

Fathers Who Abuse Drugs and Their Adolescent Children: Longitudinal Predictors of Adolescent Aggression

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This longitudinal study examines the relationship between earlier paternal drug abuse, environmental factors, paternal child-rearing practices, and adolescent vulnerable personality attributes and later adolescent aggressive behavior. Data were collected at two points in time, one year apart, via individual, structured interviews. Structural Equation Modeling (SEM) was used to assess the inter-relationship of the earlier factors with respect to later adolescent aggression. Interviews took place in an inner-city community, within the schools and the participants' homes. Participants included low-income, predominantly African American and Hispanic adolescents (N = 296) whose fathers abused drugs. The fathers were recruited from drug-abuse treatment programs in several U.S. cities. The outcome measure was adolescent aggressive behavior at Time 2 (T2). The findings showed that paternal drug abuse, environmental factors, and paternal child-rearing practices were mediated by the adolescent's vulnerable personality attributes. The adolescent's vulnerable personality attributes were the most proximal constructs to later adolescent aggressive behavior. Both paternal drug abuse and environmental factors were mediated by paternal child-rearing practices. The findings suggest that earlier environmental stresses, paternal drug abuse, paternal child-rearing practices, and adolescent vulnerable personality attributes are associated with later adolescent aggression. (Am J Addict 2007;16:410–417)

INTRODUCTION

Adolescent aggression is a significant public health problem. Aggressive adolescents are at high risk of using illegal substances and having physical and mental illness.^{1–7} Longitudinal research demonstrates that aggressive adolescents are at high risk for engaging in aggressive and criminal behaviors in later adolescence or adulthood.^{3,4,8,9} Furthermore, adolescents with

aggressive behaviors have difficulty in assuming adult roles such as marriage, parenting, and performing satisfactorily in the world of work.^{10,11} Consequently, it is important to identify the processes that contribute to the development of aggressive behavior in adolescence in order to further our knowledge of the etiology of aggression in adolescence, as well as to inform the design of preventive interventions.

During the past three decades, there have been a number of studies that have examined the risk factors for aggression in adolescents. Such psychological, behavioral, and attitudinal risk characteristics include earlier aggression, impulsivity, limitations in ego integration, and diminished empathy.^{12–14} Research has indicated that such personality attributes are highly associated with later adolescent delinquency, including aggressive behaviors.¹⁵ Interpersonal difficulty among adolescents has also been found to be related to aggression.^{16,17} Therefore, we have included the above dimensions in our study.

The offspring of parents with a history of anti-social behavior, including drug abuse, are at elevated risk for disruptive behavior problems in childhood, including aggressive behavior.¹⁸ Research has also demonstrated that paternal attributes, such as drug abuse, may indirectly affect the youth's aggressive behaviors by disrupting the father-child relationship.^{19,20} More specifically, a father with attendant stress who abuses drugs may engender a less cohesive and more stressful family environment.^{21,22} Such an environment predisposes adolescents to impaired personality development and aggressive behavior.

Common to a number of theoretical positions and prior investigations^{23–26} is the proposition that a distant father-child mutual attachment relationship, characterized by less affection, more conflict, less family cohesion, and lack of structure (eg, rules), is associated with an increased risk for the occurrence of vulnerable personality attributes in adolescents.^{13,18,27–30} Furthermore, fathers who are less caring and supportive^{31,32} and have conflictual relationships with their children may increase the

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children's risks for developing externalizing and internalizing symptoms, as well as problem behaviors.³³ Other investigators have indicated that positive family relationships, parental involvement, and parent-child attachment function as protective factors and tend to discourage the youth's initiation into problem behaviors.^{22,34}

Besides child-rearing factors, several investigators have provided evidence supporting the intergenerational transmission of problem behavior due to genetic mechanisms or broader environmental factors.³⁵⁻⁴¹ For example, environmental factors, such as victimization and exposure to violence on television, are associated with adolescent antisocial behavior and predict an immediate and sustained impact on aggressive and criminal involvement.^{36,37,39} The results of Sampson and Laub's study demonstrate that parenting may mediate the association between broader environmental factors and adolescent violence/aggression.⁴²

Several studies have linked adolescent aggression to fathers who are substance abusers.^{18,32,33,35} However, there have been no longitudinal studies that have examined the interrelation of a number of important psychosocial domains related to adolescent aggressive behavior in children whose fathers are substance abusers. Nevertheless, in a previous cross-sectional study,³⁵ our findings supported a mediational model: paternal attributes, environmental factors, and the father-child relationship were related to vulnerable personality attributes in the adolescent, which, in turn, were related to aggressive behavior. Because this previous study was cross-sectional, it is difficult to know whether earlier parent-child difficulty preceded later adolescent aggression. The present longitudinal study builds on our earlier cross-sectional study. This research is the first to provide data on the temporal order of these earlier important domains and later aggressive behavior in adolescents whose fathers are drug abusers.

The present research is also the first to report results from a longitudinal study of aggression in adolescent children whose fathers are drug abusers. These adolescents were exposed to environmental and familial stressors and had vulnerable personality attributes. Targeting such antecedent risk factors may assist us in better comprehending the earlier and complex predictors of adolescent aggressive behavior and identifying preventive interventions. Our developmental model was based on previously cited theoretical and empirical considerations. Specific hypotheses are as follows:

1. Earlier adverse environmental factors are inversely associated with later benign paternal child-rearing practices.
2. Benign paternal child-rearing practices are inversely associated with later vulnerable personality attributes in the adolescent.
3. The relation of paternal drug abuse and later adolescent aggression is mediated by paternal

child-rearing practices and adolescent vulnerable personality attributes.

4. Earlier adolescent vulnerable personality attributes are associated with later adolescent aggression.

METHODS

Participants and Procedures

The sample consisted of drug-abusing fathers and their adolescent children, who comprised the second wave of a longitudinal study ($N = 296$). Fathers initially had been recruited (at Time 1) through several treatment programs and community notices in New York City; San Francisco; Hartford, Connecticut; and Tempe, Arizona. Prospective male participants, who agreed to be interviewed along with their 12-20-year-old children, were pre-screened based on the following eligibility criteria:

1. drug abuse during the past five years, according to DSM-IV criteria and based on an adaptation of the University of Michigan Composite International Diagnostic Interview (UM-CIDI);
2. residence with the prospective child participant, or substantive contact with the child at least four times in the past year;
3. absence of either a severe physical health problem and/or an untreated major psychiatric illness, which might interfere with their ability to respond to interview questions (eg, AIDS dementia, bipolar disorder, or schizophrenia).

Fewer than 5% of potential participants did not meet the inclusion criteria. If the fathers had more than one eligible child, the eldest was selected, whenever possible.

Seventy-six percent of the fathers in the longitudinal sample reported a lifetime history of injection drug use at Time 1; the remainder of the fathers (24% percent) had used drugs through another route of administration, such as crack smoking. At T1, the mean age for the fathers was 42.1 years ($SD = 6.5$), and their median educational level was high school completion or having obtained a GED. Only 37% of fathers were employed at T1 (24% full-time and 13% part-time); the remainder of the fathers (63%) was unemployed, looking for work, retired, keeping house, or in treatment full-time. Their median household income range was \$10,000-\$15,000 per annum. The mean age of the adolescents was 16.3 years ($SD = 2.8$) at Time 1 (T1) and 17.2 years ($SD = 2.8$) at Time 2 (T2). Fifty-two percent of the adolescents at T2 were male. The median educational level for the adolescents at Time 2 was the tenth grade. According to the adolescents' reports, the ethnicity of the father-child pairs was: 47.3% African-American, 44.0% Hispanic (92% of which was Puerto Rican), 7.4% Non-Hispanic Caucasian, and 1.3% other.

Each father-adolescent pair was administered individual structured interviews by trained interviewers at

Time 1, separately and in private. For the present analysis, adolescents were re-interviewed (by the same interviewer, whenever possible) at Time 2, approximately one year later. A twelve-month interval between time waves was selected due to rapid behavioral transitions during adolescence, as well as the difficulty in retaining a highly transient cohort. Interviews took approximately 2 hours each, and all participants were paid for the interviews to compensate their time and effort. In keeping with institutional and federal guidelines for the protection of human subjects, written, informed consent was obtained from all participants. In addition, fathers or legal guardians provided written informed consent for their child's participation if he/she were under 18 years at T1. IRB approval was also obtained from the Institutional Review Boards of the New York University School of Medicine and the Mount Sinai School of Medicine. A Certificate of Confidentiality was obtained from the National Institute on Drug Abuse, prohibiting access to interview information.

Measures

We hypothesized four latent variables based on the T1 data: paternal child-rearing practices, paternal drug abuse, adverse environmental factors, and adolescent vulnerable personality attributes. The scales, sample items, and Cronbach's alphas for each of the independent measures appear in Table 1 (Cronbach's alphas for each scale are based on data with a sample size of $N = 505$ at T1). The Cronbach's alphas for these measures were satisfactory. The majority of the scales have been used extensively in prior research. They have been found to be reliable as attested by stability over several years and to predict future problem behavior, psychopathology (eg, anxiety, depression), and drug use.^{22,34,43}

The dependent variable, adolescent aggressive behavior at T2, was based on the findings of prior research.⁴⁴ In the present study, the measure of adolescent aggression consisted of five items that assessed the frequency of the adolescent's fighting at school or work, participating in a group fight, inflicting serious injury on another, quarreling, and participating in robbery. The response options for each of the 5 items ranged from 1 (never) to 5 (5 or more times). The Cronbach's alpha for the measure of adolescent aggression at T2 was 0.78, and the mean score was 9.3 ($SD = 4.1$).

RESULTS

Analysis

Latent variable structural equation models (SEM) were used to examine the hypothesized processes presented in Figure 1. SEM is a multivariate statistical method that evaluates both the measurement qualities of a set of variables used to measure a latent construct

(the measurement model), and the relationships among the latent constructs (the structural model). We used Maximum Likelihood methods to estimate the models by using LISREL VIII.⁵² The fit of the model was assessed with multiple indices: the root mean square residual (RMR), the goodness of fit index (GFI), and the comparative fit index (CFI). An examination of the total effects analysis (direct and indirect effects) of each latent variable on adolescent aggression estimated in the analysis of adolescent aggression helps in the interpretation of the structural coefficients. Figure 1 illustrates the obtained structural model, which specifies the pathways relating the independent latent variables to the dependent variable, adolescent aggression.

Using LISREL VIII structural equation programs, we tested the measurement model as well as the conceptual model. All factor loadings were significant ($p < 0.001$), which demonstrates that the manifest variables were good measures of the latent constructs.

Figure 1 presents the final obtained model with the standardized regression coefficients. A larger absolute value of the standardized regression coefficient reflects a stronger association among the latent variables. Based on the analysis of SEM, we obtained the following fit indices: $RMR = 0.057$, $GFI = 0.94$, and $CFI = 0.98$. These results reflect a satisfactory model fit. As shown in Figure 1, the findings indicate the following:

1. adolescent vulnerable personality attributes emerged as the most important mediating latent construct;
2. a second mediating latent construct was benign paternal-child rearing practices;
3. the latent constructs of environmental factors and paternal drug use predict each of these two mediating latent constructs;
4. there was an inverse pathway between these two mediating latent constructs (adolescent vulnerable personality attributes and benign paternal-child rearing practices); and
5. adolescent vulnerable personality attributes was the only latent construct that had a direct effect on adolescent aggression at T2.

All t -values were significant at $p \leq 0.05$, based on a two-tailed test (see Figure 1).

We computed the standardized total effects of each of the proposed latent constructs on adolescent aggression (T2). These results indicated the following:

1. the adolescent vulnerable personality attributes had the greatest total effect on adolescent aggression at T2 (standardized total effects = 0.67, t -value = 6.48, $p < 0.001$);
2. the adverse environmental latent construct had the second greatest total effect on adolescent aggression at T2 (standardized total effects = 0.36, t -value = 5.52, $p < 0.001$);

TABLE 1. Cronbach's alphas for father and adolescent scales at T1 ($N = 296$)

Scales and sources	Number of items in each scale	Sample item	Cronbach's alpha
Independent variables			
Paternal drug abuse ²²	4	How often have you ever used hard drugs like heroin, cocaine, crack, or pills like uppers, downers, or valium without a doctor's permission?	0.68
Paternal child rearing practices			
Identification ^{22,*}	10	How much do you admire your father in his role as a parent?	0.90
Conflict ^{45,*}	4	How often have you broken your father's rules?	0.79
Time spent ^{46,†}	3	Overall, how much time do you spend doing recreational things with your child?	0.76
Child-centeredness ^{45,*}	5	Your father gives you a lot of care and attention.	0.88
Family cohesion ^{22,†}	2	Family members really get along well with each other.	0.73
Adolescent vulnerable personality attributes			
Aggression (T1) ⁴⁴	5	How often have you ever had a serious fight at school or work?	0.75
Ego integration (low) ²²	5	You feel like losing your temper at people.	0.60
Impulsivity ^{44,47}	3	You often do things quickly without stopping to think.	0.58
Empathy (low) ⁴⁸	5	You are sensitive, that is, you care about how others feel.	0.66
Interpersonal difficulty ⁴⁹	6	You feel easily annoyed or irritated.	0.77
Obsessiveness ⁴⁹	4	How much were you bothered by worrying or stewing about things during the last year?	0.76
Rebelliousness ⁵⁰	10	If you don't feel like doing something you're told to do, you often put it off or just don't do it at all.	0.69
Environmental factors*			
Discrimination ⁴⁶	6	You have personally experienced discrimination when walking or spending time in your neighborhood.	0.81
TV violence ⁵¹	5	How many hours do you spend watching violent TV programs during an average week?	0.77
Victimization ⁵¹	5	How often did someone beat you up or throw something at you?	0.77
Child church attendance ²²	1	How often do you go to church to attend religious services?	NA (single-item scale)

*Adolescent report.

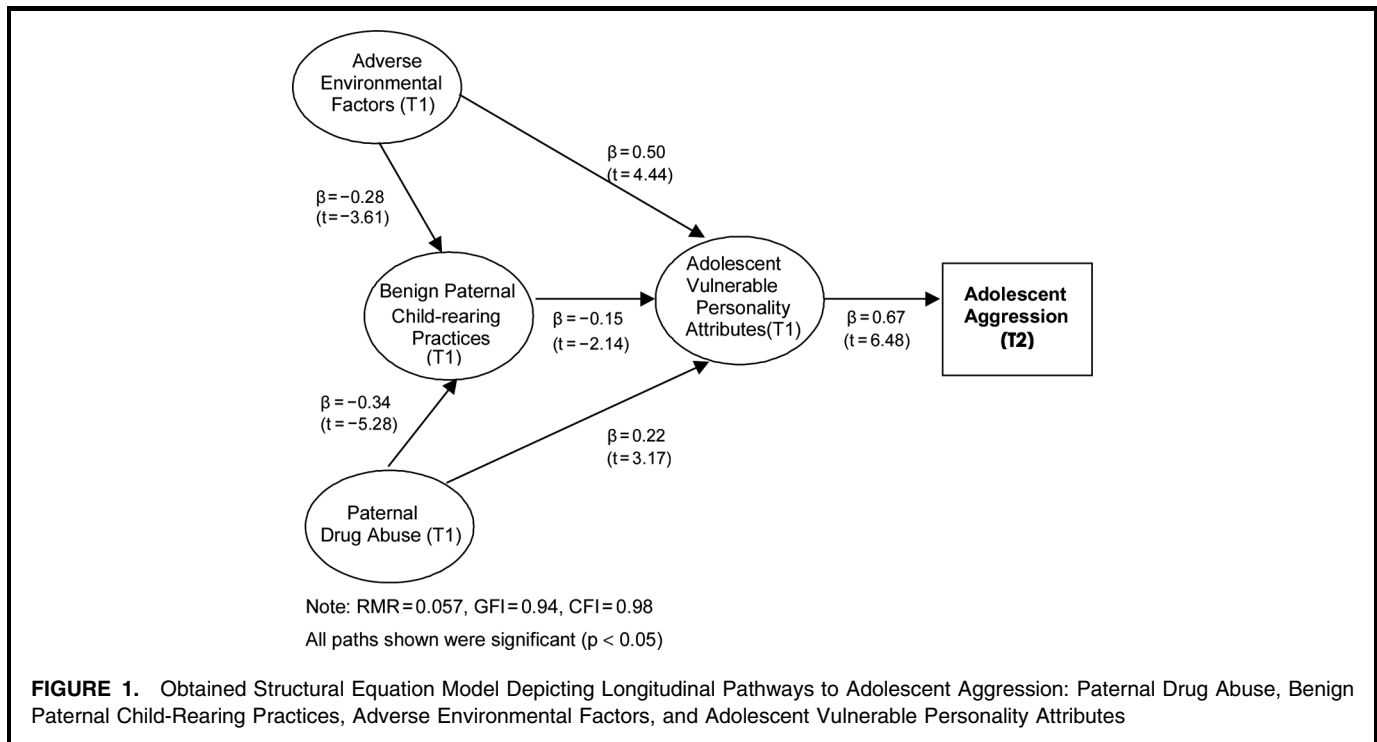
†Father report.

- the latent construct of paternal drug abuse had the third greatest total effect on adolescent aggression at T2 (standardized total effects = 0.18, t -value = 4.51, $p < 0.001$); and
- the latent construct of benign paternal child-rearing practices had the least total effect on adolescent aggression at T2 (standardized total effects = -0.10, t -value = -2.20, $p < 0.05$).

The t -values were each based on a two-tailed test.

DISCUSSION

To our knowledge, there are no longitudinal studies that have examined the pathways to later aggressive behavior in adolescents whose fathers are drug abusers. We hypothesized that paternal drug abuse and environmental factors are linked with paternal child-rearing practices, which, in turn, are related to vulnerable personality attributes in the adolescents. We also hypothesized a



direct path from the adolescent's personality at an earlier point in time to adolescent aggression at a later point in time. The findings supported the hypothesized model with one exception: although it had not been hypothesized (see Figure 1), in addition to the indirect path, there was a direct path from paternal drug abuse to adolescent vulnerable personality attributes. Thus, we add to the literature by testing a conceptual developmental model of earlier paternal drug abuse, environmental factors, paternal child-rearing practices, adolescent vulnerable personality attributes, and later aggressive behavior in adolescents whose fathers are drug abusers.

Our model showed both direct and indirect effects of earlier paternal drug abuse on later adolescent vulnerable personality attributes. The indirect effects of paternal drug abuse on adolescent vulnerable personality attributes were mediated by the father-child relationship. Consistent with other investigations, these findings suggest that a father who abuses drugs might engender a less cohesive and more stressful family environment. Such fathers may be more interested in obtaining and using drugs than in their children's development and therefore spend less time with the children, thus adversely affecting the father-child relationship.^{18,19,53}

In addition, a direct effect emerged in the pathway from paternal drug abuse to adolescent vulnerable personality attributes. Several research investigations have converged in supporting a link between paternal drug abuse and vulnerable personality attributes in the offspring.⁵⁴ One possible explanation for this finding is that fathers who abuse drugs experience intrapersonal

distress, have difficulty controlling their emotions and relating to others, and exhibit anti-social behavior.²⁵ Such paternal traits may negatively affect child-rearing techniques, but may also directly affect adolescent vulnerable personality attributes through the offspring's modeling of these adverse paternal characteristics. Vulnerable personality attributes in the adolescents predispose them to later aggressive behavior. Genetic factors may also play a role in any similarity between the father's and the child's personality attributes. Future research should illuminate the extent to which genetic factors interact with paternal and adolescent personality attributes, resulting in aggression in the adolescent.

Maladaptive paternal child-rearing practices were also related to vulnerable personality attributes in their children independent of paternal drug abuse. Our findings provide support for Family Interactional Theory (FIT),²² which suggests that adolescents raised in a family with a distant mutual parent-child relationship may be at an elevated risk for aggression. Our findings clarify the linkage between the father-child relationship and adolescent aggression by noting that difficulty in the father-child relationship is linked with increased aggressive behavior through the development of earlier adolescent vulnerable personality attributes.^{22,40}

Environmental factors were associated with adolescent vulnerable personality attributes, which in turn were related to aggressive behavior. The indirect effect of environmental factors on aggressive behavior is supported by previous studies, which have found that aspects of the adolescent's environment, such as victimization or

perceived discrimination, are highly associated with adolescent aggression.^{36,38} In addition, our findings are consistent with extensive research evidence indicating that adolescents' high exposure to various media experience, specifically to violence on television, is highly associated with later aggressive behavior.^{55,56} Our research clarifies the relationship between environmental factors and aggression by showing support for two mediating factors, namely, paternal child-rearing practices and adolescent vulnerable personality attributes. Of interest is that environmental factors were related to factors in both the paternal and offspring generations. These findings suggest that positive environmental factors may play a crucial role in benefiting parents and their offspring.

As we hypothesized, the latent construct of adolescent vulnerable personality attributes was associated with increased aggressive behavior, and also mediated all of the other latent constructs assessed (ie., paternal drug abuse, environmental factors, and paternal child-rearing practices). Our findings suggest that earlier adverse adolescent characteristics, such as limitations in ego integration and empathy, high rebelliousness, high impulsivity, and greater interpersonal difficulty, are associated with later adolescent aggression.

Limitations

Several limitations of our study must be considered. First, we have not included the role of the mother, as her impact has been more extensively documented in the literature than the father's role in his child's development. Future research would benefit from including data on the mother-child relationship in adolescence in order to obtain a more complete understanding of adolescent aggression. Our findings indicate that benign parental child rearing practices predict adolescent vulnerable personality attributes. However, Reiss et al. have suggested that parental behaviors are affected by genetically influenced traits of the child.⁵⁷ Nevertheless, our findings are in line with a causal interpretation, but our data cannot prove causality. Only by conducting experiments in which the probable causal factors are manipulated can we come close to proving causality. As noted by Neiderhiser and colleagues, genetic factors may explain to a large degree the relations of parental factors and adolescent antisocial behavior and depressive symptoms.⁵⁸ Future research would benefit from studying the interaction of genetic factors with the father's and child's personalities as related to aggression in the child.

CONCLUSIONS

The study has a number of important implications. We found support for a conceptual developmental model examining the processes that link environmental stressors

and paternal drug abuse to adolescent aggression. Understanding these mediating processes, including paternal-child relationships and adolescent vulnerability, has important implications for designing interventions for African American and Hispanic families (predominantly Puerto Rican families) in which the fathers are drug abusers. More specifically, such fathers should receive parenting training as early as possible to prevent maltreatment; to build affectionate, child-centered relationships; and ultimately to reduce the adolescent's risk for aggressive behavior. Adolescents who are vulnerable would also benefit from early prevention and treatment programs designed to reduce aggression. The results suggest that adolescents should be encouraged to avoid those settings where they are likely to be victimized. Related to this, our present findings also imply that reducing the youth's exposure to media violence might reduce the initiation of aggressive behavior. Parents, teachers, and child healthcare providers can encourage the media to provide a safer environment for adolescents, including the interactive media environment, such as video games and the Internet (the influence of the Internet on adolescent health has not yet been studied adequately) and the passive media environment, such as television. Finally, these findings suggest that efforts to strengthen the parent-child relationship, reduce adolescent vulnerability, and reduce aggression may be bolstered by policies that reduce neighborhood stressors, such as discrimination and victimization.

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