$) with that of children with fathers who abused alcohol ($n = 40$) and children with non-substance-abusing fathers ($n = 40$). Children with drug-abusing fathers experienced more internalizing and externalizing symptoms than children with alcoholic or non-substance-abusing fathers. Interparental conflict and parenting behavior mediated the relationship between family type and children's adjustment. Interventions to improve fathers' parenting behavior and reduce partner conflict may lead to better adjustment among custodial children of drug-abusing fathers.

keywords: drug abuse, alcohol abuse, fathering, children's adjustment

Among the most negative consequences of alcoholism and drug addiction are the psychosocial effects of parental substance abuse on their children. In comparison with children raised by parents who do not misuse alcohol, children who live with an alcoholic parent, often referred to as children of alcoholics (COAs), exhibit elevated symptom levels for both internalizing (e.g., sadness and worrying) and externalizing (e.g., aggression) syndromes (for a review, see Johnson & Leff, 1999). Research on children who live with parents who primarily abuse drugs other than alcohol, referred to as children of substance abusers (COSAs), is far less developed than research on COAs. However, available studies suggest that, by late childhood, COSAs often have significant emotional problems and an increased incidence of diagnosable psychological disorders (e.g., Luthar, Cushing, Merikangas, & Rounsaville, 1998). Although children of drug-abusing mothers have been the focus of nearly all COSA research (Hogan, 1998), investigators have recently called for research examining the psychosocial functioning of children living with drug-abusing fathers. In their recent review of this issue, McMahon and Rounsaville (2002) argued that (a) it is unclear how compromised fathering in the context of paternal drug abuse contributes to maladjustment in children, (b) the empirical literature has been largely silent on this issue, and (c) programmatic investigations need to examine the functioning of children who live with a father who abuses drugs and the processes that may contribute to the psychosocial adjustment of children who live in these households.

What are the mechanisms that link parental substance abuse to adverse child outcomes? Although many factors may affect children's adjustment, virtually all parent–child models assign a major role to family processes in the early development of negative child behaviors (see Conger, 2001, for a review). In particular, paternal substance abuse may directly influence two key components of fathering: child monitoring and disciplinary practices. Consistent with this view are data that show parental substance abuse is associated with low supervision and monitoring of children, as well as inconsistent, explosive discipline practices (Mayes & Truman, 2002); inadequate and punitive parenting prac-

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tices play a critical role in the development of child problems (e.g., Amato & Fowler, 2002). Paternal substance abuse may influence children indirectly through its impact on the interparental relationship; exposure to compromised adult relationship behavior, rather than being the direct target of poor fathering, influences child outcomes. Consistent with this view are findings demonstrating very high levels of interparental conflict in alcohol-abusing (e.g., Velleman & Orford, 1999) and drug-abusing (e.g., Fals-Stewart, Kelley, Cooke, & Golden, 2003) couples; interparental conflict is the primary component of marital difficulties that leads to child behavior problems (Emery, 1999).

It can be argued that substance abuse by fathers, regardless of whether it is alcohol or an illicit substance, leads to similar adjustment difficulties in children under their care. Indeed, recent reviews of the COSA literature (e.g., Johnson & Leff, 1999) have noted that many investigators assume this to be true by extrapolating the findings on COAs to COSAs. However, this assumption ignores the sociocultural differences between alcohol use and illicit substance use that are likely to have implications for individuals and families in which members drink or use drugs. As argued by Hogan (1998), families in which one or both parents use illicit drugs, particularly opiates and cocaine, are much more likely to be living in poverty, whereas alcohol users are more likely to be living across a range of socioeconomic contexts. In addition, because opiates and cocaine are illegal drugs, there is a certain amount of secrecy that pervades the contexts in which they are used, which may create isolation for drug-abusing individuals and their families. In contrast, alcohol use is legal and socially accepted. As a result, there is less social support, public advocacy, and treatment for drug abusers and their families. Drug use, especially that of opiates and cocaine, is associated with criminal activities and places the parent at risk for arrests and imprisonment. Moreover, investigations that have included samples of families in which fathers primarily abuse alcohol versus families in which fathers primarily abuse drugs show that drug-abusing families have more problems in areas known to influence children's adjustment, including poorer dyadic adjustment and higher levels of partner violence (e.g., Kelley & Fals-Stewart, 2002). Thus, previous assumptions notwithstanding, it is quite plausible that COSAs would, in fact, have more impaired psychosocial adjustment than COAs.

However, the question remains, "What is the relevance of understanding the psychosocial functioning of children living with drug-abusing fathers and the factors that may lead to the emotional and behavioral problems observed?" First, a recent study revealed that a significant percentage of custodial children of drug-abusing fathers (i.e., 45%) manifested clinically significant levels of emotional and behavioral problems, indicating that a sizeable proportion of these children are in need of mental health services (Cooke, Fals-Stewart, & Kelley, in press). Second, Fals-Stewart, Kelley, Fincham, and Golden (2002) completed a survey of fathers entering drug abuse treatment and their children. Although assessment data collected from their custodial school-aged children revealed a significant proportion had emotional and behavioral problems akin to children entering mental health treatment, the majority of fathers (i.e., more than 75%) reported that they would not allow their children to receive family or mental health counseling in the substance abuse treatment program, children's mental health setting, or other venue. Without evidence of abuse or neglect, substance-abusing parents cannot be compelled to have their children receive mental health services. Thus, the most readily available avenue to improve the functioning of these children may be through their parents. Understanding mechanisms that may be related to problems observed in these children can help inform the development of treatment plans for fathers that may, in part, improve their children's adjustment (e.g., couples therapy to reduce parental conflict).

In the present investigation, we compared the psychosocial adjustment of children living with drug-abusing fathers with that of children from demographically matched families in which fathers abused alcohol and children from demographically matched families in which the parents did not abuse alcohol or other drugs. In addition, we examined the effects of two possible mechanisms of action leading to differences in children's adjustment in these families: parenting behavior and interparental conflict. A non-substance-abusing comparison sample was chosen to examine the functioning of COSAs relative to a normative standard. A sample with alcohol-abusing fathers was chosen because most research on the effects of substance use has focused on this type of family and COSAs have often been assumed to be very similar to COAs. Cocaine dependence and opiate dependence were selected to represent the most serious forms of drug abuse with high likelihoods of having a negative impact on the home environment (Hogan, 1998).

We hypothesized that, relative to children from homes with an alcoholic father or children from homes in which parents did not abuse drugs or alcohol, children living with cocaine- or opiate-abusing fathers would have higher levels of internalizing and externalizing symptoms. In addition, we hypothesized that families in which fathers abused cocaine or opiates, in comparison with families with alcoholic or non-substance-abusing fathers, would manifest more interparental conflict and poorer parenting behavior and, moreover, that each of these variables would partially or fully mediate the association between cocaine or opiate use by the father and child symptoms. Finally, many investigations have shown that parental psychological distress and psychopathology affect children's adjustment (e.g., Chassin, Pillow, Curran, Molina, & Barrera, 1993; Levendosky & Graham-Berman, 1998); these factors were controlled in our analyses.

Method

Participants

Families ($N = 120$) in which both parents were currently residing with at least one 8–12-year-old child participated; in the case of families with more than one child in the age range, data were

analyzed from one randomly selected child (i.e., the target child). The sample consisted of (a) 40 drug-abusing families (DA families) with fathers who met criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition; *DSM–IV*; American Psychiatric Association, 1994) for current cocaine or opiate dependence,[1] (b) 40 alcohol-abusing families (AA families) with fathers who met *DSM–IV* criteria for alcohol dependence and who did not meet current abuse or dependence criteria for other illicit drugs, and (c) 40 non-substance-abusing families (NA families) in which fathers did not meet dependence criteria for alcohol or illicit drugs. Families were excluded if mothers met current or lifetime abuse or dependence criteria for alcohol or other drugs or if mothers or fathers reported that the mother had used illicit drugs or engaged in hazardous drinking during her pregnancy with the target child.[2]

Family matching. The DA and AA families were recruited from a large outpatient substance abuse treatment program in the northeastern United States. Fifty-one DA families who met inclusion criteria (based on information gathered from data collected at program intake) were approached to take part in the investigation. Nine male patients (18%) refused to participate, and two families (4%) did not meet all inclusion criteria after more detailed information was collected.

We matched the families on common sociodemographic characteristics that have been shown to be related to parenting practices and children's emotional adjustment, including parents' age, education, race, and income and number of children in the home (e.g., Fox, Platz, & Bentley, 1996). NA and AA families were considered matched to a target DA family if (a) parents' average age was ± 3 years of the parents from the target DA family; (b) parents' average education was ± 1 year of the parents from the DA family; (c) they had an equal number of children in the target age range; (d) father's and mother's race matched exactly; and (e) the family annual income was $\pm$\$5,000 of the target DA family. The NA families were recruited, by means of computer-assisted telephone interviewing, from the same community in which the substance abuse treatment program was located. The pool of AA families from which to draw matches consisted of 169 families. Fifty-one AA families that met inclusion and matching criteria were approached to participate; 11 of the fathers in these families (22%) refused.

Recruitment of matched NA community sample. To recruit matched NA families, we used the following strategy. For each DA family, we located the block on which they resided (i.e., the *index block*) on a map. We then (a) randomly selected a cardinal compass point; (b) selected as the comparison block the street block that was adjacent to the index block in the indicated cardinal direction; (c) identified the residences on the comparison block through a reverse telephone directory; (d) randomly selected six residences on the block; (e) contacted the residents at each address, one at a time, to determine whether they met the inclusion and exclusion criteria noted earlier for the NA sample; and (f) determined whether they matched the DA families on the demographic matching criteria. If a match was found, we solicited the family's involvement. If no match was found, we selected another adjacent block and began the process anew.

Procedure

The Health Sciences Institutional Review Board at the University at Buffalo evaluated and approved the human subjects materials for this study. In the case of participants recruited from the treatment program, a research assistant met with eligible participants about the research project, providing an overview of the project and what would be required for participation, its voluntary nature, and so forth. After being provided an opportunity to ask further questions, all families (i.e., parents and target child) willing to do so signed a consent form (parents) or assent form (child) indicating agreement to participate. In the case of the NA families that expressed interest in participation and met the matching criteria described earlier, the parents and the target child were asked to come to an office adjacent to the treatment program to receive further information about the study and to allow them to ask further questions. As with the DA and AA families, members of families that agreed to participate signed appropriate consent or assent forms.

So that we could obtain information from the target children's primary teachers, parents signed a consent form allowing us to recruit the teachers to participate; all parents provided this consent. The teachers were informed that the target child and his or her family were participating in a psychological study and that we were requesting they provide some information about the child. Each teacher reviewed the consent form signed by parents indicating they had given permission for the investigators to solicit participation from the teacher.

Parents completed questionnaires and interviews about their substance use, parenting behavior, and their children's emotional and behavioral adjustment. Target children completed measures of their own psychological adjustment. Children's primary teachers completed a questionnaire assessing the children's psychosocial adjustment. Assessments of family members were completed within 2 weeks after the family members had signed informed consent forms. Families were paid \$100 for completing all interviews; teachers were paid \$30 for participating.

Measures of Children's Functioning

Children's psychosocial adjustment was measured with the *Child Behavior Checklist/4-18* (CBCL/4-18; Achenbach, 1991), a well-validated measure of children's psychosocial adjustment, which was completed by both parents. Internalizing and Externalizing subscale scores were converted to age- and gender-corrected *T* scores based on national norms, with higher *T* scores indicating poorer functioning. Teachers were asked to complete the *Teacher Report Form* (TRF; Achenbach, 1991), which includes reports on behavioral problems with scales comparable to the CBCL. As with the CBCL, raw scores were converted to *T* scores, with higher scores indicating more internalizing and externalizing symptoms.

Each target child completed the *Children's Depression Inventory* (CDI; Kovacs, 1980–1981), which is a widely used 27-item self-report measure of depression among children. As noted by

[1] Several of these men also had a diagnosis of alcohol dependence, which is common among patients entering treatment for drug abuse. However, all of these men had a primary diagnosis of cocaine or opiate dependence. Primary drug of abuse for each patient was determined through the use of a decision tree algorithm (as described in Fals-Stewart, 1996).

[2] We define hazardous drinking as the converse of low-risk drinking. The National Institute on Alcohol Abuse and Alcoholism recently established guidelines for low-risk drinking as seven or fewer drinks per week and three or fewer drinks on any given day. Thus, mothers or fathers who reported that, during pregnancy with any child who was to be included in the study, mothers had more than seven standard drinks in any given week or had more than three drinks on any given day of the pregnancy were excluded from the study.

Kovacs (1980–1981), the reliability and validity of the CDI are excellent. Raw scores were converted to *T* scores based on normative data. Higher scores indicate higher levels of depression. In addition, children completed the *State-Trait Anxiety Inventory for Children* (STAIC; Speilberger, 1973), a psychometrically sound measure of both situational anxiety (STAIC-S) and prevailing tendencies to experience anxiety (STAIC-T). Normative data were used to convert raw scores to *T* scores, with higher scores indicating higher levels of anxiety.

Measures of Parental Conflict and Parenting Behavior

Parental conflict. Relationship violence was measured with the *Conflict Tactics Scale* (CTS; Straus, 1990) physical aggression subscale. The CTS is a widely used and well-validated inventory that asks each of the partners to report the frequency of their own and their partner's physical aggression in the relationship over the past year. More specifically, male-to-female violence (MFV) and female-to-male violence (FMV) were assessed. Respondents rated each of the 8 CTS physical violence items on a 7-point frequency scale (0 = *never*, 1 = *once*, 2 = *twice*, 3 = *3–5 times*, 4 = *6–10 times*, 5 = *11–20 times*, 6 = *over 20 times*) for their own and their partner's behavior in the past 12 months. A combined report of the partners was constructed by summing the higher of the two partners' reports on each CTS violence item.

Both parents completed the *O'Leary-Porter Scale* (OPS; Porter & O'Leary, 1980) to assess children's exposure to interparental conflict. The OPS assesses parents' perceptions of the frequency with which marital conflicts occur in the presence of the target child. Items on the scale are summed; high scores represent greater overt marital conflict occurring in the presence of the child. We used the average OPS score for mothers and fathers.

Parenting behavior. The *Parenting Scale* (PS; Arnold, O'Leary, Wolff, & Acker, 1993) measures disciplinary "mistakes" in response to children's misbehavior. Each of the 30 items is rated on a 7-point scale. In this investigation, we used the total score, which provides an index of overall dysfunctional parenting and is computed by averaging the items. The PS has high test–retest reliability, internal consistency, and validity. The *Parental Monitoring Scale* (PM; Bank, Forgatch, Patterson, & Fetrow, 1993) is a 12-item measure that assesses parental knowledge of children's activities. Items are rated on a scale of 1 (*never*) to 5 (*always*). A summary score is obtained by averaging item ratings. Both parents completed the PS and PM.

Parental Substance Use Behavior and Psychiatric Distress

The *Structured Clinical Interview for DSM-IV* (First, Spitzer, Gibbon, & Williams, 1995) was used in obtaining parents' current and lifetime *DSM–IV* diagnoses of psychoactive substance use disorders and antisocial personality disorder (ASP). The *Timeline Followback Interview* (L. C. Sobell & Sobell, 1996) was used to gather information on parents' substance use during the previous 12 months. The primary measure used was percentage of days abstinent (PDA), which represents the percentage of days during which psychoactive substances were not used.

Parents' psychiatric distress was assessed with the Brief Symptom Inventory (Derogatis, 1992). Each of the 53 items is rated on a 5-point scale of distress ranging from *not at all* (0) to *extremely* (4). The General Severity Index (GSI) was used as a global measure of psychological distress, the score for which is an average of endorsed items.

Primary Data-Analytic Strategies

Group comparisons. The DA, AA, and NA families were compared through the use of analysis of variance (ANOVA) and chi-square tests. Significant omnibus tests were followed with pairwise contrasts. The planned contrasts (i.e., DA vs. AA and DA vs. NA) were evaluated against an alpha level of .05; the post hoc comparison between AA and NA families was evaluated with a Bonferroni-corrected alpha level of .017 (i.e., .05 ÷ 3; Keppel, 1991).[3]

Mediation analyses. Mediation effects of parental conflict and parenting behavior on the relationship between type of family (i.e., DA, AA, or NA) and children's internalizing and externalizing behavior were estimated in a structural model. The three family types were represented by two dummy-coded variables, with the DA families as the reference category. Seven endogenous variables (i.e., mothers' and fathers' PM scores, mothers' and fathers' PS scores, and CTS-MFV, CTS-FMV, and OPS scores) were included in the model. To correct for measurement error, we set their associated error term to 1 − (reliability × variance of the indicator) (Bollen, 1989). However, the endogenous outcome variables, internalizing and externalizing symptoms, involved multiple reporters (i.e., mothers, fathers, and teachers). Inclusion of these as latent variables in the structural model was not possible given the number of parameters that would need to be estimated and the relatively small sample size. Accordingly, manifest variables were created, preserving information from the multiple reporters.

To create manifest variables using information from multiple reporters, we estimated a multitrait–multimethod model for internalizing and externalizing behaviors (representing traits) and mother, father, and teacher reports (representing methods). The multitrait–multimethod matrices were examined in a confirmatory factor analysis. Unfortunately, because there were three methods, six observed measures, and two traits, it was not possible to estimate the model without fixing some parameters. In such circumstances, a close approximation of using a standard confirmatory factor analysis to examine multitrait–multimethod matrices is to estimate a measurement model without the methods factors (Marsh, 1990). The two-latent-variable measurement model was estimated and fit the data well, $\chi^2(9, N = 120) = 9.30$, $p = .41$, comparative fit index (CFI) = .97, Tucker–Lewis index (TLI) = .95. Models are generally considered to reproduce the data adequately when the CFI and TLI are .95 or greater (Hu & Bentler, 1998).

Thus, on the basis of the results of this model, multiple-reporter constructs of internalizing and externalizing behaviors were formed. Factor score regression weights derived from the measurement model were used to create multiple-reporter linear composites of manifest internalizing and externalizing variables. We calculated composite reliabilities for each manifest variable using the estimates of error and total variance produced by the measurement model.

Mediation effects were evaluated for statistical significance with M. E. Sobel (1982) tests. More specifically, a coefficient for

[3] The family comparisons also involved multivariate analyses of variance (e.g., CBCL Internalizing and Externalizing *T* scores as dependent measures), followed by univariate and multivariate contrasts (as described by Huberty & Morris, 1989). The results of the univariate and multivariate analyses were not substantively different; for brevity of presentation, only the univariate results are presented here. In addition, many contrasts between the AA and NA families would have been significant if evaluated without a corrected alpha level; these results are available from William Fals-Stewart on request.

the indirect effect (i.e., the mediation pathway) was calculated by multiplying the parameter estimates for the paths making up the mediation route of interest. To obtain a test statistic (z), the indirect effect coefficient is divided by its standard error and evaluated by comparing it with the standard normal distribution. Standard errors indirect effect coefficients were calculated using the formula described in Baron and Kenny (1986).

Results

Sociodemographic Characteristics of the Samples

The background characteristics of the DA, AA, and NA families are presented in Table 1. The matching procedures used were effective; no significant differences were found between parents or children in the three types of families on any demographic characteristics (i.e., all $ps > .25$). There also were no significant differences in the number of months fathers resided in the home with the target children, suggesting similar exposure of the target children to fathers.

There were, by design, expected differences between the fathers from DA and AA families versus those from the NA families in terms of the proportion that met *DSM–IV* criteria for a substance use disorder. Relatedly, fathers from NA families had a higher PDA than DA and AA fathers, with no differences between the latter groups. In addition, fathers and mothers from the DA and AA groups had higher GSI scores than those from the NA families. Fathers in the DA and AA families were also more likely than NA fathers to have a diagnosis of ASP.

Comparisons of DA, AA, and NA Families: Children's Adjustment

Parents' and teachers' ratings of internalizing and externalizing behaviors. Internalizing and Externalizing *T* scores from mothers' and fathers' CBCLs, teachers' TRFs, and follow-up group comparisons for each rater are presented in Table 2. In the case of the Internalizing and

Table 1
Demographic and Psychosocial Characteristics of Participants From Families With a Drug-Abusing Father (DA), Families With an Alcohol-Abusing Father (AA), and Non-Substance-Abusing (NA) Families

Variable	DA	AA	NA	$F(2, 117)$	η^2	$\chi^2(2, N = 120)$	ϕ
M (*SD*)							
Fathers' age in years	37.9 (5.2)	36.9 (5.0)	36.4 (4.9)	0.92	.02		
Fathers' education in years	12.1 (1.3)	12.2 (1.3)	12.2 (1.4)	0.07	.01		
Mothers' age in years	35.6 (4.9)	36.0 (4.7)	35.8 (5.2)	0.07	.01		
Mothers' education in years	12.4 (1.3)	12.3 (1.4)	12.3 (1.4)	0.06	.01		
Yearly family income (thousands)	26.4 (6.3)	27.1 (6.2)	27.4 (5.9)	0.28	.01		
Years married or cohabiting	8.3 (4.2)	7.9 (5.0)	8.1 (4.7)	0.07	.01		
Children in the household	2.1 (0.9)	2.3 (1.0)	2.0 (1.2)	0.86	.01		
Months fathers resided with target child	99.3 (14.9)	103.4 (12.6)	104.2 (11.3)	1.63	.03		
Fathers' race/ethnicity, *n* (%)							
White	27 (68)	27 (68)	27 (68)			1.00	.00
African American	8 (20)	8 (20)	8 (20)			1.00	.00
Hispanic	3 (8)	3 (8)	3 (8)			1.00	.00
Other	2 (5)	2 (5)	2 (5)			1.00	.00
Mothers' race/ethnicity, *n* (%)							
White	30 (75)	30 (75)	30 (75)			1.00	.00
African American	7 (18)	7 (18)	7 (18)			1.00	.00
Hispanic	2 (5)	2 (5)	2 (5)			1.00	.00
Other	1 (3)	1 (3)	1 (3)			1.00	.00
M (*SD*)							
Fathers' PDA in past year	$28.4\ (30.2)_b$	$34.0\ (31.3)_b$	84.9 (14.1)	55.62**	.49		
Mothers' PDA in past year	89.6 (15.3)	91.0 (12.3)	88.3 (13.2)	0.39	.01		
Drinks per week by mothers during pregnancy with target child	0.2 (1.1)	0.4 (1.0)	0.3 (0.9)	0.40	.01		
Mothers' GSI	$1.8\ (1.1)_b$	$1.7\ (1.2)_b$	0.7 (0.7)	14.14**	.19		
Fathers' GSI	$1.6\ (1.2)_b$	$1.7\ (1.1)_b$	0.8 (0.9)	8.44*	.12		
No. (%) of fathers meeting criteria for							
Alcohol dependence	$28\ (70)_{a,b}$	$40\ (100)_b$	0 (0)			85.79**	.85
Cocaine dependence	$31\ (78)_{a,b}$	0 (0)	0 (0)			83.60**	.84
Opioid dependence	$22\ (55)_{a,b}$	0 (0)	0 (0)			53.88**	.67
ASP	$14\ (35)_b$	$11\ (28)_b$	3 (8)			9.04*	.27
No. (%) of mothers meeting criteria for ASP	2 (5)	1 (3)	0 (0)			2.05	.13
Target child's age (years)	9.2 (1.5)	9.1 (1.3)	9.0 (1.4)	0.20	.01		
Target child's school grade	4.1 (1.1)	4.2 (1.0)	4.0 (1.3)	0.13	.01		
No. (%) of boys	22 (55)	21 (53)	22 (55)			0.67	.02

Note. Subscript a indicates a significant difference relative to the other two family types. Subscript b indicates a significant difference relative to NA families. Significance of the planned pairwise comparisons (i.e., DA vs. AA and DA vs. NA) was evaluated with an alpha of .05; the post hoc comparison between AA and NA families was evaluated with a Bonferroni-corrected alpha of .02 (i.e., .05 ÷ 3). PDA = percentage of days abstinent; GSI = General Symptom Index; ASP = antisocial personality disorder.
* $p < .05$. ** $p < .01$.

Table 2
Mean on Measures of Symptomatology T Scores and Number Surpassing Clinical Cutoffs for Children From Families With a Drug-Abusing (DA) Father, Alcohol-Abusing (AA) Father, and Non-Substance-Abusing (NA) Father

Reporter and dimension	DA	AA	NA	$F(2, 117)$	η^2	$\chi^2(2, N = 120)$	ϕ
Child Behavior Checklist							
Mother internalizing							
M (*SD*)	54.1 (11.3)$_{a,b}$	47.7 (10.8)$_{b}$	41.2 (11.2)	13.50**	.19		
n (%) ≥ 60	14 (35)$_{a,b}$	5 (13)	1 (3)			15.96**	.37
Mother externalizing							
M (*SD*)	56.4 (10.9)$_{a,b}$	46.1 (10.2)	42.6 (11.4)	17.50**	.23		
n (%) ≥ 60	15 (38)$_{a,b}$	5 (13)	1 (3)			18.00**	.39
Father internalizing							
M (*SD*)	53.9 (11.2)$_{a,b}$	47.7 (10.6)	42.4 (10.6)	10.88**	.16		
n (%) ≥ 60	14 (35)$_{a,b}$	5 (13)	1 (3)			15.96**	.37
Father externalizing							
M (*SD*)	54.7 (10.8)$_{a,b}$	48.4 (11.3)	43.6 (10.6)	10.79**	.16		
n (%) ≥ 60	14 (35)$_{a,b}$	4 (10)	1 (3)			17.38**	.38
Teacher Report Form							
Teacher internalizing							
M (*SD*)	54.6 (11.3)$_{a,b}$	48.9 (10.2)	43.8 (9.9)	10.62**	.15		
n (%) ≥ 60	15 (38)$_{a,b}$	5 (13)$_{b}$	0 (0)			21.00**	.42
Teacher externalizing							
M (*SD*)	55.6 (10.8)$_{a,b}$	46.3 (11.3)	43.4 (10.2)	13.99**	.19		
n (%) ≥ 60	15 (38)$_{a,b}$	4 (10)	1 (3)			19.56**	.40
Children's Depression Inventory							
Child depression							
M (*SD*)	54.9 (9.3)$_{a,b}$	48.6 (10.1)	42.1 (9.6)	14.34**	.19		
n (%) ≥ 60	15 (38)$_{a,b}$	6 (15)$_{b}$	0 (0)			19.74**	.41
State-Trait Anxiety Inventory (STAIC)							
Child STAIC-S							
M (*SD*)	53.9 (9.3)$_{a,b}$	47.6 (10.1)$_{b}$	42.3 (9.2)	14.82**	.20		
No. (%) ≥ 60	14 (35)$_{a,b}$	4 (10)	1 (3)			17.38**	.38
Child STAIC-T							
M (*SD*)	54.0 (10.2)$_{a,b}$	48.1 (11.3)	43.2 (10.2)	10.45**	.15		
No. (%) ≥ 60	15 (38)$_{a,b}$	5 (13)$_{b}$	0 (0)			21.00**	.42

Note. Subscript a indicates a significant difference relative to the other two family types. Subscript b indicates a significant difference relative to NA families. Significance of the planned pairwise comparisons (i.e., DA vs. AA and DA vs. NA) was evaluated with an alpha of .05; the post hoc comparison between AA and NA families was evaluated with a Bonferroni-corrected alpha of .02 (i.e., .05 ÷ 3). STAIC-S = State Anxiety subscale; STAIC-T = Trait Anxiety subscale.
** $p < .01$.

Externalizing subscales, ANOVAs and follow-up comparisons for mothers' and fathers' ratings revealed that DA families had higher scores than AA and NA families; AA families had higher scores than NA families. For teachers' reports, DA families' scores were higher than those of AA or NA families, but the difference between AA and NA families was not significant. As is also summarized in Table 2, we analyzed the proportion of children in families surpassing the clinical cutoff for the CBCL and TRF scales (i.e., *T* score > 60). In the case of all raters, a significantly higher proportion of target children from DA families surpassed the clinical cutoffs than children from the AA or NA families, with no significant differences found between the latter families.

Children's self-reports. CDI, STAIC-S, and STAIC-T *T* scores also are shown in Table 2. On each of these scales, children from DA families had higher (more distressed) mean scores than children from the AA or NA families, and children from the AA families had higher scores than those from the NA families. A significantly greater proportion of children from the DA families surpassed the clinical cutoffs on these measures (i.e., $T > 60$) than children from the AA or NA families, with no significant differences between the children in the latter families.

Comparisons of DA, AA, and NA Families on Parental Conflict and Parenting Behavior

Comparisons of the DA, AA, and NA families on the parental conflict measures are shown in Table 3. Omnibus differences on each measure were significant; the pairwise comparisons revealed that the partners from the DA families had higher scores on these measures (i.e., indicating more distress) than partners from the AA and NA families. More-

Table 3
Mean (SD) Scores on Measures of Parental Conflict and Parenting Behavior for Parents From Families With a Drug-Abusing Father (DA), Families With an Alcohol-Abusing Father (AA), and Non-Substance-Abusing (NA) Families

Scale	DA	AA	NA	$F(2, 117)$	η^2
		Parental conflict			
CTS-MFV	$14.9\ (10.8)_{a,b}$	$10.4\ (11.3)_{b}$	5.1 (9.6)	8.58**	.13
CTS-FMV	$13.8\ (11.2)_{a,b}$	$9.1\ (10.6)_{b}$	3.8 (7.2)	10.37**	.15
OPS	$31.4\ (7.0)_{a,b}$	$22.9\ (6.6)_{b}$	15.9 (6.3)	54.67**	.48
		Parenting scales			
Fathers' PS	$3.6\ (0.9)_{a,b}$	$3.0\ (1.0)_{b}$	2.3 (0.9)	19.39**	.25
Mothers' PS	2.8 (1.0)	2.5 (0.8)	2.5 (1.1)	1.26	.02
Fathers' PM	$1.8\ (1.4)_{a,b}$	$2.4\ (1.3)_{b}$	2.8 (1.1)	6.26**	.09
Mothers' PM	3.1 (0.8)	3.2 (0.9)	3.5 (1.2)	1.80	.03

Note. Subscript a indicates a significant difference relative to the other two family types. Subscript b indicates a significant difference relative to NA families. Significance of the planned pairwise comparisons (i.e., DA vs. AA and DA vs. NA) was evaluated with an alpha of .05; the post hoc comparison between AA and NA families was evaluated with a Bonferroni-corrected alpha of .02 (i.e., .05 ÷ 3). CTS-MFV = Conflict Tactics Scale Male-to-Female Violence; CTS-FMV = Conflict Tactics Scale Female-to-Male Violence; OPS = O'Leary-Porter Scale; PS = Parenting Scale; PM = Parental Monitoring Scale.
** $p < .01$.

over, AA families had higher scores on each of the measures than NA families.

Comparisons of the DA, AA, and NA families on the parenting measures also are shown in Table 3. Mothers' and fathers' scores on the PS and PM were significantly different across the three family types. Pairwise tests revealed that scores of fathers in the DA families were significantly different from scores of fathers in the AA or NA families; AA fathers' scores were significantly different from NA fathers' scores. Scores indicated that fathers in the DA families made more negative disciplinary responses (i.e., higher PS) and engaged in less monitoring (i.e., lower PM) than fathers in the AA or NA families. Moreover, in comparison with fathers from the NA families, scores on these measures indicated that fathers in AA families made more parenting mistakes and engaged in less monitoring. Among mothers, scores on the PS and PM were not significantly different among the family types.

Mediation Effects of Parental Conflict and Parenting Behavior on Children's Symptoms

Before examining the relationships among the family contrasts (i.e., DA vs. AA and DA vs. NA), the seven potential mediator variables, and the outcome variables, it was first necessary to account for variance attributable to the control variables (i.e., mothers' and fathers' ASP and GSI). As a means of accomplishing this, the hypothesized paths from the noncontrol variables were freely estimated, and the control variables were fixed to zero. The model was then run iteratively, and on each run, the path for the control variable that had the largest modification index and also had a p value less than .01 was freed. This process was repeated until there were no modification indexes for control variables with p values less than .01. This resulted in freeing six paths: fathers' ASP to fathers' monitoring, externalizing, and the DA versus NA comparison and mothers' GSI to CTS-MFV, internalizing, and the DA versus NA comparison. To control for the effects of these variables, we included these paths in subsequently tested models. Next, we estimated all paths between the (a) family contrasts (i.e., the DA vs. AA dummy-coded variable and the DA vs. NA dummy-coded variable) and the seven potential mediator variables, (b) mediator variables and the internalizing and externalizing outcome variables, and (c) family contrasts and the internalizing and externalizing outcome variables.

We assessed the goodness of fit of the models using the robust CFI based on the Satorra–Bentler chi-square statistic (S-B robust χ^2; Bentler & Dudgeon, 1996). The S-B robust χ^2, which is preferable to a standard chi-square when data are highly nonnormal, was also used to assess fit (Bentler & Dudgeon, 1996). Fit for this model was poor, S-B robust $\chi^2(50, N = 120) = 77.19$, $p < .01$, robust CFI = .88, indicating the need for model modification. Thus, Wald W tests were used to eliminate paths so as to improve model fit. Paths were eliminated if the Wald W was nonsignificant; this process continued until all Wald W statistics indicated that elimination of paths would significantly increase the overall chi-square value (i.e., result in poorer fit). Eleven paths were eliminated through this procedure.

The final path model is shown in Figure 1, with significant mediation effects illustrated with dashed lines. Fit for this model was acceptable, S-B robust $\chi^2(58, N = 120) = 67.24$, $p = .19$, robust CFI = .96. For the DA versus AA contrast, the following mediation effects were significant (i.e., all z values greater than 1.96, based on Sobel tests): (a) fathers' PM to externalizing symptoms, (b) fathers' PS to

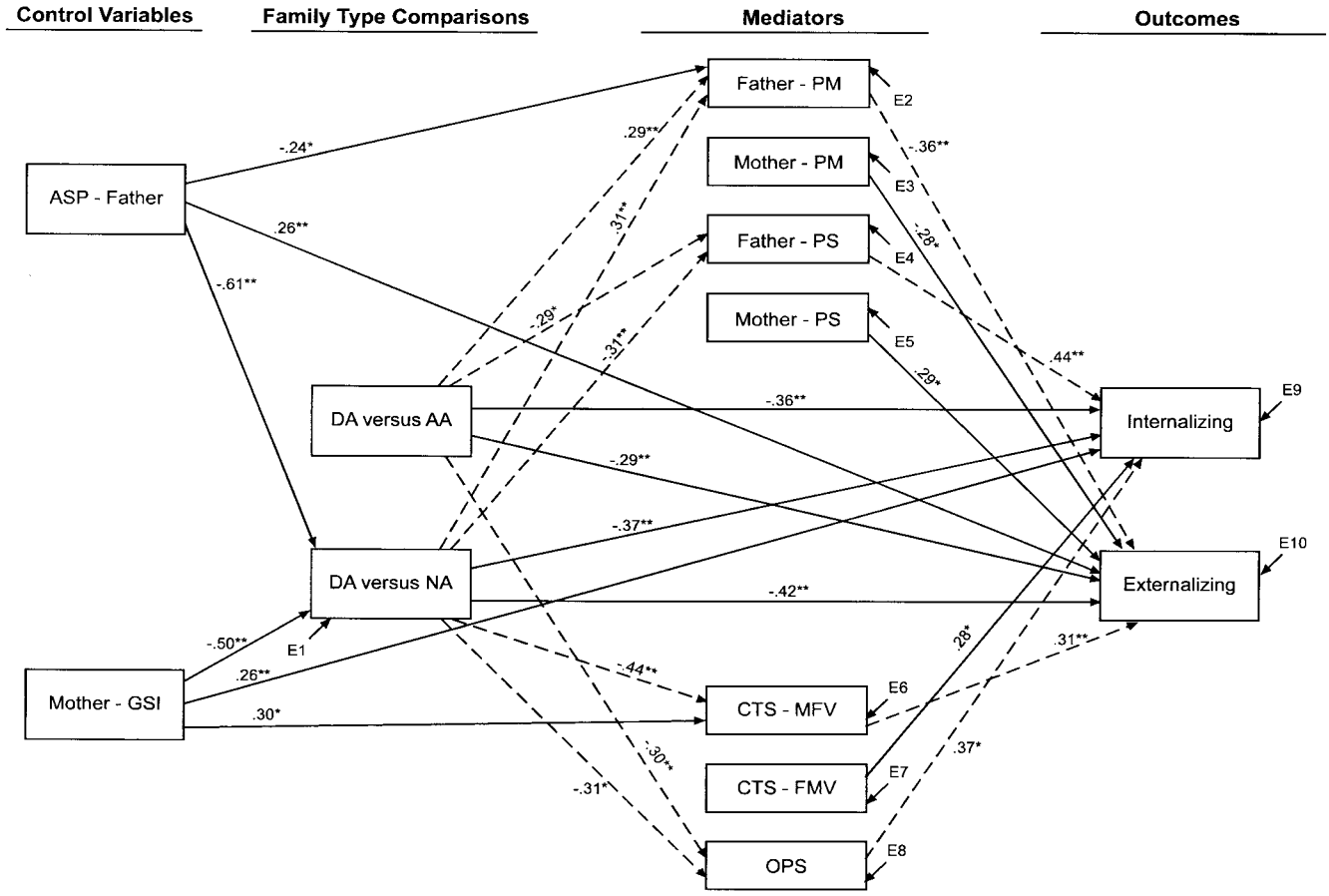

Figure 1. Structural model examining relationships of family type and internalizing and externalizing behaviors through mediating mechanisms of parental monitoring, parenting behaviors, partner physical conflict, and observation of parental conflict by the child. Mediation paths designated with dashed lines on the left and right of the column of potential mediators indicate a significant (i.e., $p < .05$) mediation effect. Standardized path coefficients are shown. ASP = antisocial personality disorder; GSI = General Severity Index from the Brief Symptom Inventory; DA = family with drug-abusing father; AA = family with alcohol-abusing father; NA = family in which parents did not abuse drugs or alcohol; PM = Parental Monitoring Scale; PS = Parenting Scale; CTS-MFV = Conflict Tactics Scale Male-to-Female Physical Violence; CTS-FMV = Conflict Tactics Scale Female-to-Male Violence; OPS = O'Leary-Porter Scale.

internalizing symptoms, and (c) OPS to internalizing symptoms. For the DA versus NA contrast, the following mediation effects were significant: (a) fathers' PM to externalizing symptoms, (b) fathers' PS to internalizing symptoms, (c) fathers' OPS to internalizing symptoms, and (d) CTS-MFV to externalizing symptoms. Because all direct effects between family type and internalizing and externalizing symptoms remained significant, all mediation effects were partial effects.[4]

Discussion

Reports from mothers, fathers, and teachers indicated that children from DA families displayed more internalizing and externalizing symptoms than children from AA or NA families. In addition, children from DA families reported significantly higher levels of both depression and anxiety than children from AA and NA families. Thus, across multiple evaluators and different assessment devices, we obtained support for the hypothesis that children from homes in which fathers abused cocaine or opiates would have more emotional and behavioral problems than those from homes with alcoholic or non-substance-abusing fathers.

We also hypothesized that parents from DA families

[4] Because the focus of this investigation was on comparing DA families with AA families and NA families, the pairwise mediation analyses between AA and NA families are not presented. These data are available from William Fals-Stewart on request. The sample covariance matrix used in the structural model is also available from William Fals-Stewart.

would display more interparental conflict and poorer parenting behaviors than would parents in AA or NA families and that these variables would mediate the differences in internalizing and externalizing symptoms among children from the DA, AA, and NA families. In comparison with parents from the AA and NA families, parents in the DA families reported a higher frequency of physical violence and reported that their children witnessed more marital conflict. Fathers in the DA homes reported more dysfunctional disciplinary practices and engaged in less monitoring of their children than did fathers in the AA or NA families. Mothers' parenting practices, however, were not significantly different across family types. Thus, mothers from the DA and AA families may have had a stabilizing influence in their respective homes; it is possible that mothers in these homes partially buffered their children from poor parenting on the part of the father, and further research is needed to address this possibility.

Differences in fathers' parenting behaviors and interparental conflict partially mediated certain adjustment differences among the children from the DA, AA, and NA families. More specifically, in DA families, relative to both AA and NA families, paternal monitoring of child behavior was a significant partial mediator of children's externalizing symptoms. This finding is consistent with a substantial body of research that links low levels of parental monitoring to delinquency and antisocial behavior, particularly in adolescence (e.g., Sampson & Laub, 1994). Similarly, in DA families, relative to AA and NA families, paternal discipline mistakes were a significant partial mediator of children's internalizing symptoms. Interparental conflict also was a partial mediator of child adjustment; in DA families, relative to AA and NA families, interparental conflict partially mediated children's levels of internalizing symptoms. This finding is consistent with the argument of Davies and Cummings (1994) that interparental conflict undermines children's sense of emotional security. This is a particularly notable finding in light of Fauber and Long's (1991) claim that various sources of family distress are contextual variables that can be reduced to problems in parenting; our results showed that interparental conflict accounts for variance in internalizing symptoms over and above that accounted for by parenting.

The direct impact of interparental functioning on child outcome was further supported by the finding that fathers' physical aggression toward the mother partially mediated children's externalizing symptoms. Children whose parents resolve conflicts through physical aggression may use similar strategies (in age-appropriate forms) with peers, thereby resulting in externalizing problems such as antisocial behavior. It is noteworthy that paternal violence was related to child outcome even when children's exposure to interparental conflict was controlled. This finding stands in contrast to previous claims that it is interparental conflict to which children are exposed that has an effect on them (e.g., Grych & Fincham, 1990). However, it should be noted that our measure of exposure to interparental conflict included only one item pertaining to physical aggression and is thus a poor indicator of child exposure to violence between parents.

Although we found certain hypothesized familial environmental risk factors associated with children's emotional and behavioral problems, it is also important to highlight that these children may develop and manifest psychosocial maladjustment because they are at genetic risk as well. Children's behavioral problems are moderately heritable; for example, 40%–80% of the variance in children's antisocial behavior can be accounted for by genetic factors (e.g., Rhee & Waldman, 2002). Because genetic risks were not examined in this study, it is not possible to disentangle genetic effects from the effects of family environmental factors on children's adjustment. It is plausible that the children from the DA families and, to perhaps a lesser extent, the AA families were at "double jeopardy" for developing psychosocial adjustment problems. These children are exposed to resident fathers who engage in comparatively high levels of antisocial behaviors (e.g., substance use and domestic violence) that are likely to exacerbate genetic vulnerabilities that may be present in the children.

However, it is important to note that, even though the children from the DA families had significantly higher levels of internalizing and externalizing behaviors than children from the other family types, the average *T* scores on the measures fell within the normal range. This also has been found in other studies in which the CBCL has been used with COSAs (e.g., Luthar et al., 1998; Stanger et al., 1999). Given the stressors in these homes, one would perhaps expect that subscale scores on these measures would be higher, reflecting more emotional and behavioral problems. Our finding raises several possibilities. First, children in these homes may be somewhat resilient to the poor environments to which they are often subjected. Second, because we recruited intact families in which mothers did not abuse drugs, it is plausible that mothers' influence served to offset, to a certain extent, the broad effects of the fathers' drug use and the poor home environments. Third, the CBCL requires parents to assess their children's behavior over the previous 6 months; thus, some problems these children have may not manifest themselves during this time period but may be evident over a longer time frame. Finally, we examined the functioning of a relatively young (i.e., preadolescent) cohort of children, and it is possible that the internalizing and externalizing symptoms they experience may not fully manifest themselves or reach clinical levels until these children reach adolescence. Others also have noted that adjustment problems in children become more evident as they mature (e.g., Mesman & Koot, 2000).

These findings have important clinical implications. As noted recently by Rutter, Pickles, Murray, and Eaves (2001), once likely mediating familial and environmental mechanisms of children's emotional and behavioral problems are identified, randomized trials can be conducted to test whether these mechanisms represent component causes. For example, because drug-abusing fathers were unwilling to allow their children to receive mental health services, our findings suggest that specific interventions with the fathers and the parents, designed to reduce parental conflict and develop parenting skills, may improve children's functioning. Findings from recent trials lend support for this hypoth-

esis. Kelley and Fals-Stewart (2002) found that, relative to parents who did not receive couples therapy, couples therapy for drug-abusing men and their female partners significantly improved the psychosocial adjustment of their custodial children, even though the children themselves did not participate in treatment. Furthermore, the effect of couples therapy on the psychosocial adjustment of the children appeared to be the result of reduced substance use by fathers and improved parental dyadic adjustment. In addition, Fals-Stewart, Fincham, and Kelley (2003) demonstrated that the addition of parent skills training to couples therapy improved the functioning of school-aged children living with drug-abusing fathers more than couples therapy alone. As such, these or other interventions to reduce parent conflict and improve parenting behaviors could be integrated into standard substance abuse treatment for drug-abusing fathers and potentially have important positive effects on their children. Interventions designed to address these family environment risk factors could serve to reduce the likelihood of exacerbation of any genetic vulnerabilities that may be present in the children of substance-abusing fathers. However, these hypotheses need further investigation.

The present study had several important strengths. To our knowledge, it is the most comprehensive examination of children and adults from two-parent families in which only the fathers were drug dependent. We collected information about children's functioning from multiple sources, including the children themselves. We used a relatively sophisticated recruitment strategy to obtain data from a non-substance-abusing comparison sample. Because the community sample was matched to the DA sample on important sociodemographic variables and recruited from the same neighborhoods as the DA families, many potential confounds (e.g., socioeconomic status and neighborhood influences) were controlled. Because we selected families in which only fathers were abusing drugs and mothers did not abuse drugs or engage in hazardous drinking during their pregnancy with the target child, our study also represents an examination of the isolated effects of postnatal social exposure to drugs on children's adjustment. Many studies of COSAs have recruited children whose mothers abused drugs during pregnancy, and thus these children were exposed in utero; as a result, it is not possible to disentangle the psychosocial effects of prenatal chemical exposure from postnatal social exposure to drug-abusing parents.

However, certain limitations of the study should also be highlighted. The sample sizes for family types were small, resulting in some underpowered analytic comparisons. Relatedly, we resorted to path-analytic approaches to study mediation and considered a fairly small number of variables in the model. A more comprehensive understanding of the family factors associated with internalizing and externalizing symptoms could be obtained with larger samples and a latent variable structural framework. The data collected were cross sectional and cannot be used to rule out other mediation models. For instance, the causal pathway in the models tested implied that the identified mediators were causally related to internalizing and externalizing adjustment problems. However, it is plausible that there are, either alternatively or concurrently, reverse causal effects. For example, poor psychosocial functioning among children may result in higher levels of partner violence, harsher disciplinary practices by parents, and so forth. Although we focused on the influence that parenting might have on child behavior, the influence of child effects on parents should not be overlooked.

It is also important to note that the DA and AA families were recruited from a treatment setting. Although investigations that have compared treatment-seeking and untreated persons with cocaine or opiate dependence have revealed similarities in terms of levels of substance use and rates of psychiatric disorders, treatment seekers tend to have more mood disorders, poorer social functioning, and more family problems (e.g., Carroll & Rounsaville, 1992). Thus, the severity of emotional and behavioral problems observed in children of fathers seeking treatment for drug abuse, and the factors associated with children's adjustment, may be different among children whose fathers are and are not seeking treatment. Given the sensitive nature of the data collected (e.g., data on illicit substance use and partner violence), it may be very difficult to obtain accurate information from drug abusers who are not seeking treatment, particularly drug-abusing fathers who are raising children. Because substance-abusing parents are self-identified by entering a drug abuse treatment program, some of the problems that are likely to occur when using a general survey approach to recruit such individuals (e.g., dissimulation, reluctance to participate, and fears regarding disclosing information about illegal behavior) are reduced.

It is important as well to emphasize that we collected data from families in which fathers abused drugs and mothers did not. Although this appears to be the most common couple type among married or cohabiting individuals entering treatment (e.g., Fals-Stewart, Birchler, & O'Farrell, 1999), other types of couples entering treatment include dyads in which both partners actively abuse drugs and couples in which only wives abuse drugs. The psychological profiles of children living in these homes will probably be different from those documented in the present study.

Finally, many fathers from the DA sample also met criteria for alcohol abuse or dependence. Thus, the role of alcohol misuse in children's adjustment in the DA versus AA families cannot be fully disentangled. It is important to emphasize, however, that the vast majority of men who enter treatment for drug addiction also meet criteria for alcohol abuse or dependence (e.g., Fals-Stewart et al., 1999). Thus, limiting the sample to men who have a problem with only cocaine or opiates and who do not meet criteria for alcohol abuse or dependence would result in a highly select sample.

In summary, our results indicate that children who live with drug-abusing fathers display more internalizing and externalizing symptoms than children who live with alcohol-abusing fathers and children in non-substance-abusing families. Families in which fathers abuse drugs were also marked by high levels of interparental conflict, physical aggression between parents, and poor parenting, all of which appear to contribute to child difficulties. These

findings point to the need to develop preventive interventions that support COSAs in middle childhood, before difficulties develop into more serious problems as they enter adolescence and adulthood.

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