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Parental Substance Use Impairment, Parenting and Substance Use Disorder Risk

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Abstract

Using data from a nationally representative sample, this study investigated substance use disorder (SUD) among respondents ages 15-54 as a function of their parents' substance-related impairment and parents' treatment history. Additionally, associations among maternal and paternal substance-related impairment, specific parenting behaviors, and the risk for SUD in the proband were examined. As expected, parental substance-related impairment was associated with SUD. Paternal treatment history was associated with a decreased risk for SUD in the proband, but did not appear to be associated with positive parenting practices. Results of post-hoc analyses suggested that parenting behaviors might operate differently to influence SUD risk in children where parents are affected by substance use problems compared to non-affected families. Future research is warranted to better understand the complex relationships among parental substance use, treatment, parenting behaviors, and SUD risk in offspring. Opportunities might exist within treatment settings to improve parenting skills.

1. Introduction

More than 8.3 million children under 18 years of age (11.9 percent) lived with at least one parent who was dependent on or abused alcohol or an illicit drug during the past year (SAMSHA, 2009). There is an extensive and reliable literature that has linked parental substance use disorder (SUD) to an increased risk in their children of SUD as adults (Orford & Velleman, 1990; Velleman & Orford, 1993a; Kendler, Davis, & Kessler, 1997; Merikangas & Avenevoli, 1998), adolescent drug involvement (e.g., Clark & Winters, 2002; Rhee et al., 2003), and other negative outcomes, such as early conduct and behavioral problems and school failure (e.g., Luthar, Cushing, Merikangas, & Rounsaville, 1998). Research strongly supports that familial risk has both genetic and environmental components (Goldman & Bergen, 1998; Merikangas & Avenevoli, 2000).

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Family environments in which a parent has an SUD are often characterized as traumatic, chaotic and unpredictable, and can in turn, have adverse consequences for children living in such families (Velleman & Orford, 1993b; Kumpfer & DeMarsh, 1986; Kumpfer & Bluth, 2004). Several studies have demonstrated that parents who are active users of alcohol and other drugs have impaired parenting skills that exacerbate the high-risk nature of the family environment (Dunn et al, 2002). For example, research has demonstrated that parental SUD is associated with decreased levels of monitoring and supervision (Latendresse et al, 2008; Chassin, Pillow, Curran, Molina, & Barrera, 1993; Dishion, Capaldi, & Yoerger, 1999), poorer quality of parent-child interactions (Johnson & Leff, 1999; Brook, Whiteman, Balka, & Cohen, 1995; Brook, Brook, Arencibia-Mireles, Richter & Whiteman, 2001; Johnson, Cohen, Chen, Kasen, & Brook, 2006), parent-child conflict (El-Sheikh & Flannigan, 2001), perception of less parental warmth (Barnow, Schuckit, Lucht, John, & Freyberger, 2002) and inconsistent discipline (Kandel, 1990; Tarter, Blackson, Martin, & Loeber, 1993).

Longitudinal studies have identified pathways by which impaired parent-child relations in families with substance-abusing parents are associated with adolescent adjustment problems. As an example, low levels of parental monitoring are linked to deviant peer affiliation, increased drug exposure opportunities and later tobacco and other drug use (Brook, Pahl, & Ning, 2006). Moreover, there is evidence to suggest that the genetic risk may be partially manifested by difficult temperament characteristics (e.g., sensation-seeking, behavioral disinhibition), making parenting even more challenging with these high-risk adolescents (Mezzich, 2007; Pears, Capaldi, & Owen, 2007).

In contrast to the wealth of knowledge regarding family environments in which a parent has an SUD, few studies have focused on whether or not parental treatment for or recovery from drug problems modifies the risk of their child later developing an SUD. Moos & Billings (1982) compared 51 children of relapsed and recovered alcoholic patients with children from matched control families and found that children of relapsed alcoholics evidenced more symptoms of emotional disturbance than did control children but that children of recovered alcoholics were functioning as well as controls. In a similar study, Callan and Jackson (1986) found that children of recovered alcoholics and matched controls rated their families as happier and more trusting, cohesive, secure and affectionate than children of families in which fathers still drank alcohol.

More recent studies of children with parents in treatment have found similar results. In particular, in their study of 125 children of alcoholic fathers, Andreas et al. (2006) found that child adjustment improved when fathers received treatment for alcoholism and that fathers' recovery from alcoholism was associated with clinically significant reductions in child problems. Additionally, Andreas and O'Farrell (2007) found that children whose fathers remained mostly abstinent following their treatment showed lower levels of adjustment problems compared to children whose fathers continued to drink heavily following their treatment.

We could find only one study that failed to find a beneficial impact of parental recovery on child outcomes. In their study of 137 families with an alcoholic father and 130 matched control families, DeLucia and colleagues (2001) found that children of recovered alcoholic fathers exhibited more symptoms than did children of nonalcoholic fathers, suggesting that even though paternal alcoholism has remitted in these families, children of recovered alcoholic fathers might remain on a general higher risk trajectory relative to children of nonalcoholic fathers.

This small, but growing body of empirical research can benefit from more investigations regarding the nature of the association between parental SUD, parental treatment and

recovery, and risk for drug abuse later in life among their children. The present study analyzed data from the National Comorbidity Survey (NCS; Kessler, McGonagle, Zhao, & Nelson, 1994), to explore the relationships between parental substance abuse history, parental substance abuse treatment exposure, parenting behaviors, and the risk of developing an SUD. In the NCS, respondents provided information on themselves and behaviors of their mothers and fathers separately, allowing examination of the association between maternal substance-related impairment and maternal parenting behaviors, as well as analogous associations for fathers. The study had two primary purposes: 1) to evaluate the association between parental substance-related impairment and substance abuse treatment on parenting behaviors and, 2) to examine the extent to which the quality of the parent-child relationship, parenting behaviors and parental impairment were associated with the risk of SUD in the respondents.

2. Methods

2.1 Design of the National Comorbidity Study (NCS) and Analytic Sample

The NCS (Kessler, 1994) was conducted from 1990 to 1992 and collected data from a multi-stage area probability sample of civilians ages 15-54 living in non-institutionalized settings in the U.S. More than 8000 respondents were surveyed, of whom 5877 completed a supplemental interview that covered topics relevant to the present study, including parental history of substance-related problems and treatment.

The analytic sample consisted of 5632 respondents who completed Part 2 of the NCS interview and reported that they were raised by either their biological mother or father. These respondents are henceforth referred to as “probands” to distinguish them from their parents. Missing data were minimal; 86% of probands (N=4,860) had complete data across the 25 variables. However, missing data were most prevalent among variables pertaining to probands’ natural fathers (approximately 15% were not raised by their natural fathers, which might have limited their ability to report information pertaining their natural fathers).

2.2 Measures

2.2.1 Proband Substance Use Disorder (SUD)—Substance Use Disorder (SUD) in the proband was operationalized as having either DSM-III-R criteria for lifetime substance dependence or substance abuse. We collapsed across alcohol and other drugs because we were interested in the possible relationship between parenting behaviors and the severity of the addiction problem, regardless of the relation to alcohol or other drugs.

2.2.2 Parental Substance-related Problems and Treatment History—The NCS interview assessed the presence of problems (e.g., legal, health, marital or family, social or employment problems) with alcohol, nonmedical use of prescription drugs, and illicit drugs among the probands’ natural father and/or mother. Probands with a parent with an alcohol or other drug problem were then asked whether that parent (separately for fathers and mothers) had “impairment” (e.g., legal, health, family, social, or employment problems) as a result of these problems. Probands were only asked if their parent ever got professional treatment if they indicated both that their parent had a history of abusing substances and experienced “problems” or impairment associated with it. Unfortunately, there were no additional questions about the type of treatment received and the length of time in treatment.

2.2.3 Quality of Relationship with Parents and Parenting Behaviors—Probands were asked to rate the quality of their relationship with their mother and father (separately) while growing up as either excellent, good, fair, or poor. A dichotomous variable was created that collapsed categories into “excellent/good” or “fair/poor”. Additionally, eight

questions taken from the Parental Bonding Index (PBI; Parker et al., 1979) were asked regarding parenting behaviors for biological mothers and fathers (separately). Response options were: a lot, some, a little, or not at all. These items were dichotomized into two categories: a lot/some and a little/not at all. In our primary analyses, we analyzed these nine items separately. In a post-hoc analysis, to test the overall effect of “parenting”, a single score was created by summing across items (Cronbach alpha=0.76 and 0.80 for maternal and paternal parenting, respectively).

2.3 Statistical Analyses

All estimates were weighted to reflect sampling probabilities for selection in the NCS study. Our analyses took place in several stages. First, we generated descriptive statistics to describe the sample with respect to demographic characteristics, the prevalence of lifetime SUD among the probands, and the prevalence of parental substance use, impairment and treatment history.

Second, logistic regression models were developed to estimate the effect of maternal and paternal substance-related impairment and treatment history on the likelihood of lifetime SUD in the proband. All regression models controlled for gender (male), race (four categories with non-Hispanic white as the comparison group), age (range: 15-61), and years of formal education (range: 0-17). In addition to these covariates, models analyzing parenting items and the likelihood of SUD in the proband also controlled for age at first drink (range: 1-47).

Third, parenting items were compared between probands who had parents with a history of substance-related impairment from with those without impairment. These analyses used weighted frequencies and were conducted separately for maternal and paternal items. A series of nine logistic regression models tested the association between maternal impairment and specific maternal parenting items, and nine additional similar models were developed for paternal items. Next, the analyses were confined to probands whose parents met criteria for impairment, and a series of logistic regression models were developed to test the association between receiving treatment and the nine parenting items. Again, models were developed separately for mothers and fathers.

Last, logistic regression models were developed to examine the association between each maternal parenting item with SUD in the proband; another set of models were run for paternal parenting items with SUD. Two post-hoc analyses were conducted to examine the relative contributions of parenting items and substance-related impairment in the parent on risk for SUD among the probands. First, we examined the association between parenting practices and risk for SUD for probands with and without impaired mothers and fathers. Second, we evaluated a simultaneous logistic regression model that included four key independent variables: maternal impairment; paternal impairment, a summary parenting “score” for mothers; and the score for fathers. This model was run on the subsample of probands who were raised by both their mother and their father and held constant demographic characteristics.

Analyses were conducted in Stata version 10 (StataCorp, 2007) using survey commands that compute standard errors using first-order Taylor series linear approximation. Smaller numbers of mothers who received substance abuse treatment prohibited the estimation of weighted standard errors in some models. However, to better understand the relationship between maternal substance abuse treatment and proband SUD as well as the relationship between maternal substance abuse treatment and maternal parenting items, we ran these models unweighted. However, we also ran them weighted, treating strata with single

sampling units as certainty units scaled on the average variance from strata with multiple sampling units.

3. Results

3.1 Sample Characteristics

Table 1 describes the characteristics of the sample. The majority of the sample was non-Hispanic white, with equal gender representation. The sample was diverse with respect to age and educational attainment. Most respondents (82.9%) were raised by both biological parents, and 15.2% were raised by their biological mother only. Approximately one in six (17.4%) met DSM-IV-R criteria for lifetime dependence upon alcohol and/or an illicit or prescription drug and 26.8% met criteria for lifetime SUD.

One-quarter (25.4%) of the sample had fathers who had problems with alcohol or drugs and fewer (9.1%) had mothers with such problems. Almost one in five (19.5%) of fathers were “impaired” (i.e., had legal, health, marital or family, social or employment problems related to their substance use) compared to 6.1% of mothers. Only 2.5% of the sample reported impairment in both parents. Very few probands reported that their parents received treatment related to substance use impairment (i.e., 1.9% of mothers and 4.7% of fathers).

3.2 Parental Impairment, Treatment History and Proband’s Lifetime Risk of SUD

Table 2 shows that maternal substance-related impairment was associated with SUD in the proband (OR=2.19, $p<0.001$). Similarly, paternal impairment was significantly associated with increased risk for SUD (OR=2.38, $p<0.001$), as was having both maternal and paternal impairment (OR=3.17, $p<0.001$).

Treatment for substance abuse problems in fathers reduced the risk of SUD in the proband (OR=0.56, $p=0.010$). Small sample sizes precluded similar weighted analyses for mothers; however, unweighted and weighted analyses treating single strata as scaled certainty units showed that maternal treatment was not related to SUD in the proband.

3.3 Parental Substance-related Impairment, Treatment History and Parenting

Table 3 presents descriptive data on the difference in reported parenting items based on the presence or absence of a parent with substance-related impairment, along with the results of regression models that examine the association between impairment and parenting items, holding constant demographic characteristics. Maternal impairment significantly reduced the likelihood of all parenting items, with the exception of restrictiveness. With respect to fathers, all but two parenting items (overprotectiveness and babying) were associated with substance-related impairment.

No differences were observed when we compared individuals whose mothers or fathers received treatment with those who did not; therefore the data are not presented in tabular format. One exception was that maternal effort was greater in individuals who had mothers who received treatment. A weighted model with scaled certainty units indicated that probands raised by a mother with substance-related impairment who received treatment were more likely to report that their mother put in a high level of effort raising them (OR=2.26, $p=0.022$).

3.4 Parenting Items and Risk of Lifetime Substance Use Disorder

Table 4 presents the results of regression models describing the association between parenting items and the lifetime risk of SUD in the proband, holding constant demographic characteristics and age at first drink. Four parenting items were related to SUD risk

(regardless of parent gender): having a good parent-child relationship, a high level of understanding, a high level of confiding, and a high level of effort. Interestingly, one additional maternal behavior (consistency) and one additional paternal behavior (protectiveness) were found to be associated with a significantly reduced risk of SUD.

Post hoc analyses were performed to examine whether the associations between parenting items and risk of lifetime SUD differed based on parental impairment. These results indicated that parenting items appeared to play a less important role in predicting SUD risk in the context of parental substance-related impairment. Due to the small number of mothers with impairment, we were unable to test weighted models of the effect of parenting. However, unweighted models did not find that parenting items were related to SUD among probands with impaired mothers. Only one result was significant when models were run weighted treating stratum with single sampling units as scaled certainty units; in this model, babying increased the risk for SUD among probands with impaired mothers. Similarly, while several paternal parenting items were associated with SUD risk among probands with non-impaired fathers, none were significantly related to SUD risk among probands with impaired fathers.

The second post-hoc analysis tested the simultaneous effects of maternal and paternal impairment on proband SUD in a model that also included maternal and paternal parenting items and demographic characteristics among respondents raised by both parents. Results revealed that while maternal and paternal impairment retained statistical significance, maternal and paternal parenting items did not. Taken together, the results of the post-hoc analyses suggest that parenting behaviors might operate differently to influence SUD risk in children in families affected by substance use problems than in non-affected families.

4. Discussion

A number of important findings emerged from this study. In this large general population sample, we demonstrated that parental substance-related impairment was associated with a decreased likelihood of a number of positive parenting behaviors as reported by probands. This finding confirms prior work linking parental substance abuse with poor discipline skills (use of coercive control, harsh discipline, and failure to follow through), limited or absent parental monitoring, ineffective control of children's behaviors, problems regulating aggression, lower levels of parental involvement, and more negative parental behaviors (Keller, Cummings, & Davies, 2005; Smyth, Miller, Mudar, & Skiba, 2003; Pears et al., 2007).

We also found evidence that treatment among impaired fathers decreased lifetime SUD risk in probands, but did not find significant associations between treatment exposure and positive parenting behaviors. Without knowing more details regarding the treatment received, we cannot conclude that treatment in general does not improve parenting skills. On the contrary, the literature suggests quite the opposite. Indeed, in their study of parent training for 170 women in residential substance abuse treatment, Camp and Finkelstein (1997) found that women who received the training made improvements in self-esteem and made significant gains in parenting knowledge and attitudes. Similarly positive results have been demonstrated among heroin-addicted mothers participating in a Relational Psychotherapy Mothers' Group (RPMG; Luthar & Suchman, 2000; Luthar, Suchman, & Altomare, 2007). Further, preliminary results of the Partners in Parenting (PIP; Bartholomew, Knight, Chatham, & Simpson, 2002) intervention indicate that substance-abusing mothers who participated in PIP reported improved attitudes toward parenting strategies and reduced family conflict (Knight et al., 2007). Importantly however, the majority of parenting interventions for parents with SUD are geared toward mothers with

young children (generally less than 5 years of age). Developing and evaluating parenting interventions for the full range of parents with SUD is indicated. Specifically, it would be important to test the feasibility and effectiveness of implementing parenting interventions within the context of substance abuse treatment programs. Demonstration projects implementing the Nurturing Program for Families in Substance Abuse Treatment and Recovery, a group-based parenting program for families affected by substance abuse (Camp & Finkelstein, 1997; Moore & Finkelstein, 2001) and pilot work described earlier (Luthar & Suchman, 2000; Luthar et al., 2007; Knight et al., 2007) suggest that it is feasible to do so and that such interventions can improve parenting outcomes. Moreover, a variety of evidence-based parent training curricula are currently available to reduce children's aggression and behavior problems and increase social competence (e.g., the Incredible Years, see Webster-Stratton & Reid, 2010 for description) and to reduce risks and enhance protection against early substance use initiation in children and early adolescents (e.g., Preparing for the Drug Free Years, see Hawkins et al, 1988). However, research on the effectiveness of these interventions among substance-abusing parents is lacking, as is research on the effectiveness of these interventions when being delivered within the context of substance abuse treatment. Treatment settings might be appropriate settings for parenting education, but the extent to which treatment programs routinely offer such opportunities is unknown. In addition to examining the short- and long-term effects of these interventions on the children of parents in treatment, these studies also need to examine the effects of these interventions on parents' recovery.

Our post-hoc analyses indicated that protective effects of parenting behaviors on SUD risk might be diminished among parents with substance-related impairment. These findings underscore the complexity of the relationships among parental SUD, parenting behaviors, and child outcomes. Future research is warranted to understand these associations more fully. Specifically, it would be useful to know whether specific parenting behaviors are more important than others in mitigating the risk of SUD in families affected by substance abuse.

4.1 Limitations

A number of limitations of the study must be noted. First, our data are retrospective, limiting our ability to establish causality between childhood exposure to parental substance-related impairment and adult SUD. Moreover, we cannot make claims about the temporality of the association between parental treatment and SUD in the offspring since details were not available regarding the timing of treatment relative to the proband's SUD diagnosis. Also, our findings are subject to recall bias. For older individuals in the study, the time between their responses and the actual events was very long, for younger individuals, the time lapse was shorter, but not insignificant. All of our models controlled for proband age in the analysis to help minimize this problem. Although proband age is a covariate in various analyses, a proportion of respondents had not passed through the period of greatest SUD risk. Future studies with larger samples of older individuals with SUD parents are warranted. Generalizability of our findings is limited for three reasons: 1) the probands were a relatively homogenous white sample, the majority of whom were raised by both parents and hence the findings might not generalize to single-parent households or other types of households; 2) although missing data was minimal, data was most likely to be missing on variables pertaining to characteristics of natural fathers; and 3) these data were collected from research, albeit from a landmark study, that was conducted in the early 1990's. Because the number of mothers who received treatment for their substance abuse problems was small, we could not thoroughly explore the influence of treatment on maternal parenting behaviors. We were also limited by sample size to analyze the additive effects of having more than one parent who had substance-related impairment. These limitations withstanding, our study is one of only a handful of studies that has examined whether or not

parental treatment for alcohol and drug problems modifies the risk of later developing an SUD and the association between parental treatment and parenting behaviors, and it is the only one that has examined these issues using a large, nationally-representative dataset.

4.2 Directions for Future Research

While this paper extends a small literature on the relationship between parental SUD, parenting behaviors and SUD in probands, a number of questions remain. For example, does a positive relationship with and/or positive parenting skills of the non-SUD parent moderate the effect of the SUD parent? Is the role of the SUD parent in the family important? For example, does the SUD status of the primary caretaker mediate or moderate SUD risk and can this be impacted by the parenting skills of the other parent? Are there differential effects of these factors on the development of alcohol as opposed to drug disorders? What are the unique contributions of each parent's SUD among respondents with impaired mothers and fathers? Examinations of these questions can help to inform the development of interventions for parents with SUD. For example, if the parenting skills of the non-SUD parent can moderate the impact of the SUD parent, working with both parents during the substance abuse treatment episode would be important.

Expanding data elements in the various national databases is also indicated. For example, data from the 2007 National Survey of Substance Abuse Treatment Services (N-SSATS) indicate that 1,135,425 individuals were treated in the 13,648 reporting facilities on the survey reference date (Substance Abuse and Mental Health Administration, 2008). Although the N-SSATS survey provides a great deal of information about clients characteristics and services provided in substance abuse treatment programs, it does not capture data on how many clients are parents nor does it assess whether programs provide services that focus on parenting skills. Basic descriptive data is needed to help treatment providers understand the magnitude of the problem and to gauge how their programming compares with that of others across the nation.

4.3 Summary and Conclusions

Our study, using a large, nationally representative dataset, provides additional evidence for the link between parental substance abuse and risk for developing SUD in adulthood as well as for the deleterious effects of substance abuse on parenting behaviors. This coupled with the familial nature of addiction reinforces the importance that substance abuse treatment providers consider including parenting skills interventions during treatment. Patients who are parents represent a potentially important audience for prevention initiatives to mitigate the intergenerational transmission of SUD by modifying parenting practices.

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References

- Andreas JB, O'Farrell TJ, Fals-Stewart W. Does individual treatment for alcoholic fathers benefit their children? A longitudinal assessment. *Journal of Consulting and Clinical Psychology*. 2006; 74(1): 191–198. [PubMed: 16551157]
- Andreas JB, O'Farrell TJ. Longitudinal associations between fathers' heavy drinking patterns and children's psychosocial adjustment. *Journal of Abnormal Child Psychology: An Official Publication of the International Society for Research in Child and Adolescent Psychopathology*. 2007; 35(1):1–16.

- Barnow S, Schuckit MA, Lucht M, John U, Freyberger H. The importance of a positive family history of alcoholism, parental rejection and emotional warmth, behavioral problems and peer substance use for alcohol problems in teenagers: A path analysis. *Journal of Studies on Alcohol*. 2002; 63(3): 305–315. [PubMed: 12086131]
- Bartholomew, NG.; Knight, DK.; Chatham, LR.; Simpson, DD. Partners in parenting: A DATAR/First Choice treatment manual. Texas Christian University; Fort Worth, Texas: 2002. Retrieved October 25, 2010, from <http://www.ibr.tcu.edu/pubs/trtmanual/parenting.html>
- Brook JS, Whiteman M, Balka EB, Cohen P. Parent drug use, parent personality, and parenting. *The Journal of Genetic Psychology: Research and Theory on Human Development*. 1995; 156(2):137–151.
- Brook JS, Brook DW, Arencibia-Mireles O, Richter L, Whiteman M. Risk factors for adolescent marijuana use across cultures and across time. *The Journal of Genetic Psychology*. 2001; 162(3): 357–374. [PubMed: 11678369]
- Brook JS, Pahl K, Ning Y. Peer and parental influences on longitudinal trajectories of smoking among African Americans and Puerto Ricans. *Nicotine & Tobacco Research*. 2006; 8(5):639–651. [PubMed: 17008191]
- Callan VJ, Jackson D. Children of alcoholic fathers and recovered alcoholic fathers: Personal and family functioning. *Journal of Studies on Alcohol*. 1986; 47(2):180–182. [PubMed: 3713183]
- Camp JM, Finkelstein N. Parenting training for women in residential substance abuse treatment: Results of a demonstration project. *Journal of Substance Abuse Treatment*. 1997; 14(5):411–422. [PubMed: 9437610]
- Chassin L, Pillow DR, Curran PJ, Molina BSG, Barrera M Jr. Relation of parental alcoholism to early adolescent substance use: A test of three mediating mechanisms. *Journal of Abnormal Psychology*. 1993; 102(1):3–19. [PubMed: 8436697]
- Clark DB, Winters KC. Measuring risks and outcomes in substance use disorders prevention research. *Journal of Consulting and Clinical Psychology*. 2002; 70(6):1207–1223. Special Issue: Impact of Childhood Psychopathology Interventions on Subsequent Substance Abuse. [PubMed: 12472298]
- DeLucia C, Belz A, Chassin L. Do adolescent symptomatology and family environment vary over time with fluctuations in paternal alcohol impairment? *Developmental Psychology*. 2001; 37(2):207–216. [PubMed: 11269389]
- Dishion TJ, Capaldi DM, Yoerger K. Middle childhood antecedents to progressions in male adolescent substance use: An ecological analysis of risk and protection. *Journal of Adolescent Research*. 1999; 14(2):175–205.
- Dunn MG, Tarter RE, Mezzich AC, Vanyukov M, Kirisci L, Kirillova G. Origins and consequences of child neglect in substance abuse families. *Clinical Psychology Review*. 2002; 22:1063–1090. [PubMed: 12238246]
- El-Sheikh M, Flanagan E. Parental problem drinking and children's adjustment: Family conflict and parental depression as mediators and moderators of risk. *Journal of Abnormal Child Psychology: An Official Publication of the International Society for Research in Child and Adolescent Psychopathology*. 2001; 29(5):417–432.
- Goldman D, Bergen A. General and specific inheritance of substance abuse and alcoholism. *Archives of General Psychiatry*. 1998; 55:964–965. [PubMed: 9819063]
- Hawkins, JD.; Catalano, RF.; Brown, EO.; Vadasy, PF.; Roberts, C.; Fitzmahon, D.; Starkman, N.; Ransdell, M. Preparing for the drug (free) years: A family activity book. Comprehensive Health Education Foundation; Seattle, WA: 1988.
- Johnson JG, Cohen P, Chen H, Kasen S, Brook JS. Parenting behaviors associated with risk for offspring personality disorder during adulthood. *Archives of General Psychiatry*. 2006; 63(5):579–587. [PubMed: 16651515]
- Johnson JL, Leff M. Children of substance abusers: Overview of research findings. *Pediatrics*. 1999; 103:1085–1099. [PubMed: 10224196]
- Kandel DB. Parenting styles, drug use, and children's adjustment in families of young adults. *Journal of Marriage and Family*. 1990; 52(1):183–196.

- Keller PS, Cummings EM, Davies PT. The role of marital discord and parenting in relations between parental problem drinking and child adjustment. *Journal of Child Psychology and Psychiatry*. 2005; 46(9):943–951. [PubMed: 16108997]
- Kendler KS, Davis CG, Kessler RC. The familial aggregation of common psychiatric and substance use disorders in the national comorbidity survey: A family history study. *British Journal of Psychiatry*. 1997; 170:541–548. [PubMed: 9330021]
- Kessler RC, McGonagle KA, Zhao S, Nelson CB. Lifetime and 12-month prevalence of DSM-III—R psychiatric disorders in the united states: Results from the national comorbidity study. *Archives of General Psychiatry*. 1994; 51(1):8–19. [PubMed: 8279933]
- Knight DK, Bartholomew NG, Simpson DD. An exploratory study of “partners in parenting” within two substance abuse treatment programs for women. *Psychological Services*. 2007; 4(4):262–276.
- Kumpfer KL, Bluth B. Parent/Child transactional processes predictive of resilience or vulnerability to “substance abuse disorders”. *Substance use & Misuse*. 2004; 39(5):671–698. [PubMed: 15202804]
- Kumpfer KL, DeMarsh J. Family environmental and genetic influences on children’s future chemical dependency. *Childhood and Chemical Abuse*. 1986:49–91.
- Latendresse SJ, Rose RJ, Viken RJ, Pulkkinen L, Kaprio J, Dick DM. Parenting mechanisms in links between parents’ and adolescents’ alcohol use behaviors. *Alcoholism: Clinical and Experimental Research*. 2008; 32(2):322–330.
- Luthar SS, Cushing G, Merikangas KR, Rounsaville BJ. Multiple jeopardy: Risk and protective factors among addicted mothers’ offspring. *Development and Psychopathology*. 1998; 10(1):117–136. [PubMed: 9524811]
- Luthar SS, Suchman NE. Relational psychotherapy mothers’ group: A developmentally informed intervention for at-risk mothers. *Development and Psychopathology*. 2000; 12(2):235–253. [PubMed: 10847626]
- Luthar SS, Suchman NE, Altomare M. Relational psychotherapy mothers’ group: A randomized clinical trial for substance abusing mothers. *Development and Psychopathology*. 2007; 19(1):243–261. [PubMed: 17241493]
- Merikangas KR, Avenevoli S. Implications of genetic epidemiology for the prevention of substance use disorders. *Addictive Behaviors*. 2000; 25(6):807–820. Special Issue: Addictions 2000: Prevention of Substance Abuse Problems: Directions for the Next Millennium. [PubMed: 11125772]
- Merikangas KR, Stolar M, Stevens DE, Goulet J, Preisig MA, Fenton B, et al. Familial transmission of substance use disorders. *Archives of General Psychiatry*. 1998; 55(11):973–979. [PubMed: 9819065]
- Mezzich AC, Tarter RE, Kirisci L, Feske U, Day B, Gao Z. Reciprocal influence of parent discipline and child’s behavior on risk for substance use disorder: A nine-year prospective study. *The American Journal of Drug and Alcohol Abuse*. 2007; 33(6):851–867. [PubMed: 17994481]
- Moore J, Finkelstein N. Parenting services for families affected by substance abuse. *Child Welfare: Journal of Policy, Practice, and Program*. 2001; 80(2):221–238. Special Issue: Serving Children, Youth, and Families with Alcohol and Other Drug-Related Problems in Child Welfare.
- Moos RH, Billings AG. Children of alcoholics during the recovery process: Alcoholic and matched control families. *Addictive Behaviors*. 1982; 7(2):155–163. [PubMed: 7102446]
- Orford J, Velleman R. Offspring of parents with drinking problems: Drinking and drug-taking as young adults. *British Journal of Addiction*. 1990; 85(6):779–794. [PubMed: 2378995]
- Parker G, Tupling H, Brown LB. A parental bonding instrument. *British Journal of Medical Psychology*. 1979; 52(1):1–10.
- Pears K, Capaldi DM, Owen LD. Substance use risk across three generations: The roles of parent discipline practices and inhibitory control. *Psychology of Addictive Behaviors*. 2007; 21(3):373–386. [PubMed: 17874888]
- Rhee SH, Hewitt JK, Young SE, Corley RP, Crowley TJ, Stallings MC. Genetic and environmental influences on substance initiation, use, and problem use in adolescents. *Archives of General Psychiatry*. 2003; 60(12):1256–1264. [PubMed: 14662558]
- Smyth NJ, Miller BA, Mudar PJ, Skiba D. Protecting children: Exploring differences and similarities between mothers with and without alcohol problems. *Journal of Human Behavior in the Social*

Environment. 2003; 7(3-4):37–58. Special Issue: Women and Girls in the Social Environment: Behavioral Perspectives.

StataCorp. Stata statistical software: Release 10.0. Stata Corporation; College Station TX: 2007. computer program

Substance Abuse and Mental Health Services Administration. The NSDUH Report: Children Living with Substance-Dependent or Substance-Abusing Parents: 2002 to 2007. Office of Applied Studies; Rockville, MD: 2009.

Substance Abuse and Mental Health Services Administration, Office of Applied Studies. National Survey of Substance Abuse Treatment Services (N-SSATS): 2007. Rockville, MD: 2008. Data on Substance Abuse Treatment Facilities, DASIS Series: S-44, DHHS Publication No. (SMA) 08-4348

Tarter RE, Blackson TC, Martin CS, Loeber R. Characteristics and correlates of child discipline practices in substance abuse and normal families. *The American Journal on Addictions*. 1993; 2(1):18–25.

Velleman R, Orford J. The adult adjustment of offspring of parents with drinking problems. *British Journal of Psychiatry*. 1993a; 162:503–516. [PubMed: 8481743]

Velleman R, Orford J. The importance of family discord in explaining childhood problems in the children of problem drinkers. *Addiction Research*. 1993b; 1(1):39–57.

Webster-Stratton, C.; Reid, MJ. The Incredible Years Parents, Teachers and Child Training Series: A multifaceted treatment approach for young children with conduct problems. In: Weisz, JR.; Kazdin, AE., editors. *Evidence based psychotherapies for children and adolescents*. 2nd ed.. Guilford Press; New York: 2010.

Table 1
Sample Characteristics (N=5632)

Demographics	n	%
<i>Sex</i> (% male)	2821	50.2
<i>Race/Ethnicity</i>		
Non-Hispanic White	4309	76.6
Non-Hispanic Black	611	10.9
Hispanic	506	9.0
Other	197	3.5
<i>Age Category</i>		
15-24	1402	24.9
25-34	1725	30.7
35-44	1553	27.6
45-54	944	16.8
<i>Educational Level</i>		
0-11 Years	1193	21.2
12 Years	1970	35.0
13-15 Years	1306	23.2
16+ Years	1154	20.5
<i>Childhood Living Arrangement</i> (N=5631)		
Raised by Biological Mother Only	854	15.2
Raised by Biological Father Only	109	1.9
Raised by Both Biological Mother and Father	4660	82.9
<i>Lifetime Substance Use Disorder in the Proband</i>		
Any Alcohol Abuse	532	9.4
Any Drug Abuse	254	4.5
Any Alcohol or Drug Abuse Only	704	12.5
Any Alcohol Dependence	801	14.2
Any Drug Dependence	416	7.4
Any Alcohol or Drug Dependence	977	17.4
Any Substance Use (Alcohol/Drug) Disorder (Abuse/Dependence)	1506	26.8
<i>History of Parental Substance Problems</i>		
Any Maternal History of Substance Abuse Problems (N=5588)	507	9.1
Any Paternal History of Substance Abuse Problems (N=5334)	1369	25.4
Maternal & Paternal History of Substance Abuse Problems (N=5299)	225	4.2
Maternal Impairment from Substance Problems (N=5588)	343	6.1

Demographics	n	%
Paternal Impairment from Substance Problems (N=5334)	1052	19.5
Maternal & Paternal Impairment from Substance Problems (N=5299)	133	2.5
Maternal Treatment for Substance Problems (N=5573)	107	1.9
Paternal Treatment for Substance Problems (N=5271)	250	4.7
Maternal & Paternal Treatment for Substance Problems (N=5244)	9	0.2

NOTE: Unweighted sample sizes are indicated in parentheses. However, cell counts and percentages are weighted.

Table 2
Associations between Parental Substance Abuse, Treatment History and SUD in the Proband¹

Parental History ¹	SUD in Proband	
MATERNAL HISTORY	%	OR ³ [95% CI] p
No Maternal Impairment from Substance Problems	25.6	2.19 [1.61-2.98] p<0.001
Maternal Impairment from Substance Problems	42.9	
Maternal Treatment for Substance Problems ²	44.4	0.83 n/a ⁴
Maternal Treatment for Substance Problems ²	40.4	
PATERNAL HISTORY	%	OR ³ [95% CI] p
No Paternal Impairment from Substance Problems	22.6	2.38 [1.91-2.97] p<0.001
Paternal Impairment from Substance Problems	39.7	
No Paternal Treatment for Substance Problems ²	43.3	0.56 [0.36-0.87] p=0.010
Paternal Treatment for Substance Problems ²	29.4	
MATERNAL & PATERNAL HISTORY⁵	%	OR ³ [95% CI] p
No Maternal and Paternal Impairment from Substance Problems	24.8	3.17 [1.90-5.30] p<0.000
Maternal and Paternal Impairment for Substance Problems	51.7	

¹Estimates are weighted and based on available data among those raised by their "natural" mothers or fathers.

²Only probands whose mothers and fathers who were impaired by substance use were asked whether their parents received treatment.

³All models control for the proband's age, race, gender, and level of education.

⁴Standard errors for models testing the association between maternal substance abuse treatment history could not be calculated due to sampling strata with a single sampling unit, thus confidence intervals and test statistics are not available (n/a). Models were also run weighted with scaled certainty units as well as unweighted and were not significant.

⁵Estimates are based on those raised by their natural mothers and fathers.

Table 3
Associations between Parental Substance-related Impairment, Treatment History and Parenting Items

Parenting Items ¹	Among all probands raised by biological mothers (N=5510)			Among all probands raised by biological fathers (N=3681)		
	Maternal Substance Impairment		OR ² [95%CI] p	Paternal Substance Impairment		OR ² [95%CI] p
	No	Yes		No	Yes	
Positive relationship	86.6	57.7	0.24 [0.17-0.33] p<0.001	82.5	53.7	0.27 [0.22-0.35] p<0.001
High level of understanding	82.3	57.2	0.34 [0.25-0.47] p<0.001	68.8	42.0	0.36 [0.28-0.45] p<0.001
High level of confiding	75.2	49.8	0.38 [0.28-0.52] p<0.001	58.9	34.7	0.40 [0.32-0.51] p<0.001
High level of overprotectiveness	64.1	42.8	0.43 [0.32-0.58] p<0.001	56.2	52.9	0.85 [0.67-1.08] p=0.185
High level of babying	43.2	28.2	0.60 [0.44-0.83] p=0.002	32.0	29.1	0.84 [0.65-1.09] p=0.207
High level of effort	95.3	75.3	0.17 [0.11-0.25] p<0.001	87.7	66.3	0.28 [0.22-0.36] p<0.001
High level of restrictiveness	61.5	56.6	0.81 [0.59-1.11] p=0.195	57.3	50.7	0.75 [0.60-0.94] p=0.016
High level of strictness	75.6	62.0	0.54 [0.39-0.75] p<0.001	78.5	68.7	0.60 [0.47-0.76] p<0.001
High level of consistency	86.1	67.7	0.35 [0.25-0.49] p<0.001	84.4	70.6	0.47 [0.36-0.61] p<0.001

¹ Estimates are weighted (subsampling sizes are indicated in parentheses).

² All models control for probands age, race/ethnicity, gender, and level of education.

Table 4
Associations between Parenting Items and Lifetime Substance Use Disorder in the Proband¹

Maternal Parenting Items	SUD in Proband (%)	OR [95%CI] p	Paternal Parenting Items	SUD in Proband (%)	OR [95%CI] p
Quality of Relationship			Quality of Relationship		
<i>Fair/poor</i>	36.0	0.57 [0.46-0.71] p<0.001	<i>Fair/poor</i>	34.0	0.61 [0.49-0.74] p<0.001
<i>Excellent/good</i>	25.0		<i>Excellent/good</i>	23.1	
Level of understanding			Level of understanding		
<i>Little/not at all</i>	34.0	0.66 [0.54-0.80] p<0.001	<i>Little/not at all</i>	30.8	0.66 [0.54-0.79] p<0.001
<i>Some/A lot</i>	24.9		<i>Some/A lot</i>	22.7	
Level of confiding			Level of confiding		
<i>Little/none at all</i>	32.9	0.71 [0.59-0.85] p<0.001	<i>Little/none at all</i>	29.5	0.68 [0.56-0.81] p=0.001
<i>Some/A lot</i>	24.4		<i>Some/A lot</i>	22.3	
Overprotectiveness			Overprotectiveness		
<i>Little/none at all</i>	29.8	0.89 [0.75-1.05] p=0.160	<i>Little/none at all</i>	31.9	0.73 [0.61-0.88] p=0.001
<i>Some/A lot</i>	24.8		<i>Some/A lot</i>	20.6	
Level of babying			Level of babying		
<i>Little/none at all</i>	27.3	1.00 [0.84-1.19] p=0.987	<i>Little/none at all</i>	28.3	0.90 [0.73-1.11] p=0.310
<i>Some/A lot</i>	25.8		<i>Some/A lot</i>	19.7	
Level of effort			Level of effort		
<i>Little/none at all</i>	43.5	0.47 [0.34-0.66] p<0.001	<i>Little/none at all</i>	33.0	0.70 [0.55-0.89] p=0.193
<i>Some/A lot</i>	25.5		<i>Some/A lot</i>	24.2	
Restrictiveness			Restrictiveness		
<i>Little/none at all</i>	29.5	0.90 [0.76-1.07] p=0.222	<i>Little/none at all</i>	28.9	0.89[0.55-0.89] p=0.193
<i>Some/A lot</i>	24.8		<i>Some/A lot</i>	23.2	
Strictness			Strictness		
<i>Little/none at all</i>	32.0	0.81 [0.68-0.97] p=0.022	<i>Little/none at all</i>	28.6	0.90 [0.72-1.11] p=0.304
<i>Some/A lot</i>	24.8		<i>Some/A lot</i>	24.7	

Maternal Parenting Items	SUD in Proband (%)	OR [95%CI] p	Paternal Parenting Items	SUD in Proband (%)	OR [95%CI] p
Consistency			Consistency		
<i>Little/none at all</i>	34.4	0.75 [0.60-0.93] p=0.008	<i>Little/none at all</i>	29.2	0.84 [0.66-1.06] p=0.150
<i>Some/A lot</i>	25.2		<i>Some/A lot</i>	24.8	

Estimates are weighted and based on available data among those probands who were raised by their “biological” mothers or fathers. All models control for proband’s age, race/ethnicity, gender, and level of education, and age of first drink.